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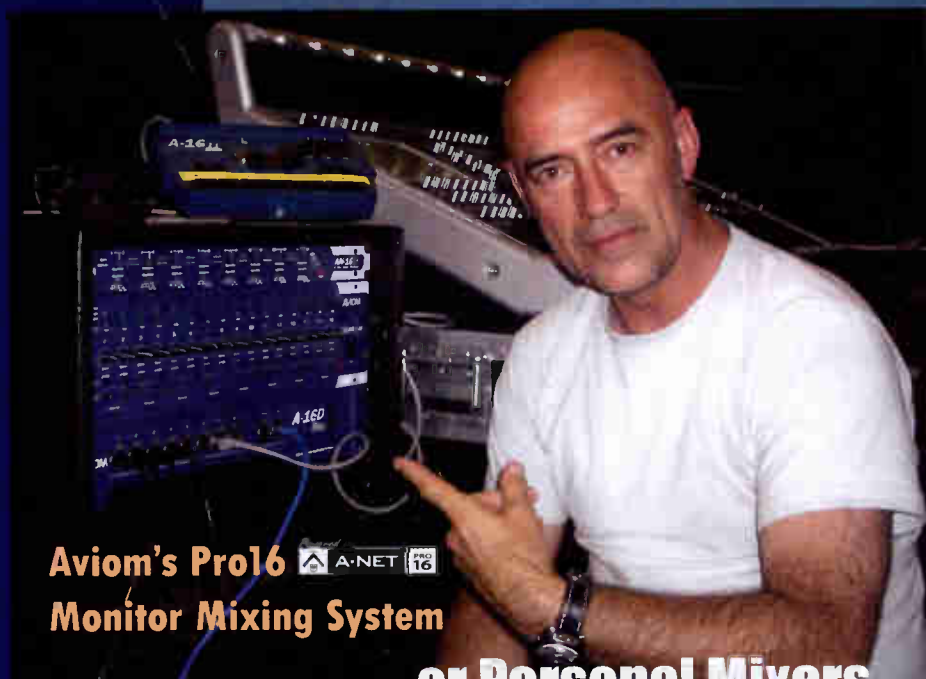
World Radio History

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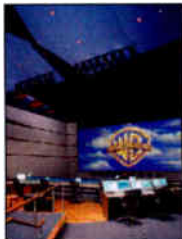
MIX

PROFESSIONAL AUDIO AND MUSIC PRODUCTION

April 2006, VOLUME 30, NUMBER 4



On the over: The Neve DFC 2 on Warner Bros. brand-new Stage 9 is helmed by re-recording mixers John Reitz, David Campbell and Gregg Rudloff, now working on *Poseidon*. **Photo:** Benny Chan. **Inset Photo:** Courtesy Cirque du Soleil.



features

SOUND-FOR-PICTURE SPECIAL

The decade-old buzzword in television is "high definition." Whether that encompasses the pipeline for digital transmission, recording live-for-TV productions or bringing a station into the surround-capable realm, post engineers, composers, facility owners and networks are finally ready to take advantage of more audio channels and higher-resolution streams. And just in the nick of time.

34 Satellite Radio

XM and Sirius. One has the numbers, the other has Howard Stern. But both satellite radio channels have recently beefed up production capacity, with new facilities, new gear and a real push toward live events and original music programming.

40 Hi-Def Backbone

Given the FCC's 2009 "turn-off" date for analog terrestrial television, any upgraded or new broadcast/post facility needs a technical infrastructure that will allow for transferring and distributing digital data throughout every step of a station's audio chain.

48 Essentials for Going Surround—A Studio Checklist

If you're looking to bring your facility into the surround age, much of the gear that has taken root in your space won't have to be put into storage. But there are a few pieces that you'll need to get on the surround bandwagon.

54 Recording Live Music for TV

With all the demand for programming to fill 500 channels, live music is making a huge resurgence on television. From 32 years of *Austin City Limits* to *Live From the World Music Cafe* to the explosion on iN DEMAND, recording engineers are getting the most out of their tracks.

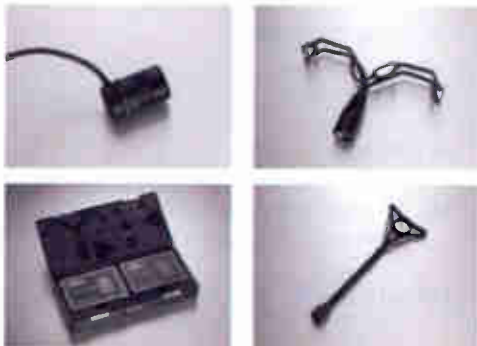
70 Spotting for Episodics

For years, scoring music for TV was a stripped-down version of the art and process used on a theatrical feature. Although the same attention to detail is still needed, newer gear allows TV composers to create the "unseen actors" in their bedroom studios.

Check Out Mix Online! <http://www.mixonline.com>

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Idea Factories

A little bit of all of us died last week. I went by Mike Quinn's Electronics in Oakland, Calif., and saw the "Closed—Out of Business" sign in the window. Sure, there are plenty of other electronics parts sources, locally and through catalogs or Websites, but this one was different.

Born out of a creaky metal quonset hut near the Oakland Airport, this San Francisco Bay Area fixture served the inventor/hobbyist/experimenter for decades with a seemingly endless supply of electronic junk. A power supply from this, a main board from that, whole units, pieced-together prototypes, and more cables, components and semi-describable stuff than you could imagine—all with price tags leaving the buyer with no reason not to bring home an assortment of treasures to clutter that garage/workshop.

But beyond serving as a cheap-parts source, places like Quinn's offer inspiration. A couple of years ago, after the last day of NSCA Orlando, I visited Skycraft Surplus (a similar outlet in nearby Winter Park), and sure enough, about half the manufacturers from the show were there—including innovators such as John Meyer and Hartley Peavey—sifting through its offerings.

At one time, just about every town had a "by-the-pound" surplus joint, but like drive-in theaters and full-service gas stations, these are a dying breed. Now I'm not overly nostalgic about the "good old days," because there's not much fun in going back to a 1970s-era ¼-inch reel-to-reel multitrack and small mixer setup that cost more than today's 24-track, disk-based recording rig. Driven largely by micro-electronics, today's world is a much different place; it's pretty hard to salvage the "good" capacitors off a four-layer surface-mount board, and even minor mods to such gear are nearly impossible. With this in mind, the parts store becomes a metaphor—much like the inventor's workbench—and just one piece in the formation of an idea.

We live in a hybrid hardware/software world, driven by incremental changes, with few real breakthroughs. Today, the clock ticks toward the FCC-mandated digital television changeover, but aside from more programs and improved sound/picture, will DTV create a *real* revolution? Probably nothing like the stir caused by the first commercial radio and TV broadcasts, which caused entire families to huddle in their living rooms, mesmerized by the sounds and pictures beamed into their homes from afar. The talking motion picture of 1926 not only forever changed the medium, but brought the need to create large, high-fidelity playback systems—the birth of modern sound reinforcement.

As a more recent example, consider Apple's iPod—it's a cool, personal playback system, but so was Sony's Walkman. But combined with Internet music distribution, the portable MP3 player becomes a true revolution. In pro audio, true innovations are few and far between. The capabilities of today's recording workstations are lightyears beyond those of tape multitracks, but the evolution of the DAW now goes back nearly a quarter-century—hardly an overnight success.

Walking around this month's NAB show, there will be much that will awe and inspire. But the surest bet in Las Vegas? The next Thomas Edison will more likely be writing code into a keyboard than tinkering at a workbench.

George Petersen
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Letters to Mix



DON'T GIVE YOUR DRIVES THE DEEP FREEZE

I was just reading the December 2005 issue article by George Petersen, "Safeguarding Sonic Treasures," and had to write. On the first page, he mentions a suggestion by Steve Smith of putting drives in "the fridge" for safe storage. I think this suggestion should be retracted: Your readers risk total data loss by doing this, depending on how they interpret the suggestion.

I have worked in the storage industry for 20 years or so, and now work as an engineer in the external storage group of a major manufacturer. Drives that fail after being stored for a period of time without use usually fail as a result of one of the heads sticking to the media surface. The media surfaces of more recent drives are specially coated and/or textured to help prevent this. I don't have the experience to know whether this is still an issue, but if I were to resort to storing my HDD as a means of data protection and my data was critical to my business survival, I would use 2.5-inch HDDs rather than 3.5-inch—and not in the fridge! These [HDDs] typically have ramp loading: The heads are retracted and lifted off the media by a ramp structure. They also have a much higher shock tolerance because the media cannot be damaged by physical contact of the heads and media in handling.

Putting the drive in the fridge is basically creating a worst-case environmental test for a drive. By rapidly taking a drive from a low-temperature environment to a higher-temperature one, you will get condensation on everything inside. You then spin the drive up and the heads will hit this condensation, lose flying height and damage the media and/or head(s). This would be true of 2.5-inch or 3.5-inch drives. The thermal stress itself is enough to cause physical changes in mechanical components and electrical connections.

RAID is a difficult subject to briefly cover, but this is the best solution for those situations where data is this critical. Run the drives con-

tinually in the RAID solution, which manages itself if a drive goes down. Take out the bad drive, replace it and move on.

Drives are shock-sensitive, ESD-sensitive and chemically sensitive, so find an ESD bag to put your drive in or wrap it in aluminum foil first. Do not drop on the table from any height. Silicone and some common solvents or adhesives can damage the media. Seal the drive in something that will not have these chemicals.

Do not put your drives in the fridge with the milk and bacon, or worse yet—ice cream!

Barry Klein

Barry,
First of all, Steve Smith *never* recommended storing drives in the freezer, but mentioned the "drive freeze" as a poor-man's last-minute means of resuscitating a stuck hard drive. As Smith relates in the article, a non-responsive drive should be turned over to a data recovery professional, but not everybody has thousands to spend on such services. Of course, the best remedy is to make sure your important sessions are backed up on different media—optical and magnetic—stored in several locations. —George Petersen

MONEY TALKS—IN AUDIO SPEAK, THAT IS

Thanks so much for hitting the mark in your "From the Editor" (December 2005). Poor choices often kill a project; dead before it breathes. I am often hired to remix projects that were recorded at "budget" studios with inexperienced recordists (not really engineers at all). Trying to fix these projects at the mix stage is really not a wise use of financial resources. The recording process does *not* start at the "fix it in the mix stage"; there really is no such stage.

Clients are better off working at facilities with engineers who invest themselves in the project, whether they are house engineers or freelancers. As engineers, our names are on the projects—we must best represent the music we are hired to record/mix, as well as our own beliefs and integrity. And as you say, with the current state of the industry, deals on studio time at great rooms are out there if you look.

George Walker Petit
Freelance engineer/producer
www.petitjazz.com

GREEN ROOM THEORIES

I've heard that theater Green Rooms are green ("Live Mix News," January 2006) because early theatrical lighting was gas light; gas lights cast a yellow-green glow. Having green in dressing

rooms helped get makeup right. The green cast was supposed to be hard to get people to look "right" onstage.

I saw this on a BBC show called *Connections* five, 10 years ago. I often work in theater and enjoy finding out where all the weird nomenclature and traditions come from.

Andrew
Ottawa, Ontario

I've mostly heard this term in live theater. There the origin seems well known. Yes, the Green Room is where the actors wait for their entrances, but it is also where they get paid (the green).

Peter Kurland

A PLEA FOR HUMAN-MADE MUSIC

Paul D. Lehrman's article "Marketing to Myself" ("Insider Audio," February 2006) was an amazing summary of the condition of the recording studio and the marketplace today. For us "older analog-grown" studio owners, his comments on the so-called liberation of digital, freedom of the Internet and the end of studios as we know them rang like the hook in a song with more than one chord or drum machine rhythm.

Our first studio in Chicago was in the lower level of a coach house. We pushed out a beat-up truck, locked the bullet-ridden garage door and became a 4-track facility, with a 3440, some beat-up Olson electronic mics and a window air conditioner. That was 1978.

For the next 20 years, we grew, [got] better mics, a 9-foot grand and made lots of jazz and blues CDs. But around me, the music industry shrank: fewer bands, no income for analog tape charges, the influx of rich yuppies that make *big* money and raise taxes.

As the equipment presented more freedom, the little 4-track studio became an ancient system. So we have moved again, this time to rooms with windows, away from the "death quiet" of digital. We still use digital, especially since I never cut off one of my fingers with a razor blade on a late-night ½-inch edit. Only now we wait for a new generation of musicians that actually play and compose with humans and dreams. And that is after 28 years. We don't need higher sampling rates; we need higher forms of music.

Bradley Parker-Sparrow
Partner, Sparrow Sound Design
Partner, Southport Records

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MURRAY ALLEN, 1930-2006



He worked with big bands and small ensembles; played clarinet and recorded raucous guitar; headed up small, tight-knit TV audio crews and large, film-style videogame teams. In a music and recording career that spanned 50-plus years, Murray Allen saw and heard it all. He passed away January 19 in his San Francisco home. He was 76 years old.

Born and raised in Chicago, Allen was playing piano by age 6 and clarinet by 8. When he was 13, he was being paid to play music, though his academic interests leaned toward physics. At 16, he fronted his own band with a regular gig at the Moraine Hotel in Chicago; after high school, he enrolled at the Illinois Institute of Technology. Those two threads—music and science—would remain in balance throughout his life, the former tapping his creative side, the latter making him one of the recording industry's foremost problem-solvers.

As a player, he performed with the likes of Glenn Miller, Frank Sinatra, Perry Como and Stevie Wonder. As an engineer, he recorded Ramsey Lewis, Stan Kenton,

for leading videogame designer Electronic Arts. As one *Mix* writer said, "Murray never looked for ways to make what *he* did look good; Murray looked for ways to make any project the best it could be." That's a fitting tribute to anyone who worked a life in audio.

With assistance from SPARS, a few thoughts on Murray Allen:

"Murray had forgotten more about the recording industry than a lot of people who are in it today know. Somehow I can hear Murray saying to God, "You can't record a choir that way; here, let me show you how." Murray Allen: good musician, good recordist, great guy. —Mike King, *Audio Recording Unlimited*

"Murray Allen was a true Recording Man. He and I loved to do record dates. Murray was a fantastic flautist, clarinetist and high-caliber musician. He was also a businessman to the core. Murray made a very positive footprint on the industry that we love so much." —Bruce Swedien

"Murray was responsible for one of the happiest days of my life when he offered me my first job in recording at Universal Recording in 1975. The pro audio community has felt a large drop-out with the loss of Murray Allen." —Bob Bennett

"I recall early contacts with Murray when he hosted our students as interns and entry-level employees at Universal Recording and at EA, and his continued contributions to conferences, conventions, seminars and workshops for the AES. He was always available, and genuinely concerned with the training and development of qualified students." —Roy Pritts, *University of Colorado at Denver*

"Murray had an appreciation for great things, without compromise, and respect for those who 'got it done.' I'll never forget my last visit to EA. I noticed a trumpet on Murray's table. Being a trumpet player, I asked about it. He told me that he played the lead on 'Tequila.' Murray's legend lives on in more ways than one." —Phil Wagner, *SSL president*

"I interviewed Murray for his position at EA. I instantly knew he was the right man for the job; what I didn't know was how much I would come to love and respect him as a person, friend and even as a 'second father.' He was always the first one in the office, doing side gigs and constantly traveling the world. It seemed like most people half his age also had half his energy." —Don Veca, *audio development director, Electronic Arts*

"A pioneer, a true pro and a class act. I have fond memories of our conversations over the years, unique insights peppered with war stories and a scamp's sense of humor. He will be greatly missed." —David Schwartz, *Mix co-founder*

"We lost a great friend in Murray. Besides being extremely skilled in the art, science and business of recording, he was a gifted storyteller. I will miss the 'good old days' of having a drink with Murray and talking about life in and out of the recording business." —Steve Lawson, *Friendly Voice*

"He was always contemporary no matter how many years he spent in our business. He always pushed himself and everyone around him to explore new frontiers, always striving for excellence. He was also a committed volunteer, having spent many years contributing his time and talent to the Recording Academy and SPARS, among others. Every time I saw Murray, I learned something new."

—Leslie Ann Jones, *Skywalker Sound*

Steve Allen, Duke Ellington and hundreds of others. In the early 1970s, he became president of Universal Recording in Chicago and brought in a string of major recording and post-production projects during the next decade and a half. At its peak, Universal employed just over 400 people. Imagine that in today's climate.

Allen led many other audio lives during the years: president of SPARS, director of the groundbreaking audio in the Grammy telecasts, head of audio

BUCHANEK JOINS CUPS 'N STRINGS

Sabrina Buchanek has joined Cups 'N Strings Studios (Santa Monica, Calif.) as re-recording mixer and sound editor. Her impressive list of credits includes feature films (*Species*, *The Fantasticks*) and TV specials (*Inside Look: Down From the Mountain*, *Run for Cover*, *Dial H for Hitchcock*). In several television series, such as *The Crusaders* and *For Better or For Worse*, she has handled all aspects of post-production sound, including editing, sound design and mixing music, dialog and effects. As a music recording engineer and mixer, she has worked with Fleetwood Mac, Robert Palmer, Missing Persons, and Jimmy Jam and Terry Lewis, among many others.

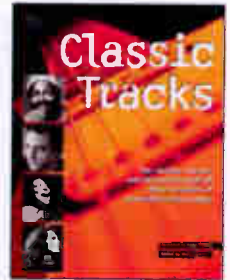
A graduate of Indiana University with a degree in Recording and Audio Reinforcement,



Buchanek received the Promax Muse Gold and Silver Awards, Aurora Platinum and Gold Awards, Omni Silver and Bronze, and AXIEM Silver Awards for her work on promos and trailers, including *Hannibal*, *Gone in 60 Seconds*, *Ace Ventura: Pet Detective* and *X-Men*.

GO BACK IN TIME

Take a cruise down memory lane to those great hits that have appeared in *Mix's* "Classic Tracks" column, such as "Papa Was a Rolling Stone," "Only the Lonely" and "London Calling." Retive—through the producer's and engineer's eyes—how these classic tracks began as just a single artistic idea to become a smash hit. *Mix's* senior editor, Blair Jackson, picks 30-plus of the best recording stories and presents them in *Classic Tracks*. Mixbooks, www.mixonline.com/mixbookshelf.



STUDIO WATCH: TIME FOR AN UPGRADE

RT/SOS KEEPS IT FLOWING

Right Track/Sound on Sound (<http://righttrackrecording.com>) has completed renovating Studio A at its main 168 West 48th St. location. The project follows the refurbishing of Studio C. (See February 2006 "Current.") One of four music recording studios at the facility, Studio A boasts Sound on Sound's 72-input SSL 9000 J Series console and a full complement of outboard gear. The studio has been rewired, and its large control room now has new work areas, including a Pro Tools quiet bay to abate noise from the system's computer and hard drives. Audio engineer Cynthia Daniels was first in with two recording sessions for New York Confidential Big Band's new album. Hip hop artist Jim Jones was next to book time to mix his new CD for Koch Records. Now, hard rock group Red Jump Suit Apparatus has moved in to mix their new release for Virgin Records.



WM ENHANCED BY MW

Phoenix-based artist/producer Wade Martin's new state-of-the-art project studio, WM Studios (www.wmstudios.tv), was outfitted by MW Audio, which developed a quote for a Pro Tools-based facility within the 14x16-foot control room that links to a 15x15 tracking room and companion vocal booth.

"The company didn't steer me wrong," Martin said of his experience working with MW Audio. "The equipment that [MW Audio general manager] Jimmy Church and his team supplied for my new studio is perfect for this multifunctional environment, where I handle everything from archiving to mixdown."

The equipment package includes an Apple G5 PowerMac running Digidesign Pro Tools|HD3 Version 7 with a Digidesign Control|24 control surface. Monitoring includes ADAM Audio P11a, Event PS6, Genelec 7070A and M-Audio SBX units. Recent projects completed at the new facility include a solo album, *How Did You Know*, which was tracked at Martin's Las Vegas facility.

TEKSERVE SERVES UP TECH UPGRADE

Alice's Restaurant owner Mark Plati (www.markplati.net) decided that his New York City-based facility needed a tech upgrade when his Mac G4 blew a tire, his SCSI II drives were aging and running on OS 9 was causing compatibility issues. Plati—an engineer, producer and musician for David Bowie for seven years—turned to Tekserve's Chris Payne (head of the company's pro audio department) and Derek Davis (senior pro audio technician) to complete the job.

"I needed an entirely new computer music setup, which meant a CPU, a Pro Tools|HD mix system, audio interfaces, cabling, HD storage, OS X plug-ins—the works," said Plati, who also used his new system at Electric Lady Studios. "I also wanted to upgrade Logic Audio to 7.1 and get some additional goodies I'd always wanted. I wanted a system that would last and not become outdated in six months. I'd been resisting such a jump, and [Tekserve] made it completely painless. There was a bit of a learning curve involved with the new system, further complicated by the fact that I had to begin doing sessions on it immediately, and they helped me through that, as well."



GRANT MAXWELL, 1959-2006

Re-recording mixer Grant Maxwell died in Hackensack, N.J., in early January after an eight-month battle with leukemia. Maxwell began his audio career at Regent Sound Studios (New York City) more than 25 years ago. In 1984, he joined the newly established audio post-production facility Sync Sound, also in New York City. During the next 21 years, Maxwell contributed his mixing talents to numerous projects, garnering him three Emmy Awards and five Cinema Audio Society Award nominations.



His list of credits includes feature films, documentaries, TV series/specials and music concerts, including the Tom Fontana-created *Oz*, *Homicide: Life on the Street*, the CBS documentary *9/11*, *Peter Jennings Reporting*, Barbara Walters specials and Stephen King's *The Stand*.

Maxwell is survived by his wife, Dorothea, and sons Dan and Greg. The family is grateful for donations to the Leukemia and Lymphoma Society and the Susan G. Komen Breast Cancer Foundation, in memory of Grant Maxwell.

WAS HE OR WASN'T HE?

Producer Don Was stopped by Selah Recording (Detroit) in early February to work on his upcoming album, *Was Not Was*, which is slated for release late this year. Engineer Dylan Koski-Budabin helped man the Pro Tools 5.1 system

The studio also recently hosted Grammy-nominated artist/producer Mario Winans, who was in working on his sophomore project for Bad Boy/Warner Bros.

PHOTO: BILL TAYLOR



From left: studio owner Doreonne Stramler, Dylan Koski-Budabin (seated) and Don Was

11TH ANNUAL MIX L.A. OPEN

It looks like another sell-out year as a record number of companies have already signed on to take part in the 11th Annual Mix L.A. Open. Presented by the Mix Foundation for Excellence in Audio, the tournament is set for Monday, June 12, 2006, at the Malibu Country Club. Proceeds will benefit the House Ear Institute's Sound Partners program (www.hei.org) and L.A.-based Sound Art (www.soundartla.org).

The Mix L.A. Open is a "best-ball" tournament that attracts golfers of all levels. Registration and a continental breakfast begin at 8 a.m., with the shotgun start at 10 a.m. The awards dinner and silent auction are scheduled for 3:30 p.m. Space is limited, so golfers should make their reservations early. For information about sponsorships or entry fees, go to <http://mixfoundation.org/LAopen/LAopen.html> or call Karen Dunn at 925/939-6149.



MIX FOUNDATION SCHOLARSHIP OFFERED

Applications for the 2006 TEC Awards Scholarship Grant are currently being accepted. The scholarship grant(s) is offered to students in audio education programs. Recipients are selected by the board of directors of the Mix Foundation for Excellence in Audio and are announced at the annual TEC Awards ceremony. For more information, go to <http://mixfoundation.org/hearing.html> or call Karen Dunn at 925/939-6149.

INDUSTRY NEWS



Bob Muniz

Numerous appointments at APT (Belfast, Ireland): **Gregory Massey**, CTO; **Stephen Wray**, licensing business manager; **Chris Clotworthy** and **David Trainor**, senior DSP engineers; **Hartmut Foerster**, WorldNet Oslo audio codec product manager; **Guy Gampell**, Asian sales manager; and **Indigon**, exclusive distributor in South Korea...**Bob Muniz** joins **EAW's** (Whitinsville, MA) engineering team as senior electrical engineer...**LOUD Technologies** (Woodinville, WA)

appointed **Doug White** to the new position of VP for the MI brand group (Alvarez, Ampeg, Crate, Crate Audio and TAPCO)...New market manager, recording products for **Lexicon** (Salt Lake City) is **Jeff Phillips**...**Chris Latzelsberger** is now heading product management responsibilities for all of **Telex Communications'** (Burnsville, MN) RTS products, while **Mark Gubser** assumes the same responsibilities for the company's Audiomcom

product line. In other company news, Telex sales representative **Vision2 Marketing** (Nashville) added **Edward Frebowitz** and **Jessie Taylor** to its sales team...**Craig Paller** has been named VP of worldwide sales for **BSS Audio** (Sandy, UT)...Based out of Cerwin-Vega's Chatsworth, CA, headquarters is **Kim Comeux**, national sales manager...**Martin Audio's** (Kitchener, Ontario) new national sales manager is **Irv Weisman**...New distribution deals: **AXI** (Rockland, MA) appointed **Heavy Moon Inc.** (Tokyo) to distribute the Reso Audiotechnics product line in Japan; **Brauner Microphones** (Rees, Germany) is outsourcing all international distribution and sales activities to **S.E.A. VertrieB & Consulting GmbH**; **GC Pro** (NYC) is **Euphonix's** (Palo Alto, CA) primary U.S. sales channel for the new MC Media Application Controller; **Linear Acoustics** (Lancaster, PA) named **Sonotechnique** (Toronto) as its distribution channel for Canada; and **Summit Audio** (Watsonville, CA) is the sole distributor of **Bricasti Design Products** (Medford, MA) in the U.S.

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Mike Shipley Studio
Hollywood, CA

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Mike Shipley

Mix Engineer (Nickelback, Michele Branch, Shania Twain,
Maroon 5, Green Day, Tom Petty, Aerosmith)

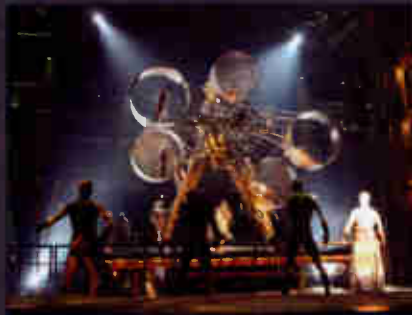
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Get more road notes from the engineers behind the boards at these top-selling shows: The Cult, Lucinda Williams and Fort Minor. Also check out what Williams used on her last outing in 2004.



Cirque du Soleil

Browse through our expanded gallery or the Cirque du Soleil phenomenon *KÀ*, including photos from the spectacular performance and those of the engineers behind the music.

**Field Test:
Yamaha HS50M**

Mix reviewer Michael Cooper also took out the Yamaha HS80M, the HS50M's big brother, for a spin. What did he discover?



NOTES FROM THE NET

BURNLOUNGE THRIVES ON COMMUNITY SPIRIT

A community-powered digital music service that allows users to sell music to friends, BurnLounge is currently offering a public beta of its consumer version. The service provides fans with proprietary software and an expansive catalog of music (provided by Loudeye) from major (EMI Music, Sony BMG, Universal, Warner Music Group) and independent record labels, as well as unsigned artists, giving users the ability to create and operate their own digital music stores.



BurnLounge also features a community chat function called BonFire, which lets users communicate with friends on AOL Instant Messenger, Yahoo Instant Messenger, MSN Messenger or ICQ. "We are thrilled to launch a service that enables music fans to have their own online 'corner record store' and promote the music they love," said Ryan Dadd, co-founder/president/COO of BurnLounge. "BurnLounge allows a fan to have a fully functioning download store without knowing anything about site design, credit card processing or licensing. All they need to know is what music they love and then tell their friends about it."

Visit www.burnlounge.com for monthly/yearly pricing structures.

STRONGROOM PURCHASES AIR STUDIOS

Richard Boote, owner and managing director of Strongroom (www.strongroom.com) recording studios, has purchased AIR Studios (www.airstudios.com), the world-class recording facilities established and chaired by legendary Beatles producer Sir George Martin, from Chrysalis Group PLC and Pioneer GB Limited.



Sir George Martin (left) and Richard Boote inside AIR's Lyndhurst Hall control room

Martin, chairman of AIR Studios, said, "What I love about AIR is that as well as being a great studio, it has a well-deserved reputation for friendliness and efficiency. People who record here always want to come back. I am very happy that we are now associated with Strongroom, a company that shares our ideals and our dedication to recording high-quality music. I am confident that Richard will continue to promote and develop AIR as a world-class recording facility."

According to Boote, "Clients will benefit from an expanded and more varied pool of technological knowledge and experience, a wider choice of studios and access to a much broader range of state-of-the-art audio and video post-production facilities." For example, AIR's post clients will have access to packages including Strongroom's offline and online HD video post facilities, while Strongroom's clients will be able to use AIR's Lyndhurst Hall studio for orchestral and large-scale acoustic recordings.

CORRECTION

In the January 2006 "Orchestral Recording" article, the caption for Allen Sides incorrectly says that he is leaning over a Captitol custom API console. The console (a custom Delcon) is at Ocean Way Recording's Studio B.

Mix regrets the error.



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Saul A Walker

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Warner Bros. Sound Facility

By Larry Blake

A disproportionate number of great sound jobs of the '70s and '80s came not from the major studios themselves, but from independent Hollywood facilities such as Todd-AO and Samuel Goldwyn Studios. In the early '80s, Warner Bros. Studios purchased the Goldwyn lot, and Warner Hollywood continued the tradition, with its flagship re-recording stages A and D hosting dozens of notable mixes during the past 25 years.

Knowing that Warner Bros. would walk away from its lease in Hollywood at the end of 2005 (the studio had sold the physical facility in 1999), the Warner Bros. post-production services department in 2002 presented many replacement options to management in terms of size and location.

During the next three years, the Warner Bros. staff—led by Norm Barnett, senior VP post-production services; Kevin Collier, director of engineering; and Robert Winder, VP of operations—formulated the design of a new facility on its Burbank lot. The team was joined in 2004 by industry veteran Kim Waugh, who came over from a long stint at Soundelux and Ascent Media to become the VP of post-production services.

While they did consider having one large and one small stage, it soon became obvious that a matched pair would be much easier to book, with no client having to feel that they had the “lesser” room.

The result was a 52,000-square-foot facility with two feature re-recording stages and associated edit suites. Each stage contains a client area that is lavish even by Hollywood standards: complete kitchen and lounge area with a 70-inch TV, private bathroom and shower, and outdoor patio.

Also on the first floor is a spacious ADR stage, the new home of mixer Tom O'Connell. The ADR stage, control room and Green Room are all larger than normal to accommodate the talent and studio “backfields” that have become the norm. O'Connell's colleague next door at Warner Hollywood, renowned Foley artist John Roesch, is moving to the Burbank lot, making his new home on a freshly remodeled



PHOTOS: BOB BEERSH



From left: VP of post-production services Kim Waugh; re-recording mixers John Reitz, David Campbell, Gregg Rudloff; supervising sound editor Richard King; re-recording mixer Ron Bartlett; senior VP of post-production services Norman Barnett. Inset: director of engineering Kevin Collier.

Foley stage this spring.

The second floor contains 14 DVD mastering/compression suites, each of which is on an independent slab with a floating foundation. The separate machine room contains a full rack of equipment for each of the rooms, including nonlinear video playback, Pro Tools and legacy Sonic Solutions NoNOISE systems connected via SonicNet.

Immediately adjacent in the new building, although built to less-rigorous standards than those required for sound post-production, are the new offices and editorial suites for Warner Bros. Pictures Feature Post-Production Department. This 20,000-square-foot area is structurally isolated from the sound wing by a 9-inch seismic gap. Collier, along with Bob Budd, Jim Deas, Tony Pilkington and Chuck Garsha, headed the new facility's technical design. Acoustic design of all rooms in the buildings was by David Schwind of Charles Salter & Associates (San Francisco), while HLW International LLC was responsible for the design.

The new re-recording stages (numbered 9 and 10 in the Warner Bros. family) are both 64.5 feet long by 49 feet wide, with ceiling height of 24 feet, a little bit larger than the cubic volume of its previous flag-

ship re-recording stages 5 and 6. All four rooms share the same basic console-to-screen relationship.

The identical AMS Neve DFC Gemini consoles in each feature stage have 1,000 channel paths when running at 96k, effectively four times the processing capabilities of its previous DFCs. The Gemini consoles also have full TFT metering with track routing, panning, EQ and dynamics displays.

A StageTec Nexus router controls all audio patching on the stages and through the facility as MADI streams, including the consoles and all Pro Tools systems. AES-to-MADI conversion is by AMS Neve 960 boxes, with the core of the system running at 96 kHz, regardless of the rate of the film.

Collier says that they did “substantial homework” on the leap to 96 kHz. “We wanted to be sure that real-time sample rate conversion to and from 96k, from both integer and non-integer sample rates, was above reproach. I had to be able to say without reservation that it would not affect the audio in any way that you can hear. We set up a recursive test, using tough material like gongs and triangles, going back and forth from 48 to 96 five times—simulating five temp dubs. We then listened to it in real

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From desktop studio to stage, the SOLO/610 and SOLO/110 are the go-anywhere essential preamp & instrument DI. Choose either the all-tube SOLO/610 for that silky vintage warmth or the SOLO/110 (from the mighty 8110) for lightning-fast transients, and sheer tonal versatility—ultra-clean to crunchy Class A. The SOLO series preamps will flatter the humblest to the most esoteric microphones with their own signature sound. The best news of all is that UA's innovative engineering and meticulous manufacturing mean you don't have to make a choice: you can afford both!



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World Radio History

time so we could A/B the tracks.”

All of the feature re-recording stages at Warner Bros. currently have Christie CP-2000-X “2k” DLP Cinema digital projectors. Video source for the stages is provided by an HD player built from a Mac G5 with a Kona video card and an application called VirtualVTR. Each of the new stages has a Kineton high-speed 35mm film projector, with a third “floaters” projector shared by the two rooms for changeover screenings.

The other staple of old-school film re-recording, 35mm mag film recorders and dubbers, are nowhere to be found in the new facility. While this is understandable, perhaps more surprising is the absence of the most recent (since 1998) standard playback and recorder: the Tascam MMR-8 recorder and its companion MMP-16 dubber. In their place are eight Pro Tools|HD systems on each stage: two as stem recorders, five as playback dubbers and one that functions as mixer plug-in processing. Additional source Pro Tools systems can be located in the six edit rooms that are dedicated to each stage.

Mixing on the stages is to secondary, internal hard drives on the Pro Tools re-

recording systems. The stage recordist creates “flattened” files (single file per track) using the Pro Tools AudioSuite Duplicate feature at lunch and at the end of the day. Having first copied the original files to the server as a backup prior to flattening, the files are deleted from the record session and from the local disk drive, thus giving reduced disk access times because now the recorder contains only one file per track instead of dozens due to constant punching in and out.

Also significant on the new re-recording stages is the absence of removable SCSI hard drives. Backing up to and restoring from the Linux server is through the 10-gigabit Ethernet network. “In the time it would have taken to pull reel 4 out and put reel 5 in [mounting local SCSI hard drives], we can change everything via our network,” Collier says. “It’s an integral part of how things work: If you get rid of moving things manually, you have to be able to move them electronically as fast.” Collier notes that they regard the internal drives on the systems as a “scratch pad.”

The current servers in the new building have online storage exceeding 80 terabytes.

The network has a mirror server across the Warner Bros. campus that backs up changes only to the server every night. The entire building has a 225kVA UPS, giving engineering 20 minutes to perform an orderly shutdown.

A key design feature of re-recording Stages 9 and 10 is the location of the keyboards and monitors for the Pro Tools systems in the room. Collier and his crew developed the idea of having them in semi-circles off to each side of the console by simply drawing a circle around the center mix position. Collier feels that this design “puts everybody on a more level field relative to the screen and the console. The mixers and editors feel like they’re all participating.”

In addition to the six stations that flank the sides of the console, each stage has two edit rooms on the stage and four others immediately behind. All Pro Tools systems—the eight in the machine room, plus those in the edit rooms—can be controlled at any station by the Avocent 16-port KVM router on each stage. Each location has a “mirror layer” so that picture can be run on a second VGA monitor. Picture source changes transparently when a new session is opened.

Warner Bros. was one of the first facilities to have three-way speaker systems on its mix stages, dating back to the mid-’90s under the leadership of then-chief engineer Claus Wiedemann. Continuing in that tradition, with an eye toward incremental refinement, the new re-recording stages feature three-way systems comprising McCauley Sound AC588s on the low end, Community M4s on mids and JBL 2446H compression drivers on 2360A horns on the top. Amplification—some 19,000 watts—is via QSC PowerLite 4.0 on low end and Bryston 4Bs on mids and highs. Surrounds are two-way, using standard JBL 8340 wedge-shaped wall systems, paired with JBL dual 15-inch low-end cabinets.

According to Waugh, “The new building is essentially about three things: outstanding talent, service and technology. Not only do we have the most advanced hardware and software in the business, but we support it with exceptional talent and a comfortable, creative work environment that focuses on excellent client service.” Current features mixing on re-recording Stages 9 and 10 are Wolfgang Petersen’s *Poseidon* and Bryan Singer’s *Red Sun: Superman Returns*. Recently completed projects include Bryan Barber’s *Idlewild* and Neil Burger’s *The Illusionist*. ■

Larry Blake is Mix’s film sound editor.

ICONS on Stage 6

When Kim Waugh came to Warner Bros. in fall 2004, he discussed with his colleagues “that they had to turn the ship around and mirror what the marketplace was looking for,” referring to the move in some quarters of mixing virtually within Pro Tools.

Initially, Warner Bros. had ordered identical Gemini consoles for new stages 9 and 10, plus two others for existing re-recording stages 5 and 6. However, a decision was made to configure Stage 6 with multiple Digidesign ICON D-Controls. They ended up with three positions, each with 32 faders, with a fourth system for stem recording and monitoring. The routing between the three systems uses a small MADI router because engineering did not want to be locked into a particular hardware relationship between the three systems.

In revamping stage 6, Warner Bros. became the first major studio facility to equip a large, traditional re-recording stage to virtual mixing. Waugh notes that “we aren’t a market driver; we are subject to the market that is driven by the whole film sound community, and I based the decision on looking at what people are asking for

and need, particularly supervising sound editors who wish to stay with their track and carry their vision of that track all the way through.”

The maiden voyage for the ICON stage was in July 2005 for George Clooney’s *Good Night, and Good Luck* and was soon followed by Terrence Malick’s *The New World*. Most recent mixes include Tony Goodwyn’s *The Last Kiss* and Chris Robinson’s *ATL*.

—Larry Blake



PHOTO: RICH NEVENS

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The Classics, Part 2

Flying the “Friendly” Skies

[Eds. note: This month, we chronicle another classic St.Croix adventure. Here, from May 1994, a journey begins at a seismically challenged tradeshow and continues with an altercation at 30,000 feet.]

I usually live in Maryland. There were several earthquakes in Pennsylvania, so I thought I would go to the West Coast. Besides, NAMM was coming up soon, and there was way too much ice in Maryland for me and the Harley. Ha. Silly me.

So I went to NAMM again. The world's first Trembling Trade Show: The first convention to be a ride. A hands-on text of CD player tracking ability or the effectiveness of some new mic mount's LF isolation in a real-world situation: the Earthquake NAMM.

Okay. NAMM. Stream-of-consciousness report: Nobody was too thrilled with the subwoofer demos; too much like the real thing. There was one Japanese guy all alone in a booth in the basement selling guitar picks he had invented. His English was quite sparse, and I don't think NAMM was quite as he had envisioned it. He kept putting these exotic little black-chromed spring-steel picks out on the table for people to see, but American people see things best in their pockets, so they kept taking them. As he would leave his booth to try to catch the latest NAMMster who'd stolen his product, 30 more picks would go into the pocket of the next guy to come along. No, this wasn't at all what the guy thought it was going to be like.

There was another booth manned by guys in Swiss mountain garb selling huge Alpine horns so you could make your own cough drop commercials at home. They seemed to have quite a following.

ART celebrated its 10th anniversary. THD showed a power-absorbing product. I love this industry—first this guy sells everybody real loud tube guitar amps, then he comes back and sells them exotic boxes to suck up all that power so they're not loud anymore. Now *this* separates the men from the boys. These things look sort of like motorcycle cylinder heads but come in crazed anodized colors, so they were cool. Roland gave away functional digital watches to everyone who walked in. The television show *Next Step* was there taping, so the whole show was declared cool. The Gemini booth was again staffed by nuclear scientists.

Sennheiser's NoiseGuard system. Toy Du Jour, to be sure. Noise-canceling earphones. The future is here, and it's in your ear. Thank you, Sennheiser, for making this one of my nicest flights home.

My typical detailed technical review on this product follows, but first a little history. Although at one time I flew them everywhere, I basically refuse to fly America West now because they are stupid. Well, okay, actually,

technically speaking, they are totally ignorant, then they are dumb. They have a total ban on CD players. Knee-jerk, reactionary stupidity that I reject empirically. I got in a huge fight with one of the attendants, then the co-pilot, then the captain, then the local authorities upon landing—all over this ridiculous rule. The ignorant stew said it was an FAA ruling. I emphatically rejected that fabrication with sufficient expedition and commitment to cause her to become visibly alarmed. Good. I did it right. I told her to produce the FAA book, and if it was in there in any form at all, no matter how garbled, I would gladly remove the earphones, turn off the CD player, take out the batteries, completely disassemble and then destroy the machine, scratch and break each of the 40 CDs I had with me, give up the music industry, ear up my pilot's license (big deal, it hasn't been

When I produced the CD player, she found herself faced with the dilemma of knowing that I had brought aboard an instrument of unbridled death and destruction.

current since 1916) and perform ground crew service for their planes free-of-charge for one full year, and I wouldn't even wear gloves in the winter!

Lucky for me, she was just another spaced lemming, and there was, in fact, absolutely no mention of such a ruling whatsoever in the pilot's beautiful, black, leatherbound FAA reference manual. Just blind luck? Well, maybe. On the other hand, *my* FAA book has no mention of such a ruling either. So then she sez (and I *love* it when this happens): “Okay, sir, it's the company policy.” Well, in the words of Joe Pesky, “Okay, okay, wait a minute.” So I sez: “So it's *not* an FAA ruling, it's only company policy, right?” Stew sez: “It's the same thing, *sir!*” This, by the way, was the last time she called me “sir.”

There was no warning on the ticket, no sign posted anywhere in the boarding area or ticket counter area, no mention of any of this in the preflight “How to Die in Case of Trouble” speech—nothing. The flight attendant couldn't even figure out what those shiny little discs I had were; it had taken another passenger's panic call to notify her that there was such a dire technical threat aboard. Some woman on the plane saw me and was so concerned at my appearance (so far, this is actually kind of understandable) that she took it upon herself, as sort of a public service, to

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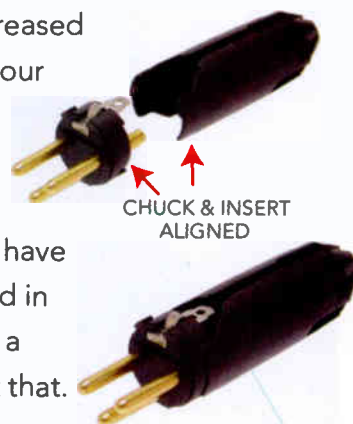
points that boost conductivity and reduce stress on the male pin. Now check out the aptly named "solder cup." It keeps the solder away from the contact, for faster, easier assembly. You can feel yourself relaxing. Your shower drain seems less clogged.

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The moral of this story? If you want a new head of hair you need a new connector. The XX series from Neutrik.



LIFETIME PERFORMANCE GUARANTEE

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scrutinize my every move. When I produced the CD player, she found herself faced with the horrible dilemma of somehow intrinsically knowing that I had brought aboard an instrument of unbridled death and destruction, without having the education or street knowledge to identify what it actually *was*. You know: "Sony—Number One in terrorist hardware."

So she asked other passengers until she found one who felt reasonably confident that he knew what I had somehow smuggled aboard. He told her it was in fact a CD player, and she found a little two-paragraph story in the in-flight magazine about how all CD players instantly grow 44.1kHz digital umbilicals, which, through some disgusting semi-sexual coupling mutation, link with the aircraft's 44.1k flight control data bus and *instantly* blow the planes up. There usually isn't even any organic tissue remaining—just one Dire Straits CD, four AA cells, an aileron or two, and a couple of nameplates that say Pratt & Whitney, or maybe GE. Once the passenger identified the weapon, she called the stew and the rest is history.

Oh, did I mention that it is totally cool with them if you use a 10-year-old portable PC that sprays digital artifacts out the ports with enough broadband power to

bleach the color out of your Levi's?

So now I am flying United, the friendly skies. (They are only stupid for 10 minutes during take-off and landing.) I am sitting on the plane, and though all precautions have been taken (seat 2D, which years of research has shown to be the quietest), it's *loud!* It's a jet, so it's loud. It's always loud. I always have to turn the CD player up so loud that I am fatigued by the time I land just to overcome the roar of a few thousand horsepower 20 feet away. And that doesn't do anything for dynamic range, so I land never having heard the nuances, with a headache from the crescendos (or was it the chicken?).

And now I fly with Sennheiser. As soon as the 10-minute dumb period ends, I put on the unassuming set of open, lightweight cans that look like something from *Deep Space Nine*, plug them into a little box that looks like it was made in 1949, turn on the little bat handle switch from 1969 and am instantly surrounded by a roaring, artificial *silence* that I didn't expect to experience until at least 1999. This thing works! Now it's not a drop-to-your-knees, try-to-clear-your-ears silence, but it is a fairly broadband, 10dB improvement. The noise reduction is midband, so hiss and rumble remain. In fact, an interesting, subjective reaction is that the extreme rumble of the jets

actually gets *louder*. Of course, it doesn't, but the drop in midrange noise is so surprising that I feel an increase in all remaining frequencies—a perfect Mr. Wizard science demo.

Once I landed, I realized that the silence was so much fun that I never even got around to plugging in my famous Deadly Killer CD player, so I can't tell you how the music was. I *can* tell you, however, that you don't want to put your hands over the earphones like producers used to do in the '70s when they wanted to impress somebody by showing that they were "really listening closely." The little microphones that listen to the outside noise are there, and the result is a dose of Hendrix that just ain't the same as the real thing.

There is a sort of mildly distracting phase shift at the edges, and a few other minor artifacts exist, but the overall results are so cool that you easily forgive them.

So the THD guy has a product that makes guitar amps less loud, and Sennheiser has a product that makes the *world* less loud. A brave new world of Anti-Audio Products? So now you know just how technical my reviews are. ■

Stephen St.Croix has taken far too many flights in his life. Our hearts go out to the flight attendants.

GT PROFILE

Michael Wagener goes for the Glory!

WHAT HE'S DONE: Produced, recorded and mixed some of the biggest names in rock and pop, including Mötley Crüe, Dokken, Metallica, Janet Jackson, Ozzy, King's X and many more. Over 50,000,000 (!) copies of his work have been sold worldwide.

WHAT HE'S DOING: Developing and producing new bands like *Hydrogyn* and *Goldylocks*.

WHAT HE USES: Groove Tubes' ViPRE™ tube mic preamp, **Glory Comp™** tube compressor, and all of GT's studio condenser mics.

WHAT HE SAYS: "I've been using GT gear for many years. The reason is simple: every piece from Groove Tubes offers the great sound I'm looking for. The **Glory Comp**, ViPRE and GT mics have become an essential part of my setup, on everything from guitar to bass to vocals."

Michael

More info on Michael Wagener and GT's other Friends & Relations at www.groovetubes.com

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World Radio History

False Sense of Security

How Not to Get Caught in the Web

One of the words on everybody's lips these days is "security." National, job, personal, data—security of all kinds is the topic of countless conversations and news stories. As was the case with Y2K, Africanized killer bees and the horrors of copying LPs onto cassettes, a great deal of the information flying around about threats to our security is complete nonsense, but nonetheless, there are some real dangers out there.

My local newspaper, for example, recently wrapped bundles of papers going to dealers with "scrap" paper—which happened to be printouts of subscribers' credit information. (Haven't you guys ever heard of a shredder?) In the days after that leaked out (and the publisher's subsequent full-page apology), the paper had to field several hundred thousand phone calls, and no one knows how much damage might ensue from the incident. It's hardly a unique occurrence: Almost every week there's a report about some tape or disk or laptop containing personal information about thousands of people being misplaced by, or stolen from, a bank or credit agency. Sometimes, these breaches are the result of criminal intent, but they often occur due to sheer stupidity.

Security is a serious issue to all of us in the recording business, because in a number of ways, we're a tempting target for thieves of all kinds. We've all heard stories of low-level studio employees or band hangers-on e-mailing MP3s of mixes to bootleggers; of break-ins by screwdriver- and wire cutter-carrying thugs who leave behind empty equipment racks; of studio personnel who forget to erase the hard disks in a rented DAW; of masters that are put into a taxicab and never seen again; and of late-night sessions that turn into rounds of Grand Theft Microphone. We need to keep reminding ourselves to keep the doors and equipment cabinets locked, to keep our servers firewalled and our wireless networks encrypted, to turn on the alarm when we leave and to check the credit and credentials of new clients, as well as new employees, lest things go wrong in a session and we lose a lot more than just the cost of the studio time.

In my humble opinion, though, one of the most serious threats to our security these days—besides the RIAA and the clowns in Washington—is the scumbags who have figured out how to use the Internet to implement clever scams against just plain folks like you and me. Con men (and women), swindlers and bunco artists are as old as civilization, but the Internet has made their jobs so much more interesting, easier and more lucrative. The Internet is still young and growing, and not everyone has developed the kind of radar that serves you well when, for example, a sleazebag on the street tries to sell you a Rolex from inside his raincoat.

The Nigerian-dead-bank-manager-leaves-\$15M-with-no-heirs scam is so old and hairy it's amazing it's still



going around, but I still get several of those a day, some with amusing twists involving Christian missionaries and Russian orphans. There are, of course, the ever-popular penny stocks "due to increase 400 percent!" that you've never heard of, and those *urgent* notices that someone has tapped into your PayPal or VISA account and put a second name on it—which are designed to get you to contact the fraudster who sent you the notice and give them your confidential information so that *they* can tap into your account.

Many of these fall under the category of "phishing," which means (and even if they aren't together any more, I can't imagine the band Phish being happy about this coinage) using a phony but authentic-looking e-mail to get you to disclose your presumably secure information to someone who would very much like to use it to your disadvantage. Some phishing scams are easy to spot and some are not, but a great many of them can be identified if you know where (and take the time) to look: Open up the raw code of the message and look for an originating Web address or a URL under a click-on link, which is different from the organization the message claims to be from. If you find one, it's a scam.

Considering that all Web domains are publicly registered and the names of the registrants are easily available,

now hear this.



it's amazing that, even though some phishers are quite skilled at covering their tracks, law enforcement hasn't been able to track down and prosecute more of these jerks—but in fact, there have been very few charges brought against these miscreants. I guess some agencies figure it's more important to keep tabs on people wearing inflammatory T-shirts.

The biggest Internet-related fraud problem in the country today, according to the Federal Trade Commission, is online auction fraud, with a typical loss per incident of more than \$1,100. This takes many forms: There's the tried-and-true "ship a brick instead of a

The scamsters' most potent weapon is what's called "social engineering": figuring out how to make suckers bite. And no technology or law can protect us from our own carelessness and gullibility.

computer" gambit; the phony "Xbox case with nothing inside" ploy; and the "you pay by cashier's check and you never hear from them again" trick.

Well, progress, as one great American company used to boast, is our most impor-

tant product (that was before they shifted the bulk of their operations to financial services), and there's progress on the Internet fraud front, as well. This month, I found out about a new twist that combines a number of these tactics and is aimed at an economic sector that a great many of us belong to: equipment buyers and sellers.

Here's how it works. You have a piece of gear you want to sell at auction on eBay, so you list it. You get a number of bidders, and when the auction ends, you sell the item to the highest bidder. But for quite some time after the auction is over, the eBay IDs of the other bidders, and the prices they bid, stay up on eBay on your item's page.

Now, eBay has a comprehensive set of procedures for dealing with transactions that don't work out for one reason or another. One of these—which is also useful if you have more than one of a certain item to sell—is called Second-Chance Offer. If the highest bidder's transaction goes sour, this gives you the option to sell to one of the other bidders at the price that they bid rather than the highest bid. For the seller, it's a good backup, and for the buyer, it's a good deal because he doesn't have to pay any more than he wanted.

The Second-Chance Offer is made through eBay's Website. You go to a special page and select which losing bidder you want to make the offer to and how long you want the offer to remain open, typically one to three days. Then eBay generates a message to the bidder, telling them the item is available and how to purchase it from you.

The scam involves sending a phony Second-Chance Offer message to the losing bidders that *looks* like it comes from eBay, but it doesn't. The message includes genuine eBay graphics, complete with all sorts of "seals of verification" and legitimate links to other places on eBay's site. It lays out all sorts of procedures and policies that sound reassuring and just complicated enough to be true: how the transaction is "guaranteed," how the seller has a whole lot of money in a "purchase-protection account" to make sure the buyer doesn't get ripped off and how the buyer has five days to examine the merchandise and can return it for a full refund if he/she doesn't like it.

—CONTINUED ON PAGE 147

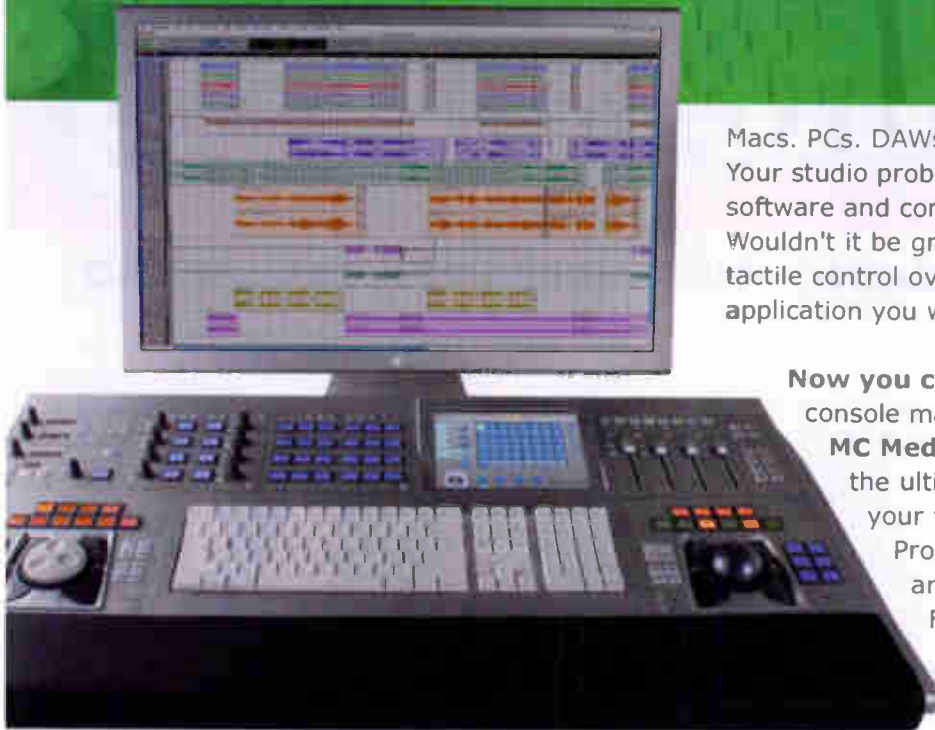


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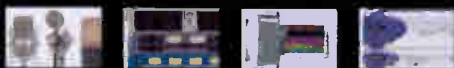
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Satellite Soaring

XM AND SIRIUS BRING PRO AUDIO TO DIGITAL RADIO

By David Weiss

Where's the spirit of radio? Instead of looking for invisible wavelengths originating from tall terrestrial towers, focus your eyes on the skies. Train a high-powered telescope in that direction, and you just may grab a fleeting glimpse of the satellites that carry the commercial-free music and adventurous programming of SIRIUS and XM. Stock prices at both companies may be pitching up and down, but when it comes to the operational philosophies and technology driving their premium original content, there's no question about the direction: full speed ahead.

For both satellite providers, the pressure is on to prove to stockholders and subscribers that they're on the cutting edge of content development. Each has its maze of production spaces for programming and automating playlists for the seemingly

endless number of stations. But in the past year, each has also made significant moves to offer original content, including live music events and—well, we've all heard about Howard Stern.

Accordingly, each company has beefed up its production facilities to handle the demands of live music and special-guest "DJs." SIRIUS added Stern's new 2,400-square-foot penthouse facility within its New York City headquarters, along with upgrades to the digital backbone. XM purchased one of the industry's leading remote recording facilities, Effanel, and occupies the newly designed recording facilities at Jazz at Lincoln Center (New York City).

Although most visitors are aware only of the live venues at Jazz at Lincoln Center—including the highly versatile Rose Theater, the brilliant Allen Room with its 50-foot glass wall overlooking Central Park and Dizzy's Club Coca-Cola—there is a hidden recording, mixing and production paradise built inside the structure, connected to all the rooms.

Three control rooms designed by studio architect John Storyk (of Walters Storyk Design Group) were included in the center's design, though the audio production facilities were conceived with no specific tenant in mind. Instead, the plan was to launch JALC and find the right audio production entity to occupy and manage the control rooms.

That tenant, as it turned out, would be XM, which in early 2005 had acquired Randy Ezratty's mobile production powerhouse, Effanel Music. Seeing as how Ezratty and partner Joel Singer's philosophy has always been to



Rob Macomber in XM Productions-Effanel Music's Studio A, which includes Digidesign ICONs.

record and live-mix productions with their L7, OSR and ob/u mobile units, and then remix later on a matching system for subsequent broadcast at a dedicated studio, the prospect of taking things to the next level at JALC's then-vacant control rooms made perfect sense for all parties involved. XM Productions-Effanel Music would archive all of JALC's performances so that XM could broadcast many of them, while still being free to work on any other incoming work they wanted—from mobile productions to 5.1 DVD projects.

Add it all up, and you've got a fulfilling gig for the engineers who get to work at this wide-ranging, fiber-interconnected facility. "The uniqueness of being able to come to work every day for the Mecca of jazz and all styles of music is incredible," confirms Rob Macomber, chief engineer of XM Productions-Effanel Music, talking from the spacious surroundings of the facility's Studio A. "There really isn't another 5.1 mixing room like this in the city, and we have the ability to record in these beautiful-sounding, acoustically designed facilities that are right in the middle of the art form. The

One of XM's two Earth station antennas





SIRIUS studios at company headquarters in Rockefeller Center (New York City)

fact that we're working with XM, pushing this content to all of its stations, makes the scope here all the more interesting."

For those familiar with Effanel, the most noticeable shift is a move away from an orientation around Neve Capricorn consoles and toward total Digidesign Pro Tools—with a twist. The fact that Macomber puts his hands on a 48-fader ICON in Studio A, or on either of two 32-fader ICON integrated consoles in Studios B and C, all provided by pro audio integrator Tekserve (www.tekservice.com), is not so unusual. However, XM Productions-Effanel Music's practice of simultaneously running triple Pro Tools|HD systems during recording sessions—one as a mixer and two as recorders—most assuredly is.

The approach feeds off the considerable expertise that Macomber, who often serves as a certified trainer for Digidesign, has with Pro Tools. "When I started working with Effanel, I brought in and solidified the idea that Pro Tools could work not only as a recorder, but as a mixing environment," Macomber explains. "The folklore out there is that Pro Tools isn't stable and you can't

use it for live recording, but Randy's outlook then is, 'I'm going to make it work because they said I couldn't—and it can.'"

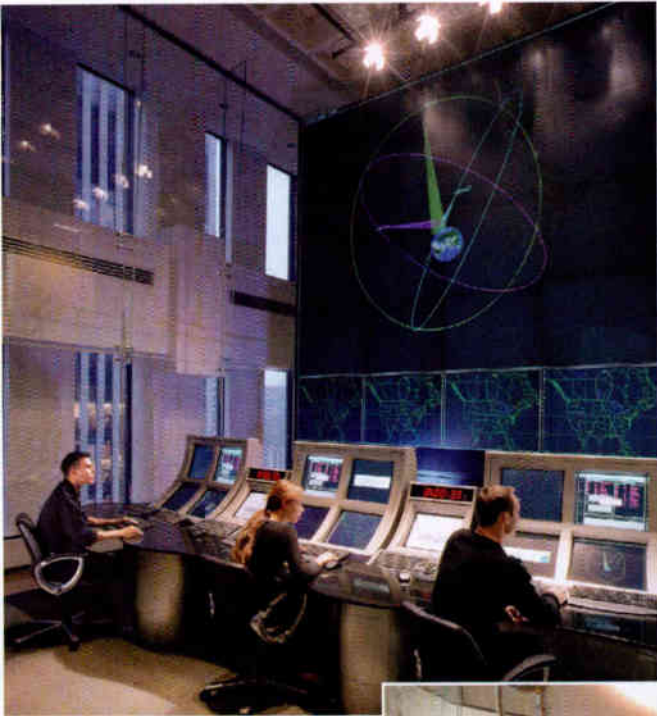
At XM Productions-Effanel Music, all live audio comes out of a MADI router into two Pro Tools|HD recording systems (for redundancy) and a mixer system. "The idea of a separate mixer stems from the fact that there's certain things you can do in Pro Tools when the transport is not moving," says Macomber. "That way, in the mixer, you're not pulling at all on the CPU. You're doing less with a Pro Tools mix session like that than working in Excel. In an environment where all the variables of software and plug-ins can play a part in causing an error of some sort, this ensures integrity and stability."

If the mix/record environment seems well thought out, the signal path that the audio takes to get there from any point of origin in JALC is just as careful. Starting with a massive 110-plus microphone collection of B&K (now owned by DPA), Neumann, Royer, Sanken, Schoeps, Telefunken and more, the sound captured in any of the live venues then travels to a Radial transformer-

isolated splitter. From there, it heads toward the mix and record Pro Tools systems, as well as monitoring, if need be.

On the way to Pro Tools, the signal will travel through some of the 96 channels of Grace 802 remote-control preamps and/or Millennia HV-8 preamps (soon to be upgraded to remote-control versions). Next are Apogee AD-16X 16-channel 192kHz A/D converters, clocked by an Apogee Big Ben 192k master clock. Following that, the now-digital signal goes into an RME ADI-648 MADI-to-TOSLINK converter, which allows easy transport of MADI streams of the multiple channels over the 48 strands of fiber that connect all control rooms, performance venues and rehearsal spaces to each other within JALC. With all fiber leading to a patch panel at the studios' Technical Operations Center (TOC), the MADI stream hits an RME MADI bridge that routes everything off to the three Pro Tools systems for recording/mixing.

Whether the audio has been recorded at JALC or flown in from one of the Effanel trucks, it winds up on the facility's 4.2-terabyte Studio Networks Solution SAN,



SIRIUS' control room, where programmers manage its fleet of three satellites



XM's John Storyk-designed facilities at Jazz at Lincoln Center (New York City)

after which broadcast clients can walk away with their final mix following a simple transfer to a FireWire drive. If the mix is destined for XM, then it travels via Ethernet to XM's headquarters in Washington, D.C., before being beamed up to the three Boeing satellites in orbit around Earth.

"A lot of what they've done at XM Productions-Effanel Music is cutting-edge," observes Chris Payne, director of professional audio sales for Tekserve; he also helped outfit XM's two performance studios and 12 production rooms in Washington. "They're saying, 'Now we want people to be mixing more in the desk.' They're not investing in outboard hardware so that they can work within the computers, and that's where the industry is going—if it's not already there—with the quality. Also, this way all of the facilities are identical, so their engineers can go from one room to the next and create one environment, so to speak. It creates this constant workflow."

Payne and Tekserve are also intimately familiar with the Coke to XM's Pepsi, SIRIUS, having worked on multiple facilities within their world headquarters a few avenues away from JALC in New York City's midtown. With more than 120 original 24/7 radio stations to manage, plus an in-house content juggernaut



SIRIUS' main broadcast studio at its New York headquarters

in Stern, a closer look at SIRIUS uncovers the unique logistical and maintenance issues that come with satellite radio.

"What distinguishes satellite radio from traditional radio is its scalability," points out Jake Glanz, director of broadcast maintenance and operations for SIRIUS. "Even the big radio clusters tend to max out at a half-dozen stations under one hood; we are 120 under one hood. Solutions that work on a small scale don't often scale up so nicely. It's a whole world of possibilities, but you have to look into the future more carefully so you can sleep better without worrying about your decisions. We currently have 37 studios here, and you want them to be as multipur-

pose and as flexible as possible due to the sheer volume of production that takes place here on a daily basis."

Although XM Productions-Effanel Music seems to have multiple Pro Tools HD racks everywhere but the bathroom, Glanz makes no apologies for his multitude of Pro Tools LE and Mix TDM systems, married to a 250-plus workstation system tied together with one of the largest Prophet Systems automation networks in existence, connecting Manhattan via point-to-point T1s to smaller facilities in Houston, Memphis, Nashville, Cleveland and L.A.

"For radio-style production, realistically, the powerful combination of high-speed CPUs with upgraded host-based technology means that the big decision these days is, 'Do you need the high-end HD systems or can you just live in the 44.1/48k world and not make that jump?'" notes Glanz. "That decision is blurred with the powerful LE-type systems. That format is adequate and will be for some time. Although there have been some very promising tests done at higher sampling rates—96k production with higher bit-rate encoders for instance—there's a cost analysis that has to be taken into account when considering these upgrades. The host CPUs like G5s have improved so much that it really blurs



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the need of going to a dedicated TDM system for low track-usage production."

Although Glanz didn't personally head up the construction of Stern's 2,400-square-foot facility within SIRIUS' headquarters, he observes that the integration of the "King of All Media" into the fold took some troubleshooting. "Like everything else in Manhattan, it boils down to a real estate issue," Glanz says. "The transition was full of your typical building-inside-a-non-ideal-office-building issues. However, it was well-planned and executed on time. One thing that's not to be overlooked was the fact that it had to be integrated with a TV studio. In terms of complexity, that added greater electrical AC load requirements for the lighting system, as well as acoustic solutions for noisy video gear."

Although so many stations constantly creating fresh content are a boon for the subscriber, the dirty little secret behind their production is the constantly fragmenting hard drives that the DJs and program directors leave in their wake as they rush forward. "You never have enough storage: The bigger the trashcan you get, the more they fill it with," Glanz says bluntly. "So there's always a battle with the production department to maintain themselves and get their spinning disks cleaned up of stuff they never use. We have migrated away from local SCSIs almost universally and have adopted FireWire on the local machines in the studios, although whatever's SAN-based is still Fiber Channel."

"As our facilities evolve, the drivers are always reliable and compact in functionality, aside from the obvious sound quality. We don't have much margin for error when it comes to studio down time."

SIRIUS and XM are currently running very different facilities, but the sense of adventure that comes with satellite production is a common thread for the people involved. "I'm definitely in my dream job," Macomber reflects. "We're marrying technology with the arts in a user-friendly, creative environment, using state-of-the-art systems to do high-definition archiving. This atmosphere is conducive to everyone charging forward and creating great musical productions."

"I'm part of a very excellent broadcast engineering team," Glanz adds. "We're all taking part in something that's never been done before. But since we're reinventing the wheel, the real challenge is simply having enough hours in the day to come up with solutions on a large scale." ■

David Weiss is Mix's New York editor.




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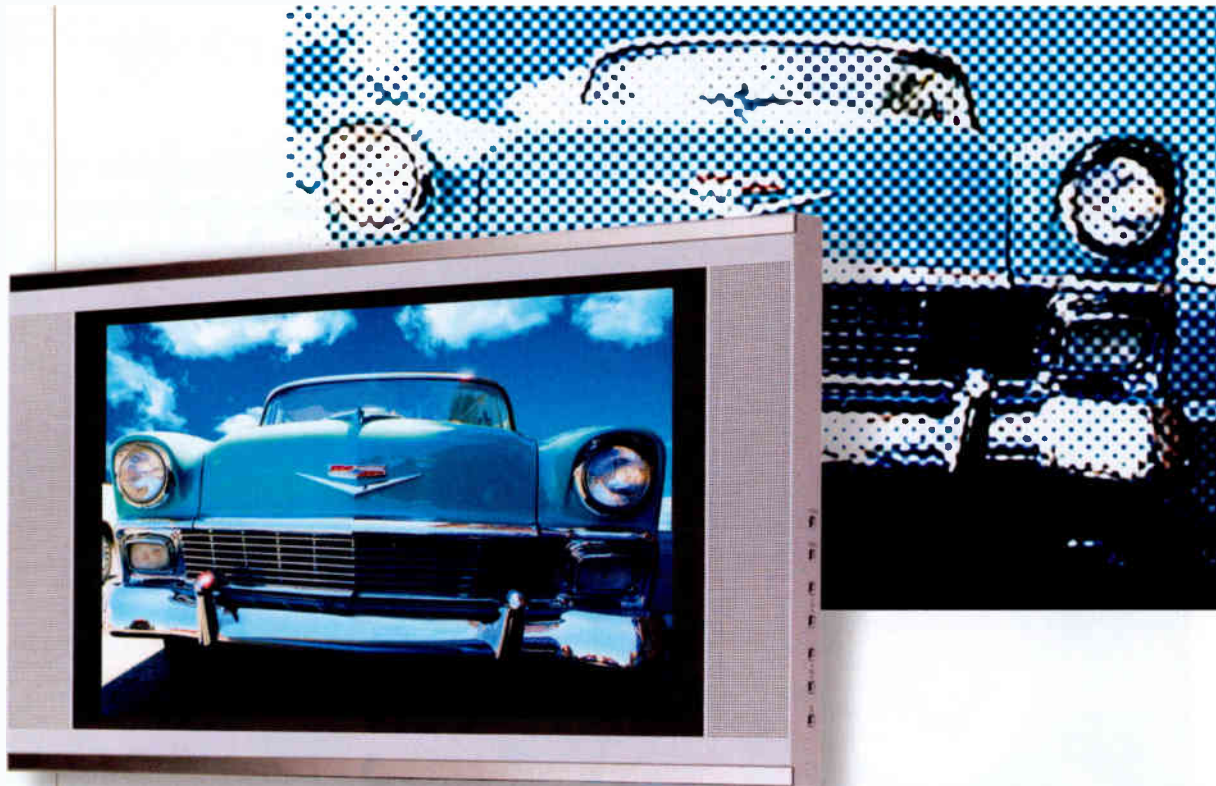
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WHAT'S IN YOUR AUDIO CHAIN?

By Mel Lambert

The FCC's scheduled 2009 "turn-off" date for analog terrestrial television for U.S. consumers elicits a sigh of relief from major networks and independent broadcasters. There's also a natural wave of optimism for the equipment suppliers, who foresee a buoyant future supplying audio and video hardware to those who will be upgrading installations with standard- and high-definition digital technologies.

Any upgraded or new broadcast/post facility needs a technical infrastructure that will allow for transferring and distributing digital data throughout the site. High-speed servers, multiport routers and other distribution components, using real-time delivery or on-demand streaming via IP-based networks, are replacing balanced/unbalanced audio cables. With data rates in the Gbit range, twisted-pair copper is being replaced with co-ax, fiber and other signal-distribution schemes, including various Ethernet-based network topologies. Planning for future needs is an essential part of a successful facility design.

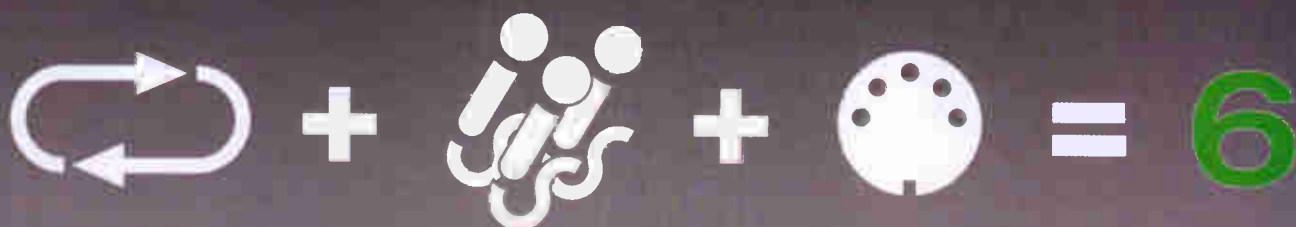
MANY APPROACHES, FEW STANDARDS

Even with some 1,550 U.S. stations delivering SD and HD programming, there's no consensus regarding which digital topology/delivery scheme makes the most sense; each has its pluses and drawbacks. ABC's DTV network provides af-

filiates with a 2-channel MPEG (Dolby Pro Logic Lt-Rt) and a 640Kbit/sec AC-3/Dolby Digital stream for HD 5.1-channel broadcasts using a "mezzanine" (a lossless/near-lossless system inserted at the front end of the chain) compression system. To simplify plant timing, routing and storage considerations, the CBS DTV network affiliates receive Dolby E-encoded multichannel audio—5.1 surround and stereo—plus an additional 2-channel Lt-Rt AES-format pair via a mezzanine compression scheme.

NBC's DTV network delivers audio to its affiliates via MPEG compression within a proprietary mezzanine compression. Here, downstream stations receive up to eight uncompressed PCM channels via four AES-format pairs that comprise, at minimum, a stereo or Lt-Rt/Pro Logic signal on the first pair and, if available, a 5.1-channel program on the remaining three pairs. The Fox DTV network affiliates get an AC-3/Dolby Digital signal at 448 kbps to ensure full-time 5.1-channel audio feeds during prime-time HD programming.

PBS distributes a standard 19.39MBit/sec ATSC transport stream to its DTV-capable affiliates. Using this scheme, any affiliate station equipped with a modulator, RF amplifier and antenna can broadcast HD with 5.1 channels of audio, but, as with Fox affiliates, inserting local programming becomes complicated.



LOOPS

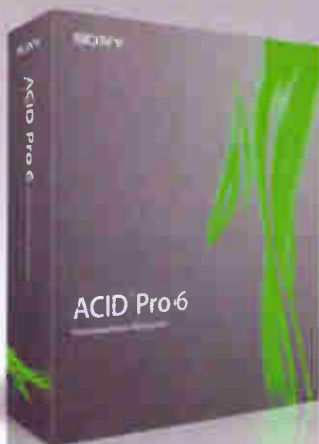
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Of primary importance to facilities contemplating the move to HDTV is the choice of compressed or uncompressed audio and whether to implement an embedded or non-embedded scheme. The former normally involves the use of Dolby E encoding or a similar scheme to squeeze eight channels (in Dolby's case) into a standard AES-format stereo pair and route it within the plant like a normal digital signal. According to Scott Griffin, VP of engineering at The Systems Group, "That choice depends on media preparation: If the network post-produces its content and delivers it to other in-house groups, Dolby E makes a lot of sense to save data bandwidth and ensure mixing/switching integrity.

"If the majority of material comes from out-of-house," Griffin continues, "it makes more sense to remain uncompressed, delivering un-encoded audio channels to allow flexible audio channel manipulation and compatibility with diverse channel maps. With increasing data bandwidth available via server-based networks and other delivery mechanisms, data compression is less of a concern. Emerging requirements for multilingual Secondary Audio Program [SAP] and Descriptive Video Service [DVS] channels lend themselves better to un-encoded multichannel. An added bonus with

this approach is that encode/decode passes are minimized."

Media transfer can speed—or hinder—workflow. System designers need to identify where file transfers between high-capacity servers can replace real-time streams, and analyze areas in which non-real-time file retrieval might work instead of real-time data stream processing/mixing.

Point-to-point signal routing throughout an HD-compliant facility can be streamlined using embedded audio schemes, where up to 24-bit/48kHz uncompressed PCM signals can be multiplexed with an SDI or HD-SDI digital video signal. Such transport schemes simplify cabling and infrastructure, particularly when used with high-capacity routers from brands such as Grass Valley Group, NVISION, Miranda, Utah Scientific, Quartz and Evertz that accommodate high-bandwidth signals up to 1.5 GBits/sec. For added flexibility, different models can handle on-the-fly embedding or video signals with pre-embedded audio, so broadcasters and post facilities can mix and match digitized analog video/audio with digital video and embedded audio. Using fiber-optic connections, system configurations can range from simple point-to-point and point-to-multipoint to large-scale video networks accommodat-

ing multiple add/drop sites—often with bidirectional data flow—for applications such as studio-to-studio and studio-to-transmitter links.

THE AOIP ALTERNATIVE

According to Griffin, IP-based topologies are becoming increasingly popular. "WGBH, PBS' flagship Boston station, may be implementing an audio-over-IP [AOIP] system, for example," he says. The BBC World newsroom is currently conceived with 40 2-channel digital audio workstations that will ingest, stream and file-exchange audio data over an IP network. Users will benefit from desktop AOIP access to as many as 30 news-gathering feeds via a plug-in media player front end and file-management tools allowing clip integration into desktop edit sessions. According to Griffin, AOIP "involves a relatively simple infrastructure," with a simple physical layer and a complex virtual layer.

For larger network operations, a more sophisticated topology will be required. "NBC Universal is designed to route and brand more than 30 channels of SD and HD-SDI signals, while Viacom"—which owns CBS Network, MTV, Showtime, Infinity Broadcasting and other outlets—"handles 20 release channels in a single operations monitoring and control room," Griffin points out.

FLEXIBILITY IS EVERYTHING

Remote trucks require flexible internal communications and connectivity. "These are further complicated with surround sound," says Griffin. A recently completed remote truck for MTV Networks is a good example of this enhanced flexibility. This type of truck often includes an optical transport layer for HD, linked through multiple routers using embedded audio within both SDI and HD-SDI signals. "To further simplify cabling, we are also looking at optical connections for remote talent positions. This way, we can flexibly interconnect three or four studios or control rooms using easy-to-re-rig fiber links."

Efficient and easy-to-understand monitoring systems for intelligently switching between multiple sources of multichannel playback at multiple operator positions is essential. "Viacom, for example, has five operators providing quality control for up to 20 HD/SD channels and need to switch multiple sources in varying combinations to the monitor loudspeakers," Griffin notes. "We developed a system providing multiple functions, including phase check, mute, solo, 2-channel modes and fold down of a 5.1-channel input to selected

A Mouthful of Acronyms

Anyone delving into digital television (DTV) technologies will surely be overwhelmed by incessant strings of acronyms. Here are a few that may help keep you on track.

AFP (Apple File Protocol): a method for sharing data (files or applications) over an AppleTalk network.

AOIP (Audio Over IP): a system for audio file sharing/transport that converts analog or digital audio into Ethernet packets for distribution over a Local Area Network (LAN) or Ethernet switches.

ATSC (Advanced Television Systems Committee): an international, non-profit organization developing voluntary standards for digital television.

DTH (Direct to Home): program distribution to consumers via satellite downlink.

DVS (Descriptive Video Service): a service that helps make television accessible to persons with visual impairment using narrative audio files that accompany the programming.

EDTV (Enhanced Definition Television): a system having a picture with at least 480 vertical scanning lines and 5.1 surround audio

in the Dolby Digital format.

FTP (File Transfer Protocol): a data-sharing protocol based on standard TCP/IP Internet to move files from one computer to another.

MADI (Multichannel Audio Digital Interface): a professional standard for transmitting up to 56 channels of digital audio data over a single cable.

SAN (Storage Area Network): a network or sub-network of shared storage devices such as disks or disk arrays that are available to any user on a server.

SAP (Second Audio Program): a broadcast or tape capable of carrying an alternate audio track, typically used for a second-language soundtrack.

SDI (Serial Digital Interface): a serial digital video data stream having video and four channels of audio.

SDTV (Standard Definition Television): "old-school" television systems having less than 480 vertical scan lines and at least monaural audio—essentially the equivalent of current NTSC TV.

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loudspeakers.”

An excellent example of an intermixed audio infrastructure occurs at NBC Universal's New York studio complex in Manhattan, which provides production facilities for *Saturday Night Live*, offered weekly in HDTV with 5.1 surround. “NBC's studio and plant distribution scheme currently uses two ways to move audio signals back and forth within the digital domain,” says Jim Starzynski, principal engineer at NBC Universal Advanced Technology. “For productions and distribution of high-definition signals within the NBC plant, audio is transported on an HD-SDI plant-wide router capable of 16 channels of embedded audio.” Multiplexing is handled by Miranda mux and demux equipment, with installations currently outfitted to use eight discrete channels—two complete audio groups expandable to four groups or 16 channels. All signals are referenced to a 48kHz sample rate; resolution can be either 20 or 24 bits.

“Dolby E is used by our entertainment and sports productions for multichannel sound delivery and for live remotes from the field,” Starzynski says. Dolby E deliverables are decoded at plant entry, and the discrete audio and metadata are multiplexed into HD-SDI for the plant router. All internal plant multichannel sound distribution is discrete.

For SDI connections, NBC uses multiple plant routers capable of four discrete digital channels—one SDI group—running at 20-bit/48kHz. “SD and HD worlds are connected via digital conversion tielines between the routers,” says Starzynski. HDTV multichannel sound is automatically downmixed to 2-channel Lt-Rt for SD use. “Second audio program and video-de-

scriptive service are directly mapped to the proper distribution channel from HD to SD, and vice versa. Downmixes and channel assignments between formats are accomplished with Miranda XVP multiprocessors.”

To ensure sample-accurate sync between video and audio sources, NBC-Universal New York uses redundant sync-pulse generators, which output multiple timing signals, the most critical being 29.97Hz analog video color black, which is distributed to all plant areas, becoming the ultimate reference for all equipment.

Most signals are carried around the facility on precision co-ax cabling. “There is no 110-ohm digital audio distribution,” Starzynski stresses. “Fiber is used for long runs from Rockefeller Plaza locations—like *The Today Show*—into the 30 Rock plant.” Sources originating in production studios are routed through an audio/video control room with an output that directly feeds SD or HD routers.

For NBC-Universal, all HD studio outputs are discrete AES-format audio signals embedded into an HD-SDI signal that feeds the plant router. “Channel mapping is the SMPTE standard of L, R, C, LFE, Ls and Rs on channels 1 through 6,” says Starzynski. “We have reserved channels 7 and 8 for SAP and DVS. HD-SDI channels 9 and 10 have been reserved ultimately for Lt-Rt, while stereo-only productions use channels 1 and 2. A Miranda cross-converter simultaneously generates a standard-definition digital data stream from the HD production format, with a metadata-enabled aspect ratio control producing a “center-cut” or “letterbox” 4:3 video image with a companion downmixed 5.1-channel-to-Lt-Rt audio for the SD audience.

“Everything for *SNL* is handled in 5.1-channel,” stresses David Lazecko, NBC-Universal's director of studio engineering. “We pass 5.1-channel streams, along with Lt-Rt and metadata, through an HD router that handles 256x256 sources with 16 channels of embedded audio. We use eight for the show that pass to a hard disk recorder. We also have a large Apple SAN that handles our interlinked Final Cut Pro systems that are used to pre-produce and



NBC's Studio 8H production control room in Rockefeller Center, New York City. 8H is the home of Saturday Night Live, offered in HDTV.

edit the show [for syndication].” The SAN handles uncompressed HD video and uncompressed 24/96 audio; the pre-record music systems run at 96 kHz for enhanced audio quality, with files being down-sampled for the live show. Hard disk recorders or Sony HDCAM-SR video machines, both of which accommodate multichannel audio and VANC data, handle master recordings for *Saturday Night Live*.

ASCENT MEDIA

A leading supplier of audio post services for TV and film, Ascent Media operates 70 facilities in Southern California, New York, London, Singapore and other locations. In Los Angeles, Ascent Media Creative Sound Services' post sound houses—clustered around Hollywood, Burbank and The Westside—are interlinked via high-speed data highways. “All media is delivered from central or local servers,” advises Bill Johnston, Ascent Media's senior VP of engineering. “We do not work with tape much anymore. Instead, we have placed a focus on providing Gigabit IP-based networks that can deliver audio and video files from our Apple Xserve and Xserve RAID high-performance servers.”

Ascent typically delivers files ahead of a session to server drives at a target remixing stage or pre-production area. Reasoning that on-demand bandwidth between facilities is still impractical, the company uses a push-pull IP transport layer to transfer data in near-real time. “Starting at let's say 8:15 a.m., we can deliver all of the sound and picture elements for a complex mix session well before 9 a.m.”

The primary backbone used by Ascent to link regional production centers is based on high-speed connections from Orbit Data Technologies that are optimized for IP transfers over long distances from Holly-

Goodbye Rabbit Ears

It's been a long time coming since the first HDTVs were introduced (back in 1998), but the days of good old analog TV are coming to an end. In December 2005, the Senate passed a bill that calls for television broadcasters to cease analog broadcasts on February 17, 2009, at which point, the broadcast spectrum will be freed up for other purposes, such as wireless and public safety services.

The FCC also requires that all new television receivers include the capability to receive digital TV signals; by March 2007, all televisions are required to have built-in digital tuners. For more information, visit www.fcc.gov/cgb/consumerfacts/digitaltv.html.

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wood to New York and even London. "We also use Digidesign Digi Delivery to send encrypted material to our remote facilities and to outside editorial rooms," Johnston says. "Our servers need to be highly secure, so we provide broadband IP to the Internet in selected ways; we use AFP [Apple File Protocol], which is more secure for us than conventional FTP-based transfers. We are also exploring QuickTime encryption technologies, such as MovieLok from Gallery." Also available are Fiber 270 connections operating at 270 MBit/sec using dedicated switchers and fiber from SBC/Pacific Bell, which Ascent uses to centralize its layback rooms. For example, while posting Touchstone's HD show *Commander in Chief*, Johnston explains, "Executive producer Steven Bochco likes to audition mixes in real time at our [Westside] Lantana facility while it's being mixed in Burbank [Calif]."

For routing real-time signals between production areas, "We use MADI-format routers if they're provided on the front end of a digital console, but because we do not have centralized machine rooms—everything is operated locally from the dub stage or editorial room—we needed large-format routers like StageTec's Nexus MADI-based router that Fox Studios uses ahead of its DFC digital consoles," says Johnston. "Plain-vanilla TRS patchbays and Elco connectors are as easy to use, we find, and certainly more cost-effective than routers. Ascent has spent a lot of money on its wiring infrastructure, using fiber optic for the high-speed IP highways and AES/EBU connections for stereo pairs, and traditional analog patching where required."

Server-based topologies can't keep everything online 24/7, so an efficient backup and restore strategy is important. Blu-ray media offers increasing capacity; current 23GB discs are expected to be superseded by 50GB formats.

"A 50GB capacity nicely matches our workflow, with an excellent cost-per-GB; its long-term viability looks very good," Johnston says. Also important is an efficient and effective digital asset-management strategy to ensure that material can be tracked through final delivery. "Everything must be cataloged," Johnston concludes. Given that a "typical" production can require 200 GB to 1 TB of audio files, including duplicates, labeling data is critical. "All file names should be human-readable, but they cannot tell us everything about their history and current status, which is why system metadata is crucial." ■

Mel Lambert heads up Media&Marketing, a consulting service for audio firms.

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ESSENTIALS FOR

Going Surround

A STUDIO CHECKLIST

By George Petersen

If you've upgraded your DAW or console lately, then you've probably got surround production on your mind—or at least in your eventual plans. Other than audio for feature films, advanced games or network television programming, the vast majority of the audio we hear is still in stereo. However, surround—*real* surround, not “rechanneled for 5.1” stuff—is definitely the present (and certainly the future) of music production, whether you're working in LCRS, 5.1, 6.1 or more; and in Dolby Surround, DVD-Video, DVD-Audio, DTS, SACD or custom playback systems for special-venue presentations, thrill rides, etc.

Thankfully, many of the tools that we need for surround production are identical to the mono and stereo items that fill our studio spaces. It's nice to know that we can embark on our journey to multichannel production without having to give up our favorite mics, preamps and signal processing. Even in a room that's set up with an analog multitrack and an older stereo board, an engineer can do multichannel mixing by simply assigning channel

sources to the various output buses. While it's not as slick as working with X/Y pads or joystick panners, your audience will never hear the difference.

MIX FORMATS

Once your five (L/C/R/Ls/Rs) feeds are at the output buses, just route those to your storage format of choice. If you're not maxed out on your system's track count, mixes can simply be recorded back to five available tracks on your source multitrack. This offers the advantage of storing mixes with your multitrack master data (analog or digital), offering a solution that's both easy and convenient. Of course, mix files from your DAW can be easily archived to DVD-R or hard disk.

If you need to have files in a discrete, transportable audio format, options abound. Equipped with eight channels—enough to hold 5.1 discrete tracks and a stereo mix—tape-based modular digital multitracks, such as Alesis ADATs and Tascam DA-88s, are a low-cost alternative. Tascam's (www.tascam.com) latest generation in this category—its Hi-8mm, tape-based DA-98HR and DS-D98—offer eight tracks at 24-bit/48kHz, or four channels at 96 kHz with the possibility of interlocking more decks for additional tracks. As a plus,

both decks also offer 2-channel 192kHz recording, and the DS-D98 also doubles as a DSD (Direct Stream Digital) 2-track.

Speaking of DSD, one high-resolution option is mixing surround tracks to an 8-channel DSD machine, such as the Genex (www.genexaudio.com) GX9000. Housed in a four-rackspace chassis, the GX9000 can record to DSD and 24-bit/192kHz PCM digital. Rackmount hard disk PCM multitracks (Tascam X-48/MMR-8, Mackie HDR24/96, Alesis HD24, et al) offer another storage avenue. The Fostex (www.fostex.com) DV824 provides eight channels of 24-bit/48kHz recording (or four channels at 96 kHz) in a two-rackspace unit, storing audio data to DVD-RAM or optional hard disk.

If you really want to go exotic, one possibility is mixing to ATR Service Corp.'s (www.atrservice.com) ATR-108C 2-inch analog 8-tracks, with custom, discrete Class-A electronics by Dave Hill. Phat and sweet!

HEARING IS EVERYTHING

You can't mix without being able to hear your tracks. You'll need monitors, of course. Getting into all the possible combinations and offerings in surround speakers for the studio is well beyond the scope of this article, but for more information in this area, see *Mix's* report on new studio monitors in the June 2005 issue, or visit www.mix-guides.com/studiomonitors for a wealth of resources, articles and references.

Unfortunately, even if consoles can handle surround mixes, most lack adequate facilities for surround monitoring. This problem is most prevalent when an engineer is mixing “within the box” on a computer-based DAW. And the task of surround monitoring goes beyond merely being able to turn down all those tracks at once. Having fast push-button access to track soloing and muting is an essential part of the surround mix experience, especially when you're trying to isolate that odd noise



Dangerous Music Danger Monitor ST and SR modular monitor controller adapts to stereo or surround.



Tascam DS-M7.1 supports LCRS up to 7.1, with downmix capability to mono/stereo.



The Klein + Hummel PRO M 1012 comes with full bass management.

in the right rear channel or are perfecting the level of center-panned elements.

There are a number of surround monitoring packages that provide that quick access as a standard feature—either via a hardware controller and/or by way of computer software under networked control. Dynaudio Acoustics' (www.dynaudioacoustics.com) AIR Series offers both an AIR Soft Mac/PC application and a hard-wired mini desktop remote to enable solo, mute, reference levels and global (or individual) volume change functions. Alesis (www.alesis.com) includes PC control software for use with its ProActive 720 DSP and 820 DSP, and both infrared and wired controllers for its mini ProActive 5.1 system.

At NAMM, JBL (www.jblpro.com) announced the availability of a new Mac OS X version app to go with its LSR4300 Series monitors, as well as Windows Control Center software for adjusting levels, mute/solo and input source select over Harman HiQnet networking. All parameters of the series' Room Mode Correction acoustical tweaking are also remotely controllable either via the handheld wireless remote or from a computer. Tannoy (www.tannoy.com) recently partnered with TC Electronic on its Ellipse iDP™ Series monitors, which combine Dual-Concentric drivers and SuperTweeters with onboard networking and DSP control of acoustical alignment, bass management, solo/mute and global level with preset memories that are recallable using the iDP hardware remote or PC-based control software.

MONITOR CONTROL—A LA CARTE

If your speaker system or console provides monitor control amenities, then you're set. But for most of us, some sort of outboard controller is a necessity. Fortunately, controller options abound for surround applications.

Distributed by Sascom Marketing (www.sascom.com),

Adgil Designs' The Director is a programmable system designed specifically for multichannel environments. The Director can handle one main monitoring system with up to eight output channels and two aux stereo systems, and switching for up to 30 input sources. Functions include mute, dim, mono and solo (all available from an external remote); preset monitoring levels; variable levels; and more. Rear panel plug-in cards in the three-rackspace central "brain" allow for system-expansion options in input routing, matrix routing and bus amps/insert sends. Three available remotes handle 7.1, 5.1, LCRS or stereo speakers. An average 24x8 I/O system is approximately \$5,825.

Now handled in the U.S. by AXI (www.axidistribution.com), Audient's ASP510 surround sound controller pairs a one-rackspace "brain" with a compact, hard-wired controller. Among this \$2,995 unit's features are six preset monitor formats, switching from three 5.1 and three stereo sources, eight console inputs/outputs (5.1, plus 2-track), switchable encoder/decoder inserts, level trims on its six speaker outs, mutes, solo, user-definable reference and dim level, guide track input and built-in pink-noise generator.

Just unveiled at NAMM, Dangerous Music's (www.dangerousmusic.com) Dangerous Monitor ST and SR modular moni-

tor controller adapts to stereo or surround, and features a stepped-attenuator volume control, four input sources, three speaker outputs, programmable input gain/output level offsets, assignable sub output, mute/solo functions and a stereo cue/talkback system with onboard 40-watt power amp. Its modular approach lets users start with the stereo ST unit (\$2,199) and add the \$1,499 SR expansion module for full 5.1 capability later.

The m906 5.1 monitor system from Grace Design (www.gracedesign.com) goes beyond simple volume duties; it also includes source switching for balanced and unbalanced 5.1 inputs, 24-bit/192kHz AES-3 stereo inputs (stereo and 5.1 multichannel), 5.1 analog outs from the DACs, S/PDIF RCA and optical S/PDIF inputs and word clock/Super clock In/Thru. Also standard are talkback mic switching, analog stereo cue I/O, two stereo analog control room outs, headphone/cue outputs and solo/mute/dim on any output. Included with the \$5,995 system is a full-function remote that connects to the two-rackspace main electronics for fingertip control.

Klein + Hummel's (www.klein-hummel.com) PRO M 1012 is a surround management system with full bass management, programmable downmix configurations, volume control of up to 12 output channels and more. Options for this \$5,950 system



The Fostex DV824 two-rackspace unit stores audio data to DVD-RAM or optional internal hard disk.

are extensive, including transformer or electronically balanced 8-channel analog input boards, four AES/EBU digital input boards, a board with eight additional transformerless outputs and a parametric EQ module for subwoofer or room equalization. The system stores 80 onboard (plus 12 user-defined) configurations accessible from the front panel, optional hardwired or infrared remotes or (included) Windows software.

The MultiMAX EX and EXR from Martinsound (www.martinsound.com) have 16 speaker outs so that the engineer can switch multiple sets of stereo and surround monitors to make A/B comparisons between combinations of a mono speaker, stereo monitors and two 7.1 systems, for example. Sources can include four 8-channel inputs, and options include the company's Monitor Max Stereo Monitor Controller, which adds functions such as talkback and switching from 10 stereo sources.

Tascam's DS-M7.1 (\$1,249) supports surround formats from LCRS up to 7.1—including 5.1 and 6.1 formats—with the ability to downmix to mono or stereo from any surround format to check mixes on a smaller system. The unit has a detachable front panel that doubles as a full-function remote. Other features include 8-channel TDIF, AES/EBU and ADAT connections to a stem recorder; TDIF connections to console (AES/EBU and ADAT optional); eight input and eight output channels; AES/EBU digital inserts for encoder monitoring (analog optional);



The Dolby Media Decoder plug-in is part of the Dolby Media Producer Suite of HD and DVD creation tools.

mute/solo/dim/mono switching; onboard bass management; individual channel delay compensation; and analog and AES/EBU digital surround monitor outputs.

SWEET AND SIMPLE

Sometimes what the job really requires is a straightforward system that addresses the need for 5.1 bass management and volume control without other features—such as studio communications, busing and stem routing—that increase the product's complexity and cost. Here are a few examples for the pro studio environment.

Although designed with its own line of



Digidesign markets the Neyrinck SoundCode.

surround monitors in mind, Blue Sky's (www.abluesky.com) Bass Management Controller works with nearly any 5.1 system and handles the basics—5.1 bass management and volume control—in a \$795 package. Features include balanced XLR I/Os, channel mutes, a full-function remote, defeatable 80Hz bass management and dual subwoofer outs.

Self-contained in a single rackspace is the SR5.1MKII (\$1,100) from Coleman Audio (www.colemanaudio.com). This 5.1 surround level controller has channel mutes and individual trims for each speaker, along with fold-down to stereo and fold-down to left/right/center. A six-gang stepped attenuator controls level for the straight-wire crowd.

All inputs are balanced on Combo TRS/XLR jacks. Coleman also makes the A/B5.1, a \$525 unit for switching between two sets of 5.1 speakers.

New from Event (www.event1.com) is the ESP5100, a surround preamp/processor with volume control and switching of its 5.1 analog RCA inputs and four digital ins (optical and co-ax) to 24-bit/96kHz DACs feeding its 5.1 analog RCA outputs. The \$399 unit includes an infrared remote and onboard decoder circuitry for Dolby Pro Logic II/IIX, Dolby Digital, Dolby Digital EX and DTS formats. Due later this year is the ESP7100, with full 7.1 capability, XLR balanced outputs



and channel mute/solo control.

Miller & Kreisel's (www.mkprofessional.com) LFE-5 Bass Management Controller (\$999) redirects the bass frequencies from five full-range XLR inputs and one or two LFE inputs to one or two subwoofers. The LFE-5 has basic bass-management functions, a 6-channel volume control, mute switches on each channel and -3dB cut switches to attenuate the level of the left/right surrounds to match the preferences of some film mixers.

Housed in a single slanted desktop chassis, SPL's (www.spl-usa.com) Surround Monitor Controller 2489 (\$799) allows selection from two surround and two stereo sources with a large volume pot, and provides switches for individual solo/mute, mono, dim and global mute. Inputs are on D-Sub and RCA jacks. Speaker channel outputs are ¼-inch TRS jacks; a slave output routes the stereo or surround input directly to a recorder device.

The single-rackspace Models 68A/69A (\$1,799) and 78/79 (\$2,799) from Studio Technologies (www.studio-tech.com) offer control of multiple surround sources. The 68A supports two 5.1 and two stereo inputs; the 78 handles two 7.1 systems. Models 69A and 79 hardware remotes add mute/solo switching, input select, level control and dim/mute functions.

New from Violet Audio (www.violetaudio.com) is the MV71, a digitally controlled analog surround volume controller. Inputs include XLR 7.1, RCA 7.1 and five stereo pairs; outputs are 7.1 XLR and two stereo pairs. Also featured are bass and treble control on the master stereo outs, infrared and hard-wired remotes, 24 quick-access controls, last-state memory storage and backlit 16x2 character LCD.

THE FINAL CHAPTER

Ironically, encoding/decoding—the last step in surround audio production—is both optional and essential. Certainly, it's possible



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to create awesome multichannel mixes in a studio that doesn't offer encode/decode hardware or software—if the final mixes are passed on to another facility for authoring and creation. Yet, having in-house/in-studio access to the encoding/decoding process can reveal much about how effective your mixes will be for the end-user.

Such products are available in hardware and software, and support various formats and/or platforms. Software is available either in the form of plug-ins within a DAW or authoring program, or as separate stand-alone applications. One advantage of hardware encoder/decoders is that they operate in real time and can be patched into the surround monitoring chain, providing immediate feedback as to the effects of the process on the audio signals. And with audio data-compression rates in the 8:1 range, it's nice to know what your audio sounds like after 60, 75 or 85 percent of that data disappears.

On the plug-in side, Digidesign (www.digidesign.com)



Grace Design m906 5.1 monitor controller

www.digidesign.com) distributes Dolby Surround Tools, a \$795 Pro Tools TDM plug-in for encoding/decoding Dolby LCRS tracks to L/Rt, with versions available for TDM Pro Tools|HD, Mix and Accel systems on the Macintosh and Windows XP platforms. The company also markets the Neyrinck SoundCode for Dolby Digital for full encode/decode of 5.1 Dolby Digital (AC-3) audio directly within Pro Tools software. The \$995 plug-in is available in HTDM, RTAS and Audio Suite formats for Mac OS X and Windows XP Pro Tools systems.

The oldest name in surround encoding, Dolby (www.dolby.com) offers a range of tools that meet the Dolby Digital (AC-3) standard used on all DVD-Video releases, as well as tools that support Dolby Surround (LCRS), Dolby Digital Surround EX, Dolby Pro Logic and Dolby Pro Logic II formats. The DP569 (\$5,600) and DP564 (\$4,600) form a reference encoder/decoder pair that's equally at home in a recording studio, authoring suite or broadcast chain, with pro features such as onboard sample

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rate conversion, VTC and VITC SMPTE timecode sync, and serial interfaces for configuring and controlling the units from a Windows PC.

At last year's AES show, Dolby launched its Dolby Media Producer suite of HD and DVD creation tools. The Mac-based (OS X "Tiger") software includes Dolby Media Encoder, Dolby Media Decoder and Dolby Media Tools—a set of utility tools. Each program is available separately or as a suite, and handles codec and metadata chores in Dolby Digital, Dolby Digital Plus, MLP Lossless and Dolby True HD for compatibility with Blu-ray, HD-DVD and standard DVD formats. The entire suite retails at \$11,000; individual programs are available separately.

DTS (www.dtonline.com) has a full range of surround production/authoring products, from the hardware CAD-4 (encoders) and CAD-5 (decoders) that handle soundtracks and multichannel music in multiple DTS formats (DTS 96/24, DTS-ES 6.1 and DTS Neo:6) for DVD, CD and broadcast to the Windows XP and Mac OS X DTS Pro Series Surround Encoder software suites. Also offered is the DTS Pro Series Network Encoder, a multi-user software suite for

studios on the Apple Xserve platform. Both software packages can encode audio for CD and DVD-Video applications, and support the most popular DTS technologies, including DTS Digital Surround, DTS-ES 6.1 and DTS 96/24, as well as multiple bit rates, sampling rates and channel configurations.

The Circle Surround Series of hardware and software-based encoder/decoders from SRS Labs (www.srslabs.com) encodes up to 6.1-channel mixes onto a stereo Lt/Rt mix that's playable on standard 2-channel media (broadcast, CDs, etc.) or decoded into multichannel sound in the end-user's home theater. The Circle Surround Digital CSE-07D and CDC-07D hardware matrixing offer AES/EBU 5.1 and 6.1 encoding, as well as a mono/stereo-to-surround up-mix function. The Circle Surround Analog CSE-07A and CSD-07A make up a hardware encode/decode pair with similar features, but this pair operates in the analog domain. SRS also markets two Circle Surround plug-in suites: Circle Sound TDM Pro (for Pro Tools|HD, Pro Tools|HD Accel and Pro Tools Mix systems) and Circle SoundVST Pro for Nuendo, Cubase and other DAWs with multichannel VST support.

Minnetonka Audio Software's SurCode (www.surcode.com) line offers audio software encoders for Dolby Digital, Dolby Pro Logic II, DTS and MLP Lossless encoding. Now in V. 2, SurCode for Dolby Digital (AC-3 surround) is \$995. SurCode Dolby Pro Logic II stand-alone encoder for PC or Mac is \$495 and VST plug-in versions are \$550. The SurCode MLP Lossless (for DVD-A) is \$2,495; a \$499 encoder handles DTS DVDs; and a version of SurCode Dolby Digital 5.1 is built into Adobe Premiere Pro with a \$295 activation price.

JUST THE BEGINNING

There's plenty more you can add to your surround production rig. Software and hardware signal processing can offer everything from auto-panning and dynamics to ambience, delays and spatialization routines, while meters (virtual and real VUs) and outboard panner controls can simplify life in the surround lane. But if you start with the basics—a solid monitoring rig and a secure place to store those mixes—then the rest can come in time as your needs and finances allow. ■

George Petersen is Mix's editorial director.



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PHOTO: BILL ROBERT

RECORDING LIVE MUSIC FOR TV

By Blair Jackson

Live recording is a difficult and demanding art and science under the best conditions. And engineers will tell you that getting the “best conditions” is extremely rare. Recording live music for TV broadcast adds another layer of complexity to the proposition, even though the environment is often more controlled. Recently, we looked at three music-for-TV productions to better understand the peculiarities of their recording needs.

JAZZ COMEBACK ON PBS

It's hard to believe, but it's been 40 years since there's been a network television program regularly devoted to jazz. That's changing this month when PBS (who else?) launches its *Legends of Jazz* series, produced by Larry Rosen. So far, there are 13 half-hour shows in the can featuring a wide range of top jazz talent. Each program features an interview segment—handled with great intelligence and aplomb by Ramsey Lewis, himself a superb jazz artist (as well as a leading Chicago radio DJ)—and then performances by the featured players, who change each week depending on the theme. There have been some intriguing and historic pairings so far, with several highlighting players from different generations: “The Golden Horns” features Clark Terry, Roy Hargrove and Chris Botti; “The Singers” has Al Jarreau and

Kurt Elling; “Altos” has David Sanborn and Phil Woods, etc. One of the most intriguing is “Jazz Masters 2006,” which brings together Tony Bennett, Chick Corea and the late, great Ray Barretto.

The production is top-notch all the way through. Though the pilot was shot at Henson Studios in Los Angeles more than a year ago, the show's current home is the studios of WTTW in Chicago, a top provider of original programming for PBS. The audio director for *Legends of Jazz* is a veteran of literally hundreds of studio and live jazz recordings through the years, Don Murray. He is quick to note that the production's television aspect greatly affects the audio side. “I understand that the look of the show has priority, obviously, so I talk to Larry [Rosen] about it and I talk to the director, Jack DeMay, and find out how they want the musicians set up visually; then I try to adapt my recording to get the best look for the show,” Murray says. “In some cases, if I were setting up for a record date, I certainly wouldn't set things up the way we do for the taping. For TV, all the instruments are very close to each other: The bass is like five feet away from the drums, and the piano is 10 feet away from the drums with no baffling, and the lid on the piano is totally open. So it's set up for the look of the set—and it *does* look great—more than for how I'd like to record it.”

During tapings of the show on WTTW, Murray is sequestered in a control room off the 100x80 soundstage, in visual contact through the line feed on a monitor. He has a Sony Oxford console there and records to Pro Tools|HD.



Widespread Panic takes the stage as part of Austin City Limits' 31st season

PHOTO: SCOTT NEWTON/AUSTIN CITY LIMITS



Robert Cray and Keb Mo at Legends of Jazz

PHOTO: BILL RICHERT



From left: Legends of Jazz Dave Valentin, Larry Rosen, Eddie Palmieri and Ramsey Lewis

PHOTO: BILL RICHERT



Rolling Stones drummer Charlie Watts is flanked by bassist Gerald Veasley and guitarist Chuck Loeb performing at World Cafe Live.

PHOTO: BRIAN FLANAGAN

Meanwhile, Rosen is out on the floor, dealing with the artists, the director and camera crew. As the show's producer, Rosen is instrumental in shaping the broadcast, making recommendations about areas to discuss, suggesting songs that could be played, etc.

"Obviously, we try to figure out as much as we can in advance of the taping," Rosen says, "but we're still doing most of it right then and there. It's not a recording session exactly, yet it's not a concert, either. They're dressed for a performance and their head is into a performance space more than a recording studio space. The typical day is the artist comes in the morning, we set up the band and go through the music, then do a couple of dress rehearsals, bring an audience [of about 60 people] in and do the show. We're shooting with six HD cameras, and we always shoot and record the dress rehearsals, too. We'll do some different angles that we can subtly cut into the performance, so between the rehearsals and the show, it's almost like we have 12 or 18 cameras."

From his standpoint, Murray tries to find out in advance if any of the artists have a preferred microphone he or she likes to use. "That's never been a problem yet," he comments. "The last thing I want to do is create any tension for the artist during a shoot. Like David Sanborn has a little setup where he uses a Shure SM98 in the bell of the horn, so I went with that. In that case, I hooked up a 98 on Phil [Woods], too, so they each had the same mic on their horns. With Benny Golson, I could use what I wanted, so I chose a really nice Soundelux ELUX 251, which has this rich, mel-

low tone. Chris Botti sometimes brings his own mic, but he didn't this time, so I used an old RCA 77 ribbon mic, which sounded great on him." Murray doesn't get a soundcheck per se, so he works on getting his levels while the musicians are working out the tune before the first dress rehearsal.

After the show is recorded to Pro Tools—usually about 40 tracks of music and 15 of dialog and effects—"we take it back to L.A. and work on it at Firehouse [Studios] in Pasadena, which is a totally Pro Tools digital facility with a fantastic Meyer 7.1 surround system, and we mix in 5.1 and stereo," Murray says. "After I finish my premixing at Firehouse, I take the drives back to New York, where we're doing the post at Creative Group. At post, I have a Pro Tools|HD system that I use right on the dubbing stage, so I can adjust any parameter of the mix. I actually have my whole mix there; everything is in the computer, and Larry can listen to the final mix with picture and we can change any aspect of it."

Naturally, Murray does a conventional stereo mix and a surround mix for the hi-def telecast of the show (and DVD release). "I try to set up my surround mix as if you were sitting in the audience and listening to the band, where the band will be pretty much out in front, in very wide stereo, but also wrapped around [to the sides] a little bit. Then I have the ambient mics in the back and sometimes audience mics are in the back, so if you're sitting in the sweet spot in the surround, you basically feel like you're in the room. I don't really mix with too many gimmicks of instruments coming out of the rears; that doesn't seem appropriate."

I ask if the changing visual perspective in the edited program ever affects how he places the music in the surrounds. "When we get to the final dubbing mix and I can see the final cut," Murray answers, "then there might be something that doesn't make sense the way I have an instrument placed in the surround, and I can change it then."

Rosen adds, "In some situations, too, we'll use split screens while the artists are playing duets, so the placement becomes paramount and really has to reflect what's up on the screen."

MUSICLAB IN DEMAND

Cable TV's insatiable hunger for original programming has meant there is more live music of every style to be found than ever before. Coming from the growing iN DEMAND Networks, leading purveyors of video-on-demand, pay-per-view and HDTV programming, is *MusicLab at World Cafe Live*. This show, produced at the Philadelphia facility World Cafe Live, combines conversa-



World Music Cafe's Carl Cadden-James (left) and Will Smith Sr.

tion between musicians with original live performances. The venue is a three-tiered 400-seat music hall/club that was built in the shell of a 40,000-square-foot art deco building and is equipped with a Midas Legend 3000 console, Clair Bros. curved line array (and monitors) and a modern, computerized lighting grid. It is home to an extensive education series that is spearheaded by Tom Emmi, president of the production company Ace Entertainment, and includes songwriting workshops, jam sessions, artist residencies and more. The iN DEMAND show incorporates elements of all these, though it's obviously designed to be an entertaining television program. Among the artists who have already been taped for future broadcasts are the Rolling Stones drummer Charlie Watts,

keyboardist Chuck Leavell, pianist Chick Corea, banjo ace Béla Fleck and Jethro Tull mainstays Ian Anderson and Martin Barre.

Sound recording and post for *MusicLab at World Cafe Live* are handled by Carl Cadden-James, who is VP of engineering for StarCity Recording Company in nearby Bethlehem, Pa.—a fabulously appointed, multiroom Pilchner Schoustal-designed facility that *Mix* readers may recall from our September 2003 cover when the studio was known by its original name, Angel Mountain. Studio A at StarCity is ideal for mixing the sort of high-resolution 5.1 sound required for the *MusicLab at World Cafe Live* program: It contains an SSL 9000 K Series console, Quedest 4x12 5.1 monitoring and a staggering array of new and vintage outboard gear.

Cadden-James notes that the first two programs in the series, which were recorded by another company but mixed at StarCity, were captured on Pro Tools, but now that he's in charge of both recording and mixing, he's gone a different route. "Don't get me wrong, I'm a 100-percent Pro Tools guy; I've used it since '94 or something. But computers are funny. I still feel a little more comfortable with some kind of dedicated in-a-box kind of thing, so specifically for this show, I purchased an Alesis HD24 for the main recording. It's weird, after lots of really bad experiences in the '90s with ADATs, I was a little gun-shy, but I work for producer Jeff Glixman [who runs StarCity], and he had used an HD24 on a nine-camera shoot of a really big band down in Trinidad. Jeff is probably the best critical listener I've ever worked with in my life; his skills are absolutely uncanny and astounding. Anyway, he used it on that project and he thought the converters sounded really good and everything was stable, so that's what we're using." Cadden-James says that he'll continue to mainly use Pro Tools for his studio work at StarCity, "but when we have large orchestra dates, I'm going to run the HD24 in the background behind Pro Tools, should disaster strike."

During the taping of the shows, Cadden-James is holed up in a sort of caged area where mic stands are usually kept. "We roll in, grab a table and plop all our equipment on it," he says. "The place is really nice; a



Austin City Limits' audio director, David Hough, and Sharon Cullen, audio supervisor, at the Euphonix System 5

beautiful facility with a very nice stage and a good sound system. They have a mic splitter in the cage and from there [the signal] goes out to the house mix and the monitor mix. I'm in there with a pair of headphones and a small Mackie board, and I have a couple of True Precision 8 mic pre's. I brought down all my own microphones except for [an Audix] D6 supplied for Charlie Watts' kick drum and an Audix 1-5 snare mic. I go directly from the True mic pre's into the Alesis.

"Of course I put up some room mics [Neumann U87s], which are really important for the surround," Cadden-James continues. "I'm a graduate of the Jeff Glixman school of surround mixing, so I like a really solid front wall, with an adventurous-as-you-can-be kind of perspective above and behind, without breaking the front wall focus because you're going to be looking at the TV screen in front of you. But we'll bust out the keyboards and make them a bit enveloping. I'll use a Lexicon 960 surround reverb to give, say, a B3 some dimension."

MusicLab at World Cafe Live is three-camera shoot, and Cadden-James says that in posting the show, "I believe there are times when altering the mix based on the perspective of a particular shot is appropriate and times that aren't. It's complicated because you'll have a stage-roving camera on a big jib moving all over and you literally could have your perspective start up above and to your left and then roll around and go to [a musician's] right, so what do you do with that? I really tend to maintain the placement focus based on how the musicians are onstage, because a fair amount of the time, the shot will bounce back to a more open shot showing all the musicians, or larger groups, at once. Now, if the cam-

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era is focusing in on something, the object of the moment may get better prominence volume-wise, but I tend not to move the placement around much."

Cadden-James does both a 5.1 and a dedicated stereo mix, working from a Pro Tools transfer. "In both my SSL 9000 K room and my surround post mix room, which has an SSL Axiom MT Plus, I have a Dolby DP570 [Multichannel Audio Tool], because I like to always take into consideration what's going to happen to those reverbs for the 5.1 mix when we crush them down [into stereo]. So I find that to be a very valuable tool." He says that the ambience of the show is a combination of the room mics capturing the actual World Cafe space and his own taste in reverbs, based on the look of the show and the music being played. "I just want it to be as cool and listenable as possible," he says. "I want it to sound great in a home theater environment."

Though Cadden-James has periodically had to deal with odd requests from the video side of the production—"Some camera people actually asked if I would take down a microphone that Ian Anderson needed to use because they didn't want it in the shot!"—he says that so far, everything has run smoothly with both the live recording and the post. "When you get to record musicians of this stature and caliber, you typically don't have bad instruments showing up or poor performances. I'd have to be really stupid and make mistakes to make it sound bad," he says with a chuckle.

AUSTIN CITY LIMITS: THREE DECADES OF QUALITY AUDIO

Can it really be true that *Austin City Limits* has been churning out its exceptional live music program for PBS for 32 years? Believe it—from its humble pilot episode in 1974 featuring recent Austin transplant Willie Nelson and its early years mostly showcasing Texas country, folk and roots performers, *Austin City Limits* has grown to perhaps the most reliably great music program on TV, and regularly features high-caliber national and international acts (as well as plenty of down-home pickers and singers still). All but two episodes have been shot at Studio 6A at the PBS affiliate KLRU (originally KLRN) on the campus of the University of Texas. The wonderful set, with the Austin skyline at night and actual greenery in the studio, makes the program look like it's shot outdoors—a nice illusion.

Austin City Limits audio director David Hough (pronounced "Huff") has been with



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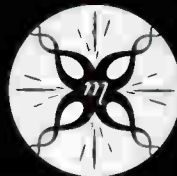
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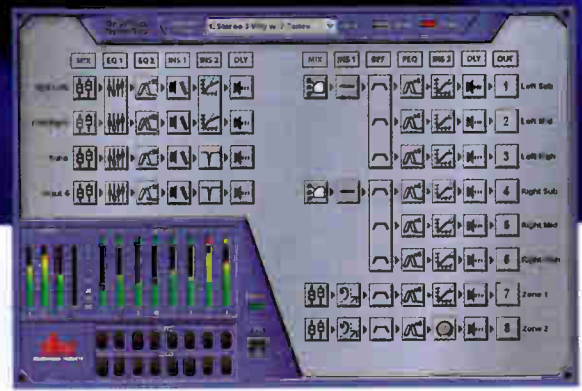
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the program for its entire history and has instigated a number of changes in the technology used to record the show. "In typical PBS fashion, we've had the best equipment that money can buy—as long as it's 10 years or older," he says with a laugh. "Actually, that's not really true. We do have budget constraints—but so does everybody—and we have occasionally relied on equipment that has been donated, but we've never had to make any serious compromises. I think the show has always sounded good.

"We started off doing the audio on analog 16-track Studers and we had a 16-channel classic Neve [console]—actually it wasn't classic then; it was new. I think all the stuff we bought was a year used. We had a contractor for the first few years who provided most of the equipment.

"Then, by the time we did Roy Orbison in 1982 or '83, we realized we just didn't have enough channels. At that point, we were putting together submixers and out-board things just to get the drums down to two channels or one.

"But our next big changeover of equipment came in 1987. We went 12 years on the 16-track. Then we got a budget to get a Neve 32-channel console and a 24-track Studer 820, which was a great machine. In fact, we still use it to transfer tapes for the New West Productions [DVD releases of *Austin City Limits* programs]. We converted to a digital console in 2000—we chose a Euphonix System 5, which has been just great; I love it. The funny thing is we still ran analog 24-track for two more years, I guess because nobody figured out that with digital you didn't have to buy tape," he says with a laugh. Now, not surprisingly, the show is captured on Pro Tools|HD.

Hough says that the transition to digital started "when [engineer] Nathaniel Kunkel was in town to help mix the Lyle Lovett show we did that year. He actually was encouraging us to go digital. And the [Digidesign] salesman was very clever—he dropped one off: 'Here's the first one for free, kid; just try it out for a few weeks.' We used it for editing and mixing down to chase the videotapes. That was one of the hardest things about post-production: trying to chase the video back with the analog gear. Everything is so simplified now that everything is sitting on a hard drive.

"After we got the Euphonix in 2000, we ended up going to the [Merging Technologies] Pyramix [DAW], and we've been running that for the last two or three years," he continues. "It locks to timecode like a bandit. It's also very efficient in doing the 50-plus

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tracks embedded into one file. We also now have a Nuendo system based around their Dual Opteron processor. But we're mixing down to Pro Tools."

On the day of a shoot, Hough says, "We get the musicians in the studio as early as we can. Typically, load-in would be 9:30 or 10 o'clock. We'll get it all set up and, depending on the size of the band, do line checks and soundchecks, and hopefully get a little lunch. Then we come back and do a full camera run-through from about 3:30 to 5, before the actual taping that night before the live audience."

For most shows, Hough is handling the recording and mixing in the control room off the soundstage, but occasionally bands will want to have their own personnel and equipment on hand, or at least approve Hough's mix. With a typical show, it takes him a couple of days to mix the show and then another day to do post editing.

"Some of the larger bands that are on tour are very particular and will bring house consoles, monitor boards—everything on the stage," he says. "That's what Coldplay did. That was an interesting show because it was such a short turnaround. PBS normally requires eight weeks for evaluations, tests and publicity—mostly publicity, I think—and Coldplay we turned around in seven days before it went on the air. They wanted their mixer, Dan Green, to work on the mix, so I realized the thing to do would be to show him how to use the Euphonix board and let him do what he does, so that's what happened. And he nailed it. When they left that night, Dan gave us the approval we needed."

Though *Austin City Limits* is broadcast in stereo only at this point, "I've been mixing it in surround for the last couple of years," Hough notes, "because Pro Tools and the Euphonix are geared up for it. It's a lot of fun. Last year we put in the Dolby E equipment, and we have a Pro Logic 2, so I've been down-mixing the surround through that gear to Lt-Rt and that's what's been going out on PBS. For this next season, we're getting the Sony machine that's capable of recording the Dolby E stream, which is 20 bits. Up until this last year we've only had a videotape machine that could do 16-bit."

Hough also believes the show will begin broadcasting in surround soon, perhaps as early as next year. "Everything seems to be moving in that direction, what with HD and DVD releases. We don't want to be too far behind." ■

Blair Jackson is Mix's senior editor.

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Los Lobos' Steve Berlin

A Musician Brings Sympathetic Ears to Production

Steve Berlin is a lucky man. He plays reeds and keyboards in one of the greatest bands of all time, Los Lobos. Yep, he's the soulful white boy in the supremely talented and creative all-Latino band. Since the beginnings of his involvement with Los Lobos, too, he's had a lot of input into their studio work, co-producing many of their efforts and *always* being heavily involved. Berlin says that from about the time he was 14 and playing in bands with older kids in his native Philadelphia, he was always the guy who was recording his groups, "or making the calls to set it up, putting the studio time together, helping with mixes."

He's parlayed this fascination with recording into a highly successful second career as a producer, amassing an impressive discography with a wide variety of fine bands and singer/songwriter types. Among them are Angélique Kidjo (*Oyaya!*), the Fabulous Thunderbirds (*Painted On*), Michelle Shocked (*Mexican Standoff*), Rickie Lee Jones (five tracks on *Evening of My Best Day*), the first two albums by Los Super Seven, Raul Malo (*Today*), Ozomatli (*Embrace the Chaos*, six tracks), Crash Test Dummies (*The Ghosts That Haunt Me*), Faith No More (*Introduce Yourself*), Buckwheat Zydeco (*Five Card Stud*), John Wesley Harding (*Why We Fight*), Beat Farmers (*Tales of the New West*) and a new album I'm particularly fond of, Jackie Greene's *American Myth*. He often plays on the albums he produces, and he has been a session player on many records he didn't produce. When



does he sleep?

After decades living in L.A., Berlin has spent the past few years living in the Pacific Northwest (but also maintains a flat in So Cal). We caught up with the Busy One a few nights before a winter swing by Los Lobos, which found the band playing extended versions of all the songs from their unrivaled 1992 masterpiece, *Kiko*. Wow, that was a treat!

When and why did you move to the West Coast?

I moved to L.A. in '75. There was nothing happening for me in Philadelphia; I was kind of floundering. Some of the

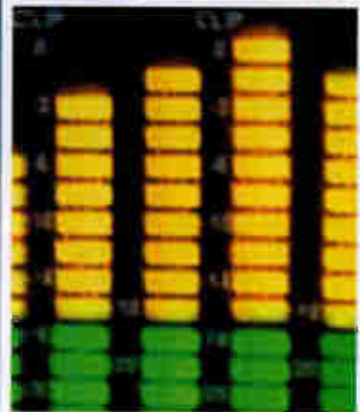
guys I had been playing with [moved to L.A.] and were backing up Billy Preston, and then they were with Gregg Allman's band for a while. So they convinced me to come out here around Christmas 1975. Actually, as a group we got signed to Casablanca, of all places, in 1976. I was 19 at the time, and it was a pretty big deal. It was a full-on record deal with all the bells and whistles, and they put us up at Indigo Ranch, which was a fine studio, and they assigned us a producer, who shall go nameless and who got paid a fortune. At this point, I'd produced a bunch of demos, but I figured here's my chance to see what I'm doing wrong and see how the pros do it. Well, this guy literally made just about every mistake you could possibly make. Every brick he could trip on, he fell flat on his face. Every call was wrong, every musical decision was wrong. We had Ritchie Hayward [of Little Feat] playing drums and this guy fired him because he was unsteady! [Laughs] So this was an eye-opener. I thought, "Well, obviously if this guy can get paid this much to produce, there's nothing I'm going to do that's possibly going to be as lame as this guy—*ever*." So from that point on, I felt it was sort of my destiny. [Laughs]

You were part of that incredibly vibrant new wave scene in L.A. in the late '70s and early '80s that incorporated everything from The Blasters to X to even more hardcore punk bands.

All of a sudden, there was a scene and places to play! We all knew each other and everybody was working out ideas. I remember the first Plugz record had come out. Everybody was making 45s, and at that time it felt like a real record. I was recording demos with zero budget. At that point, I had the idea that if something sounded good to

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me, it would probably sound good to other people, and I kind of went on from there. I joined The Blasters shortly after that, and then the Lobos thing happened not too long after that, and we were off to the races.

It was an amazing time to be in L.A. I've read about Paris in the '20s and San Francisco in the '60s, and I can't say that the L.A. scene was the same thing, but it definitely had some of the same iconic signposts. It really was magical.

Ab, the magic of Downey, 1980!

Right! [Laughs] Under the Golden Arches, talking about when we were going to be stars! There was an ethic there that Lobos carries forth: You do it yourself, you don't take any crap from anybody, you compromise as little as possible and you work as hard as you can. All those bands—X, The Blasters, The Plugz, The WeirDOS—they weren't f***in' around; it was life or death. No matter what they were doing, they worked extremely hard at it and they really tried to create something of lasting value. It was great fun of course, don't get me wrong, but we wanted to do something that mattered and create a lasting work of art.

What did you learn from other producers along the way, whether it was Mitchell



From, TBone Burnett...?

Mitchell is definitely the guy who influenced me the most. I think he's really a genius. His attention to texture was incredible.

You know, doing this *Kiko* show, we've gone back and listened to that album a lot. That album was really a co-production. We'd recorded about half the record, and then Mitchell came in and that's when it really took off. I'm listening to it and hearing all these details that, at the time, sounded great, but now I realize that a lot of what gives the record its magical and mystical quality are these little detailed touches. And that idea has really rubbed off on me. I'll be in with a band and they'll be saying, "Why are we spending so much time on this little thing?" [Laughs] What



Los Lobos, L-R: David Hidalgo, Cesar Rosas, Steve Berlin, Conrad Lozano, Louis Perez

I learned from Mitchell is that those details matter. It's not just Mitchell, either, of course. It's true on Motown records, Beatles records: The weird little sounds matter.

We've come to think of Mitchell and Tchad Blake as having a certain aesthetic based on what we've heard them do through the years: unusual sound choices, lots of compression, distorted microphones. But I think of your approach on a number of your productions as being almost straight-ahead documentary. I'm wondering how those two worlds collide in your work.

I'd like to respectfully disagree. I don't try to do straight-ahead documentary. That would be kind of pointless. That said, Mitchell and Tchad have probably pushed the envelope a lot further in some regards than I would.

I try to bring a fresh slate to whatever I'm working on. There are certain tricks you pick up along the way that might work sometimes. But I remember there have been weird things I'd try on somebody else's record that I'd be hopped up to bring back to Lobos, and it would be completely wrong. You can put as many arrows in your quiver as you want to, but 99 times out of 100, you've really got to start with a brand-new set of weaponry and try to figure it out with the people you're working with. I really don't try to bring an agenda to the records I make. I try to figure out where do they want to go? Do they even know where they want to go?

How often do they know where they want to go?

As the technology has become more understandable to people, and everybody's basically got a home recording setup of some kind that isn't just a cassette recorder, people

have a lot clearer idea of where they want to go. The demos that people are making are getting closer and closer to their vision.

So will producers become superfluous?

I don't think so. We are still the link to the full realization. A lot of times, the people I work with might set a relatively low horizon for themselves, and I'll hear something and share an idea with them that we can turn it into something really, really huge. Don't aim for the horizon line you can see. Aim beyond that and see how far you can get.

Even with people who come to me with relatively fleshed-out demos, there's still a lot of elucidation and sketching in the frame that can happen. And that can be really rewarding—when you go off with the artist and discover that stuff together. Some of the records I've worked on that were the most fun were ones where we didn't really have a map, but we got to the end in a really interesting way.

What's an example of a record you produced that succeeded in that way?

The Raul Malo record, *Today*, is one I'm quite fond of. He wanted to make a Cuban-sounding record, like a Perez Prado, big, brassy, '40s-type record, but with modern production. He came to me with really strong demos, and I hired a guy named Roberto Salas, who's a really brilliant arranger that had worked on the second Super Seven record. And between us, we managed to get that flavor he was after—it's big, ballsy, with these nasty horns; the vocals are huge.

Raul's one of those guys who doesn't do anything small. I think when he goes out to pick up the paper in the morning, there are trumpets and swans. [Laughs] So making records with him is a blast.

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So we had this paradigm in mind and we were able to really take it a long, long way to that end.

How much does being a working musician help in being a producer?

A lot. So much of a producer's job is psychology. You want to be supportive, you want to be a friend of the artist, but you also want them to surpass themselves. I know what it's like to be in front of the mic and to feel like you're completely bereft of ideas, or the sound isn't working, or the part isn't working, or the instrument isn't working and you feel like you're lost. I know that personally and profoundly. [Laughs] Hopefully, that kind of empathy is one of the things I can bring to a session I'm producing. I also know when a band is "on," and I know when a band is clicking and when it's not. It's something you know instinctually when you've played in bands.

I've done a lot of bands' first records—Faith No More, Crash Test Dummies—and I can remember exactly what it feels like to make your first record and feel the weight of the pressure. You don't want to suck and you want to measure up to the first AC/DC record or the first whoever record. It's a very complex feeling that the engineer/producers I know who have never been performers will never completely understand.

How technical are you?

Not very. My experience is more in arrangement and the psychological aspect of it. I hire and know some of the most amazing engineers, and they're guys I consider my friends—guys like Dave McNair and Robert Carranza and Tchad Blake. They are the absolute best at what they do, and I respect them so much.

Personally, I think being an engineer/arranger/producer is an awful lot of stuff to hold in your brain at once. Having to think about the punches *and* the psychological stuff sort of limits how you hear the musical possibilities. So I've been really lucky to work with people who understand me and how I like to do things, and let me focus 100 percent on the music and the people making it.

When you work with an artist for the first time, what's the feeling-out period like? I see you worked with Rickie Lee Jones, Michelle Shocked—interesting singer/songwriter types. It must require a different bead space from working with a band, where there's input from a lot of different people.

Definitely. The fun thing about working with some singer/songwriters is I've had the opportunity to put together bands for those people. I'm almost never trying to capture just a single musician and her instrument.

With both Michelle and Rickie, and a guy I just finished doing named Jackie Greene, we've gotten to sort of put our dream bands together and more or less cast the record. I think of it as a director casting a movie.

For instance, on the Michelle Shocked record, I got to put together this dream band where I used Pete Thomas on drums and Joel Guzman and his partner, Max Baca, who were part of the band on the first Super Seven record and have a band called Los Aztecs in Austin; they're absolutely amazing. Joel is the best accordion player alive—he's like the Art Tatum of accordion; I'm not exaggerating. It was a blast putting those guys together.

I was totally blown away by Jackie Greene when I saw him open for Los Lobos at the Fillmore last year.

I was, too! That's one reason why I wanted to work with him. I think the record we made together is really great, too. He had 30 songs or more; he's incredibly prolific and they were *all* great. There were definitely many good songs that got left behind because I wanted to make a really multifaceted record—it wasn't going to be an all-rock record or a folk record.

This is another example where I got to bring in some players I like. On 75 percent of the album were Pete Thomas, Dave Faragher [both members of Elvis Costello's Imposters] and Val McCallum; together, they're a band called Jack Shit. The paradigm in my mind was a Faces record. I wanted it to sound like a band that understood each other so well, they could take the craziest chances and it would still feel completely coherent. On the other quarter of the record I used [Los Lobos drummer] Cougar Estrada and a bass player named Rene Camacho, who played on the Raul Malo record and the Rick Trevino record I made. We got some really interesting tracks with them. Jackie is this guy who has very little Latin in him or about him, and yet he's got this groovy Latin feel on some tracks. It came out really well.

Has it ever not worked out—where you put together the wrong cast?

Definitely. I'm not batting a thousand, that's for sure. There were times when the personalities didn't mesh or the sound produced by the people you cast wasn't quite right, so you get "chocolate menudo": It might have been a really good chocolate fondue or a really good menudo, but it didn't work with the two things at the same time. When it doesn't work is when you really earn your money: "Okay, let's see if we can make something interesting out of this."

Have regular recording studios become less relevant to you, or would you always

prefer a good studio if you're given a decent budget?

A big budget is a nice thing to have...

And also really rare!

That's true! But when I look back on the records I've made, some of the ones I liked the most were made with small budgets. And one reason, I think, is that having a smaller budget can force you to be creative. Having fewer choices, and maybe the ability to execute fewer ideas, makes you a lot more creative about the time you have and the choices you do make. So I've rarely thought a budget was too small to get the job done. And when it was, I've mentioned it in advance. The 30 to 60k budget is about as cheap as you could sensibly make many—but not all—records. You have to do your homework and be prepared, and you also have to be freewheeling in a way and commit to sounds and go with ideas. To have the time and budget to go back and reflect and constantly tweak sometimes takes away from what originally was a great idea.

As for the studios, I still like working in a good room; there are a lot of studios around town I like. But I'm also aware that, increasingly, artists are doing things at home. A lot of projects combine both approaches, and that's fine with me.

When you work with a young band, is it hard to figure out the intraband dynamics and the unspoken politics? You're having to discover for yourself, "Okay, who's in control here? Who's calling the shots?"

Definitely. There's always tension—that's the nature of every band! That's another reason why being in a band helps me understand other groups because I know what it's like to feel that push and pull. Every band has one guy who's off on his own because he's the songwriter or because he's who he is. And there's always strange internal dynamics that you never quite understand because *nobody* quite understands it, but you have to ride those waves as they occur. And to a certain extent, that's what separates a really good producer from someone who is middle-of-the-road. Who can make the guy who's the least happy a little happier so that it's not cancerous?

Every situation is an amazing learning experience. There aren't a lot of careers where you can start the morning with a blank slate and by the end of the day have something incredibly magical. And maybe have something magical in just four minutes. You can't make a movie or write a book or paint a painting in four minutes. But you can certainly capture something unbelievably great in four minutes. ■



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World Radio History

The Voice of God in High Def

Don LaFontaine Upgrades, Streamlines to HD Audio/Video

For the “King of the Movie Trailers” and owner of The Voice of God studio, it makes perfect sense to have a facility of the highest quality. And when that supreme studio sees upwards of 60 sessions a week, it needs to run seamlessly.

Don LaFontaine, arguably *the* most successful and famous voice-over actor, places high value on time management in the workplace. When he realized that his Voice of God project studio—where he records at least 10 sessions a day via ISDN lines—could run even more efficiently, he upgraded, incorporating the latest in audio and video technology. “I was having extreme difficulty doing simple things, like manufacture an MP3 to send off to a client or even using FTP,” says LaFontaine, who runs all of his voice-over sessions himself. “There were too many steps. I needed to streamline so that I could operate everything without having to step out of my voice studio.”

With George Whittam of ElDorado Recording in Los Angeles handling installation and MW Audio’s Mike Warren, Danny Brant and Jimmy Church supplying the equipment, LaFontaine expanded to a computer-centered HD audio and video facility. He donated much of his old gear—Mackie 32x8 board, MOTU 2408 and Macintosh G3, among other items—to a school near his Los Feliz, Calif., home.

A converted electrical room in the bottom floor of LaFontaine’s house serves as a 6x5-foot vocal booth; the control room is housed among a media storage area and machinery for other A/V equipment. To acoustically enhance the space, Whittam installed Auralex Elite Pro panels on the wall and bass traps between the wall and ceiling, and encased a noisy home-surveillance recorder inside a soundproof KK Audio Quiet Rack QR-16.

In place of his former setup, LaFontaine received a Mac G5 computer, Digidesign Pro Tools|HD1 with 192 I/O interface, and an Allen & Heath WZ20 mixing console, among other items. On the video side, Whittam installed a Gateway 6500D to run Avid Express Pro HD 5.2 software and Mojo hardware, Sony HVR M10U HDV deck and HVR Z1U HDV camcorder, and a Sharp LC-45GX6U 45-inch HD monitor, “one of the few LCDs available that can display the full 1,920-by-1,080 picture of HDV,” says Whittam. The video equipment exists mainly for LaFontaine’s personal projects. “I like to shoot and edit film,” the studio owner says. “That’s one of my hobbies. I also like to have the best toys, and since I can afford it, most of the time I’m very happy to get them.”

An iBook laptop, networked to the G5 via WiFi and Timbuktu Remote Desktop software, allows LaFontaine to



PHOTO: GEORGE WHITTAM

The Voice of God's audio side. Left: Don LaFontaine.

control his audio operation from within the booth if need be. “Now I don’t have to leave the room to change a level,” he says. But most of the time, the audio equipment stays on autopilot, with everything running through ISDN and the Telos Zephyr Express ISDN codec. “My agent will send me a fax at the end of the day telling me what I’m starting with the next day,” LaFontaine explains. “I come downstairs at the right time, pick another fax up off the machine that’s got the copy on it, I hear the ‘beep-beep’ that the ISDN is hooked up and I go into the studio. The microphone is set at a certain level; everything is set so all I have to do is talk. It’s pretty idiot-proof.” LaFontaine usually reads into a Manley tube mic, which runs into a Tube-Tech MEC-1A preamp. He records his vocals “flat,” with little to no compression, letting the clients add any necessary processing during the mix.

He has worked out of his own studio for nearly five years, and this new, streamlined setup makes it even easier to manage back-to-back network promos for such clients as Fox, CBS, NBC, TNT and Cartoon Network, as well as voice-over work for *America’s Most Wanted*, *Survivor*, *24*, *World’s Most Amazing Videos*, *Entertainment Tonight*, *The Insider* and myriad film trailers.

Working via ISDN certainly enhances LaFontaine’s productivity, though his previous modus operandi—traveling via chauffeured white limo from studio to studio—certainly did more for his celebrity image. “I might have had 12 or 13 different stops, which can get tiring at the end of the day,” he says. “It also takes up a lot of time, not to mention a lot of gas. Now it’s very handy to just go downstairs, take a fax out of a machine and step into my little booth and do the session. It’s really been a boon for anyone who does a bulk amount of announcing. But the real boon is for the talent in the outlying areas who aren’t living in New York, Chicago or L.A. With ISDN, they can really make themselves available to those larger markets.” ■

Heather Johnson is a Mix contributing writer.

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PHOTO: INFASION STILL COURTESY ABC

Spotting For Episodics

FITTING MUSIC CUES INTO TELEVISION

By Matt Hurwitz

For decades, scoring music for television has simply involved a scaled-down version of the art and process used on theatrical features: orchestral music cues hitting their marks and then moving on to the next, all at a fairly rapid production clip. While the schedule hasn't changed too much, the tools available to composers have. Many television composers can now roll out of bed, grab a cup of coffee and head into a bedroom studio, turn on their G5 and Tascam GigaStudio and create the same atmosphere that used to require teams of orchestrators, engineers and musicians.

Although the method may have changed, the goal is still the same: Move the story along. "The cues are the unseen actors in the scene," says Marc Fantini, part of the four-man team that produces the music for CBS' *Criminal Minds*. Some composers work solo, others in such teams. *Mix* spoke with the music makers for three popular network series to learn about some modern approaches to television music.

VERONICA MARS (UPN)

Josh Kramon works from his home studio, a converted ga-

rage in Studio City, Calif. A former member of Interscope recording artists The Imposters, Kramon always had an interest in film scoring, having been inspired by such seminal works as Bernard Herrmann's jazzy score for the 1976 *Taxi Driver*.

After working briefly for another composer, he fell naturally into film and TV scoring, beginning on such projects as ABC's *Making the Band*. "I open myself emotionally to picture," Kramon says. "When you do that, the rest kind of falls into place."

For *Veronica Mars*, Kramon gave the young detective a modern sound fused with the music of the classic detective series. "[Creator] Rob Thomas wanted something very atmospheric, a modern film noir kind of vibe," Kramon says. "The show has a very specific look, and I tried to have the music fit that—not just the psychological and emotional elements, but the look, as well." To accomplish this, Kramon developed a palette comprising a combination of synths and guitar, bass and percussion, usually heavily processed. "I use a lot of plug-ins on this," he says. "I don't make it sound very natural. Electric guitars are usually recorded direct through a

Pod or a SansAmp stacked and then processed with SoundToys' Tremolator, PhaseMistress and/or EchoBoy."

On the synth side, Kramon puts it simply: "I'm a sucker for really cool, far-out, '70s-sounding stuff." Along with modern soft synths such as Spectrasonics Atmosphere and Access Music's Virus Indigo, the composer has loads of throwbacks, albeit in plug-in form, to the dawn of the synthesizer, including a favorite: the Pro-53 (which emulates an early '80s Prophet 5). "It's just got tons of bass and lead sounds and arpeggiators," Kramon says. "It's a really beautiful sound." He also uses Arp 2600 and Korg MS-2000 plug-ins, the latter featuring virtual patch cables and knobs to help put the player back in the keyboard's heyday. "You can patch it in, just like you did on the original," he explains. "It's really cool."

Kramon found other '70s-era sounds, which he has loaded into GigaStudio, in a Propellerhead Reason ReFill called Electro-Mechanical. "It's this vintage ReFill with wonderful samples of Rhodes and Wurlitzer pianos, as well as vibes, which I use quite a bit," he says. "They're really better than any samples I've ever heard of or used."

These days, during spotting sessions, Kramon will often go over music he's written for previous episodes that has been inserted by the picture editors. "At this point, there's just so much music that's been written," he explains. "In the first half of the season, we would talk [at the spotting sessions] about more of the psychology and specific ins and outs of the scene. Now, it's more, 'Is this type of thing working for the scene or not?'"

Kramon will often find himself restructuring music from previous episodes and cues. "I've had to write somewhere between 25 and 30 cues in five days for the show," he says. "There's between 30 and 35 starts this season in each episode; it would be impossible to write 30 two-minute cues in that amount of time. So it's inevitable that you'll reuse material."



PHOTO: CEMAL MANGI/STILL DOUGHTERY CBE

Kramon records, mixes and delivers his cues in Pro Tools, mixed down to four stems. "I have what I call a music stem, which has all the pads, strings, pianos, et cetera. Then there's a solo stem, with synth lines and whatever would constitute the lead part," he says. The other two are for guitars/bass and for percussion. "I just record-enable all the stems and print everything" from an audio aux track for all of his synths. The music is sent to the music editor time-stamped, Kramon's assistant having digitized the original video to QuickTime files, simplifying the editor's work of placing the music in the film.

INVASION (ABC)

For ABC's creepy sci-fi series *Invasion*, creator Shaun Cassidy—no stranger to the music industry—brought in experienced TV composer Jon Ehrlich (*House, M.D.*; *The Agency*) and his partner Jason Derlatka. The two began working together only in recent years, Derlatka having come from the songwriting/producing world.

Like Kramon, Ehrlich and Derlatka produce a good amount of music each week. However, they work extensively with orchestra, which is somewhat unusual in television today. Each show averages around 24 minutes per episode, with cues ranging from three seconds to three minutes, Ehrlich says, noting that their placement is key to an episode's success. "Spotting is, in some ways, the biggest part of the job. I put a lot of value on blueprinting exactly how the music's going to function, particularly where the ins and outs are. You're changing between the reality of the world you're in to a world that suddenly has music."

The two no longer attend spotting sessions; instead, they sit down together and spot scenes themselves against what the picture editor has placed in for temp (again, usually their own previous music). "We try to create some space and let the scene breathe



From left: scoring mixers Steve Kaplan and Casey Stone, and composers Jon Ehrlich and Jason Derlatka take a break from an episode of *Invasion*.

a little bit," Derlatka explains. "Certain moments really don't need to be pointed up. And sometimes that makes a very poignant moment play well on its own."

Ehrlich and Derlatka compose at their studio in Santa Monica, Calif., though recording of their orchestral music takes place at a number of Hollywood facilities, including Warner's Eastwood Scoring Stage, Paramount and the Newman Scoring Stage at Fox. Recording is handled by experienced mixers Casey Stone and Steve Kaplan.

While spotting, the two composers will determine who will write what. "Our instincts are very similar," says Derlatka. "We'll sit down and go through the show, and one of us will be more excited about an idea than another." The two then plan the cues to flow well together, particularly when Ehrlich is composing one and Derlatka is writing the following cue; this makes working in adjacent rooms all the more valuable. "It's an enormous advantage,"

comments Ehrlich. "I'll call Jason in and say, 'I'm not sure the spot is right,' or, 'What if I go down this path?' or, 'Is there anything in this scene that you really want to key on?' And then we'll start."

"It's kind of like having a mountain-climbing partner," adds Derlatka. "You can go deeper down a path and take risks because you know there's somebody holding onto the other end of the line in case you're going in the wrong direction on something."

The orchestral cues usually involve a



The music team behind CBS' *Criminal Minds*, from left: Steffan Fantini, Mark Mancina, Scott Gordon and Marc Fantini.

33-piece orchestra with a large string section and smaller brass and woodwinds. Percussion samples are used, taken from true orchestral recordings, combined skillfully with the live recordings. "We have a palette of atmospheres and synthetic beds whose basis is mainly organic," Ehrlich says. "They're weirdly processed and stretched. The issues of the stories deal with basic primal animal issues, so we end up using conventional orchestral instruments in an unconventional way."

CRIMINAL MINDS (CBS)

If creating 25 or 30 minutes of music production is tough for one or two composers, try coming up with 40 minutes per week for 42 minutes of air time. That's the challenge for the four-man scoring team for CBS' *Criminal Minds*. The group is headed by veteran film composer Mark Mancina (*Training Day*, *Twister*, *Speed*), and includes brothers Marc and Steffan Fantini and producer/engineer Scott Gordon (Alanis Morissette, Ringo Starr).

The four now work together in a handsome new studio facility in Santa Monica, Calif., but for the first half of the season, that wasn't the case. While the Fantinis (who also own Sage and Sound Studios in Hollywood) worked away in a bedroom in their home on the Venice canals in L.A., Mancina did his work 75 miles away, surrounded by 17 acres of forest in the mountain town of Lake Arrowhead, Calif. The collaborators sent cues back and forth via T1 lines. However, with an increased workload (i.e., other projects), they decided to work all in one shop closer to town.

As for who does what cue, after receiving spotting notes from music editors Mi-

From Songs to Scores

Songwriters usually have one job: tell a story. Usually, it's their own story or one they feel strongly about. Sometimes it stems from a simple groove that's been on their mind and has to come out. So what's it like making the shift from telling your own story to telling someone else's?

"It's like picking up a new instrument and learning how to excel at it" says Marc Fantini. "You can't wait to get in there every day and play it. Scoring is quite different from songwriting. You're almost limitless in what you can do."

"You're not limited to a song structure, as you are in pop music," adds Scott Gordon. "For a song, you've got an intro, a chorus, a bridge, a verse, a chorus, et cetera, and you're done. This is completely open to going left or right at any point. A scoring composer isn't bound to any genre."

Sometimes, though, having a songwriting background helps. "I've mostly done TV," says Josh Kramon. "And a lot of times, they're looking for a song-influenced score—they may want music that isn't going to sound specifically like a score. It's edgier. So it actually works to my advantage."

Scoring is more about responding to a stimulus than one's story, explains Jon Ehrlich. "With songwriting, you're sitting down and you're creating something, for the most part, within the parameters of your

therapy sessions! Scoring to picture changes the equation."

Jason Derlatka agrees: "When you're writing, say, for an artist, you may have a certain production style you have to answer to. Here, you're basically telling the story with the music in response to what you're seeing onscreen. You're not writing a stand-alone piece of music; it's about serving the picture. Ultimately, keeping the story and the drama moving is what it's about."

While the writing parameters and stimulus may be different, the pressures are still there. "If you're in a studio producing something, with A&R guys coming down, there's a pressure on you to get something done and impress them," notes Steffan Fantini. "Here, there's also a pressure each week—and you don't have an option of not getting it done. You just learn to work within those guidelines."

And unlike writing for records, there is essentially a guarantee of satisfaction, Steffan Fantini says. "At the end of the week, you know your music is going to come out and millions of people are going to hear it. A record may or may not get pushed, and it might never even come out, even if it's brilliant. Here, you expend the same amount of energy and you know people will hear it. It might be buried in the mix, and it may be there just to serve the picture, but people do hear it."

—Matt Hurwitz

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chael Dittrick and Mauricio Balvanera of MICDI Productions, the foursome review the show and then pick, almost at random. "There isn't really any specific methodology," says Steffan Fantini. "We're pretty interchangeable," Mancina agrees. "It's not like if it's this type of scene, I'll do it or Marc will do it. But I'm kind of the quarterback."

Mancina, the Fantinis and Gordon have rigs outfitted with, essentially, identical hardware and software, each running Pro Tools, Cubase, GigaStudio and countless other programs. "It's enabled us to put a Cubase file for a cue up on the server, and Mark could hear up in Arrowhead the same thing we hear, and vice versa," explains Marc Fantini. "Everybody can listen to everything and help each other out."

The palette for the show was developed from the producers' direction, says Steffan Fantini. "They said, 'We want a movie score, not a television score,' which is why we brought in orchestral sounds, something Mark Mancina was instrumental in helping us with. He has an incredible library of sounds he's collected and sampled over the years." Cues contain any number of sounds,



Josh Kramon: "I open myself emotionally to picture. When you do that, the rest falls into place."

often warped and distorted, to create the eerie atmosphere the show requires as its characters navigate through unusual crime stories. "There's so much processing that you can do with any sound—to make a guitar sound like—not a guitar," says Gordon.

"We strive to make sounds that no one has ever heard."

The team employs a host of software tools, including Kontakt; Spectraonics Stylus RMX, Trilogy and Atmosphere; VStack; and many others. "We pretty much bought everything that was out there," recalls Steffan Fantini. "Then we just filtered through it all and found the good stuff. We don't use the whole library. But then just when you think it's safe to go back in the studio, everything has an upgrade that we gotta have."

Gordon mixes within Pro Tools, providing eight stereo stems from up to 30 tracks, each stem mixed with its own discrete reverb/effects returns to assist in mixing.

The team's creativity and skills with the tools and ingredients available have enabled them to come up with music that helps drive the show's atmosphere in a unique way. "The producers have been very kind, and have written us beautiful e-mails, saying that the show wouldn't be the hit it is without the music," comments Steffan Fantini. "Knowing that we've had that kind of influence on the show's success is fantastic and just makes us work twice as hard." ■

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Composer Harry Gregson Williams

Hans Zimmer Protégé Flourishes With Thematic Scores

By Gary Eskow

Growing up just south of London, Harry Gregson Williams spent hours every school day performing works by the English choral masters as a member of a refined choir. He continued singing while at the Guild Hall School of Music and Drama. Now one of the most successful film composers in L.A., with scores for *The Chronicles of Narnia*, *Kingdom of Heaven*, *Shrek I and II* and others under his belt, it's easy to spot these early influences in his writing, which combines elements of electronica, rock and big band with subtle reflections on Byrd, Tallis and other early masters such as Palestrina and Machaut.

"I studied lots of early music when I was a boy, and it does come back to influence my current work," Williams says. "When I was spotting *Kingdom of Heaven* with Ridley Scott, I saw that he'd shot the first act of the film, which unravels in northern France, in a constant, wintry, cold blue light. Ridley told me that he wanted me to reflect that atmosphere in the score.

"I decided to use the early music group Fretwork on these sessions," he continues. "They play viols, and though I could have used a standard string quintet to achieve much of the effect we were looking for,



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the viols added that much more ice. I was blown away by the subtle differences in sound. Fortunately, the group cut me some slack and helped me get the most out of them. As far as the writing, I wasn't trying to emulate authentic 12th-century harmony, but I did use a different harmonic language than what is normal for me. When it came down to tracking the consort at Abbey Road, Peter Cobbin, the excellent engineer whom I've worked with in the past to record and mix, and I weren't sure how the group would sound in Studio One, but the results were extremely rich."

Williams' first exposure to film music came through Hans Zimmer. "Hans and I met in 1994," Williams recalls. "He was looking for someone to help record some chorale singing for *Crimson Tide*, and he knew that I had had training in this area. Several weeks after we completed our work, he called and asked if I'd like to 'chance my arm' [American translation: take a risk] and come over to check out Media Ventures, which wasn't as large then as it later became. I didn't need a second invitation!

"When I arrived, it became clear that these people were having a lot of fun, and so I took him up on his offer and worked as his apprentice for several years. Hans was extremely generous to me. What a great education it was, going with him to meetings on huge, important films, and

not being the person responsible for the way things turned out! Eventually, I started writing the odd cue and conducting his orchestra. After doing this for three or four years, I told Hans that I thought it was time for me to start at the bottom and see what I could do for myself, and he agreed. After operating out of Media Ventures for several years, I moved into my place, Wavecrest Music."

Williams generally begins by sketching themes at the piano and moves over to his workstation to develop thematic material. Although he runs Ableton Live 5 on a Power Mac G5, Williams—a longtime Mac user—switched over to the PC platform about a year ago. His DAW of choice, Steinberg Cubase SX 3.1, operates on a Dual Xeon 3.6GHz system with 4 gigabytes of RAM, 75-gig mirrored SATA system drives and a pair of RME HDSP 9652 sound cards.

"I never thought I'd use a PC, but Hans told me that he'd switched over from the Mac because it was a faster and more stable platform," he explains. "I'm a huge Cubase fan and had been using this sequencer on a Mac under OS 9. When Cubase evolved into SX, I had to either move to OS X on the Mac or jump over to the PC, which I did."

Wavecrest incorporates a pair of Pro Tools systems into the workflow. An HD Accel system, running on a G5 dual-2.5GHz Mac, is used to interface with video playback

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Wonderland Productions

Shoot, Edit, Mix Post—and Music, Too

By David Weiss

Convergence, the meeting of many types of media to form something even more powerful, is always on the move. While the term usually applies to the end product, such as the video iPod or DVD, convergence can also happen on the production end.

If it's that kind of aligning of the stars that you seek, then check out Wonderland Productions (www.wonderlandnyc.com) in New York City, where the production, direction and editing of film morph extremely easily with the creation of score, sound design and the mixing of same. Founded in 2001 by Emmy Award-winning director Bill McCullough and composer/sound designer John Wiggins, Wonderland is proof that "everything under one roof" works as a creative concept—and is not just a cliché.

"We call ourselves filmmakers; that's what we do from start to finish, and it

really takes advantage of our strengths," says McCullough from the company's headquarters at 594 Broadway, a building that serves as a veritable beehive for art, fashion and media activity downtown. "The most exciting thing for us is being the production company, working on the projects from concept to completion."

While Wonderland attracts its fair share of outside clients, including HBO, NBC, CBS, E!, ESPN and MSNBC, its diverse talent and facilities mean that the facility can also score films, documentaries and series that its creative personnel successfully create and pitch. It all flows from its ability to tightly integrate its own inspiration with a comprehensive in-house production



plant: a Pro Tools|HD suite and three Meridian Avid Rooms connected with Transsoft shared storage.

The convergence originally stems from McCullough and Wiggins' shared

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Restoring *Oklahoma!*

Chace Brings Clarity to a Hollywood Classic

By George Petersen

Debuting more than a half-century ago, *Oklahoma!* represented a number of firsts. This big-budgeted film retelling of the Rodgers & Hammerstein Broadway hit mixed lively dance numbers with a dark, brooding performance by villain Rod Steiger. Released in 70mm Todd-AO with a 6-track (L/Lc/C/Rc/R/mono surround) mag score, the film was simultaneously shot in two different formats—65 mm and 35mm Cinemascope—to simplify the creation of road show and general theater versions.

To help bring this 1955 classic back for a special DVD package (including complete versions of the Todd-AO and Cinemascope releases), 20th Century Fox turned to Chace Productions, a Burbank, Calif.-based audio post company specializing in audio restoration/

remastering for film and broadcast. Chace had previously done projects such as *The Wizard of Oz* and *Gone With the Wind*, but was anxious to try something different on *Oklahoma!*

Last year, Chace became the exclusive

provider of Plangent Processes' Clarity Audio Restoration system for the film/video industries. Using a proprietary wavelet-based resampling algorithm first developed by Dr. Patrick J. Wolfe at Cambridge University, this hardware/



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UNIX software system can remove wow and flutter from analog recordings. "We looked at the mechanical anomalies of tape machines to see if it was possible to nullify some of those analog flaws," says Plangent Processes founder Jamie Howarth. In the simplest terms, the process can correct speed and pitch variations inherent in a tape

transferred those 4-track materials to 2-inch 24-track back in 1992 when we were working on an earlier preservation project," says Heiber. On the other hand, "The 35mm six-stripe mag masters were in surprisingly good condition for their age and didn't require any heroic measures in terms of the transfers."

Yet even with clean, playable masters, the amount of wow and flutter in the original recordings was problematic. "The original 6-track sounded okay, but due to deterioration, there's a serious amount of wow in it and a pervasive 96Hz [24 frame x four perfs/frame] sprocket flutter that exists on everything that comes off a mag machine," explains Howarth, who worked closely with Chace on the project. "Normally, when you listen to flutter at a low rate, it's a gargle sound, but when you get up that fast, it actually becomes intermodular distortion and creates a signature harshness, which is the sound of 1950s films. Once we knocked that out, the film didn't

sound like an antique anymore. Fox was happy with the results."

Having access to the original 6-track mag master (rather than working from a release print) was another plus for the Chace team. "We were able to bring the mix one generation back," says Heiber. "The orchestral music is absolutely glorious—it pins you to the back wall."

At press time, Chace was working on an upcoming release of another Rodgers & Hammerstein film musical: the 1958 *South Pacific*. On this project, the wow problems were far more serious than those on *Oklahoma!* "In one section of the main title vocal on 'Bali Ha'i,' there were some major dips—a perfect fifth—that were horrible," says Howarth. "We were able to completely straighten that out and stabilize the pitch to the point where its wow and flutter compares to a digital recording. This DVD will be the first time the film's musical performances have ever been heard correctly."

Using the Clarity process brought other factors to light. "This whole issue of machine instability, amplitude modulation and the FM flutter characteristic brought me to rethink the entire process of analog recording," says Heiber. "We used to blame the electronics and the tape medium, but machine instability is the weak link in recording. No matter how well designed, every analog transport has a wow and flutter spec. The Clarity process removes two layers of the instability in the audio, from both the original recorder and the

playback machine.

"The result is a clearer, purer sound that's really evident in reverberation tails, high-frequency trail-off and less overall tubbiness," he continues. "Jamie calls it removing the 'interstitial haze,' so it's like lifting a light gauze that masks the subtleties of the soundtrack." ■

Williams

—FROM PAGE 76

units, and a second identical rig functions as a mixer for Williams' huge GigaStudio 3 system. All of Williams' orchestral samples, including many custom samples that were recorded at Air Studios in London under the auspices of Zimmer, are laid out across six computers, each of which is fed into the Pro Tools rig. Although he now works with budgets that don't force him to work with samples in place of real musicians, having the ability to detail a score in advance of a tracking session is a comfort to Williams and the directors with whom he works.

"The first time I had the good fortune to be let loose on a decent-size orchestra was when I worked with Bille August on *Smilla's Sense of Snow*," he says. "Both this film and one I scored shortly thereafter, *The Borrowers*, had budgets enough for a decent-sized orchestra. At that stage, I was still somewhat inexperienced and so I sequenced my sample orchestra, playing every note as a kind of fail-safe, and in both those scores, I mixed in some of my samples alongside the players. Since that time, I've used this technique less and less; *Kingdom* and *Narnia* didn't incorporate any of my orchestral samples, although I did sequence everything prior to going into the studio, both for myself and for the sense of security that these highly realized demos provide to the director.

"I don't know how John Williams and Steven Spielberg work; maybe, because their track record is so good, all that Williams has to do is tinkle out a theme on the piano for Spielberg to say, 'Right, I'll see you on the scoring stage.' I very much sequence up everything for the director. The samples are of a great quality, and he can feel what the final will sound like. I've had a director point toward a melody I've written for a single flute and ask what it would sound like if played by a battery of French horns. I find that extremely helpful."

What qualities should a director possess if he/she is to get the very best from a composer? "The best results come when a director keeps an open mind," Williams



Jamie Howarth of Plangent Processes

recording by synching to the tape's own bias frequency. "The answer was using DSP to model problems—such as a rumbling transport bearing or flutter from an out-of-round capstan—and applying a self-cancelling error to knock some of those out," explains Howarth.

While pops, clicks, hiss and transient noise removal have been addressed by current products, "wow has always been the unsolvable problem," notes Chace president Bob Heiber. "It really exhibits itself in telephone rings, long sustained notes and music. Until now, it's not been correctable except by finding an alternative source that's not flawed." When Heiber first heard about Howarth's process, he was impressed: "Finally, there was somebody solving audio problems that we used to tell customers they had to live with."

As the first feature film restoration where Chace used the Clarity system, *Oklahoma!* was a complex project, especially in restoring both Todd-AO and Cinemascope versions. "It might have been tempting to use the higher-quality 6-track materials to replace the badly deteriorated 4-track masters from the Cinemascope release," says Heiber. "We didn't try to integrate the 6-track audio into the 4-track versions of the musical numbers. It's a credit to Schawn Belston, VP of asset management at 20th Century Fox, who really wanted to keep the organic feel of both films and not try to 'improve' or alter the original performances."

Luck was on their side. "Fortunately, we

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responds. "Andrew Adamson, who I worked with on *Shrek*, *Shrek II* and *Narnia*, is a good example. Andrew's a musical guy, but he gives me a certain rein while maintaining his vision for a score. He's also encouraging, which is very helpful. This business isn't all a bed of roses: One man's foie gras is another's turkey intestine. There have been times when I've written a cue that I thought was the most romantic, moving piece, and played it for a director who doesn't get it at all. You have to be quite thick-skinned."

Although he routinely uses large rooms to record orchestras and choirs, Williams doesn't hesitate to track a variety of smaller ensembles and individual instrumentalists in his own room. Costas Kotselas, who oversees the technical operations at Wavecrest Music, says that the studio is being streamlined. All of the Yamaha 02Rs that had dotted the facility are being replaced with the pair of Pro Tools rigs. No hardware mixers will reside in Wavecrest, which will retain many hardware devices, including 14 E-mu E4X samplers and two dozen Roland S-760s. The studio relies heavily on its Quested monitoring system, which comprises five 2108 speakers and a VS115 sub. Outboard processors of choice include an Eventide DSP4000 and Lexicon PCM 80s and PCM 90s.

Despite his swift rise in the ranks, Williams remains committed to choosing projects on their artistic merits whenever possible. "Some of my most rewarding experiences have been on low-budget films," he says. "*The Magic of Marciano*, which I believe went straight to video, was wonderful. I also had a great time working on *Passionata* for the director Dan Island.

"Variety is very important to me," he concludes. "Right now I'm working with two mad Welsh DJs who call themselves Hybrid on their album. Simply doing four or five romantic comedies a year would get tedious, and I'm sure I'd start to phone the work in. But going from *Shrek II* to *Man on Fire* to *Kingdom of Heaven* to *Narnia*—each one represented a unique opportunity and scared the crap out of me. That's how I stay interested!" ■

Wonderland

—FROM PAGE 77

pro prowess as musicians and audio engineers. The two met when they both worked in HBO's production chain in the 1990s. Besides sharing a passion for guitar, they soon found out that they also had

compatible business goals. "Things at HBO were getting confining," McCullough recalls. "We had just been bought by AOL, and we said, 'How cool would it be to do our own thing?' I left HBO in 1999, and I had always had a side business with my own clients. John and I were writing so much music, and I would have John write me a couple of cuts when I needed them. We knew we needed a plan to get together, and it snowballed from there."

Meanwhile, on September 1, 2001, Wiggins accepted a buyout offer from HBO and joined forces with McCullough, not knowing that the business climate was about to get very tricky. "They wanted to get rid of the old-timers, but it meant that my first year in business was financed," Wiggins says of the package. "I had been at HBO for 20 years, and it was very hard for me, but I did it. Then 11 days later, the world changed. It was strange, but we did okay. We survived."

Actually, Wonderland thrived, as the duo built a reputation for all-inclusive production with its own distinctive style. From shooting and scoring last year's award-winning *Untold* series of sports documentaries for Spike TV to the upcoming *Cutting Edge* for HBO, which documents the action at a Harlem barber shop, the inspiration starts with McCullough's trademark shooting and goes from there.

"When we make films, the approach we take is visually different," explains McCullough. "The angles we use, for example, that all fold in with the music. The advantage we have is that I begin scoring inside my head when I'm thinking what the mood will be, and how I'm shooting will play off of that."

The unfolding of the 60-minute *Cutting Edge* is a good example of Wonderland's unusually efficient, self-contained workflow. "Every project's different, but generally there's two scenarios," says McCullough. "One is when somebody buys our ideas, like *Cutting Edge*, or two is a work-for-hire where a network calls and says, 'We want you to do this show.' Either way, our executive producer, Dan Klein, is dealing with their executive producer, and once the deal is signed and we figure out what we're producing here, budgets go into effect.

"While that's happening in the back office, John and Dan and I are figuring out what we'll shoot," he continues. "Then the question comes up about two weeks before the edit what kind of music we'll use, although usually while we're shooting we get the sense of what it should sound like. Then the footage is logged, transcribed and digitized as we get it into the Avid. All along, John and I are making music for the project coming up, stockpiling the arsenal, so when the edit comes, I'll have 50 tracks



Wonderland Productions' John Wiggins (left) and Bill McCullough

to use for this project."

The fast-paced creation of the musical score is aided by the fact that Wiggins is constantly creating tracks for what amounts to an internal library for McCullough to tap during the editing phase, working primarily with guitar, a Korg Karma and 01W, and some adventurous effects plug-ins. "When I don't have a specific assignment, I'm always making pieces that have no use at the moment or that we know we might use downstream for something else," Wiggins says. "I'll compose 20 pieces, mix them, then put them in the library, and I won't even remember them! Bill and the editors work with the library every day, so they know what's in there and they'll remember a cut and say, 'This one is perfect.' We have over 1,000 tracks, and they're simply organized alphabetically by year—2004, 2005, et cetera."

A longtime experimentalist in the field of computer-based audio, Wiggins surprisingly makes little use of soft synths. Instead, he enjoys creating many of his moody, dramatic underscores by taking a composition and then completely transforming it with the application of key effects. "My favorite plug-ins right now are from GRM," he reveals.

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To Wiggins, the art of sound design is equally fascinating. "Adding the right sounds is like writing notes when you write music," he says. "If I feel a lull, I'll put the sound of a car going by or a horn. Certain sounds become thematic throughout the whole process. Like in *Cutting Edge*, the clippers are a transitional sound to bring you back to reality. Obviously, when I do my job best, no one can tell and it sounds like it was always there. Never make it sound like you added it; make it subtle."

Musically, *Cutting Edge* is an example of how Wonderland likes to veer in unexpected directions whenever possible. "If the 'it seems too normal' light comes on, we change it," Wiggins says. "We tried to stay away from the typical hip hop stuff. It leans more toward 1970s funk, because when you think of Harlem in the 1970s, you think 'uptown, fabulous,' with some cool funk bass and wah lines. The drums are not hip hop; they're street beats, some of which came from loops and some we programmed. There's also some atypical stuff that you wouldn't think would go that's ethereal, pensive, drone-y, almost like a modern underscore. It doesn't really do anything specific, it just sustains the mood."

According to McCullough, one of the most important drivers hasn't been the addition of software or hardware, but an executive producer—Dan Klein. "It doesn't matter how great the stuff that you do is if nobody sees it," says McCullough. "John and I are constantly making stuff, but it's a full-time job to establish relationships, make pitches, talk with lawyers and agents. Not only does Dan do that, but he also oversees the projects we work on, he co-wrote a Discovery series, and we'll edit the films together."

"I've been trying to put this piece of the puzzle together for a while, but you have to find the right person," he concludes. "Dan and John and I developed a great relationship, and there's a connection at every intellectual level. That's what Wonderland is all about, what we had in mind when we started out: Let's check all the egos at the door. You're allowed to say stupid things, make bad edits and compose bad music. That's the freedom you have, but that's how great projects are born." ■

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Fort Minor



Photos and Text by Steve Jennings

Linkin Park's Mike Shinoda is touring with his new group, Fort Minor, which also includes MC Takbir "Tak" Bashir, MC Ryan "Ryu" Maginn, DJ/MC Colton "Cheapshot" Fisher and drummer Jermain "Beatdown" McQueen. Before *The Rising Tied* came out, Fort Minor and front-of-house engineer Brad Madix did a promo tour through Europe; when the album dropped, Shinoda added three backup vocalists and strings. *Mix* caught up with Madix at San Francisco's Fillmore in late February.

"We have a mic package and in-ear monitor system," Madix says. "Everything else today is from the house. We have carried a pair of [Yamaha] PM5Ds and a snake on some of our U.S. dates, along with all the stage cables, mics—everything but racks and stacks—in a trailer behind the bus. We're heading to Australia and New Zealand, and as if [Shinoda's] not busy enough, Mike

had a studio thrown in his bus, writing new Linkin Park material.

"As often as we can, we get a PM5D; I can pop a card in the 5D and go. When I have that board, I have nothing outboard. It's pretty flexible, which is an advantage working with an act like this. Mixing these guys, and strings, high volume is tricky. The other thing is learning the parts because these guys take turns taking the lead and they have to pop out when the time comes.

"This is the first true rap tour I've done. I didn't really know what to expect, but I've been really happy about getting involved in it. Mike [Shinoda] is great to work with, as is Beau Alexander, our monitor engineer, and the rest of the band and crew."



Front-of-house engineer Brad Madix

FixIt

Dave Farber is the owner of Farber Sound, the Minneapolis-area touring sound and installation contractor that provides the sound system for The Blenders' current tour; he is also the band's front-of-house engineer.

With the SiDD software for the XTA DP324, I can pull up each channel individually in my laptop and fine-tune it to each vocalist's specific needs. For instance, when I identify very particular frequency points in a singer's voice, such as 2.5 kHz or 3 kHz that are accentuated when they hit certain levels, using the dynamic EQ feature, I can attenuate exactly those frequency points without deleting that frequency content when the level falls below threshold. The memory presets are also valuable for the bass vocal artist, allowing settings for each bass vocal application, as well as the artist switching to lead vocal on certain songs. I route the extra output from that particular channel on the SiDD to a separate channel on the mix console, which assists in the cue/listen function.



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News



Front-of-house engineer Jon Burton mikes Prodigy's vocalist/live MC, Maxim (pictured), with a Sennheiser Evolution SKM 35 G2.

For Rufus Wainwright's recent four-week European jaunt, FOH engineer **Matt Manasse** relied on local racks and stacks, but found he could make even the most dungeon-like rooms sound good with a DiGiCo D1. "The output stage has insertable processing channels, so I could tune any system and time-align it without having to carry extensive outboard," he says...Los Angeles-based Walt Disney Concert Hall has added a Lectrosonics 9-channel Venue receiver system, which comprises a modular UHF design that operates with Digital Hybrid Wireless transmitters and/or a variety of analog transmitters. The venue already boasts nine Lectrosonics SM Series belt pack transmitters and nine UT400 Series handheld models...Originally purchased for the Loggins and Messina reunion tour, and currently in use with two annual corporate North American International Auto Shows for Ford and Chrysler, **On Stage Audio** (Orlando) chose to connect the musicians, monitors and FOH with the new custom PM1D cable system designed by Link USA...**Simple Plan** is the first major North American act to hit the road with L-Acoustics' KUDO line source array systems as its primary house rig, including up to 21 KUDOs per side (many of which were provided by Vancouver's Rocky Mountain Production Services). **Tour Tech East** (Dartmouth, Nova Scotia) served as the SR provider.

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PHOTO: EMILY WILSON

On the Road

Roberto Arquilla

Montreal-based The Stars (Torquil Campbell, trumpet/keys/vocals; Amy Millan, guitar/vocals; Evan Cranley, bass/guitar; and Chris Seligman, keyboards) are currently touring smaller clubs to support their latest effort, *Set Yourself on Fire*. Out with the band is FOH engineer Roberto Arquilla, who's relying mostly on club-owned systems, carrying little more than his unique sense of humor. *Mix* caught up with Arquilla in early February at San Francisco's The Fillmore.

How much gear are you carrying for this tour?

I brought a preamp (Vintech 473) for vocals and bass DI, a quad comp, some drum and vocal mics and an in-ear monitor for Torq. This was all rented from the ever-accommodating Studio Ekonomik in Montreal. My friend/sound sensei lets me take his Yamaha 01V (for submixing drums and effects) and a PreSonus preamp that I use for violin. Thanks, Renaud [Lussier of The Dears].

What are you using mic-wise?

For drums, I'm using the Audix mic kit, which I really like. Audix D2s are also nice on guitar. Torq uses a [Shure] Beta 58A and Amy a Beta 57A. The rest is as per the venue.

What is your favorite venue in which to work?

I like any venue with a good crew, but Calgary's MacEwan Hall is a great place for sound. Built like an airplane hangar, I thought that it was going to sound like a tin can, but it sounded really good. I also had a good feeling about The Fillmore in San Francisco as soon as we walked in—and it turned out to be a great-sounding show.

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

I sometimes mix bands at the Main Hall in Montreal. I also spend a lot of time at my second home: Murray, Natalia & Neptune's [The Dears].

Now Playing

Gavin DeGraw

Sound Company: E-Tech Systems (Tampa, Fla.)
FOH Engineer/Console: Erick "Otto" Celeiro/Soundcraft MH4
Monitor Engineer/Console: Chris "Liver" LaMarca/Soundcraft MH4
P.A./Amps: house-provided
Monitors: Sennheiser EW300 IEM, Shure PSM600
Outboard Gear: Summit TLA50, 2BA-221; TC Electronic D2; Yamaha SPX-2000; Drawmer 201
Microphones: Audio-Technica AE2500, ATM23, ATM25, AE5100, ATM35, AT4050, AT4040, AT5400, AE6100, AE5100
Additional Crew: Johnny "Metal" Jensen

Gretchen Wilson

Sound Company: Dale Morris Leasing (Nashville)
FOH Engineer: David Haskell
Monitor Engineer: Peter Bowman
P.A./Amps: Electro-Voice X-Line, XLC, Xsubs/Electro-Voice P3000RL running E-V IRIS software
Monitors: Electro-Voice
Outboard Gear: Klark Teknik Helix digital EQs, DN9848, DN6000; Midas XL88
Microphones: BLUE Kiwi (acoustic set), E-V RE1
Additional Crew: Ryan Nelson, tour production manager; Curt Jenkins, systems engineer



PHOTO: ALAN L. MAYOR/WIREIMAGE.COM



Shure Promotes Hearing Health

Introducing its newly branded hearing conservation program, Listen Safe, Shure awarded \$50,000 total to three organizations: Columbia College, Hearing Education and Awareness for Rockers (H.E.A.R.) and the House Ear Institute. Listen Safe will also promote hearing conservation by providing free hearing screenings and distributing hearing-protection devices at industry trade shows, music conferences and festivals, and to the company's employees.

Columbia College will use the funds to conduct a study—in cooperation with audiologist/Sensaphonics president Michael Santucci—regarding the hearing health of the music community. H.E.A.R. will use the monies to underwrite the cost of its public education initiatives, while HEI will use the donation to provide free hearing screenings for attendees at industry trade shows.

In other news, Shure and TC Group A/S announced a strategic alliance that focuses on technology sharing, including developing networking solutions. "In a world that is becoming more integrated and connected, it is important for the component parts of an audio system to be able to communicate with each other. Both Shure and TC are committed to this goal through breakthrough technology that uses the application of open standards," says Anders Fauerskov, CEO of TC Group A/S.



Receiving the check, from left: Benj Kanters, Columbia College; Michael Santucci, Sensaphonics; Marilee Pothoff, House Ear Institute; and Kathy Peck, H.E.A.R.



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World Radio History



THE CULT

Vocalist Ian Astbury sings through a Shure SM58.

Rising to worldwide acclaim in mid-'80s and '90s from the streets of London, The Cult has garnered a strong fan base, who are excited to see the band out on a short trek through the U.S. Despite rumors of "bad blood" between frontman Ian Astbury and guitarist Billy Duffy, The Cult has been playing to sold-out crowds.

Mix caught up with the band and engineers at the tour's first stop, San Francisco's Fillmore Auditorium, in early March.

Photos & Text by Steve Jennings



FRONT-OF-HOUSE ENGINEER/ PRODUCTION MANAGER ROBERT CARSTEN

Fortunately, front-of-house engineer Robert Carsten can easily multitask, as he handles FOH and production manager duties. And as the show is not carrying production, "you have to overcome a lot of obstacles every day," Carsten explains.

On the console du jour, Carsten runs 29 inputs: 11 for drums, three for bass, six for Duffy's guitar rig, two on acoustic guitar, one for guitarist Mike Dimkitch and four on vocals. "I create a panoramic 'guitarscape.' I pan Billy's Marshalls—one left, one center, and one right," Carsten details. "The Matchless is centered and the Roland is panned hard left and right. The Marshalls supply the grit, Billy's leads are the Marshalls with a lot of the Matchless for punch. The Roland adds the clean, echoed, edge-like rhythms on songs such as 'Rain' and 'She Sells Sanctuary.'

"I've been working with Ian [Astbury] for almost four years now, and mixed FOH for The Doors of the 21st Century (now called Riders on the Storm). I find Ian easy to mix; he has a strong, powerful voice."





Bassist Chris Wyse plays through an Ampeg SVT Classic into an Ampeg 8x10 cabinet. "We use an Ampeg tube DI," says LaGroe. "I take two direct lines—one pre and one post console—and a Beta 52 on the cabinet. Three bass lines give you a lot of versatility out front, but onstage, I just use the tube channel."

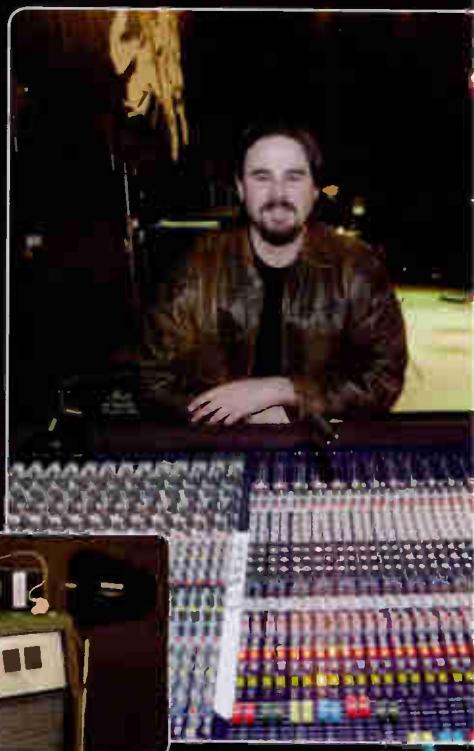
MONITOR ENGINEER DARREN LAGROE

Monitor engineer Darren LaGroe says that Astbury is the only member carrying Shure PSM700 in-ear monitors; the other members wear ear plugs. "We've got a Shure Paddle antenna (PA705)," he explains. "I use a 50-foot BNC cable, hide it in the drums and point it right at him. The new HD channels have taken up all the frequencies, so I need to get the antenna as close to Ian as possible."

Guitarist Billy Duffy uses Gibson Les Pauls and a Gretsch White Falcon. "They are really loud," LaGroe says. "Billy's rig alone can get very loud onstage. Getting the backup vocals loud enough takes the most effort since we have new gear every day and they don't use in-ears. Billy has six lines of guitar (three Marshalls, one Matchless and the Roland JC120), so I patch an XLR from one of the aux bus outs into an

open channel. I then make a sub-mix to this channel that I use to feed everyone who wants Billy's guitar, so I only have to turn one knob instead of six.

"Ian only takes vocal in his ears and some kick. I also split his mic to two channels so I can have separate control of his gain and EQ for his IEMs."



Guitar/bass tech Travis Doering takes care of Chris Wyse and Mike Dimkitch.



Drummer John Tempesta's kick is miked with two Beta 52s ("not necessarily because they sound any better than any other kick mic," says LaGroe, "but because they're easily accessible and easy to EQ."). The rest of the kit is also Shure, with two SM57s (snare), four SM81s (hi-hat, ride) KSM44s (overhead; inset, left) and three SM98s on the rack and floor toms. Drum tech Owen Goldman (left) makes sure that everything is in place.



Guitarist Mike Dimkitch plays through a Marshall JCM 800 through a Marshall 4x12.



Lucinda Williams and George Jones

Smooth Vocals Take the Spotlight

By Tom Kenny



Nick Pellicciotto,
FOH for Lucinda
Williams



The pages of *Mix* are filled with talk of technology, but sometimes it pays to be simple. Keep it flat across the board, make sure the vocal cuts through and let the players play. A nip and tuck here, a notch out at 400 Hz, then give the band a good monitor mix, let them hear the house and they'll begin to mix themselves.

At least that's how it works when the lineup is Lucinda Williams opening for George Jones.

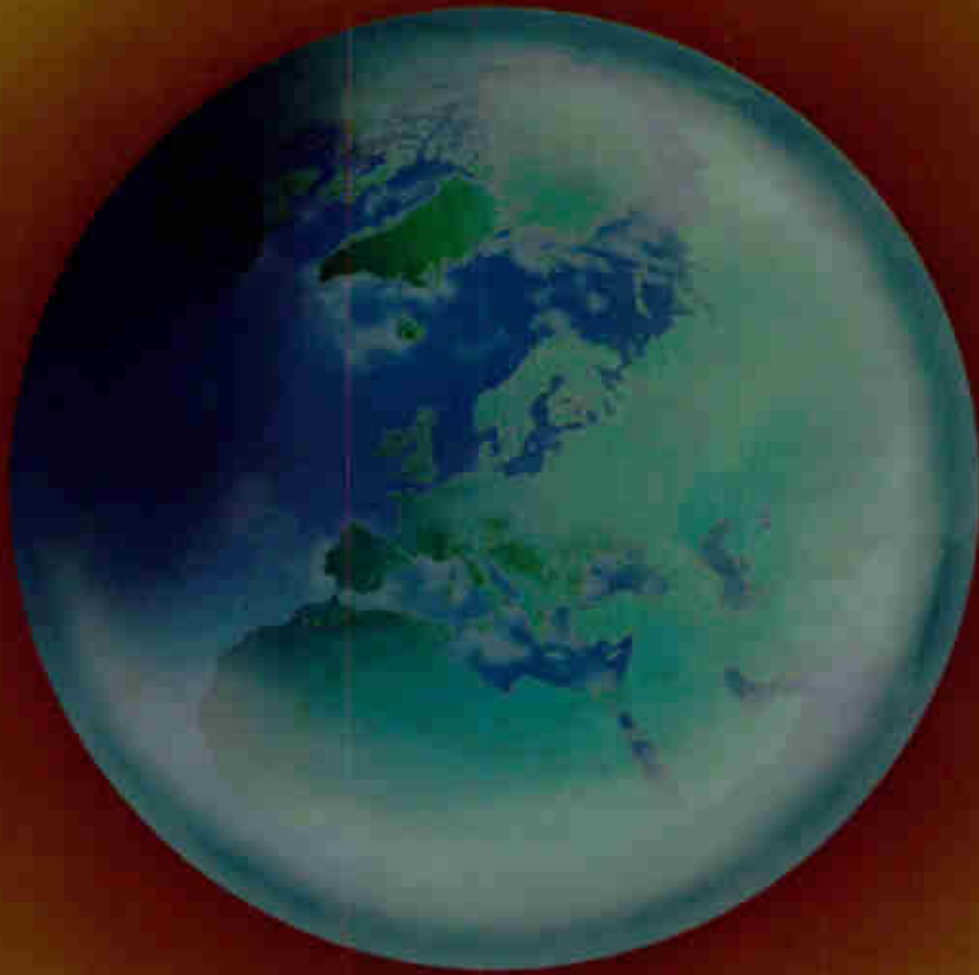
Last September, Jones called Williams and asked if she would open for him on a couple shows on the West Coast. She agreed, then decided to put together a last-minute small theater club romp in and around the February dates with Jones. Rather than bring her four-piece band, however, Williams decided that her leg would be a duo—just her and ace guitarist Doug Pettibone. For the Oakland, Calif., and Santa Barbara, Calif., shows with Jones, however, she would fly in her rhythm section of bassist Taras Prodaniuk and drummer Jim Christie. *Mix* caught the Oakland show at the famed Paramount Theatre.

For the duo shows, which have garnered rave reviews across the West, Williams celebrated something of a return to her more simple singer/songwriter roots. She carried no production, save for a short rack containing the Avalon mic pre and BSS DPR-901 dynamic EQ, and she asked monitor engineer Mark Humphreys to pull double-duty at front of house.

Humphreys, a road veteran of Black Sabbath, Iron Maiden, The Smithereens and many others, has served as Neil Young's monitor engineer since 1990 and as Williams' for the past three years. Some of the lessons he learned with Young have been carried forward and incorporated into Williams' show, including the emphasis on a clear vocal and a rather unique approach to stage monitoring.

"My favorite word in the dictionary is 'clarity,'" Humphreys says. "Working with Neil taught me that it's all about getting the vocal out to everybody. Wherever you are—backstage, in the dressing room, at front of house—when that man is singing, that's what you hear. And that's the first thing I do with Lou is make sure you hear every bit. Then I work the





Largely
covered by
water

guitar up, but no matter what she's doing, you will always hear her."

Because he's hopping on a new system every night, Humphreys has seen his share of boards, big and small, and P.A.s of varying quality. So his soundcheck is fast and efficient. "I just make sure that from 1k to 6.3 can be heard anywhere in the room, and I try to aim the horns so everybody can hear the top end of the P.A. I don't care that much about the low end, because once you create it, it just sweeps the room anyway. I like to run the system dead-flat, and any bad tonal frequencies—125, 160, 315, 400—I'll take off the mic strip so I don't create it onstage. Over the years, I've learned that if you lose the bottom out of your mic channels, it stops that in the room. Kind of backward, but it works for me."

For the duo shows, Humphreys is using only eight channels on the board du jour. He splits those at the FOH console and does another eight as his foldback to the stage. Essentially, the musicians are getting the same mix as the audience, as Humphreys loads the sidefills with a full mix, placing the monitors downstage, pointed back, as if there is a "musicians' P.A." It's a system he first worked up for Wasp, then incorporated into Young's show and now uses with Williams. He adds in a wedge for each bandmember (vocal only), supplementing it with a tiny wedge off to Williams right that he feeds guitar-only. Humphreys points out that Williams loves the feel of the house, especially the old-school theaters she's been playing, and will likely never go with in-ear monitoring.

Humphreys takes the same approach to the stage whether it's the two guitarists or a full band, the only difference being that he actually gets to move up and have his own console, leaving FOH duties to San Francisco-based Nick Pellicciotto, who

has been with Williams since her 2004 tour. Pellicciotto is the one who put together her vocal chain, which comprises an Audix OM6 microphone, Avalon mic pre, BSS DPR-901 dynamic EQ, back into an insert return on the console to avoid the channel preamps. At the Oakland show, Pellicciotto had a Yamaha PM5D at FOH, as did Humphreys at monitors. Like Humphreys, Pellicciotto does everything he can to keep things simple, with very little effects inserted.

"With a band of this quality, processing would kill whatever they're doing," Pellicciotto says. "I simply do whatever I can to stay out of the way, to be transparent. I see my role as a balance engineer, though I do work in effects at times. Lucinda has three types of songs. On the ballads, I may pull the kick and bass down a bit so the lows don't wash stuff away. Then on the more bluesy or rootsy numbers, I may change the miking a bit and add some effects to make the drums sound a little more trashy, raucous and not too distinct. Same for guitars. And then the rock numbers get a pretty standard mix."

"I agree with Mark on the need for clarity in her vocal," he continues, "but these systems have gotten so clean that I often find some murkiness can be helpful. Some graininess and lo-fi feel, especially on the bluesy numbers. And I never really sacrifice the band for her vocal. I'm for everything being audible. Doug [Pettibone] is so good at dealing with dynamics—if he's too loud, he should be *too* loud. [Laughs] And the rhythm section is just a dream. I have no gates on the drums; they're all open."

While Williams has stripped back her production, Jones is carrying a full semi of gear, both sound and lighting, for this 19-city leg. The P.A. put up at the Paramount was put together by his longtime engineer Jimmy Owen of Owen Audio in Nashville. A few years back, Owen wanted to get off the road and turned the FOH reins over to Greg McGill (Merle Haggard, T.G. Sheppard, Lee Ann Womack).

"It's a system of proprietary, refrigerator-looking boxes," McGill explains as he points to the well-traveled cabs. "They each have a Gauss horn, two JBL Bullets and two JBL 15s. I carry 12, though we're only



using three each side tonight. The subs are folded-horn-type. The amps are all McIntosh 2200 and 2300 models, solid-state, and they sound really smooth with that older country feel. I think it sounds as good as some of the line arrays out there."

Though Jones had a sinus infection at the Oakland show and was not in top form, he's still George Jones, with one of the most distinctive voices of the past century. He sings into an Audio-Technica Artist Elite AE4100 mic. McGill says, "I can get more headroom out of that mic. George will talk and then turn his head, but people come to hear everything he has to say. We do our best to give them that." The only effect in the chain is a TC Electronic Intonator, which McGill inserts in the channel and blends back in, giving him a bit more presence in the top end. The entire band is on a Sennheiser in-ear system, which McGill says has dramatically helped the mix by eliminating stage volume and adding consistency night after night.

Like his Williams counterparts, McGill keeps everything simple, mixing the show "old-school-style." Being simple doesn't mean set and forget, however. Like Humphreys, he actively pans throughout the show to avoid layers and build-up, preferring to find a space for each instrument. Most members of the band have been with Jones 20 years or more, so the dynamics are all taken care of on the stage with the players.

As we went to press, Jones was wrapping up and Williams had a few dates left from Dallas to L.A. If you get a chance, check her out. Many have remarked that it's the best-sounding show out there; one guy in San Diego even left a \$50 tip on the console. ■

Tom Kenny is the editor of Mix.



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Pearl Productions

Illinois-Based SR Company Reaches Beyond the Midwest

It takes an audio engineer to know what an audio engineer needs—whether that mixer is on a first-call tour, a small-town festival, a local sporting event, a church install or working on a casino's audio needs. For Pearl Productions' co-owners Don Lanier, and Earl Parrish, years of working behind the board have catapulted their East Alton, Ill. (just east of St. Louis), SR company from just working in and around the Midwest to packing up the trucks wherever a client needs them to be.

Parrish got his engineering start in Texas (though he is an Illinois native) working for Collins and Cole Acoustics on gigs for Marty Robbins, Steppenwolf, and Gary Lewis and The Playboys. Lanier started work as a DJ and part-time sound system tech working for local groups and at local venues, including St. Louis' Fox Theatre. From there, he went on to be a lighting tech and electrician for Obie Lighting in California. He then moved back to Godfrey, Ill., and opened a company called Nitetech Power Systems, providing broadcast power for National Mobile Television, Bud Sports, CBS Sports and other national media. While expanding Nitetech's power business, the company was contracted by the Alton Belle Casino, where Lanier spent five years as the concert showroom operator and show designer.

In 1999, when the casino undertook management changes, Lanier sold off most of his Nitetech inventory. "I was tired and needed some rest," he says. "I met Earl at a local show, and he asked if I would do weekend FOH duties for him. I had employees who just didn't get the magnitude of what I was trying to build, so I sold off Nitetech, keeping key parts of the business, and went to work for someone else for the first time in 25 years."

Lanier and Parrish have to multitask to keep up with the company's day-to-day duties: Lanier works as system designer, FOH engineer and production manager, and as sales rep for religious and other markets; Parrish serves as the monitor and systems engineer, and lighting director, as well as maintains Pearl's Website (www.pearlproaudio.com), graphics and advertising. Also onboard is Lanier's nephew, Steven Lanier, who is part time and a monitor engineer in training, as well as systems and lighting tech. Lou Watson handles transportation, delivery and logistics.

Lanier and Parrish can often be found working on local and regional festivals, fairs and religious events. The company is expanding its installation division as the church market has pulled them into it more and more. "We handle the training for several churches for new staff, and we teach churches how to use technology to be more user-friendly," Lanier says. "I try to impart the basics and work up." In addition, Lanier and Parrish will soon boast a larger lighting division with the addition of a new roof system, while they continue work on upgrading its power



Pearl Productions' Don Lanier (left) and Earl Parrish

capabilities. "We have generators and equipment that were used during Hurricane Katrina, and we're adding to this all the time," Lanier says. "We design and construct a line of equipment for these needs. I've built panels and custom cabling and power distribution systems for many years."

But the main hub of Pearl Productions is its top-of-the-line audio stock, which includes a large inventory of Peavey gear (the company is a Peavey dealer): SP Series, QWave Series speakers and monitors, CS 4080/4000/3000/1400 amps and the newest Peavey DSP, the VSX 26. "I've recently used [the VSX 26] for several shows and was simply amazed at the ease of control it brought to my sound system," Lanier enthuses. "We recently purchased two new Crest HP-8 x48 consoles for FOH and monitor. I will be updating one of these consoles to the new [Crest] VCA console. We have a Crest/Peavey sound system through and through, and it really does a good job of reproducing the music faithfully and without a lot of 'black box' magic."

Pearl Productions will also add Peavey's first foray into the line array market, the VersArray. "Having a line array system just adds another tool for us to offer customers who won't use anything other than a 'line array,'" Lanier says. As for Pearl's future business plans, Lanier is reticent to reveal his strategy, asking, "Why give my competition a lesson in what to do? Growth will come for those who work hard and are service-oriented. A regional company is just that if it is willing to stay put and accept that the phones are not ringing. We're not playing that game; we're active in the community and in our business circles. We intend to grow as fast as our bank will allow us." ■

Sarah Benzuly is Mix's managing editor.

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World Radio History

New Sound Reinforcement Products



SENNHEISER 3000 SERIES WIRELESS MONITORS

Sennheiser's (www.sennheiserusa.com) 3000 Series wireless monitor transmitter/receivers are compatible with Sennheiser Evolution Series wireless G2 monitor products. The units offer a high 100mW output and a 36MHz switching bandwidth, tunable in 5kHz steps across the frequency range for a total of 7,200 frequencies. All three products ship with 16 pre-coordinated preset frequencies and 16 user-assignable presets. The EK3253 bodypack receiver is 20 percent smaller than its predecessor, but features a more robust metal body and comes with IE 4 stereo ear-canal phones. Two AA batteries provide up to 10 hours of operation.



WHARFEDALE EVP-XP POWERED SPEAKERS

The EVP-XP Series from Wharfedale Professional (dist. by IAG, www.iagpro.com) is the powered version of the company's EVP-X. As with the passive EVP-X, the EVP-XP features a new elliptical waveguide horn on a 44mm titanium HF compression driver. The EVP-X12PM and EVP-X15PM (12/15-inch stage monitors) include a 5-band graphic EQ for more feedback control, as well as an output jack for daisy-

chaining a passive EXP speaker from the monitor. A 15-inch powered sub is optional. The 12-inch front-of-house and monitor models have 300W (continuous) amps, with all others having 400W amps.

ELECTRO-VOICE P3000RL POWER AMP

Electro-Voice's (www.electrovoice.com) Precision Series™ power amps combine flexible remote operation and system control of up to 250 amplifiers via one or more PCs. System DSP includes filter, delay, level and dynamics parameters. The DSP-enabled version of the company's popular P3000, the top-of-the-line P3000RL puts 1,300W/channel into 4 ohms (or 1,800W/side into 2 ohms) in a three-rackspace chassis with high-power Speakon NL4 output connectors. The P Series has other networkable models, ranging from 400W to 850W/channel in standard high-impedance 70/100-volt contracting versions.

CROWN XLS AMPS

Crown's XLS Series power amps (www.crownaudio.com) include four models from 300W to 800W per channel into 4 ohms. Features include a mono bridge mode switch, balanced XLR inputs, binding post and Speakon outputs, detented level controls and six status LEDs that indicate signal, clip and fault for each channel.

AUDIX VX5 VOCAL MIC

The latest handheld vocal mic from Audix (www.audixusa.com) is the VX5 (\$299), a mid-priced cardioid condenser model. Also available in transmitter form with the company's RAD360 wireless systems,

the stand-alone 48VDC phantom-powered VX5 has two recessed DIP switches for bass roll-off (150 Hz) and a -10dB pad that extends the mic's SPL handling to 140 dB. Other features include a rugged stainless-steel grille (removable for cleaning) and a 40 to 18k Hz response.



MACKIE M SERIES AMPS

Designed to deliver two channels of high-efficiency power, Mackie's (www.mackie.com) M Series amps are available in three configurations: the M-2000, M-3000 and M-4000, delivering 2,000/3,000/4,000 watts, respectively. These lightweight, Class-H designs feature Mackie's exclusive Adaptive Slewing technology for fast transients and a fully complementary differential design from input to output. The amps retail at \$899.99, \$1,099.99 and \$1,299.99, respectively.



DOLBY LAKE PROCESSOR

Combining the resources of Dolby and Lake Technology (acquired last year), the Dolby Lake Processor (www.dolby.com/livesound) provides loudspeaker management/EQ, global software control (via computer or wireless tablet) and up to eight channels of Lake Mesa EQ or up to 4x12 channels of Lake loudspeaker processing. Its LimiterMax technology couples a true RMS limiter and an instantaneous attack-time peak limiter for absolute clipping protection and Iso-Float ground isolation for transformer-like ground isolation without the added expense. The unit's four-port interface provides fast, accurate access to system functions and parameters.

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World Radio History

Are Commercials Really Too Loud?

Rethinking the Broadcast Signal Chain

Hello, broadcasters! I have, on occasion, been one of you. And while my current reality is quite different from my former freelance existence, I will never forget the camaraderie of being part of a team, and the responsibility and adrenaline rush that accompany a live broadcast. That experience even prepared me for life as a parent, but I'll save that story for the post-credit wrap.

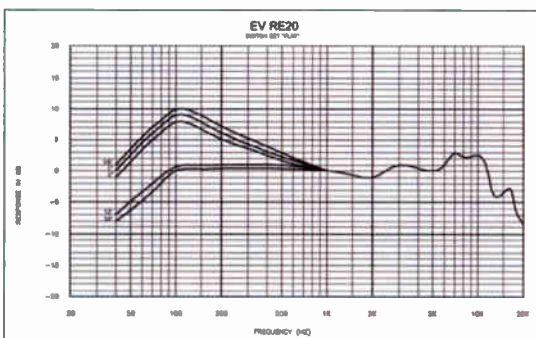
My focus is on the audio signal chain for television and radio broadcast. I can imagine what a nightmare it is having to work with so many different sound sources. As a listener, I hear the disparities and wish the solution were as easy as dropping by the station and brainstorming with fellow geeks, but I know it's more complicated (and political) than that. Still, I have a few simple suggestions that perhaps can make someone's life easier.

The editors would prefer that I give "Fletcher-Munson" a rest. This article really isn't about that topic at all; it's about tweaking 'round the proximity effect. Both are related, but I promise not to exceed the "three-strikes" rule.

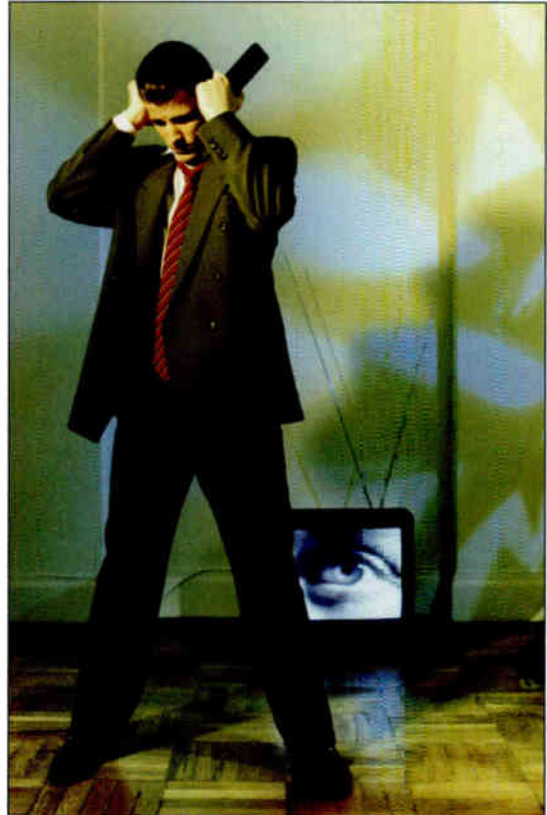
DRIVER'S ED

I'm spending more time on the road these days in my Toyota Camry with a non-stock JVC radio/CD player. I'm constantly messing with the tone controls. My *reference* setting involves pressing the Loudness switch with the tone controls set flat for CDs, and it sounds pretty decent. I can hear bass, and the treble doesn't hurt my ears.

The "L" button goes off for local public radio announcer/host/DJs, along with some bass roll-off. Everything goes back to "reference" when the music comes back on. I love Terry Gross and *Fresh Air*, but that show and other NPR programs also need a little treble boost. However, our local new-music station, The Current, is as sonically smashed



The figure details the frequency response of the broadcast-standard Electro-Voice RE20 vocal mic with a family of five curves, showing the effect of proximity from (top to bottom) 1/8, one, two, 12 and 24 inches from the mic. There's a whopping 10 dB more 125Hz bass response when the lips are a mere 1/8-inch from the mic.



as commercial radio. Such stations are EQ'd as if listeners had no tweeters. I roll off the treble (to an arbitrary -6) and sometimes bump up the bass (+1).

Our local jazz station, KBEM, sounds okay as compared to the rest of the mush on the dial. The treble is clean, not smeared, and the bass is well-defined until the announcer thunders in. Granted, jazz is not processed like pop music in whatever form—rock, R&B, hip hop, rap, etc.—so the DJs *should* fit in better than they currently do.

BOOM, BOOM, BOOM

Among all of radio's disparate sound sources—network feeds, commercials and local programming—it's the "microphone-eating" on-air talent who make it hard for me to think. Some listeners may dig booming voices, but it's mud to me and doesn't help intelligibility. Many of the brighter-sounding stations are also bass-deficient. And using global EQ/multiband processing at the transmitter to tame the proximity effect would shortchange the music.

Increasing distance between talent and the mic can help reduce proximity's extra low end (see the figure), so the issue is simply a matter of enforcement. Establishing and maintaining the distance is no small task. And with small, poorly treated studios, distance has its downside: It allows more room tone, which can be a problem. Corner (mini)

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traps can be very effective at minimizing small-room resonance.

To reduce proximity boom, start by taking full advantage of whatever bass roll-off (highpass filter) a microphone has to offer. Most of the time, that will not be enough. (The Sennheiser MD 421 has a five-position bass filter combined with a broad upper-midrange presence.) If all that seems too thin for the talent, then try reversing the polarity at the mic preamp or adding some bottom to the headphone mix.

Note: Close your earflaps to hear how sound travels inside your head. To ensure

the warmth that talent craves, make sure the incoming headphone signal is in-phase with the "bone conduction." Reversing polarity will produce immediate results. What's right will be obvious.

Music CDs and commercials are crafted for maximum loudness, so they really don't need any additional dynamics processing, but the on-air talent mic requires the same type of "treatment" that went into the music (or commercial) production. Using the curves seen in the figure should help you approximate the subtractive EQ settings. Once the muck is removed, compression can

be added to the talent mic (or perhaps some simple multiband processing). Now the mic should be competitive with the music and allow for more relaxed processing at the transmitter.

I know the goal is to preserve the traditional "FM DJ warmth" and intimacy, but keep in mind that most consumer systems have that Fletcher-Munson thing happening. No matter how "religious" you want to be about "listening flat," consumers will always dial in that smiley-faced EQ.

BRIGHTNESS AND CONTRAST

Consumers generally complain about the excessive level of TV commercials, which have much in common with pop mixes. At the other extreme, network TV programs take advantage of using dynamics for impact; much like sound for film, the networks ensure that every word of dialog is heard, with no mud, providing maximum clarity without being excessively bright or strident.

Local TV affiliates face a particularly muddy, uphill battle considering the number of lapel mics that they use. Nearly all are cardioid for minimizing phase issues with other mics, as well as studio noise. With such proximity to the chest (rather than at the mouth), not only is there ample bottom, but a pronounced lack of top.

The solution involves the mic (assuming it comes with a filter), plus additional EQ and processing as a permanently patched part of the signal chain. I am assuming from the sound that I hear that most board operators don't touch the EQ. Using a mechanical VU meter pre- and post-processor is the best way to judge loudness as perceived by the ear.

Optimizing each sound source would reduce the necessity of heavy-handed multiband processing and ultimately make any station more listenable. Isn't that the goal? FM currently sounds worse than a bad MP3, and taking into account how much work goes into a mix, it's no wonder listeners are programming their own music.

LIFE LESSONS LEARNED

About five years ago, my wife called me upstairs for an emergency. My son, who was a year old at the time, was choking on something. In the blink of an eye, I had his belly on my arm with his head down and patted him on the back until the offending item popped out. My relieved spouse looked at me and said, "You were so calm," to which I replied, "I've done live television!" ■

Eddie's most recent foray into "television" was repairing an SSL video display. For more fun, visit www.tangible-technology.com.



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World Radio History

Tools of the Trade



LAUDEN AUDIO HORIZON

New to the mic manufacturing game, Lauden Audio (www.laudenaudio.com) released the Horizon (\$549), a cardioid tube mic sporting an internally shock-mounted, large-diaphragm capsule and a two-step -10/-20dB pad. The mic ships with a case, a hard mount, a power supply and a 20-foot Gotham Audio cable with double-reussen shielding and Neutrik gold-pin connectors.

MOTU ETHNO INSTRUMENT

Now here's an app that can really take you around the world. MOTU's (www.motu.com) Ethno (\$295), which can operate as a stand-alone or within a DAW, features 4 GB of expressive ethnic instrument sounds combined with



another 4 GB of authentic world music loops and phrases. The slick-looking interface features a spinning world globe and groups instruments and loops by regions and styles of the world, including Africa, Asia, Australia, Celtic, Eastern Europe, India, Middle East, Mediterranean,

West Indies and more. You can browse instruments by category—including woodwind, stringed, bell/metal/gong, key, voice and percussion—and then simply drag and drop them into the host application.

BRAINSTORM DCD-8 WORD CLOCK DISTRIBUTOR/GENERATOR

A versatile word clock aimed at recording, post and broadcast, the DCD-8 (\$1,295) from Brainstorm (dist. by plus24, www.plus24.net) features two separate generators capable of creating two rates simultaneously. You can then assign them to any of eight word clock outputs. The unit will reference external word clock, AES/EBU, S/PDIF, ADAT, FireWire, video or internal crystal, and offers a low-jitter clock operating at up to 192 kHz. Other features include a high-res input frequency counter and phase comparison between different sources. Multiple units can be linked together while maintaining phase.



FOCUSRITE SAFFIRE PRO 26 I/O

The latest I/O box from Focusrite (www.focusrite.com) features eight Focusrite Green Series preamps, 24-bit/192kHz operation and software control, all in a single rackspace. Saffire Pro's (\$699) 26 channels of I/O include eight analog in/out, dual ADAT Lightpipe I/Os and stereo S/PDIF. The box can be powered by bus or via external DC power, and supplies MIDI I/O alongside highpass filters on every channel; two super-channels add variable impedance and insert points.



E-MU EMULATOR X2

E-mu's (www.emu.com) X2 sampler for the PC offers a variety of new tools. Features include the company's 24-bit/192kHz sound engine and pitch interpolation; SynthSwipe for automated hardware sampling; TwistaLoop, a non-destructive audio manipulator; Morph Filter Designer to create custom filters; multifunction generator for advanced LFO/envelope/arpeggiator programming; a Transform Multiply convolution DSP tool; real-time control of multiple loop points; and REX2 and MP3 file import. X2 will run either stand-alone

(64 MIDI channels) or as a VST instrument (16 MIDI channels per instantiation). The software ships with a 2-in/2-out USB MIDI interface and more than 3 GB of sounds. Prices: \$299.99 (software); \$79.99 (upgrade for Emulator X owners); and \$249.99 (as an add-on for any E-mu digital audio system or Xboard USB/MIDI controller).

IK MULTIMEDIA CSR REVERBS

This group of four reverb plug-ins from IK Multimedia (www.ikmultimedia.com) includes Hall, Room, Ambience and

Inverse apps. The plugs feature Easy and Advanced operational modes, more than 100 editing parameters, adjustable input and output reverb width, high-quality filtering, a customizable 8x8 modulation matrix, four assignable macros, parameter morphing, two envelope generators and two LFOs. The applications work on either Mac or PC on VST, RTAS, Audio Units and TDM hosts. Price: \$399.



and group workspace panels and preview saved panel arrangements as custom workspaces that can be easily recalled. Broadcast and video pros can save time with included royalty-free music beds and thousands of 32-bit, uncompressed music loops. Other new features include Adobe Bridge for convenient file access and management, Adobe XMP (Extensible Metadata Platform) support for embedding metadata into files, and broader video and audio format support. For integration with other Adobe apps, check out the Adobe Production Studio Premium (\$1,699) that bundles Audition with After Effects 7 Professional, Premiere Pro 2, Photoshop CS2, Encore DVD 2, Illustrator CS2, Dynamic Link and Bridge.

SONY MDR-7509HD HEADPHONES

Sony's (www.sony.com/professional) MDR-7509HD (\$265) headphones feature Auranomic circumaural driver units that are designed to eliminate pressure on the ear during periods of extended use, and can reproduce up to 80 kHz at the top end. Replacing Sony's MDR-7509s, these new closed-type units also feature 3,000mW power capacity and neodymium magnets.



World Radio History

SUMMIT FEQ-50

The FeQ-50 (\$995) is a single-channel, transformerless, passive parametric EQ from Summit Audio (www.summitaudio.com). Each of the FeQ-50's four bands features six frequencies and ± 14 dB of fully variable gain. The low and high bands offer peaking or shelving, while the middle two bands carry wide and narrow switches. In addition, a 6dB-per-octave highpass filter is set at 80 Hz. The half-rack unit has XLR balanced and $\frac{1}{4}$ -inch unbalanced inputs on Neutrik Combo jacks and balanced +4dB XLR and balanced -10dB TRS outputs. The outputs carry solid-state and tube signal paths, both of which are individually buffered and can be used simultaneously.

SM PRO AUDIO PR8E PREAMPS

The PR8E (\$199) multichannel mic/line preamp from SM Pro Audio (www.smprouaudio.com) features eight discrete microphone preamplifiers, XLR/Combo inputs, TRS outputs, 48V phantom power and polarity reverse on every channel. The unit also features peak LEDs and a -20dB pad built into the $\frac{1}{4}$ -inch line-in jack sockets. Each mic pre produces 60 dB of gain with 23 dB of maximum output.

DOLBY DP600 PROGRAM OPTIMIZER

Debuting at this month's NAB, Dolby's (www.dolby.com) DP600 Program Optimizer offers intelligent audio analysis and automated loudness correction for most of today's common broadcast media file/audio formats. Targeted for cable/satellite/IPTV/terrestrial TV broadcasters using a file-based infrastructure and workflow, the DP600 provides a consistent audio experience across all programming. Options include file-based (faster-than-real-time) audio encoding and decoding support for Dolby Digital (AC-3), Dolby Digital Plus (E, AC-3) and Dolby E.

RAIN RECORDING

STORMDRIVE, STORMDRIVE POCKET

Two new drives from Rain Recording (www.rainrecording.com) cater to the pro user looking for robust and portable modular data storage. The stackable 300GB StormDrive runs at 7,200 rpm and features an 8MB cache, 683Mb/s Seek time, aluminum case, and power and status LED. The 100GB StormDrive Pocket runs at 5,400 rpm, has an 8MB buffer and a 100Mb/s transfer rate. Both drives have FireWire (6- and 4-pin) and USB 2 I/O connectivity, are fanless and are compatible with Windows 98SE, ME, 2000, XP and Mac OS 9.x and OS X. Price: \$489.95 each.

ADOBE AUDITION 2

Adobe (www.adobe.com) Audition Version 2 (\$349; \$129 upgrade) offers a wide variety of new features and integration with other Adobe products. The redesigned, low-latency mixing engine supports ASIO drivers, and offers flexible bus/send routing, punch-ins on the fly, unlimited tracks and more. Editors will appreciate V. 2's ability to quickly dock



NATIVE INSTRUMENTS KORE

KORE (\$TBA), Native Instruments' (www.native-instruments.com) new universal sound platform, operates both as a stand-alone instrument host and as a plug-in in every major sequencer. It integrates VST and Audio Units-based software instruments and effects from virtually all manufacturers into a single, unified

interface, providing control and ease of use across a range of products. The system is based on KORE's advanced hardware controller, which offers hands-on control of virtual instruments. An integrated database

stores the entire library on a computer, allowing searches for musical categories such as genre, articulation or texture. KORE comes with categorization data for the company's 11,000 instrument preset sounds, software instruments and sound libraries.

EASTWEST 60S A GOGO

EastWest (www.soundsonline.com) takes you back in time with its latest sonic release, 60s a GoGo (\$119). The collection features authentic retro music arrangements, samples and loops inspired by beat, surf, twist, pulp, rock, lounge, easy listening, and French and Italian film music from the '60s. The samples are played on vintage instruments and amps, and are available in a mixed '60s-style version and a dry unmixed version. The 1.5GB library can be played back on ELASTIK, the brand-new loop player made by Ueberschall (included).

Upgrades and Updates



Applied Acoustics

Systems (www.applied-acoustics.com) is now shipping the **Modeling Collection bundle**. The group comprises Tassman 4, Lounge Lizard EP-3, Ultra Analog VA-1 and String Studio VS-1...**MOTU** (www.motu.com) has released **Intel Mac-compatible drivers** for all of its currently shipping FireWire and USB audio and MIDI interfaces, meaning that any user of MOTU's FireWire audio, USB 2 audio and USB MIDI interface products will be able to use the hardware with a new Intel iMac or MacBook Pro...**Legendary Audio** (www.legendaryaudio.com) is offering a **free DVD** demonstrating the capabilities of its Rupert Neve-designed Masterpiece analog mixing and mastering system. The half-hour presentation includes a tour of the system and a step-by-step mastering session with engineer Billy

Stull...**Ableton** has updated **Live to V. 5.2**, providing users with significant gains in audio performance and

bringing native support for Apple's new Intel Macs. See details at www.ableton.com...The new **V. 2 software update** for the **Focusrite** (www.focusrite.com) **Liquid Channel** professional channel strip is now available for free download. It offers LiquidControl V. 2 software, which allows the user to control the unit in real time via MIDI...**Apple's Logic Pro 7.2** is now fully compatible with **Digidesign Pro Tools|HD** systems using V. 7.1 of DAE (Digidesign Audio Engine). All Logic features are supported, including ESB and EXS24TDM. Users must download Pro Tools|HD 7.1cs4 or higher, available as a free update for all Pro Tools|HD 7 owners from the Support section of the Digidesign Website at www.digidesign.com/download/cs. Logic Pro 7.2 is currently available from the Apple Website at www.apple.com/logicpro...



Symetrix has upgraded its **SymNet Network Audio DSP platform** to V. 6. The update is available for public download from www.symnetaudio.com. The new release adds **Acoustic Echo Cancelling (AEC)** functionality to the SymNet platform...**Smart Loops** (www.smartloops.com) is now shipping **Pro Drum Works Volume Two** (ACID format, DVD-ROM). The collection comprises more than 3,000 unique grooves and samples, and is designed to work seamlessly with Pro Drum Works Volume One's straight-feel loops...**Glyph Technologies'** (www.glyphtech.com) **GT 050Q tabletop hard drive** is now available. The unit offers up to 500GB capacity and is designed for high-speed access to audio and video content. The GT 050Q can be used with any Mac or PC with FireWire, USB or eSATA ports. ■

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World Radio History

Fairlight Anthem

Split, Inline, Post—Three Consoles in One

At last year's AES show in New York City, I stumbled across the Fairlight booth and saw the Anthem Dream, the company's new digital console. Yeah, just what the world needs, another digital board.

You could consider me old-school. I grew up on large-format analog consoles—Neves, APIs, Trident A Range, even SSLs. I love the sound and functionality of these beasts, and I've had a fair amount of success on them. I love their sonic personalities; I can't say I ever could get that with a digital console. Yes, I have made the transition to the brave new world. I have built a personal studio based around a digital console and a digital audio workstation. I resisted, of course, but now I'm fully committed to working this way. I even think that I have gotten my system to sound pretty decent.

There have been many digital consoles, though I can't think of many that actually thrived, or survived. The designs have not been the most user-friendly, I can't say that they sounded very good—or had that sonic personality—and at least for me, the learning curves have been steep. Many of these boards seemed to have been designed by teams that were clueless as to what engineers actually do—designers that never recorded or mixed anything or even attended a recording session. At least it seems that way to me.

I spent some time at the New York AES show with Fairlight president John Lancken and his chief software designer, Tino Fibaek. Fairlight's new board looked cool and seemed intuitive and functional, but on the show floor, I couldn't tell what it sounded like. The mixer could set it up as an inline or split console, so perhaps it could be set up the way I like, rather than making me work in the way some designers imagine engineers work. Anyway, I was intrigued, and John invited me to come to Sydney (where Fairlight is based) and try mixing something on it.

LEAVIN' ON A JET PLANE

It's a 14-hour flight from L.A. to Sydney, which is not too bad if you have the proper medication. If you leave L.A. on a Friday, you'll arrive in Sydney on Monday—talk about messing up your internal clock!

When I got there, John insisted I should stay up, so we had dinner at a former dunny (that's a public restroom) that's now a very nice restaurant in the shadow of the Sydney Opera House. So I forced myself to stay awake and do some sightseeing and woke up the next morning feeling relatively okay. Of course, having been a recording engineer for so many years, I get used to feeling jet-lagged most of the time.

I showed up at the Fairlight headquarters the next day and went into the control room where the Anthem was set up. I brought a song I had recorded live for a famous octogenarian rock band. The track needed some work and would be a good test for putting the console through its paces. I had plenty of time and nobody to criticize the results, yet I was nervous, thinking back to the times when I had to complete a project in a new and strange room with equipment that I wasn't intimately familiar with.

In the room with me to hold my hand while I became familiar with the console was Joe Hammer, a former first-call drummer from Texas who has lived in Paris for the past 25 years. The designers were also in the room, anxious to see how I work.

THE ROCKY ROAD TO ROCK

I figured the best way was to just dive in, get my tracks up to the desk and start mixing—and figure out how to use the console as I went along. First up: Can I get the drums to rock? I brought this particular recording because I knew that it needed some help. I pushed the faders up, flat, no effects, and I tried to get a balance and just see what I needed to do to get it to fill the speakers.

Hmmm. the kick drum wasn't really popping. I needed to find the fundamental



and peak it, get rid of the muddy 150 to 400Hz stuff and boosted at 4 or 5 kHz to get some definition and snap. I sharpened up the Q and started boosting and sweeping the low end to find the fundamental, but I couldn't seem to find it. There didn't seem to be enough gain on the EQ to dig it out.

I tried to clear up the overheads to get the snare to speak, but I was having a heck of a time digging this stuff out. I cranked up the monitors to help find it, but I just couldn't get the tracks to stand up like I needed them to. Oh man, I was hating my life just then. I was also hating this console—another case of a digital desk just not having the oomph I need to get a track rocking. I thought, now what do I do? I really like these Fairlight guys. They have been treating me like a million bucks, so how can I tell them this thing doesn't cut it?

Maybe I could sneak a cab to the airport and go home, change my phone number or—better yet—just move. Whenever I start a project, I get worried that maybe this time I won't be able to pull it off, and I'll be exposed as a fraud and a slug. So I was worried, and even a bit angry that—because of the economics of our business—I was being forced to find a new way to work.

I excused myself and took a little walk, had a smoke and took a couple deep

ROCK

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Yamaha PM5D. Rock on!



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breaths. There were some beautiful birds hanging around, so I shared a snack with them and calmed down.

I told Joe and the designers the difficulty I was having, and that the EQ—as it was set up now—wasn't cutting it. It didn't have the sound I was looking for, and I didn't feel I'd be able to get this track sounding right. The Q needed to be sharper. I told them where the frequencies needed to be centered—especially on the low end—and that I needed more headroom and gain. They scribbled some notes, probably thinking I was a world-class jerk. I spent the rest of the day exploring Sydney, and we planned to reconvene the next morning to continue feeding my frustration at my inability to get these tracks to rock.

FEELIN' ALRIGHT

The next day, we went back at it. I hit Play and thought, "Am I going crazy?" The drum tracks were rocking; the kick was filling the speaker; I was hearing the harmonics



Cherney with Fairlight's Joe Hammer

and body on the snare that I couldn't get the day before; and the bass guitar was full and clear. I wondered, "What's going on here?" Yesterday, I couldn't get the EQ right, and today it's working. Well, the designers had stayed up and written a different EQ algorithm. I couldn't believe it. I was beginning to feel better.

I started by trying to balance some music. But first, I needed to check out the onboard compressors. I thought, this electric guitar was a good candidate; let's see if I can get it to stand up while leaving a little room for some other instruments. Whoops: bad knee, not a lot of elegance. It was either smacking too hard—or not enough. How about a better variable soft knee, so I could hit the threshold where I wanted it and it wouldn't hit too hard—unless I needed it

to, of course. Next day, there it was. I was floored. All right!

I finally felt I was getting this thing to pop. I figured out the aux sends, which are pretty straightforward. You can put real-time VST plug-ins on the inserts, so all of my favorite plug-in reverbs, EQs, compressors and effects were right there. I was starting to feel at home. As I continued working, I became more familiar, comfortable and confident, but mentioned that I would have preferred the board's center section to be right in front of me, and felt the graphics should switch to what I was working on. Next morning, the console layout was just as I had requested. This thing was starting to feel like it was mine.

IMPRESSIONS, IMPRESSIONS

Routing was straightforward: It's easy and convenient to do grouping and traditional VCA-type groups, and you can quickly group many channels and tweak all the parameters of those channels. For example, you can compress/EQ all of the drum tracks—or even smash them and mix them back into the unsmashed drums.

The Anthem has the best and easiest automation I've used. Especially with digital consoles, many automation systems force you to work *their* way, not yours. On this board, you can easily and quickly automate any parameter without having anything else automated. With the touch of two buttons, I can automate an echo send, panpot or EQ parameter without anything else being affected. I wish that all automation systems worked like this one—additive

and not global.

Everything is totally recallable. I could easily switch between sessions, so I could work on a few things at once. The console can be used in the traditional-style split mode (separate monitor section) or in-line, which I prefer for mixing. It has lots of echo sends and signal paths. And if you really have to, it's easy to do simultaneous surround and stereo mixes. Surround panning, busing and monitoring are well thought out and easy to use. It's easy to pan anything to anywhere.

I was knocked out by being able to design my own console in a matter of hours and implement those changes. After only six hours, I could really do great work on this desk. I could quickly configure Anthem's control surface to suit my tastes,

Anthem Specs

Anthem delivers up to 192 channels routed to up to 72 mix bus elements. This pool of bus elements is divided up and freely assigned between the eight main buses, up to 24 multitrack buses and 12 auxiliary sends, any of which can be user-assigned from mono to 7.1. Each fully featured channel includes a 6-band EQ, including filtering and two-stage dynamics. The comprehensive busing system allows simultaneous generation of multiple surround formats and bus-to-bus mixing for multiple-mix stem generation.

Physical I/Os are available in analog, AES, AES SRC and MADI formats, and a sophisticated internal patching system allows totally free routing of inputs, outputs and buses between external and internal destinations. The monitoring system is also completely configurable with programmable fold-down and fold-up modes, allowing instantaneous switching to up to nine speaker sets, each of which can be configured for any desired bus format.

Anthem delivers three configurations that meticulously duplicate traditional split recording consoles, classic inline mixing consoles and Fairlight's Constellation audio post-production console.

relocating the controls I needed to the middle of the sweet spot.

Anthem offers everything I need in a console, including sounding really good. I tried to overload the stereo bus, but could hardly do it. I felt that I could get "personality" out of it—something that's always a struggle for me to do with digital gear. I ended up really loving this desk, and by the end of my trip, I felt that I had a desk built just for me.

I forgot to mention that Anthem contains a 96-track disk recorder. I really didn't get into its features, only to transfer the tracks that I brought and use it for playback. I'll get into that on my next trip.

Fairlight, (+61) 29975-1777, www.fairlightau.com. ■

Multi-Grammy- and TEC Award-winning engineer/producer Ed Cherney's credits include acts such as Buddy Guy, Bonnie Raitt, Jackson Browne, Eric Clapton, Bob Dylan, George Harrison, Lenny Kravitz, Dave Matthews Band and the Rolling Stones.

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Euphonix MC Controller, System 5-MC Console

Ethernet Control of Video and Multiple DAWs

The Euphonix MC Media Application Controller and System 5-MC represent the company's vision of the future of audio/video production. The goal is to provide efficient, seamless and simultaneous control of multiple DAWs and video apps, with full high-res metering, EQ and pan graphical curve displays, along with the interactivity of automation and real-time plug-ins.

Communication between computer/apps and the MC/System 5-MC is via a high-speed Ethernet network and the Euphonix EuCon protocol. So far, this high-speed control protocol is integrated into Nuendo, Pyramix and Digital Audio Denmark's product line. For non-EuCon applications, the HUI/Mackie Control protocol (over Ethernet) and keyboard macros for the MC's 56 LCD SmartSwitches are used.

THE MIGHTY MC

The MC has a familiar look as it's also the center section of a System 5-MC mixing console. Perfect for project studios and post film/TV editorial use, the MC stands alone with its internal power supply, computer and hard drive. Software updates can be accomplished using a USB Flash drive or Internet download. Apart from a talkback audio output jack, power and a USB port, the only other external connection is the Ethernet connector. A flat-panel LCD screen monitors connected apps and computers. When you change applications, a DVI switcher adjusts the display to the appropriate software/computer.

The MC's layout is modular: Each section has a Setup button that immediately shows that section's status and configuration on a compact 1,024x768 touchscreen for directly programming the control surface. The screen shows each networked workstation's setup; file management; system setup, preferences, track selection and management; flip or the swapping of System 5-MC faders and knobs; and soft-key setup for function assign and keyboard assign to SmartSwitches. The touchscreen also allows naming, storing, recalling and deleting Edit Control banks, soft-key banks, user sets and application sets. You can also set up preset layouts to control and assign tracks.



The MC offers four levels for controlling all apps and computers: a QWERTY keyboard, SmartSwitches for programmable keystrokes, HUI and Mackie Control command protocol over Ethernet and high-speed network control of EuCon-aware apps. The keyboard is flanked by two edit control modules, each with identical four-button Kensington jog wheel and trackball assemblies. Dual trackballs can be used, or either ball can be swapped out for a jog wheel insert, accommodating left- and right-handed operators.

SMARTSWITCHES

MC's open architecture allows you to program or map any DAW commands assigned to keystrokes in their respective application programs to any of the SmartSwitches. You can assign any keystroke command to any SmartSwitch, including transport controls.

Each SmartSwitch button has a backlit LCD window with the name and/or designated icon describing its function. You can control the window's color, font size and style, or develop your own icon library in any bit-mapping application. Each control module is augmented by 16 SmartSwitches—10 directly above the jog wheel or trackball inserts and six more to either side. I found that this simple-to-learn, intuitive arrangement was also easy on my carpal tunnels.

Six more banks of 24 SmartSwitches above the keyboard are used for all other key commands. Each bank can also have a sub-bank for nearly limitless functionality. You can map any of these switches and store

them in Application sets. Also, any switch can be "locked" so that it always performs the same function no matter which application is onscreen. This locking feature is ideal for a EuCon-controlled DAW's transport controls.

The MC comes with a large number of pre-built Application sets. (Download more at www.euphonix.com.) You can modify these and re-save them as your own personal set that travels with you; they can be stored externally to a USB Flash drive. Next to the SmartSwitch banks are eight soft-knob shaft encoders, each having lighted buttons and eight SmartSwitches. These knobs control EuCon-enabled applications—mainly to adjust plug-ins, aux sends, mix groups, routing and inserts—and can also be mapped for the HUI and Mackie Control.

EUCON PROTOCOL

The EuCon protocol is a fast, high-resolution, powerful technology that can boost the speed and creative quality of your workflow. (See *Mix*, April 2003.) When connected to a EuCon-enabled app, control becomes total and complete. There is continual, high-speed, bi-directional communication from the surface to the application with no latency or feeling of detachment. Using this system for mixing was my best experience yet with a DAW controller. The controller's instant, glitch-free response allowed me the freedom of a totally musical approach with my mixing fader gestures, without thinking about or compensating for the system.

The high-speed connection allows

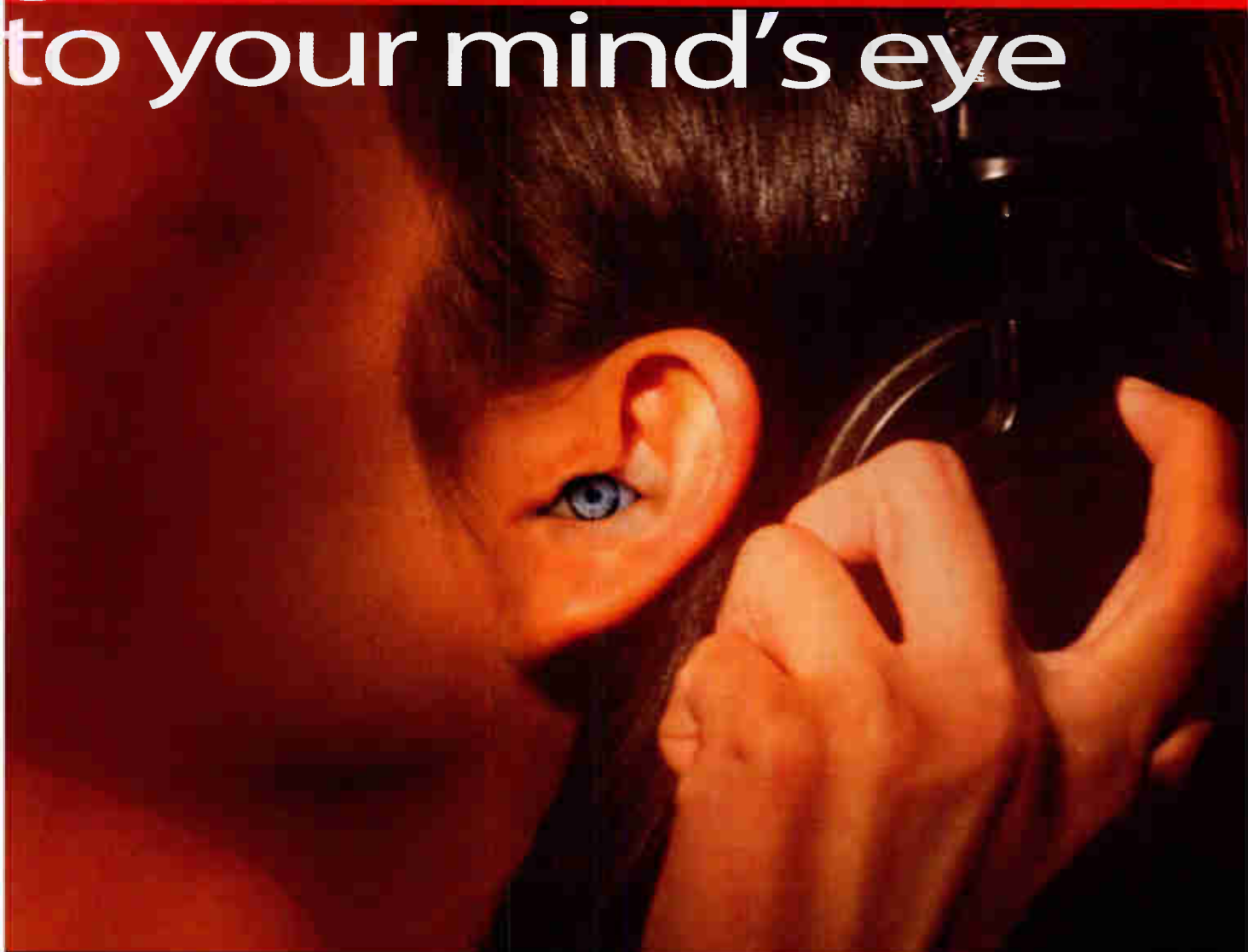
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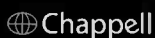


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Beinhorn Says



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Michael Beinhorn

(Producer - Soundgarden, Marilyn Manson, Red Hot Chili Peppers, Ozzy Osbourne)



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for real-time, high-resolution, multiformat metering and for both pan and EQ graphical displays on the System 5-MC's 1,024x768 TFT channel screens. Furthermore, the edit/jog/shuttle wheel can be used for real-time trim head/tail, fade head/tail, position, zooming, clip gain, slip and more. Full live adjustment (with no latency) of your favorite plug-ins inserted into channel strips is also a reality.

The MC stand-alone has a section fitted with four assignable faders that are identical to those on the System 5-MC. These faders control track levels in both EuCon and HUI applications. Just as in the System 5-MC, there are Solo, Mute, Select, Record keys and read/write automation switches. LED meters indicate input level to that fader. Nudge and Bank buttons move these four faders down the tracks in your session. All track faders include the Euphonix Wave key, which, when pushed, causes that track to become "in focus": in the center of the LCD screen with all applicable editing SmartSwitches and touchscreen ready for your input.

STUDIO MONITOR PRO

Comprehensive monitor routing and control are handled by Studio Monitor Pro software, which resides in the DAW's application or in a secondary, dedicated monitoring workstation, and controls audio routing between apps that support ASIO or Core Audio hardware and the actual hardware I/O boxes. Its interface module is located on the MC's surface; use the touchscreen to set control room sources and listen to external audio inputs without starting up any DAW apps. There is provision for a talkback mic and multiple speaker outputs, comprising main, alt 1 in 5.1 and alt 2 in stereo, each with level, mute and dim. An upcoming Version 2 will offer 7.1 monitoring.

SYSTEM 5-MC

A System 5-MC mixing console would comprise at least one MC and any number of "bucket of eight" CM408T channel strip modules. Each CM408T has its own internal processing unit, is individually powered and communicates over a single Ethernet cable. On the System 5-MC, the section with four assignable faders on the MC is replaced with a module, with two fully automatable, motorized joystick panners.

A popular configuration, with two CM408Ts on either side of the MC, offers a total of 32 channel strips. Other custom frame options include angled sections, speaker shelves, script trays and producers' tables with built-in monitors. There is space for a flat-panel DVI monitor of up to 30 inches. I like that the screen and VESA mount are recessed down well below the sight line of

the center-channel monitor speaker.

[Note: A new, hybrid option for the standard range of System 5 consoles will be introduced at NAB 2006, letting an operator mix faders controlling multiple DAWs on the surface next to Euphonix DSP faders. —Eds.]

EXPANDED LOCAL CONTROL

Switches change the function of the CM408T's eight touch-sensitive knobs between controlling an EQ, dynamics plug-in (or any other plug), pan, aux sends and bus routing. Each of these functions, when selected, changes the knob's backlit color. A knob's function is also indicated by a four-character display next to it. The channel strip's individual TFT display graphically shows EQ curve, dynamics and panning used, as well as parameter names and values. The channel strip's Swap button changes, either individually or globally, to a second layer with eight more audio sources—effectively doubling the CM408T's input channels.

Any track can be brought up on any of the 100mm faders and saved as a Layout. Surround sources up to 7.1 are controlled from a single strip, always with the channel's TFT display showing that channel's output on up to eight meters. A four-character LED dual-designation display shows the track name, while the TFT repeats the channel's status and name (up to 14 characters long). When mixing, I especially liked setting the stereo LED input meter to always indicate audio to that channel even if it's muted. I also liked that the Wave key is available for every track fader so you can quickly "see" that track's status on the LCD screen at any time.

BRIDGING THE GAP

The MC and System 5-MC present a completely different approach to audio/video control, made possible by Euphonix's development of the extensible EuCon protocol. EuCon bridges the application/workstation gap by allowing the MC and System 5-MC to connect their control surfaces to multiple disparate applications running on different workstation computers. The System 5-MC combines a traditional console mixing worksurface with the MC's intelligent key-command layout of any application's recording, editing and mixing functions. Able to support any current and future workstations, both systems are ergonomically designed to enhance creativity and improve work quality and speed.

Prices: MC, \$19,995; System 5-MC, priced depending on configuration.

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Studer Vista 8 Digital Mixing System

Fast, Logical Interface With Dynamics and Snapshot Automation

No engineer can deny that digital mixing consoles make life easier. Recall of every parameter, built-in dynamics and comprehensive automation are functions that we've come to view as necessary. The problem is that just about every digital console lacks a one-control/one-function worksurface, thus requiring the engineer to dig into menus for important parameters and slowing down the process. Optimized for use in live sound and broadcast applications where speed is as important as sonic accuracy, Studer's Vista 8 modular digital console brings a welcome change, furnishing the engineer with a worksurface where any function is no more than one button push away.

WHAT'S IT ALL ABOUT?

The Vista 8 system comprises the Vista 8 console, a DSP Core, D21m I/Os, a monitoring frame, CPU and optional MasterSync Generator. The DSP Core is a rackmount frame housing up to 20 DSP cards. The D21m I/O frames provide audio I/O, and may be loaded with TDIF, ADAT, AES/EBU, MADI, analog mic input and analog line input or output cards. The monitoring rack is where analog audio is routed out of the system for stereo, LCR, LCRS and 5.1 monitoring. A Vista 8 may be synched via an AES/EBU input; with a MasterSync Generator, the system can also sync to external video or word signals. The Vista 8 system doesn't come "stock" with a number of I/Os; it is more a case of building a configuration to suit the user's needs.

The Vista 8 control surface is based on modular bays and uses a Windows-based PC to run Studer's software for the desk. The Vista 8 comprises one 10-fader master Control Bay and up to six 10-fader Channel Bays. A remote 10-fader control surface may be added, providing remote access to a second engineer. Of course, you can control many more channels than you have physical faders.

The obvious difference between the Vista 8 and other digital consoles is Studer's exclusive Vistonics™ interface, which features patented technology for integrating 40 rotary controls and switches, all within a flat



touchscreen display. Combine this with a generous assortment of controls per channel (mute, solo, on/off for EQ, HPF, LPF, delay, dynamics and assignable trim control), and the result is that you look for information where the controls are located, as opposed to turning a knob in one section while looking at a screen in another section.

DIFFERENT POINTS OF VIEW

In Global View, four inline rotaries per channel provide access to settings determined by the Global View buttons; for example, aux level, channel delay, EQ or expander/gate controls. Want to change the EQ? Touch that channel's EQ curve and the EQ function appears on the panel with knobs for each parameter. (This is called Zoom View.) All controls are in plain view and logically laid out with no digging through menus. Because each Channel Bay has a set of Global View buttons, there's no need to access the Control Bay to change views: Simply use the closest set of Global View buttons. To dedicate all 40 knobs and switches on the panel to one channel, all I had to do was press the Channel View button.

Separate Copy/Paste buttons are provided for the EQ, filters, delay, pan and dynamics settings. Pressing Copy on the source channel and then again on the destination channel pastes the desired parameters to the destination channel or into a user library. I was able to copy and paste an EQ curve to multiple channels quickly by using the Link/Sel switches to "gang" a set of channels, copying EQ from one and pasting to another. (The paste

applies to all channels in the gang.) When I first encountered the Copy/Paste function, I thought it was novel; its ease of use made clear to me how powerful it is.

SONIC CONTROL

EQ, dynamics, delay and panning are on every input or output. EQ is 4-band parametric. The top and bottom bands switch between shelf and parametric. Each band sweeps from 20 to 20k Hz, enabling incredible flexibility. Separate HPF and LPF are provided with adjustable slope (12, 18 or 24dB/octave). Dynamics include separate compressor, limiter, gate and expander with sidechain access, any of which may be switched on or off individually. I was able to get the compressor to massage an audio signal gently or completely squash it, and everything in between.

Panning options are based on output configurations, with the ability to pan in formats from stereo to 7.1. All Vista consoles include Studer's VSP (Virtual Surround Panning), which is different from amplitude-based panning, employing onboard DSP to also calculate appropriate frequency and time-based changes as a sound is panned. The results are incredibly realistic.

Optimized for output channels, the Vista 8 Control Bay hosts 10 fader strips and a Vistonics screen. These 10 faders are isolated from the remainder of the desk, so I could scroll inputs while the masters remained unaltered. Any type of channel may be assigned to a Control Bay strip, including input, control group, master, aux out or subgroup out. EQ and dynamics can be applied to the output masters,



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though control group processing is actually applied to the channels that contribute to the group (sort of like VCA groups on steroids). A feature I found extremely useful is the Contribution button, which applies to output faders. When pressed, the Vistonics screen displays all input faders that currently contribute to that particular master; the rotaries control the source channels' level. If you think that's slick, then check this out: When Reduced View is switched off, the panel displays all channels *available* for contribution, and routing assignment can instantly be changed using the push buttons next to the rotaries.

PATCH ROUTING FINESSE

Channel patching and assignment are addressed in the Configuration and Channel Patch Editors. The Configuration Editor is a Windows-based setup app in which you specify the number and type of channels, buses and masters required. The software determines DSP allocation for the setup and lets you know if your aspirations exceed your DSP muscle (smart). It's possible to configure the console in any manner you imagine and store the configuration to a library.

A patching matrix routes a physical input to any console channel. In less than a minute, my Vista 8 was "expanded" from the day-to-day configuration for a TV show (multiple audience mics, VTR and CD feeds, and host and guest mics) to add a MADI interface for a musical guest who required multitrack playback from Steinberg Nuendo. Returning to the default configuration was just as easy. This is a huge advantage for remote trucks where operations vary from day to day, enabling the desk to be custom-built.

In systems where the number of inputs exceeds the number of faders, channels may be arranged in stacked sections (layers). This allowed me to set one section for microphone inputs and a layer "below" for multitrack returns from a recorder. Graphics above the fader show channel names for both sections and indicate signal level for the related layer. A channel's L2 button instantly calls the lower layer up for control without altering the other channels. Dedicated buttons provide instant access to different layers. One excellent feature of the Vista 8's architecture is that a single input can appear on multiple faders. In my configuration, the "star" microphone channel was routed to multiple inputs so that when changing layers, the star appeared in the same place, regardless of layer.

The Channel Patch Editor shows a

block diagram of the channel's signal flow, including position of EQ, dynamics, filters and inserts relative to the fader. I was easily able to move the insert patch from pre- to post-fader simply by opening this window and dragging the insert to the desired location. Outstanding!

FAIL-SAFE OPERATION

The Vista 8 features extensive backup capabilities including redundant power supplies for the DSP Core and D21m. In the event of a power failure, the DSP Core reboots within a few seconds, restoring audio even if the control surface is inactive. If a card in the DSP rack fails, then the Core automatically switches to a spare card. In my system, this switch-over barely produced an audible glitch.

Data mirroring on the PC provides complete backup of console operations to a second computer. In the event of a primary PC failure, a hot button switches the desk to the backup CPU. Even if the CPU fails, the DSP Core remains online in its last state. Audio continues to pass at the last mix settings until the new CPU comes back online. The optional MasterSync Generator has two main clock inputs; if one fails, then the other automatically takes over.

POWERFUL AUDIO WORKHORSE

There's so much available on this console it would take a volume to describe every function—I haven't even discussed Vista 8's dynamic and snapshot automation, mute grouping and mix-minus capabilities. The big story here is Studer's software. No messing around, these guys did their homework. This is one of the most powerful audio consoles you'll ever lay your hands on.

The user interface is fast, logical and elegant. Faders and knobs have that great Studer feel, and I never experienced any noise when dialing parameter changes across the range. Construction is first rate, with an incredible attention to detail and close mechanical tolerances. Though the control surface looks complicated, it didn't take me long to get up to speed. Couple that with extensive redundancy and high-quality sound, and the Vista 8 is a formidable console for professional live, broadcast and recording applications.

Price: approximately \$200,000 to \$500,000, depending on configuration.

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Steve La Cerra is a freelance engineer, producer and writer based near New York City.

"I have plenty of preamps that are accurate. But when I need tonality and character for digital recording, the PreSonus ADL 600 is number one in my studio arsenal. I get big, rich acoustic guitars with that distinctive, girchy tube character, but also with amazing detail and clarity. And I get full, warm drum overheads that maintain the harmonic center of the cymbals, with headroom for miles. In fact, it's so balanced, I find myself not needing EQ at all. PreSonus has come through with a great preamp that delivers all the color — without missing the details. In my book, that's big."

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DPA is a major player in the small-capsule mic market. The company's 4060 and 4061 miniature mics are ubiquitous in broadcast, Broadway and beyond. The Holophone H2 (reviewed in *Mix*, March 2005) uses eight DPA 4060 capsules and was recently brought in to record the surround feed at the 2006 Grammy Awards. Fox Sports mixer Fred Aldous uses four H2s to capture the realism of NASCAR for broadcast.

The latest miniature capsule mic from DPA is the handsome and light 4090 Series. The 4090 and 4091 differ only in their sensitivity, and both are omnidirectional and phantom-powered. As with DPA's other small-capsule mics, a "0" at the end denotes high sensitivity and a "1" means low sensitivity; in other models, a "2" flags the mic as exhibiting extra-low sensitivity. For this review, I used two 4091s.

The 4091's tapered body is a mere 4.75 inches long with the pre-polarized condenser capsule measuring 5.4 mm in diameter. The mic's low profile and focused front end allowed me to place it ever so precisely in a number of situations. I've used other small-capsule mics, but none this short. Because of its small footprint, it was a breeze to squeeze the mic in under cymbals for recording toms or to microscopically place it in front of an acoustic guitar, picking the perfect spot with absolute accuracy.

And now for the stats. The 4091 has an S/N ratio of 68 dBA, a dynamic range of 97 dB and will take a whopping 144dB SPL. Its polar chart shows the mic's off-axis response is very flat out to 20 kHz. Omnis are not usually that "omni" above 1 kHz because of the wavelength. Having this kind of response at the back of the mic, with 5 kHz and 10 kHz nearly identical, is remarkable.

TINY MIC, BIG SOUND

I used the 4091s to record drums on a variety of sessions, trying them first on toms. Because of its lack of directionality, an omni is not often the first choice for this application. However, a lot of sonic info under the cymbals is lost when using cardioids that can be reclaimed by using an omni. I was pleasantly surprised by the 4091s. They took plenty of SPL and were easy to focus and place without getting

in the way of the swaying cymbals, which, in this case, were slung low and just above the toms.

The mics excelled in use as stereo overheads and as room mics. Due to their low sensitivity, the mics tend to concentrate on what's closest to them, which makes them sound less "omni" as overheads than you'd think. I was able to get more of the kit into the spotlight by simply lowering the mics closer to the cymbals. Placing the 4091s 1.5 feet above the tops of the cymbals was perfect for this kit and room, which had a concrete floor, well-damped walls and 18-foot ceilings with clouds hanging three feet below the corrugated metal ceilings.

I appreciated the 4091s' off-axis linearity when using them as room mics. A spaced pair sounded very good about nine feet in front of the kit and seven feet off the floor. This placement offered a nice picture of the kit within the room that easily blended into the mix. Transients were no problem for the 4091s; the cymbals weren't brash and didn't smear when they were hit hard. The stereo picture was full and precise.

When used in a drum booth placed behind the drummer and fired up into the back corners of the room, hugging the wall about eight feet up, the mics exhibited a lot of thump and low end that I dug out further with a compressor. I then used this as a trashy room feed that took the kit to a place where the regular mics didn't go.

The 4091s were made for recording acoustic guitar. Placed as a spaced pair in front of the instrument, the mics exhibited an even sound from top to bottom—just enough boom and not too bright with plenty of middle, as if you were standing in front of the player. Once again, the stereo picture was excellent.

I also used a 4091 to record a Venezuelan cuatro. It's a short-necked, small-bodied instrument with the low strings at the top and bottom and the higher-pitched strings in the middle (tuned A, D, F#, B), enabling the player to get a similar sound whether strumming up or down. The instrument can



really cut through a track and doesn't have a lot of low end. I placed a single 4091 at just above the soundhole where the neck meets the body and ran the signal through a Neve 5012 Portico preamp, which represented it beautifully, making this signature instrument a joy to listen to, even though it has a tendency to be out front and in your face.

Next, I placed the pair of 4091s on a Leslie (145 cabinet with a 122 amp). I spaced the pair across the corners of the upper cabinet to get the full Doppler effect. The mics captured the signature nasty Leslie grind, and when mixed with a single U87 that I placed at the bottom of the cabinet to cover the low end, the 4091s made the whole rig sound as big as a house. They also worked extremely well as a spaced pair just over the strings of an acoustic piano, handling all the level associated with such a close placement, and offering up all the bottom and top of the instrument without ever sounding boomy or strident. Omnis are great in this application in that you can get in as close as you want without ever worrying about proximity effect.

Last, I used the 4091/Portico 5012 combination to record both soprano and tenor saxophones. It worked well in both situations. For the tenor, I placed the mic just above the bell facing directly and horizontally back at the player toward the keys, about a foot in front. For the tenor, however, I opted for a mic with a bit more character and coloration to flesh out the bottom end a bit more. But for the soprano, the 4091 worked very well, offering up all the high end the instrument had to offer without being too shrill. It was placed about halfway along the horn, aiming at the keys, about a foot from the instrument. Once again, the tame and accurate nature of the 4091's upper response made for a happy ending to this recording story.

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The 4091 lets you experiment with placement like no other mic I've used. It's small from front to back, and its pointed end makes it easy to position it precisely *there*, and if that isn't right, just a little bit to the left or right of there—and I do mean just a little bit. This was critical in the acoustic guitar recordings. The first time I heard the mic, it was flying solo and lacked depth. But that was due to its placement and not the mic's fault. Once adjusted, it flowered into full realism, accurately depicting the guitar in the track.

The mic is also very lightweight, so scooting it just a bit up or down is effortless. Its lightness and size makes you want to experiment with placement, which is



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the engineer's best friend. Larger mics, especially side-address units, do not engender that kind of enthusiasm.

As far as how the 4091 sounds, I like to call it the story of Goldilocks and the three mics. It's not too tubby nor does it have an excessively bright top; it's just right. However, this mic will offer up some low end in spades if properly placed. For instance, used as a pair of room mics on drums, it rocked the house with plenty of LF from the kick drum as the waveform had a chance to develop and fill the room. As a pair, the mics exhibited bountiful bottom when placed in the corners of a medium-sized drum booth, taking advantage of the boundary effect at the wall behind the drums.

The DPA 4091 is a great-sounding, versatile, easy-to-place mic that can take plenty of SPL and provides an accurate picture in a variety of sonic situations. And the best part? At \$600 each, you can get a pair of these for a song.

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Kevin Becka is Mix's technical editor.



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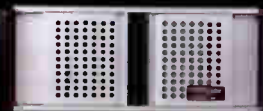
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Yamaha HS50M Monitor and HS10W Subwoofer

Active Heir Apparent to the NS-10M

When Yamaha discontinued production of its venerable NS-10M studio monitor due to unavailable parts, mix engineers worldwide were left with a dilemma: How do you replace what has arguably been the most reliable proxy for consumer-playback systems for the past two decades? Mixes that sounded right on that speaker would almost invariably translate well to low-end consumer setups.

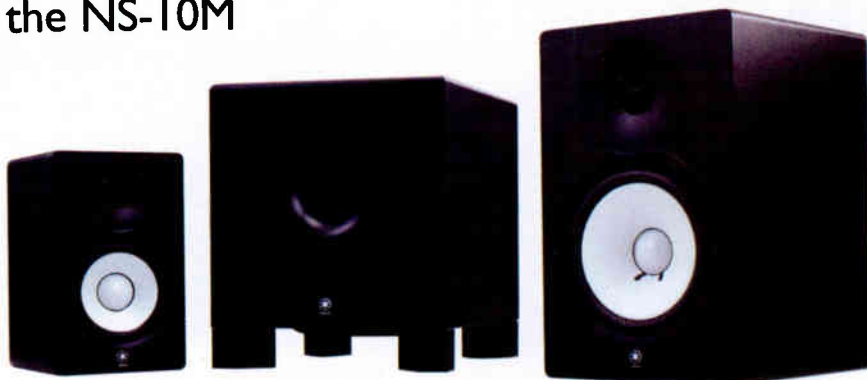
Although I've searched for a suitable replacement for my aging NS-10Ms, I could never find a monitor that worked nearly as well in this capacity—until now. The Yamaha HS50M powered near-field is the new go-to consumer-playback reference. Adding the companion Yamaha HS10W active sub yields a full-bandwidth monitoring system, helping to ensure your mixes' bottom two octaves will also be in proper perspective.

CLASSIC WHITE CONE

The HS50M's black MDF cabinet measures 10.56x6.5x8.75 inches (HxWxD, roughly two-thirds the size of an NS-10M), weighs only 12.8 pounds and sports a white woofer cone that pays homage to the classic NS-10M. The 5-inch woofer is powered by a built-in 45-watt amplifier, while the 0.75-inch tweeter receives 25W power from a second built-in amp. When power is applied to the HS50M, an attractive tuning fork emblem on the bottom-front cabinet face becomes backlit by a white LED. The magnetically shielded cabinet sports radiused side edges and a rear-firing bass port.

The HS50M's rear cabinet face features a wide-ranging sensitivity control, power switch and IEC power connector that serves a detachable three-prong AC cord. The continuously variable, rotary sensitivity control is detented at the +4dB position and can also accommodate -10dB systems.

Two input connectors—XLR and balanced/unbalanced TRS—and four switchable filters also grace the monitor's rear panel. A low-cut (12dB per octave HPF) switch offers a selection of 80Hz or 100Hz corner frequencies, or flat response to optimize integration with the HS10W or other subwoofer. A Room Control switch selects among 0, -2 and -4dB settings for



shelving EQ below 500 Hz; it can help flatten response when the monitors are placed too close to walls or corners. A Mid-EQ switch boosts or cuts 2 dB around 2 kHz with a bell-curve filter or selects flat response in this band. Also, a three-way high trim switch boosts or cuts 2 dB above 3 kHz using shelving EQ or selects flat response for highs. With all filters set for flat response, the HS50M's stated frequency response is 55 to 20k Hz, -10 dB. (It does not specify 3dB down points.)

BIG BOTTOM

The HS10W sub weighs roughly 27.5 pounds and measures 13.8x11.8x15.2 inches. The sub features an 8-inch downfiring woofer protected by a grille and is powered by a built-in 150W amp. A flared bass-reflex port fires out of the front of the black MDF cabinet and is situated above the same distinctive, backlit tuning fork emblem.

Situated above the HS10W's hefty heat sink on the sub's rear panel are XLR and balanced/unbalanced TRS jacks that serve both left- and right-channel inputs. An Ext Sub Out (XLR) connector sums the left- and right-channel inputs and is useful for feeding a second subwoofer. Left and right outputs are provided on XLRs; I wish that TRS jacks were also provided to match the HS50M's input offerings.

A continuously variable, rotary low-cut control rolls off bass response below a selected frequency from 80 to 120 Hz when activated by a companion on/off switch. Another continuously variable rotary control—labeled High Cut—rolls off bass response above a selected frequency from 80 to 120 Hz. With all filters set for flat response, the HS10W's stated frequency response is 30 to 180 Hz, -10 dB.

Also on the rear panel, a continuously

variable, rotary level control helps balance the HS10W's output level with that of your satellite speakers. A Phase switch can flip the sub's polarity 180 degrees, if necessary, to align it properly with your satellites' bass output. A power switch and IEC power connector (the latter for a detachable AC power cord) round out the rear panel.

PASSING THE TEST

I set up a pair of HS50Ms on Auralex MoPADs (foam decouplers) situated on the monitor shelves of an Omnimix MixStation 02R and placed the HS10W in the footwell below. I was a little disappointed that the XLR connectors on the review units didn't latch, which would have been a nice safety feature. Happily, I heard no thumps or clicks when power cycling the monitors or moving any of the filter switches, even with my Yamaha 02R's control room feed turned up.

I was also happy that the level controls for the HS50M and HS10W could attenuate signal down to minus infinity (silence). Muting the sub's output allowed me to listen to the HS50Ms alone as a consumer-system proxy. I wish that the HS10W had a bypass jack and remote switch that would mute its output (but not the pass-through signal for the satellites) so I could have retained the HS10W's level setting and switched back and forth between consumer-playback reference and full-bandwidth monitoring.

I first listened to a variety of country, pop and techno releases to get to know the monitors. As compared to my NS-10M studio monitors, the HS50M—with all EQ settings flat and the HS10W silenced—produced a leaner-sounding upper-bass/low-midrange band, much more extended highs and dramatically improved (make that outstanding) transient response, imaging and depth. Most importantly, the HS50M



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produced no audible upper-bass resonances from being mounted on console-top shelving; unlike virtually all other near-field monitors I've heard positioned this way, the HS50M still sounded absolutely crystal-clear.

Next, I proceeded to mix a 43-track country/pop song using only the HS50M and HS10W. When I turned up the HS10W's output, the upper-bass frequencies for the combined system sounded a little muddy until I set the sub's high-cut control and the HS50M's low-cut switches to 80 Hz to preclude overlap in bass response. With that accomplished, the bass tightened up, the mix became eminently clear and the overall system yielded all the low-end extension, prominence and punch to attain the proper balance for the mix's bottom two octaves.

The HS50M can be fatiguing at high listening levels; female vocals, in particular, can sometimes sound cutting, but listening at low levels cures this. Attenuating the monitors' high trim or mid-EQ response warmed up the overall sound, but to the detriment of detail and clarity. With flat midrange and high-frequency filter settings, the detail these near-fields reveal in the critical midrange band is downright awesome.

The HS50M's very diminutive size and lean bass sound allowed me to easily size up and fine-tune relative levels for vocals, electric guitars and other midrange elements. The only surprise I heard when listening back to my mix on various consumer systems was that the female lead vocal sounded a little boomy. The HS50M's response was apparently a tad too lean in the upper-bass band, prompting me to add too much EQ boost there. Everything else sounded perfect, though, and the adjustments I made on a second mix pass fixed the problem.

PASSING THE TEST

The HS50M would be my first choice (among current production models) for a band-limited mix reference mounted atop a console. Similar to the NS-10M, the HS50M makes it easy to balance levels for a mix's midrange elements. Unlike the NS-10M, the HS50M readily reveals vocal sibilance and cymbals that are EQ'd too crisply. The HS50M provides a nearly perfect reference for how a mix will sound on small consumer-playback systems and is a veritable bargain at \$249.95 MSRP (sold singly). Add the perfectly matched HS10W (\$599 MSRP) to the setup, and you have an excellent full-bandwidth system.

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M-Audio ProjectMix I/O Interface/Controller

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With more professional music being produced at home than ever before, the integrated control surface/audio interface market seems to be heating up. Sharing parent company Avid's roster with Digidesign has put M-Audio in the enviable position of delivering a product with an unfair advantage over the competition.

The ProjectMix I/O borrows heavily from M-Audio's acclaimed FireWire 1814 audio interface, pairing an even greater complement of I/O with a rugged control surface design. The audio interface is compatible with Core Audio, ASIO 2, WDM, DirectX, MME and even GSIF2—music to the ears of GigaStudio owners out there. The real kicker, though, is that the audio interface is also directly compatible with Pro Tools M-Powered 7 (sold separately), giving the ProjectMix I/O one of the widest compatibility ranges on the market and making it extremely enticing for owners of other DAWs to get into the Pro Tools club for a paltry \$299 extra.

DOUBLE COHORT

As with most compact controllers on the market, the ProjectMix I/O supports the HUI, Mackie Control and Logic Control protocols, allowing it to work with Pro Tools, Logic, Cubase, Nuendo, SONAR, Digital Performer and Live. To change surface modes, hold down specific buttons while powering on the unit, and it will retain that setting even on power down.

A bank of eight channel strips features 100mm, long-throw, touch-sensitive motorized faders with 10-bit (1,024-step) resolution; illuminated mute, solo, channel select and record-arm buttons; and eight assignable rotary encoders beneath a large two-line, amber backlit LCD status/scribble strip.

Completing the surface are illuminated transport and locator controls, a jog/scrub wheel with mode switch, channel zoom with quad navigation buttons, channel/bank shift and fader flip switches, and numerous other buttons for DAW functions. At 20x18.5x4.25 inches and 27.8 pounds, it's a comfortable footprint for any work area.

DRIVERS WANTED

I downloaded the latest M-Audio FireWire driver and control surface firmware (10.19.05.A), which adds jog wheel calibration and support for Cakewalk SONAR 4.03, Ableton Live 5.02 and MOTU Digital Performer 4.6. (System requirements include Windows XP SP2 and Mac OS 10.3.9 or later.) I then snapped up a newly released utility called ProjectMix Control, which allows you to configure the control surface to communicate standard MIDI messages (instead of HUI/Mackie) with any application or hardware that supports the MIDI protocol. Also, for a limited time, M-Audio is bundling Ableton's Live 5 free with all ProjectMix I/Os.

AUDIO YOUR WAY

ProjectMix I/O gives you just about every kind of I/O you might need for a session, starting with eight analog mic/line inputs (balanced ¼-inch and XLR) featuring individual mic/line switches, gain knobs and signal/clip LEDs. Add 8x8 ADAT Lightpipe I/O, stereo S/PDIF I/O, word clock, 1x1 MIDI interface and a front-mounted hi-Z instrument input for guitar or bass (sharing channel 1), and you've got an abundance of choices. Supported sample rates (24-bit) for all ports are 44.1, 48, 88.2, 96 kHz (including ADAT using SMUX II). Dual front-mounted headphone outputs with independent level controls and A/B source switch allow for shared monitoring and cue auditioning—very handy. Zero-latency direct monitoring can be turned on via the driver control panel.

Phantom power is provided across all eight mic preamps with -104dB (A-weighted) SNR, a frequency response of 20 to 20k Hz and 55dB gain. The quality of the mic preamps sounded like my FW410 and FW1814: clean and open with virtually no added noise or coloration, even when fully cranked. If you need more mic inputs, then you can always capitalize on the ADAT input by inserting a device such as M-Audio's Octane preamp and record up to 16 microphone inputs simultaneously.

There are four balanced ¼-inch line

outputs on the back that are configurable as pairs for connecting monitors and other analog devices. Call me greedy, but with no auxiliary outs or channel insert paths, you're prevented from hooking up much in the way of outboard processing, not to mention that you can't conduct surround monitoring with only four outputs. I suppose you could feed the eight Lightpipe channels to an ADAT-to-analog converter such as the SM Pro Audio A18, but that bumps up the asking price considerably.

A PROJECT TO MIX

I tried ProjectMix I/O in Logic 7.1, Nuendo 3.2, Live 5 and Pro Tools M-Powered 7. By far, Logic support felt the most thorough, with extra channel views, automation functions and deeper panning and plug-in editing. Granted, ProjectMix I/O can only support functions that a protocol offers, so this is not to fault M-Audio. All programs responded well to control, and FireWire audio latency was impressively low as I ran live instruments through a 128-sample buffer, resulting in a delay of only a couple milliseconds at 96 kHz.

To keep the price of ProjectMix I/O competitive, M-Audio's design team opted to drop controls that they report users found "daunting" on competitors' desks, and they streamlined the design by placing some functions under the control of the keyboard and mouse. The result is a surface that doesn't have much of a learning curve and is quite intuitive. By the same token, many of the labeled functions do not translate universally across all DAW programs, and switching



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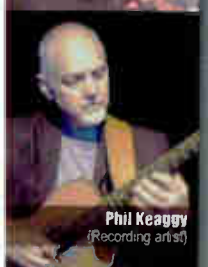
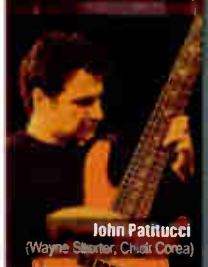
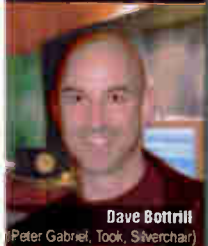
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between the discrete DAW modes can leave you guessing as to which buttons or combinations to press.

The encoders and LCD work well together to control EQ and assigned plug-in parameters. Pressing the MTR key turns the LCD into a meter bridge showing levels horizontally (for higher resolution, I presume), which takes some getting used to. I'm not a fan of the tiny jog wheel, which I found too "tight" in radius to spin quickly, and although I was able to bear the shallow 1/32-inch click of the desk's control buttons, I do wish the transport buttons were meatier with deeper travel; they caused me to miss more than one cue.

I love that you can toggle back and forth between HUI/Mackie mode and MIDI mode on the fly, as it allowed me to create custom surfaces for external MIDI gear and edit them while recording their parts. Programming MIDI continuous controller messages to the faders, knobs, buttons and jog wheel couldn't be simpler thanks to ProjectMix Control's friendly interface. Furthermore, the lights behind the buttons can be controlled by MIDI events, thus allowing the audio application to create a two-way relationship

with the ProjectMix I/O if it is within the audio application's capabilities.

However, I feel there are a number of items sorely missing from ProjectMix I/O. First, it's a shame that there's no talkback facilities onboard. An Undo button would be handy, as would some dedicated click/metronome and automation (read/write/latch) controls. The fact that there's no FireWire expansion port, I presume, is M-Audio's way of telling us that audio drives should be on their own bus.

FINAL OUTPUT

Though its price is comparable to some compact control surfaces that do not offer audio capabilities, I would be lying if I said that ProjectMix I/O is worth the money for its control features alone. Controller-only solutions such as the Mackie Control Universal offer more parametric and better tactile control, as well as entry into an expandable system including the brilliant C4 soft-knob sidecar, at roughly two-thirds the street price. On the other hand, users also looking to condense or upgrade their old DAWs to 24/96, and who are in need of several line and microphone inputs and perhaps a MIDI controller input have every

reason to be attracted to ProjectMix I/O.

The comparably spec'd Digidesign 002 (considerably more expensive even after factoring the extra cost of Pro Tools M-Powered into ProjectMix I/O) has only half as many mic preamps, but boasts stand-alone digital mixing capabilities; though as a controller, it locks you into only using Pro Tools LE. Tascam's FW1884 costs less, has a few extra perks and works with Pro Tools, but requires that you already have Digidesign audio hardware.

What separates ProjectMix I/O from the pack is that it bridges the gap between artists, producers and mixers with support for every major DAW, including an affordable ticket into the Pro Tools industry standard. M-Audio has always understood its market and positioned itself according to the needs of today's demanding home recordists, so bundling Live 5—a \$499 value—could be the icing that makes this deal irresistible.

Price: \$1,599.95.

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Jason Scott Alexander is a producer/mixer/remixer in Ottawa, Ontario.

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CAT POWER GRABS SOME MEMPHIS SOUL

By Chris J. Walker

During the past few years, Cat Power, aka Chan (pronounced like "Sean") Marshall, has developed a large fan base through her stark, poetic, emotionally charged indie rock songs and her famously raw and unpredictable (some would say, erratic) live performances. She's been on the cover of *everything*, it seems, and appears to be poised for a major commercial breakthrough after years on the fringe. Still, even significant commercial success and media attention have done little to sway her seemingly low opinion of herself; if anything, it has made her somewhat reclusive and reluctant to do interviews. Just the same, the Atlanta-born singer, who started creating a national buzz

in the mid-'90s, is always looking for new vistas.

Cat Power's latest CD is titled, perhaps ironically, *The Greatest*, and it represents another departure for Marshall, following her moody 2003 release *You Are Free* (featuring the Foo Fighters' Dave Grohl and Pearl Jam's Eddie Vedder on several tracks) and *The Cow-*

ers Record (2000), which found her tackling songs by the Rolling Stones, Velvet Underground, Bob Dylan, Moby Grape and others. Asked by Matador Records executives what her dream CD would be, Marshall responded, "I want to make a record with Otis Redding's band." That, of course, was going to be next to impossible to pull off, so she went for the next best thing: She used many of the same Hi Records musicians who worked with Memphis R&B gospel icon Reverend Al Green and decided to record them where Marshall's first Matador album was done—the renowned Easley-McCain Studio in Memphis. Unfortunately, the landmark facility burned down in March 2005.

Stuart Sikes, a Dallas native who started as an intern at the famed studio and came up the ranks, was chosen to produce and engineer *The Greatest*. Marshall was already comfortable with him—he'd assisted on her 1996 album, *What Would the Community Think*—but more recently, he'd done impressive work with the White Stripes, Loretta Lynn's Grammy-winning *Van Lear Rose* and other recordings Marshall loved. "Chan threw out the idea [of doing a Memphis album], and the record company ran with it," Sikes says from his home studio in Dallas. "But it was myself and mostly Robert Gordon [documentary filmmaker and author of *It Came From Memphis* and *Can't Be Satisfied: The Life and Times of Muddy Waters*] who got the players."

The sessions were quickly organized, taking place just three weeks after the initial conceptualization.

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CIRQUE DU SOLEIL SHAKES UP LAS VEGAS (AGAIN) WITH "KĀ"

By Blair Jackson

The Cirque du Soleil juggernaut just keeps on going. The massively popular art-circus group has been bringing their unique blend of mind-boggling acts (with *no* animals), brilliant staging and distinctive music to millions of people around the world for more than two decades. With their ethnically diverse acts and universal themes, they have long since transcended their French-Canadian roots. Now, too, they have several incredible installations in Las Vegas. Indeed, the Cirque has become as much an institution in the new Vegas as Frank Sinatra and Wayne Newton were in the old one.

Their latest Las Vegas triumph, *KĀ*, is the most ambitious production in the group's history. The magical acrobatics, martial arts and dance movements, puppetry, pyrotechnics and indescribable bombast don't take place



Cirque du Soleil's KĀ is performed in a specially built theater in the Las Vegas MGM Grand hotel.

on a stage, per se, but on gargantuan moving hydraulic structures that rise and revolve and glide, and seem to change with each new scenario in what is, for the first time in the Cirque's history, a coherent narrative story connecting the spectacular "acts." Music and sound design have always been an integral part of the Cirque experience, but even more so in its installations, like this one at the MGM Grand, which was built at tremendous

expense for this production. Jonathan Deans, who has been covered in these pages on other occasions, is the sonic mastermind behind the Cirque; this time, he and his team have really outdone themselves. For *KĀ*, there are nearly 5,000 loudspeakers being used every night: a pair in every seat and hundreds more strategically placed around the auditorium—ceiling, walls, everywhere!—along

—CONTINUED ON PAGE 136

CAPTURING NEW ORLEANS JAZZFEST LIVE

By Jeff Forlenza

In the wake of Hurricane Katrina, one New Orleans musician vowed, "New Orleans will swing again!" And he's right. The strength, spirit and soul of the people of New Orleans will make it so. There's no question that the region's musical talent will play a substantial role in rebuilding civic pride and once again attracting tourist dollars to the Crescent City. Indeed, the area's second biggest event (after Mardi Gras, of course), the New Orleans Jazz & Heritage Festival (known far and wide simply as JazzFest), is scheduled to go



The JazzFest Live production team (from left): Eli Kelly, MunckMix chief sound engineer; Peter Munck, MunckMix executive producer; David Foster of Festival Productions; and Rik Reppe, MunckMix artist relations manager

on as planned, April 26 to May 7, 2006.

JazzFest is a sprawling musical party, complete with the best food, arts and crafts the bayou has to offer. Every year, it brings

together disparate Cajun, zydeco, blues, rock 'n' roll and jazz artists spread out across the expansive fairgrounds' many stages. The event had grown steadily through the years and has no difficulty attracting top-drawer acts.

One of those fans drawn by the multitude of JazzFest's musical and cultural events was Peter Munck. Munck was a management consultant until 2003, when he decided to follow his passion for live music. He started recording The Dead's live shows on their summer tour in 2003 and distributed the CDs at www.MunckMusic.com/wms, his company's (MunckMix) Website. Munck knew it would be a massive undertaking to record and distribute the many acts at the New Orleans Jazz & Heritage Festival, but his love of the region's music spurred him on. Munck received an exclusive agreement to record and distribute the recordings on CD or by direct

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HALL & OATES' "I CAN'T GO FOR THAT (NO CAN DO)"

By Gary Eskow

"We're all products of our genes, our history, the region we grew up in and our influences," Daryl Hall says. "These things, in my opinion, determine how an individual responds to the great muse in the sky. Everyone's an original; you can't generalize about groups." But, wait: Isn't there a difference in the way Ben E. King and the Kingston Trio sing a phrase that can be traced to the divide—geographic and cultural—that separates Western European and African cultures? Beethoven spent years searching for the one perfect version of a composition, and so—for better or worse—have other "classical" composers. In Africa, wasn't a greater value placed on spontaneous performance, and didn't this factor eventually help characterize the tradition of American soul singing that Hall & Oates practice so capably?

"Beethoven was a courtier who had to impress the record company executives of his day, just like we do," Hall insists. "The local yokels, the lords, were in charge. The people who sat in the villages making up songs weren't interested in what Beethoven was doing anyway. As for me, I go for spontaneity, and I don't have to doctor my performances. Almost all of the lead vocals on the album John [Oates] and I released [in 2004], *Our Kind of Soul*, were first takes."

When they met as college kids at Temple University in 1967, Hall and Oates were in the process of soaking up the influences of the time and their hometown, Philadelphia. The pair's flexibility and willingness to experiment allowed them to break up, reassemble and retool their sound over the next decade or so. "She's Gone," released in 1973, drew Hall & Oates into the national arena. After scoring single success with "Sara Smile" and "Rich Girl," the pair drifted from view for a while, but they would re-emerge with a vengeance in the 1980s with a slew of hits that vaulted them to the top of the charts and gained them the title of most successful duo in the history of the recording industry.

One night in 1981, after a long day spent working on the *Private Eyes* album, the crowd cleared out of Electric Lady Studios (New York City). Hall, Oates, engineer Neil Kernon and a bunch of instruments and amplifiers that had been left turned on were all that remained. For almost a year, a phrase—"I can't go for that, no can do"—had been knocking around Hall's head. Now it was moving into his body.

"Remember the old Roland CompuRhythm box?" he asks.



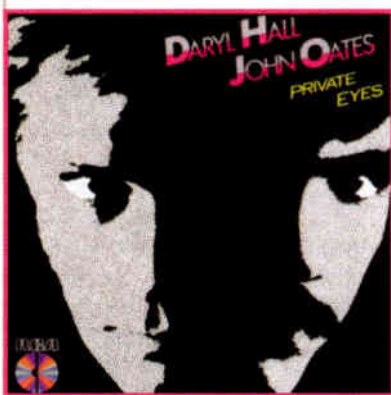
"I turned to the Rock and Roll 1 preset, sat down at a Korg organ that happened to be lying there and started to play this bass line that was coming to me. It's the old recording studio story: The engineer heard what I was doing and turned on the tape machine. Good thing, because I'm the kind of person who will come up with an idea and forget it. The chords came together in about 10 minutes, and then I heard a guitar riff, which I asked John, who was sitting in the booth, to play."

"I remember that moment clearly," says Oates. When he spoke, the relaxed and affable Oates had just dropped his 9-year-old son off at his math tutor and had plenty of time to talk on the cell phone before the lesson ended. Oates and his wife live in the mountains outside of Aspen, Colo., and homeschool their child. "The old CompuRhythm had four presets: Rock 1, Rock 2, cha cha/samba and some other stupid beat. We both had them in our houses, and one was sitting in the studio.

"We cut everything live back then, but sometimes used the Roland box to come up with a tempo," Oates continues. "Anyway, Daryl came up with this great bass line, using whatever sound happened to be on the organ, and Neil miked it and the drum machine.

"Daryl came up with the 'B' section chords, and then I plugged my 1958 Strat directly into the board, which was either an early SSL or a Trident. We were beginning to experiment with digital samplers—the Fairlight and Synclavier in particular—but were still recording analog. At any rate, Daryl sang a guitar part idea, I started to experiment with a muting thing and the part evolved on the spot."

Did they think about adding another guitar part? "No, never!" Oates says. "When we play 'I Can't Go for That' in concert, I usually play some shimmery parts, but there was a leanness to the '80s sound that we were into. The Cars and other groups had that straight, simple eighth-note feel, and it was an influence on us; it was one of the cool things about '80s music. The '70s were Rococo, but punk and new wave flavored the '80s, and we responded to those styles."



After Hall laid down a bell track, the assembled gathering called it a night. The following day, Hall sat down with his longtime collaborator, Sara Allen, and fleshed out the lyrics. "I wrote most of the lyrics," says Hall, "but Sara contributed some ideas. I sang the lead vocal, and there's the song—can't get any simpler than that!"

A saxilo (similar to a clarinet, but with an upturned bell) solo by Charlie DeChant, percussion overdubs to put a feel on top of the CompuRhythm track and the trademark Hall & Oates lush, triple-tracked backgrounds—all fitting neatly on one roll of 2-inch tape—were all that was required to turn "I Can't Go for That" into a monster hit: It made it all the way to Number One on the *Billboard* Pop Singles chart at the end of January 1982, on the heels of another Number One from the previous fall, "Private Eyes." It also hit Number One on the R&B chart, a singular feat in their distinguished history. These were heady times for the duo: Between 1981 and 1985, they landed 12 songs in the Top 10 of *Billboard*'s Hot 100 pop singles chart. Also, the *Private Eyes* album made it to Number 5, tied for their highest position on the LP chart.

As it turns out, this infectious frisson had a great influence on the pop music that would follow. Listening to "I Can't Go for That" after letting it drift out of the mind for a while, one can clearly identify this track—one of the first pop hits to feature a drum machine—as a precursor to Michael Jackson's "Billie Jean" and the generation of songs built on drum machine tracks that came in its wake.

"No question about it," Hall agrees. "Michael Jackson once said directly to me that he hoped I didn't mind that he copped that groove. That's okay; it's something we all do. [Eddie] Van Halen told me that he copied the synth part from 'Kiss on My List' and used it in 'Jump.' I don't have a problem with that at all.

"I learned so much from people my first decade or so in the business. I was a sponge—picking up things from all over the place—who eventually turned into a rock, searching for the hardcore that is my essence. In fact, I don't even listen to music these days—there's too much of it all around us! Of course, some sound seeps in around the corners, but I don't seek it out. Those early influences, though, were very important to me. Leon Huff taught me a lot about piano playing. Kenny Gamble showed me some compositional things and Tommy Bell's lyrical sensibility caught my ear. John and I were lucky enough to be taken under the wing of Arif Mardin. He taught me a lot. Most of all, his background as a person of Turkish descent who came to New York and was

able to work with so many different kinds of people, and mix different cultural elements together—that's what John and I wanted to do, and we soaked up that pluralism.

"All of my songs are autobiographical," Hall continues. "'She's Gone' is quintessential Hall & Oates. 'Sara Smile' means as much to me now as it did when I wrote it. 'One on One'—that song expresses a theme I've explored in lots of my songs, the idea that I've been traveling all my life but my heart longs to stay in one place; being in one place, but wanting to be somewhere else." ■

CAT POWER

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Sikes only talked with Marshall a few times by phone beforehand and had dinner with her the night before the first sessions. Because of Easley-McCain's demise, he chose another famous Memphis facility, Ardent Studios. "It's a pretty amazing place," Sikes says. "We knew it would be easy to work there, and they made all those great Big Star records," as well as albums with R.E.M., Dave Matthews, Al Green, Isaac Hayes, B.B. King, Stevie Ray Vaughan, Bob Dylan and others.

In addition to his technical prowess, Sikes has a reputation for being able to get fidgety bands and artists to relax, and that was an important aspect of this project because *The Greatest* is so different from anything Marshall had previously done. "Mainly, it was getting her comfortable playing with the people on the record," says Sikes. "She was pretty nervous and—although there isn't any need to be—is not as confident in herself as she should be. Also, Chan can be very critical of herself. Since she plays solo a lot, she has a completely different style and came in [the sessions] playing the songs by herself. So a big part of the process was getting her used to how [the songs] sound played by a band, especially with a bassist, drummer and structured time." In this case, the band of Memphis pros included guitarists Mabon "Teenie" Hodges and Doug Easley, drummer Steve Potts, bassists Larry "Flick" Hodges and Dave Smith, keyboardist Rick Steff, saxophonist Jim Spake, trumpeter Scott Thompson and a three-piece string section.

Once the arrangements were set, the sessions, in late May 2005, went smoothly. The group and Marshall tracked live to tape in Ardent's Studio A through a Neve VR, with no more than three takes of each tune. Marshall likes to work fast and typically

isn't inclined to spend a lot of time fussing over tracks. Including various overdubs, everything was completed in a little more than a week.

Marshall sang into a Shure SM58 with very little compression or EQ, but with some tape slapback. Sikes was initially concerned that having her in the same room with the band would create bleed issues, but that ended up not being the case. "That was another thing about the guys Chan had on the CD," Sikes says. "They were so good and have played with so many different people. They sensed her [quiet] style and knew to back off, so as not to overpower her. Initially, she wanted to play solo and have the band play to her [pre-recorded tracks]. But that sounded harder than doing everything live, and basically they adapted to each other. By the end of the first day, she was a lot more comfortable with them. Steve [Potts] often used brushes, along with Flick [Hodges] and Dave [Smith] falling in with him for really nice bass. That wasn't a difficult part, even though she hasn't had bass on records too much in the past. All those guys were pros. Everyone was also seeming to have a good time, drinking whiskey and making her feel comfortable, which made the project a lot easier and more enjoyable for her."

Everything recorded to tape was transferred to Pro Tools HD, and some of the overdubs were done directly to that format. Mixing was on the Neve-VR during about eight days in August 2005. Compared to many projects created these days, *The Greatest* was rather minimal, track-wise: No song required more than 24 tracks. And because Sikes didn't use much processing during the mix, he says the rough mixes and finished mixes are significantly different. This, too, is in keeping with Marshall's aesthetic. And though not technical herself, Marshall was around for most of the mixes and did offer comments and suggestions. "She had ultimate say in the final mix," Sikes comments. "I would get it to a point, then she would listen." After the Ardent mixing sessions, Sikes took the Pro Tools files back to his Dallas studio and to a local facility called Bass Propulsion Lab for a few final tweaks, which were then sent to Marshall for her approval.

In the final analysis, the engineer/producer was quite happy with the final product, particularly the title track, "Lived in Bars" and "Love & Communication." Marshall must like the CD, too, as she initially scheduled a 2006 tour backed by some of the Hi Records veterans, many of whom are now in their 60s. Though that tour fell through, she does have plans to play two of the biggest music festivals with

that group: Coachella and Bonnaroo.

Sikes believes Marshall's growing fan base will embrace her latest change—and they should prepare for more up the road. "Someone who liked her from a long time ago might say, 'I can't believe you've changed so much.' But she's a lot older now and wants to do all kinds of things." ■

CIRQUE DU SOLEIL

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with 20 different sub channels. This takes the concept of "multimedia" to a whole new level. (The theater and set designer for *KÀ* is Mark Fisher.)

But there is also a traditional media aspect to *KÀ*: the good old stereo CD of the music for the show. Very quietly, the Cirque du Soleil has sold several million copies of music CDs—mostly at their performances, but not exclusively. A new CD like the *KÀ* soundtrack can be expected to sell a couple hundred thousand copies in its first few months, "and then it will just keep selling for eight, 10, 12 years—however long the production goes on," says the CD's Montreal-



From left: composer René Dupéré, singers Élise Vella and Ella, and producer Martin Lord-Ferguson

based co-composer/arranger/producer and principal engineer, Martin Lord-Ferguson, a veteran of more than 30 album projects in Canada before hooking up with the Cirque about three years ago. As with so many of the Cirque's productions, the main composer was the gifted René Dupéré, whose music has become such an important part of the troupe's aesthetic fabric. Together, Dupéré and Lord-Ferguson built their own soundtrack studio, Creations Netza, which is based in Montreal, but for this project, they set up shop just

outside of Las Vegas so their work would be integrated into the show as it developed.

The studio comprises a mixture of top-of-the-line digital and analog machines: Pro Tools|HD and Digi 002; Manley mic pre's and compressors; Vintech mic pre's; GML 8200 EQs; TC Electronic System 6000 multichannel reverb/delay/room simulator; various Neumann, Brauner, Shure, Audio-Technica and DPA microphones; ADAM 5 speakers; and—the heart of room, really, for these composer/producers—a plethora of

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synths (Yamaha Motif, Kurzweil K2500, Roland XV-5080 and Ensoniq TS-10) and virtual synths (EastWest Symphonic and Percussive Adventures; Spectrasonics Atmosphere and Trilogy; Native Instruments Absynth; Liquid Loops, et al). According to Lord-Ferguson, the approach to this score was more grand and cinematic than on some previous Cirque productions, which were often centered around a small ensemble of live players. *Kā* has live musicians, of course, and a large choral group (who sing in various real and invented languages—another Cirque tradition), as well as a considerable amount of programmed material. Because of the nature of the acts and the concentration required to perform many of the feats, this is not a show that unfolds with the same split-second pacing every night; in fact, it differs every night, so “technical wizard” Claude Chaput devised a system using a Tascam Giga sampler that allows for preprogrammed playback variations to be essentially mixed live with the band each night to reflect minute changes in the program pacing.

Long before Dupéré and Lord-Ferguson concerned themselves with the CD, they worried about the music and how it would



Composer/arranger/producer/engineer Martin Lord-Ferguson began working with Cirque du Soleil three years ago.

fit in with the staging. “The first thing we did when we went to visit the *Kā* hall while it was in construction,” Lord-Ferguson says, “was look at the schematics of Jonathan [Deans]’ sound design, because it’s a very, very high-end and audacious system, with literally thousands of speakers everywhere. That was lots of fun because we had a hundred different channels and all the sub channels to fiddle with and move sound around, but we also had a lot of problems with phase coherence; a lot of calculations had to be done. We had an LCS board that Jonathan had set up, and we also mixed off a laptop. What we would do is record the band [in our studio] and then with [Wi-Fi] for

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the playback, we'd sit down in different seats and listen to how it sounded, and remix and rework the phasing.

"As soon as a song or a scene was done," Lord-Ferguson continues, "we'd start mixing it. I'd work with René during the day preparing the scenes we hadn't finished, and at night I'd mix the ones that were already done, and we'd try to mix it so they could use it in staging the next day."

The actual soundtrack recording work was done after the Vegas show had been completely designed, and it was constructed entirely back in Montreal. Because Lord-Ferguson and Dupéré wanted to enrich the music somewhat for the CD, they elected to make some orchestral recordings in Los Angeles at Paramount's Studio M soundstage. (Rick Winquest engineered those sessions, using a Neumann M149 Decca Tree setup along with numerous spot mics; 48 tracks on Pro Tools in all.)

"We ended up doing lots of blending of the orchestra with a lot of sampled synths," Lord-Ferguson says. "Some of the songs are almost 50/50 between samples and orchestra. For the live show in Vegas, there's no real orchestra, but there is a real choir." Some of the blending, Lord-Ferguson reveals, was

to bolster the orchestra "because in certain sections, it didn't feel like we had enough strings; it didn't feel wide enough. So in [the song] 'Love Dance,' for example, there's actually 70-percent synth in there, but it doesn't really show because we were so careful in blending everything together, reverb-wise, to match the [orchestral] recordings and the synths. I would do a close-miking mixdown from the orchestral tracks, then the ambience mixdown and one from the very far room mics, and blend those with the synths and match it all with a System 6000."

The *KÅ* show had 26 songs/pieces, the CD just 14, plus a pair of bonus tracks. But to Dupéré and Lord-Ferguson's credit, the CD holds up remarkably well without visual accompaniment. It still has plenty of beauty and drama and pathos, as they had intended. "Before we did the mixing process," Lord-Ferguson says, "soundwise it was a bit more edgy and aggressive, and we toned it down a bit and even softened it up in mastering because we wanted to make the CD sound like something people would still want to listen to in five or 10 years."

And that's one reason the Cirque du Soleil has stayed on top for so long: They're always thinking ahead. ■

NEW ORLEANS JAZZFEST

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download from his dedicated online music store (www.JazzFestLive.com) in 2004.

"The first thing we did was to get the exclusive rights to record artists and sell the recordings at the venue," Munck explains. "The fairgrounds is actually a privately held racetrack, and the JazzFest producers, a company called Festival Productions, lease the venue each year. So we had to get permission from both the New Orleans Jazz & Heritage Foundation and Festival Productions."

As executive producer of the JazzFest Live recordings, Munck also had to get the musicians' approval for recording and selling their music. With the help of artist relations manager Rik Reppe, Munck negotiated artist compensation and publishing rights with each JazzFest performer. Most artists agreed to terms, but some preferred not to be recorded because of existing contract obligations.

For the 2004 JazzFest recordings, Munck relied on getting a feed from each show's front-of-house mixer, plus a couple of direct outs from the board. But he vowed to do things differently in 2005. "With a festival where each act only has 30 minutes to set

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Munck used a Roland VS 2480CD DAW to get rough, on-the-fly recordings for artists who wanted to approve their performance pre-distribution.

up, there is no time for soundchecks," Munck explains. "The first two or three songs were often dicey for the front-of-house mixer. We had to get direct feeds from the stage." So for 2005, Munck acquired six stand-alone Alesis HD-24 ADAT 24-track digital recording rigs to capture performances that were happening simultaneously on multiple stages.

Munck staffed each recording rig with a dedicated engineer who worked with each concert's monitor mixer to get a stage feed from the monitor mixing consoles. Munck also brought his own microphones (Shure PG-81 and Audix SCX 1) to capture the audience.

"We relied on feeds from the monitor mix for all vocals and instruments," he explains. "The only direct mic feeds were for the audience. We typically placed those mics on the edge of the stage pointed toward the audience, rather than in the audience. That way, we didn't have to adjust for time lags between the mic feeds and the mixer feeds."

The signal from the monitor board and audience mics went through Behringer ADA8000 8-channel optical preamps and then to Alesis HD-24 ADAT recorders (24 tracks total). Because the MunckMix team was constantly on the go, they relied on the Alesis' FirePort 1394 interface and a removable hard disk caddy to transport the tracks from the digital recorders to laptop computers in their trailer/mixing/mastering room. Munck also used a Roland VS-2480CD digital audio workstation to get rough, on-the-fly recordings to give to a handful of performers who insisted on approving their performance before it was distributed.

Working out of a two-room trailer on the fairgrounds, Munck and a staff of four other engineers mixed and mastered the recordings on high-powered laptop computers equipped

with Mackie Traktion software. (Some of the mixes were done in Pro Tools, but the majority were done with Traktion because of its high-speed rendering capability.) They listened to mixes through Roland DS90 near-field monitors. When they were happy with the overall sound, they transferred the mix to Red Book format with WaveLab software. Then they used Plextor CopyWriter 48x DVD/CD burners (20 in all) to duplicate more than 200 CDs per hour.

"We mixed and mastered many of the acts immediately after the show," Munck says. "Then we produced and packaged the CDs overnight so festival-goers could buy CDs at our merchandising booth at the festival the next day and take them home."

At last year's JazzFest, Munck oversaw the recording, mixing and mastering of 57 artist performances from seven different stages. He had a booth on the fairgrounds distributing the CDs, and he was kept busy updating his Website with recordings as they became available. Damon Westjohn, MunckMix operations manager, coordinated CD burning, liner notes



The late Clarence "Gatemouth" Brown made his final JazzFest appearance in 2005.

with artist and song information, packaging and on-site merchandising.

It was an exhausting 10 days, but it was all worth the effort. "Many people will be attracted by the recordings of the Neville Brothers or The Meters or the Black Crowes," Munck concludes, "and then they discover all these other great artists, like Anders Osborne and Waylon Thibodeaux and Karl Denson. That makes me feel great!"

In response to Hurricane Katrina, MunckMix is selling a 2005 JazzFest compilation CD with some of the proceeds going to the MusiCares Hurricane Relief Fund. ■


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L.A. GRAPEVINE

by Heather Johnson

I hate to lead off this column with sad news, but the gentleman involved deserves top billing. On Sunday, February 12, 2006, The Village's founder, Geordie Hormel, 77, passed away surrounded by family at his home in Paradise Valley. "He was a wealthy man, yet very modest, and existed in the world purely on his intelligence and talent," says Village CEO Jeff Greenberg. "He takes little credit for his work; he didn't really want people to be aware of all that he'd done."

'50s through the '60s, Hormel composed music for about half (by his own rough guess) of all filmed TV shows, including *The Fugitive*, *Lassie*, *Naked City*, *Rin Tin Tin*, *Wanted Dead or Alive*, *Ozzie & Harriet* and *The Untouchables*. He recorded about 300 songs and wrote about 100. A club called The Most in New York City booked him to play piano for two weeks in 1962. He stayed for a year without a day off. He even played the White House once.

Hormel accomplished all of this before he discovered a 22,000-square-foot space in Los Angeles, the Masonic Temple, purchased the building for \$125,000 and converted it into his own recording studio. Before long, musician friends such as Donald Fagen and Walter Becker had seen the place and asked if they could record there, too. So with an inaugural Steely Dan album, The Village Recorder became one of the first independently owned recording studios in the U.S. and would go on to become one of the most successful, with credits including Fleetwood Mac's *Tusk*, Supertramp's *Breakfast In America*, the Rolling Stones' *Goats Head Soup*, the *Walk*

the Line and *Elizabethtown* soundtracks, and the new Dixie Chicks album.

Hormel opened The Village as a 24-track studio at a time when most in the industry were still getting used to 16-track. He continued to serve as a visionary in music and its related technology, including playing a key role in bringing Fairlight to the U.S. markets. He stayed behind the scenes in The Village's operation, giving artists the space to do their work.

Hormel's spirit and philosophies remain intact at The Village, and the studio will proceed as usual. His daughter, Julie

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NASHVILLE SKYLINE

by Rick Clark

Every now and then, I need a good dope slap upside the head. Today's cosmic dope slap was brought to me courtesy of every Middle Tennessee State University intern I've plumed from the school's Mass Communication and Music Industry programs for the past eight years, each of whom has practically begged me to pay attention to the vibrant scene located 20 miles south of Nashville in Murfreesboro, Tenn.

My "awakening" happened thanks to former MTSU intern Courtney White (and her steady stream of indie releases from bands she supported in the clubs around campus) and Georgetown Masters' John Baldwin, who also stopped me dead in my tracks with a "full-tilt studio monitors blasting" listening party celebrating all things Murfreesboro. Later, White organized a field trip, with her as my able guide. She also had me as a captive audience when she plopped CDs from one band after another into the car's player. So all the way to Murfreesboro and throughout the trip, I received a full baptism.

It is apparent that the spark of this scene is MTSU, which has turned out graduates who have gone on to production and engineering careers or who have been in bands that have emerged from a vibrant scene to land major- and indie-label deals. MTSU has also just started a new graduate degree program in which students pursue a Master of Fine Arts degree in Recording Arts and Sciences. "This degree is designed to focus on both the art and the technology," says Cosette Collier, graduate coordinator and professor for MTSU's Department of Recording Industry. "Our graduate students have all sorts of different artistic backgrounds coming into this program. We're hoping this program will attract talented students from all over the country who want to further their creative and artistic visions."

MTSU has five recording studios. Studio A offers a Studer D950 digital console, Pro Tools|HD, DASH and analog multitracks, and 5.1 mix and monitoring capabilities. Studio B has an Otari Series 54 analog console, Pro Tools|HD, DASH and analog multitracks, with stereo monitoring



Jeff Greenberg (left) and Geordie Hormel

Hormel founded The Village in 1967 as a place to record his own music, something he excelled at despite no formal training. He had the makings of a child prodigy, banging away at the piano at age three. By the time he turned six, when his parents decided he was old enough for lessons, he had already taught himself how to play songs by Nat King Cole, Ella Fitzgerald, Benny Goodman and others by ear.

Ignoring his parents' wishes for him to continue the family business (the Hormel meat-packing business, makers of canned mystery meat SPAM), he continued to pursue music as a profession. In the late

NEW YORK METRO

by David Weiss

capabilities. Studio C is centered on an SSL G Series board, Pro Tools|HD, DASH and analog multitracks, with stereo monitoring. Studios D and E both have Sony DMX-R100 digital consoles and RADAR 24 multitracks with stereo monitoring. MTSU is constructing a 5.1 mix room that will be DAW-based, with an integrated console and 5.1 monitoring.

During a visit to the MTSU recording facility with Collier and members of a popular local band, Belize (who are getting ready to record their next release), I met Murfreesboro hometown girl Courtney Bleeding, who graduated from the program and is now working in L.A. with producer David Foster. Everyone I talked to was effusive about the amount of fine music and good will down there. "There are so many notable bands I could mention," says Justin Dinger of Belize. "One band, The Protomen, have become a Murfreesboro spectacle, with choirs, masks, costumes and video."

I had heard about The Protomen from a few of the band's enthusiastic fans for a while, but I had no idea what I was missing until White inaugurated our trip with their incredibly passionate hardcore "rock opera" CD. The emotion, the music and performance's power certainly landed

—CONTINUED ON PAGE 144

New sample libraries are constantly coming out, but hearing about one that involves bassist Anthony Jackson might make a person stand up and take notice. A New York City denizen with an international reputation, he and the producers of his upcoming Anthony Jackson Six String Contrabass Library (www.basssix.com) are pouring their blood, tears and sweat into a production that demonstrates the rapidly advancing standards of sample libraries.

While the technical specs (24-bit/192kHz Pro Tools|HD recording via Prism Sound A/D converters at New York City's Clinton Recording Studios) are state-of-the-art, they're nothing compared to the player. One of the top talents ever to play the bass, Jackson's phase-shifting bass line on The O'Jays' "For the Love of Money" is permanently burned into the funk psyche. A live and session veteran with more than 500 album credits, Jackson's contributions are expanded even further by his primary role in the invention of the contrabass guitar, the six-stringed low-end monster with a range that should inspire library users to entirely new heights—or depths.

"As a producer and composer, knowing all the libraries that exist, there was a lacking of high-quality bass samples, let alone a contrabass guitar," says Tom DeRenzo, who teamed with Casey Conrad to co-produce the library. "The six strings of the contrabass are great because of their ability to lay down chords if you want to, but even more so because of their range.

"Anthony had been reluctant to do this library," DeRenzo continues. "It's a

very time-consuming endeavor, and he wanted to be able to do a very high-quality recording. But using today's Tascam GigaSampler 3 and GigaStudio—where you can have very long sounds, decay and full notes in length—convinced him that now was the right time."

Pre-production made it obvious that this project would require extremely high-level organization, logistics and incredible physical and mental stamina from all parties involved. Not only were a number of Jackson's signature articulations planned—including palm muting, modulated mutes, flat-pick technique with Meta Flanger and Omnipressor, articulations with glisses, string effects and more—but also every event would be recorded a minimum of three separate times to take full advantage of GigaSampler's Random function.

Once Jackson, Conrad and DeRenzo set up shop at Clinton's Studios A and B with Clinton owner Ed Rak and engineers Bryan Smith or Sheldon Yellowhair, the enormity of the undertaking set in. With Pro Tools running constantly, Jackson performed multiple versions of each note for each of five velocities, allowing each note to ring out in its entirety until it disappeared below the noise floor. Unfortunately, such intensely critical listening over the massive house-modified UREI 840 monitors meant that the air-conditioning fans had to be turned off.

—CONTINUED ON PAGE 145

PHOTO: TIM MITCHELL



In Clinton Studio B, from left: Casey Conrad, Anthony Jackson, Tom DeRenzo and Bryan Smith

PHOTO: RICK CLARK



At MTSU, from left: Belize's Justin Dinger, MTSU's Cosette Collier, Belize's Davis Cox and MTSU grad Courtney Bleeding

HOLLYWOOD STUDIO "IDOL"IZES ICON LEVELS AUDIO POST UPGRADES DUB STAGE

As Levels Audio Post owner/mixer/sound designer Brian Riordan prepared for the fifth-season launch of *American Idol*, the Emmy-nominated Fox TV smash that he mixes weekly in stereo and 5.1, he wanted to make the Dub Stage, the room where he handles the show's post-production, more efficient. Not only did he want to better serve his clients, but he also wanted to streamline the studio and *maybe* catch a few extra hours of sleep. Well, he hasn't gotten any more rest, but he has met the other two goals by upgrading to a 32-channel Digidesign ICON D-Control integrated console environment.

"Prior to installing the ICON, I was using a ProControl with Edit Pack," says Riordan. "The D-Control's Custom Faders, dedicated EQ and dynamic encoders, and XMON monitor section all enable me to finalize my mixes quite a bit quicker." Levels Audio received the ICON during a brief period of down time around the holidays. Riordan had about a week to get familiar with the control surface before the start of season five. Despite a new level of efficiency, he still works 'round the clock from the time the edit locks until he delivers DVC Pro HD master with multiple mix formats and stems for the Tuesday night broadcast.

Aside from Fox's second-most-watched show ever, Levels Audio Post handles a variety of music production, sound design and audio post for television and film from its three studios; the Dub Stage, with its Stewart 16-foot Microperfer Projection Screen (THX-approved), is the largest. The other rooms—Studio C and a penthouse control room with voice-over booth—offer ProControl surfaces, and all three rooms feature Pro Tools|HD Accel rigs equipped with dozens of plug-ins. Reason, Soundminer, Ableton Live, Acid and other programs are well-represented, as is a laundry list of outboard gear and signal processing.



Levels Audio owner Brian Riordan pauses in front of his new ICON.

Lead mixer Connor Moore occupies one of these rooms to work on programs such as *The Bachelor* and *Viva La Bam*, while mixer/sound designer Brian McLaughlin handles post-production for independent films and various other projects. Riordan handles the lion's share of television music shows, including the *MTV Movie Awards* and *MTV Video Music Awards*, the *Radio Music Awards*, the recent *Rock and Roll Hall of Fame Induction Ceremony* and the *Jamie Foxx: Unpredictable* NBC concert special. The Dub Stage's new ICON suits his music-heavy lineup. "The control surface is great for post," says Riordan, "but it's also a very musical console, which allows me to easily work in both media."

BEHIND THE GLASS

WORKING DOUBLE-TIME BELL ALBUMS MASTERED



Bryan Bell (left) and Paul Stubblebine working double-duty

Producer/engineer Bryan Bell recently brought two album mastering projects to Paul Stubblebine Mastering & DVD in San Francisco, including the release *Strange Angel* from the group Baxter & Bell, which features such guests as Herbie Hancock, Steve Porcaro, Ron Carter, Wallace Roney, Branford Marsalis and Vicki Randle. The second came from new artist Tiba, who just finished his album *Jukebox Baby* for Fynsworth Alley Records.

Bell tracked Baxter & Bell's rhythm section at Falcon Studios in Portland, Maine; Roney and Carter recorded their parts at Avatar Studios (New York City). "Paul Stubblebine's skill and style lead you to make decisions that enhance the sound," says Bell. "It was an educational experience. We literally A/B'd everything he tried and I liked every suggestion."

SURROUNDED BY AWARDS TALKING HEADS BOX A WINNER

High fives to Jerry Harrison and engineer Eric "E.T." Thomgren, who took home three awards at the fourth annual Surround Music Awards ceremony for the DualDisc box set *Talking Heads Brick*, which features all eight Talking Heads studio albums mixed in surround. Thomgren and Harrison (producer and Talking Heads keyboardist) earned trophies for Best Mix: Non-Orchestral, Best of Show and Best DualDisc Release. The team spent close to a year working on the project at Harrison's studio, Sausalito Sound.



Jerry Harrison (left) and Eric "E.T." Thomgren at Sausalito Sound

BARBER SHOP ROLLS DAVE HYMAN REMIXES ON 9K



Barber Shop president Mark Salamone (left) and producer Dave Hyman

Engineer/producer Dave Hyman came to The Barber Shop Studios in scenic Lake Hopatcong, N.J., to work on a remix and additional production for dancehall favorite Elephant Man's song "The Way We Roll," featuring Busta Rhymes and Shaggy. Hyman and Cipa Sounds A&R man Willie Daniels co-produced the track; Hyman remixed on the studio's 72-channel Solid State Logic XL 9000 K Series console.

PACIFIQUE MAKES ROOM ENSEMBLE IN FOR SOUNDTRACK



Pictured from left (top): director Andrew Shapter, James Poyser (B3), Mike Elizondo (bass), Questlove (drums), Wendy and Lisa's Lisa Coleman (Wurlitzer), Doyle Bramhall II (guitar) and Chris Bell (engineer). Bottom row, from left: vocalists Jeff Smith, Wendy and Lisa's Wendy Melvoin, Erykah Badu, Suzannah Melvoin and film producer Joel Rasmussen.

A massive ensemble of players entered Pacifique Studios (Los Angeles) to work on the soundtrack to upcoming film *Before the Music Dies*.

TRACK SHEET

NORTHEAST

Cotton Hill Studios (Albany, NY) recently completed an ADR session with actress Grace Park for the SciFi Channel original series *Battlestar Galactica*. Cotton Hill engineer Ray Rettig connected with Oracle Post in Santa Monica, CA, to digitally transfer Park's recording via ISDN...Ryan Adams continued producing the new Willie Nelson record at Loho Studios (NYC), and then took a couple of weeks to work on a new Ryan Adams and The Cardinals record. Tom Gloady engineered both. The Klezmatics worked on a new record at Loho with Gus Oberg at the board...Threshold Music (NYC) launched Major Who Media, a production company and Pro Tools suite focusing on artist development and resourcing. Session activity at Threshold includes Collective Soul shooting audio and video for AT&T's Blue Room Series; Ellie Lawson recording with producers Sheldon Steiger and James Walsh; and Alexa Joel (Billy Joel's daughter) recording with producer Gordon Gropheus and engineer John D'uva...A-Pawling Studio (NYC) reports that Ian Hunter recorded and mixed a new release with co-producer Andy York and engineer Peter Moshay, and San Francisco band Persephone's *Bees* and producer Eric Valentine traveled north to mix tracks with Moshay for their forthcoming Columbia release.

SOUTHEAST

Tradeskin completed their first CD at Catalyst Recording (Charlotte, NC) with producer/engineer Rob Tavaglione. Tavaglione also mixed four songs for Black Ritual's self-produced nu-metal album, with release expected later this year...Congratulations to 615 Music (Nashville) president/CEO Randy Wachtler, who earned a National Daytime Emmy nomination for Outstanding Original Song for the 615-produced tune "Live for Today," the theme for an NBC *Today Show* series. Phil and Juli Vassar co-wrote the song; NBC East Coast senior VP of marketing Frank Radice received credit as executive producer...ZAC Recording (Atlanta) hosted Island/Def Jam artist TruLife, tracking with producer Polow and engineered by Tony Terrebonne. Usher then filled up the studio with writing sessions with artists on his new US Records label, with engineers Mark "Exit" Goodchild, Corey Stocker, T. Cash and Chris Kraus manning the consoles. Jamie Foxx returned to ZAC to sing on a few more tracks produced by Polow and engineered by Terrebonne. Rapper 8Ball dropped by to mix a new release on his artist Devious & Gutta. The sessions were produced by Montana and engineered by Kevin Parker.

SOUTHWEST

Recent E-Squared signees Marah came to SugarHill Recording Studios (Houston) to perform an in-studio special to be broadcast on Houston's Pacifica KPFT/90.1 FM. The Riff Tiffs completed six songs in Studio A with senior staff engineer John Griffin. The group cashed in their winnings from the Bellaire



Ian Hunter (right) recorded and mixed a new release at A-Pawling Studio (New York City) with co-producer/guitarist Andy York (left) and engineer Peter Moshay.

MENS club's Battle of the Bands contest in late 2005; they received studio time as part of the grand prize...Austin-band Loss/Rayne entered A-Valve Studios (Austin) to record their debut with producer/engineer Rob Hinton. The new studio also recently wrapped up projects for locals Dave's Not Here, Velvet Brick and Quartershackle.

NORTHWEST

Nettleingham Audio (Vancouver, WA) engineer Kevin Nettleingham mastered releases for Portland-area artists Vineyard Christian Fellowship, PDXV, Charles Patton and Hope Fyfield's *Yoga for Beginners* release. Seattle band The Starlings sent their new CD to Nettleingham Audio for mastering, as did Deep Elm Records bands Free Diamonds and Burns Out Bright, and guitarist Adam Scramstad.

SOUTHERN CALIFORNIA

The Village Recording Studios in West L.A. kept busy with a mix of music and audio post projects. Roger and Scott Wojahn of the Santa Monica, Calif.-based Wojahn Bros. Music worked on a variety of advertising spots with engineer Francis Buckley, including a Ford commercial featuring Kermit the Frog, and spots for Sherman Williams and Comp USA. Mix sessions for *Down in the Valley*, a film produced by and starring Edward Norton, took place in Studio F, and Jessica Simpson recorded a song for a Pizza Hut commercial for the BBDO agency, engineered by Ian Cross. The Village continues to host KCRW's popular *Morning Becomes Eclectic* show, produced by Ariana Morgenstern; they recently welcomed new band She Wants Revenge, who recorded a live session with engineer Jason Wormer...Conway Studios (L.A.) kicked off the year with a boom. Alicia Keys recorded tracks with engineer Ann Mincieli in Studio C for the movie *Glory Road*; Paris Hilton continued work on her debut album in Studio B with production team Dr. Luke & Max Martin; Ashley Parker Angel stopped in to record new tracks and shoot scenes for his MTV reality show, *There and Back*; jazz legend Nancy Wilson graced Studio A to record with Conway engineer Seth Waldmann; Black Thought of The Roots was in Studio B writing and recording tracks; and composer James Newton Howard, engineer Jim Hill and Pro Tools engineer Vinnie Cirilli recorded and mixed the film score for *RV*. ■

Send your session news to mixtracksheet@gmail.com. High-resolution photos encouraged!

Hormel, says, "The Village is an amazing facility. We are very proud of it and there will be no changes in its operation."

Les Pierce has produced, engineered and/or played on a number of jazz, R&B and pop albums. His ongoing work with Take 6 has earned him a Grammy and a Dove Award, and his credits include projects for Manhattan Transfer, Earth Wind & Fire, Rashsaan Patterson and Patti LaBelle, among others. He also composed the theme song for TV series *Jimmy Kimmel Live* and *America's Next Top Model*. So when I heard that Mardo—an indie muscle car-rock band led by Fresno, Calif.-bred brothers Aron and Robert Mardo (short for Marderosian)—had teamed with Pierce to record their second full-length CD (he also worked with them on their debut), it seemed like such an unusual combination, I had to ask: What's the connection?

First off, they have a mutual friend in *Jimmy Kimmel* music director Cleto Escovedo, who introduced Pierce to the group. Second, they had a mutual love of all things vintage: Through the years, the Mardo brothers have assembled an impressive vintage instrument collection, and were on their way to gathering vintage

recording equipment when Pierce came on board. And third, well, Pierce has broad tastes; he's into the Stones and Incubus, and he can call up his rock chops from his earlier musician days.

Intrigued by their multiple talents (Robert Mardo plays drums and guitars and Aron Mardo plays keys and bass; both sing), Pierce took on the band as a producer. Their first album together, a self-titled effort released last year on House of Restitution Records, sold 30,000 copies with no major-label support or distribution. With this album, tentatively scheduled for release this month, Pierce and crew upped the ante. As with their debut, they recorded mostly at Pierce's home studio, the same site where he composes for TV. The band had the "T Rex meets AC/DC" thing down, but Pierce helped them combine the LA-2As and 1176s that they liked with the right instrument. He caught it all on his Pro Tools|HD rig, using a combination of RØDE, Neumann and AKG mics. When they were really pressed for time (Pierce would often have to jet across town for a Mardo session during a break from another gig), they recorded in the duo's mother's bedroom.

At press time, Pierce is working on some of the mixes for the album; Tom Lord-Alge

has signed on to mix at least one. Pierce says that when Lord-Alge heard the roughs, he thought they were established musicians who had formed a new group, not a new band and a new group. "He was blown away," says Pierce. "We sent him one song [to mix], and he got it back to us in a couple of days!" This time, Pierce was blown away. "We've really stepped up with this record, and it's exciting to see that more people are becoming aware of the band." ■

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intact on tape. (Yes, tape!) It also sounded like they had a blast making it.

This seven-piece group may comprise somewhat normal MTSU recording program grads by day, but as The Protomen, they are Commander (synth), Panther (vox and synth), Murphy (synth), Heath Who Hath No Name (guitar), Scartoe (guitar), Doug Fetterman (guitar) and Demon Barber (drums). "The band initially formed as a result of class deadlines and the need to record for our grades," says Lance McDonald, who produced/engineered

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the CD. The Protomen recorded in five different facilities, including MTSU's Studios A, B and C, during the course of two years, and all eight tracks were mixed in analog at McDonald's studio in Murfreesboro, with what he describes as "equal parts fury and an MCI JH16 machine."

McDonald (who also plays guitar as Heath Who Hath No Name) and the band elected to imbue many parts of the album with some very heavy distortion. One track, a bizarre, heavy crash-and-burn blend of Spaghetti Western distorto-rock and dark country called "Unrest in the House of Light," reminds me of the menacing Sack Full of Silver-era Thin White Rope kind of cinematic Americana.

"The great part of MTSU's program was the amount of unsupervised time we all got in the studios just to experiment. After we found the magic of Eventide H3000s on vocals layered over distorted drum tracks, we knew we couldn't go back," says McDonald. "The art of recording 'improperly' quickly became the album's soul and shaped the way we wrote our songs. We used three mics on the drums, used analog on everything possible, made 2-inch tape edits and really tried to squeeze the biggest sound out of 'limiting' gear."

Next month, I'm going to return to

PHOTO: ERIC BLEVINS



The Protomen's Panther prowls over a mix.

Murfreesboro and take a look at several other bands and studios there. ■

Send your Nashville news to MrBlurge@mac.com.

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With Jackson's exacting work ethic factored into the mix, the recording sessions required a patient frame of mind to complete the work. "The biggest surprise was the amount of time it takes for a note on an instrument like this to be performed and literally decay," Conrad observes. "With multiple versions of five levels of velocity, 28 frets and six strings, all the samples add up to approximately 1,800 notes. The longest, lowest notes last up to a minute 40 seconds, and it's almost like a Zen kind of thing sitting and waiting for the notes to decay. Anthony's level of perfectionism is

as high as you're going to get, which means he's got to sit and hold his Fodera contrabass guitar for that entire time without moving it an inch. It was daunting."

From Jackson's instrument, the sound traveled to a Countryman DI before splitting to a pair of Millennia HV-3B preamps and API 550B EQs. One path recorded the DI signal while in the live room, the second signal reached a pair of self-powered Meyer Sound CQ-1 speakers, captured by a Neumann U47 FET microphone going back into the Neve 8078 board before hitting Pro Tools.

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each articulation were completed, they were burned to a DVD and left their comfy New York City confines for a studio in San Diego, Calif., where one of the foremost sample library programmers, John Thomas (www.glasstrax.com), waited for his turn with the material. Thomas first focused his attention on the material's noise floor as he worked on his Alienware 3GB machine. "What I'm doing is basically making a thousand miniature masters," Thomas points out. "There are a lot of people who aren't too fussy about noise reduction, but that should not be true at the sample level. People think, 'I'm recording with the best gear, it's got to be totally quiet,' but it's not. Some people also think that the noise is realism, but hiss is created by cables, condenser stages in the mic—things that are not built into the human ear. So building that into the sound is not real."

Using Adobe Audition as his audio editor, Thomas puts the samples through a meticulous filtering process as he aims for a noise floor of at least -120 dB. "I have two separate signals [the DI and the P.A.] with a 10-second slate before each note from the producer," he says. "I highlight that [10-second] area, take the noise profile, remove it and apply it to the entire file before I do

anything else. My ultimate goal is to reach -144 because that's the theoretical noise floor for 24-bit hardware." Next, Thomas brings the relative volumes of the samples in each of the five velocities as closely in-line as possible, taking the loudest velocity and normalizing it to -3 dB.

Those who fashion their own sample libraries would be wise to pay careful attention at this point. "Making each note individually involves picking the starting point correctly, but it's not simply where the sound begins because that's too early—going from there will make the sample so sloppy that it's unusable," Thomas warns. "Where you chop it on the front end is absolutely critical. You have to magnify to a certain level and chop at the zero crossing point. Then I back up until it sounds correct and feels right."

Next is a QC stage, where Thomas re-screens every sample for clicks, pops or other imperfections. Along the way, he smooths the end of all the files with a quick, curving fade at the last tenth of a second to avoid artificial pops during playback in the sampler. Only then is he ready to begin editing the samples in GigaStudio into a true library, making additional tweaks, creating presets and doing any other required



Miking the Meyer Sound CQ-1 speakers

platform-specific chores.

Jackson and his team are extremely interested to see what the production community's response will be. "We're recording knowing that composers and writers will have the full range of contrabass guitar recorded by Anthony Jackson at a very high standard," DeRenzo concludes. "The bass is one of the fundamentals of music composition, and the sound of the contrabass guitar is phenomenal. To have the ultimate bass player making the ultimate recording is an invaluable tool." ■

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—FROM PAGE 32, FALSE SENSE OF SECURITY

The buyer is told that in order to pay for this item, he has to send a Western Union money transfer to the e-mail's sender, which is on Yahoo or Hotmail or some other impossible-to-trace server. The original seller's eBay ID is prominent in the message, but the seller's name (which the buyer doesn't know) has been replaced with a bogus name and the address of a mail drop in a foreign country, London and Rome being two popular locations. To further entice the buyer, the message says that the seller will pay all of the shipping charges and split the fee with the buyer for sending the money transfer, which runs about 9 percent of the total amount.

The notice is even cheeky enough to "warn" the buyer, "Never use Western Union money transfer or money gram to pay a seller which [sic] credibility and payment address was not verified by us. You are most likely to lose your money and never receive the merchandise you paid for. If a seller requires cash transfer and you do not have this kind of purchase protection, please do not participate."

Of course, the "purchase-protection account" doesn't exist, so when the mark does send a money transfer, the money disappears. The item itself doesn't exist either because it was already sold to someone else—the highest bidder. The mark blames the seller, a nasty dispute follows and the real culprit, wherever he/she is, goes and cashes in the money transfer, while laughing at the idiots trading accusations and insults on eBay. The crooks pick their marks carefully: All of the scams I tracked down involved losing bids of \$1,000 or more.

So how did I find out about this? Someone tried to scam the bidders on a piece of gear I sold on eBay. A sharp-eyed *Mix* reader in California who was the second-highest bidder on the item received one of these bogus messages, and he noticed that the original location of the equipment (Massachusetts) didn't match the address he was supposed to send the money to (London). In fact, because I use my buddy Grumpmeier's name as my eBay ID (and I used to have an ID that was even easier to link to me), he figured out that I was the seller. He wrote me through eBay's messaging service to tell me what was going on, and he also notified eBay's fraud department, plus he wrote all the other bidders on the list to warn them that they might receive a similar message. Because anyone who might have been taken in by this would have first gotten mad at *me*, he did me almost as much of a favor as he did them.

I tried some Google searches on the address and the modus operandi of the scammers, and turned up incidents dating back about a year and a half. They have gone after bidders on a collectible 19th-century \$5 bill, a Nikon camera, a chip from a defunct Las Vegas casino, a Mesa Boogie amp, a dirt bike, a National steel guitar, a high-profile domain name and a sarrusophone, which is a rare, mid-19th-century musical instrument that's an unfortunate cross between a saxophone and a contrabassoon. Sarrusophone aficionados are, as you might imagine, a small and relatively tight group, and word got around quickly, so none of them fell for it.

Are there ways we can make ourselves secure against this sort of thing? Well, there

are certainly things that governments and the corporate world can do. In January 2006, the British division of eBay announced that it would no longer recognize wire transfers as a legitimate form of payment. Of course, that means more business for eBay's wholly owned subsidiary PayPal, but in truth, PayPal has a lot fewer security holes. It would be nice if some state attorney general would generate a little publicity about this scam so that the media might pick it up. And it might be good if some of that enormous amount of money being spent on "homeland security" could be used to chase down these crumbs and put them behind bars.

But the scammers' most potent weapon is what's called "social engineering": figuring out how to make suckers bite. And no technology or law can protect us from our own carelessness and gullibility. As Sgt. Phil always said to the *Hill Street* cops, "Let's be careful out there."

The main reason schemes like this succeed is that we let them: Too many of us accept the things we're handed at face value without the proper examination and skepticism. It's true whether we're being told we can get an unanticipated bargain on a piece of gear, or we will be rewarded with a veritable fortune just for being nice to a stranger, or that by waging eternal war on an invisible enemy we will achieve world peace. As long as we are willing to get fooled and fooled again, those who would compromise our security will always find a target. ■

Watch for Paul Lehrman's film *Bad Boy Made Good* on PBS stations in New Jersey and Washington, D.C., this month. It sounds like it's about eBay scams, but it's not.

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
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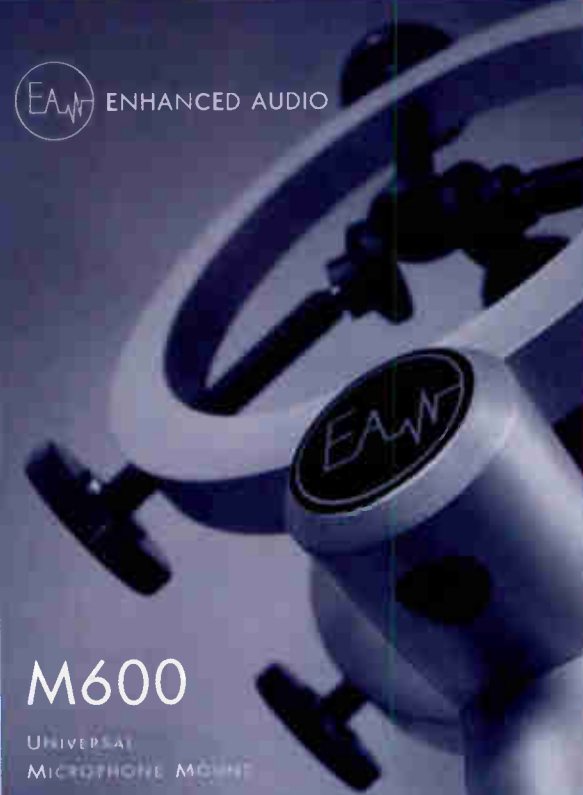
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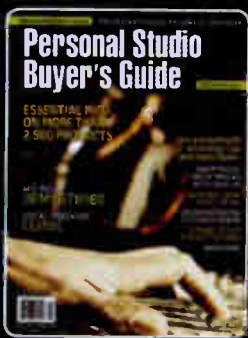
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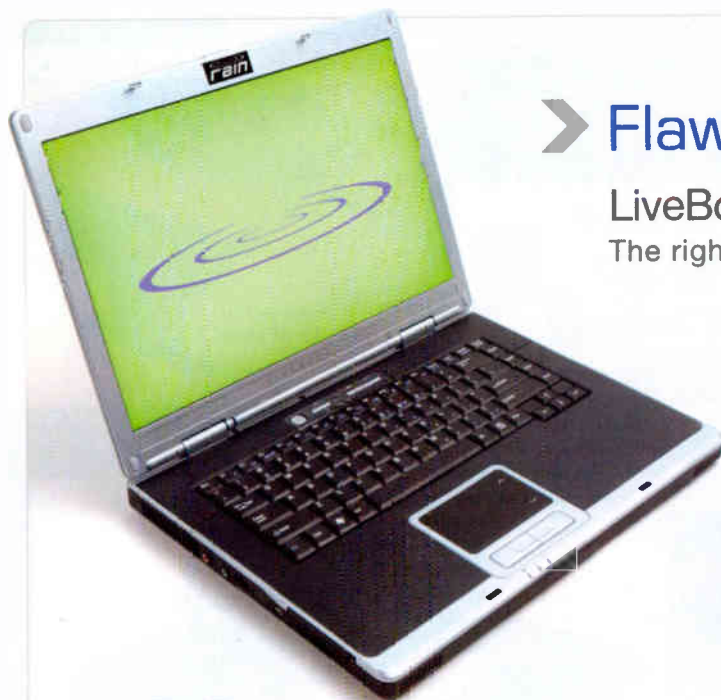
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SynchroArts VocALign

Lining Up Dialog and Much More

An award-winning software plug-in and stand-alone application for Windows and Mac OS 8/9/X, SynchroArts' VocALign can automatically synchronize two audio signals at the touch of a button. Uses include tightening doubled lead vocal parts, background vocals and instrumental tracks, but here, we'll focus on using VocALign PRO and VocALign Project in audio post applications, specifically for dialog and ADR editing.

When VocALign first came out, some editors who tried it were disappointed. The software has come a long way since then, so if you haven't used it in a while, it's worth a second chance. A free, fully functional (short-term) demo is available at www.synchroarts.com for anyone who wants to check it out.

STARTING WITH THE BASICS

Begin by creating a track in your session called "vocalign." When you first launch VocALign, choose this as your destination track. This selection will stay with VocALign even as you cycle through other plug-ins. However, this resets when you close the session, so you'll have to select it again the next time you launch the software. Having a destination track just for VocALign prevents accidentally rendering over something you want keep, which can happen when you're in a hurry.

Next, check that you are using the default settings, which is the best place from which to start. Now, select your guide audio to capture and then select the dub audio to capture. These selections do not have to be the same length. (See screenshot above.) Then you simply align, process, spot—and you're done.

If you have to fit a long ADR or production alt (alternate take), it sometimes helps to break down the line into small pieces. Often you'll end up with a final line constructed from VocALign and unprocessed bits.

VocALign is really helpful when you're working with a line of dialog that's been changed. Even though the words are now different in parts of the sentence, it can

give you a really good guide as to how to cut the ADR, or you can run VocALign over the line after you've cut the new line. Also, running VocALign on ADR and production alts that you have already cut can provide a nice polish.

DOING THE IMPOSSIBLE

VocALign is a useful tool, but it's not a magic wand. Sometimes it struggles with the starts and ends of lines. This is typically caused by very noisy or really low-level production dialog, although this is less of an issue with 24-bit/48k or 96kHz files. In such cases, simply splice the unprocessed tops and tails onto the fitted line.

If you have a line that's really difficult to cut and the VocALign version has some artifacts, then you can use the VocALign version as a guide for the ADR or production alt. Then, cut the ADR/alt to match the VocALign version.

If a line of ADR or a production alt is a really bad fit, then don't try to "VocALign" it right off the bat. First perform some basic editing, perhaps starting with a bit of time compression/expansion in Pro Tools. Once the cue is close and there are no bad glitches or artifacts, try VocALign over the whole edited cue. This method is most useful, and if you go at a cue knowing that this will be the approach, it can also be quite fast.

If the cue won't work using VocALign's standard default alignment setting, then finding the right setting can be somewhat hit and miss. If the cue is really long, then try maximum compression. If the cue is really short, maximum expansion might work, but here, there's also a risk of unwanted artifacts. Again, this has partially been resolved by higher-resolution sound files, but it can still be a bit of a lottery.



Pro Tools session using VocALign. The red track is the original production dialog; the green track is a production alt take; and the blue waveform is a VocALigned version of the alt track.

NOT JUST FOR DIALOG

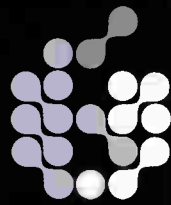
In the music studio, VocALign can be used to sync backing vocals—even parts from different takes and different days that didn't sound quite tight enough in the mix. Once the best takes are selected, a slight VocALign tweak can get the vocals spot-on.

VocALign can also be used for editing effects. To help align some sweeteners on an effects-based sequence, begin with an edit pass to quickly line up the new elements, then select the whole track and VocALign them against the dominant beat. If you don't properly line up the new elements, it can get a bit freaky, but that's what you get with experimentation.

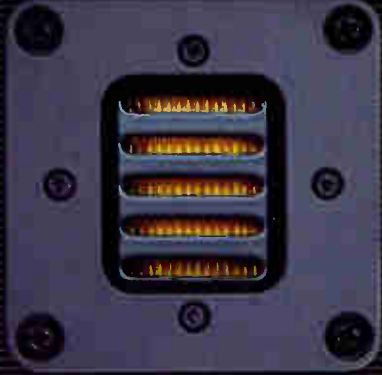
THE FINAL TAKE

If you're unhappy with the sound VocALign is giving you, it's probably because you're expecting it to do too much or you're still using a very old version of the software. Usually, only the worst of the worst tracks have beaten this software. So before you give up in disgust, try some different settings or do a bit more editing before using VocALign. Sometimes, a little patience and extra effort really pays off. ■

Helen Luttrell is a dialog/ADR editor currently working on Superman; Mike Hopkins is a supervising sound editor whose credits include the The Lord of the Rings trilogy and King Kong, for which he just won an Oscar.



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