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ANNIE LENNOX ON TOUR**

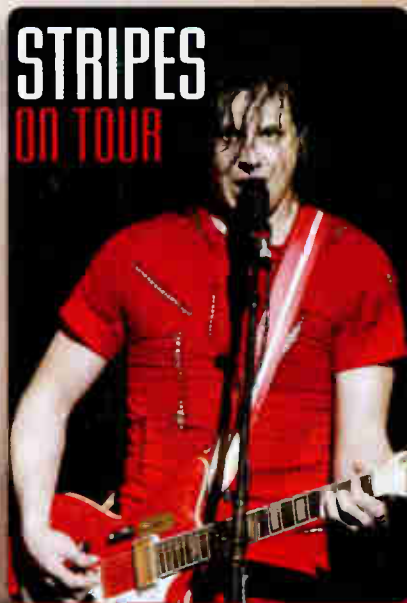
## Nashville Sounds

**With Richard Dodd,  
Justin Niebank**

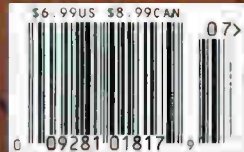
## HULK!

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## WHITE STRIPES ON TOUR



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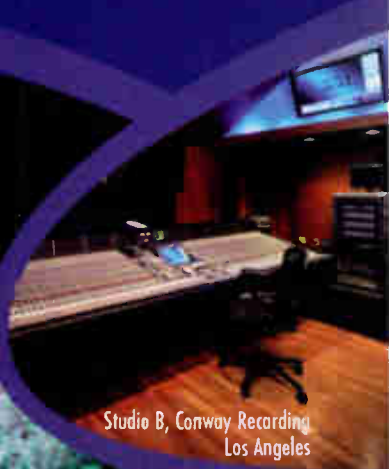
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Los Angeles

## Buddy Brundo

### Booked solid for 6 years

When owner Buddy Brundo decided to upgrade Studio B at Conway Recording, the choice of console was an obvious one. "We have an SSL J Series in Studio C and that room has been booked solid for the past 6 years, so the logical extension for Studio B had to be the next generation console from SSL, and that's the new XL."

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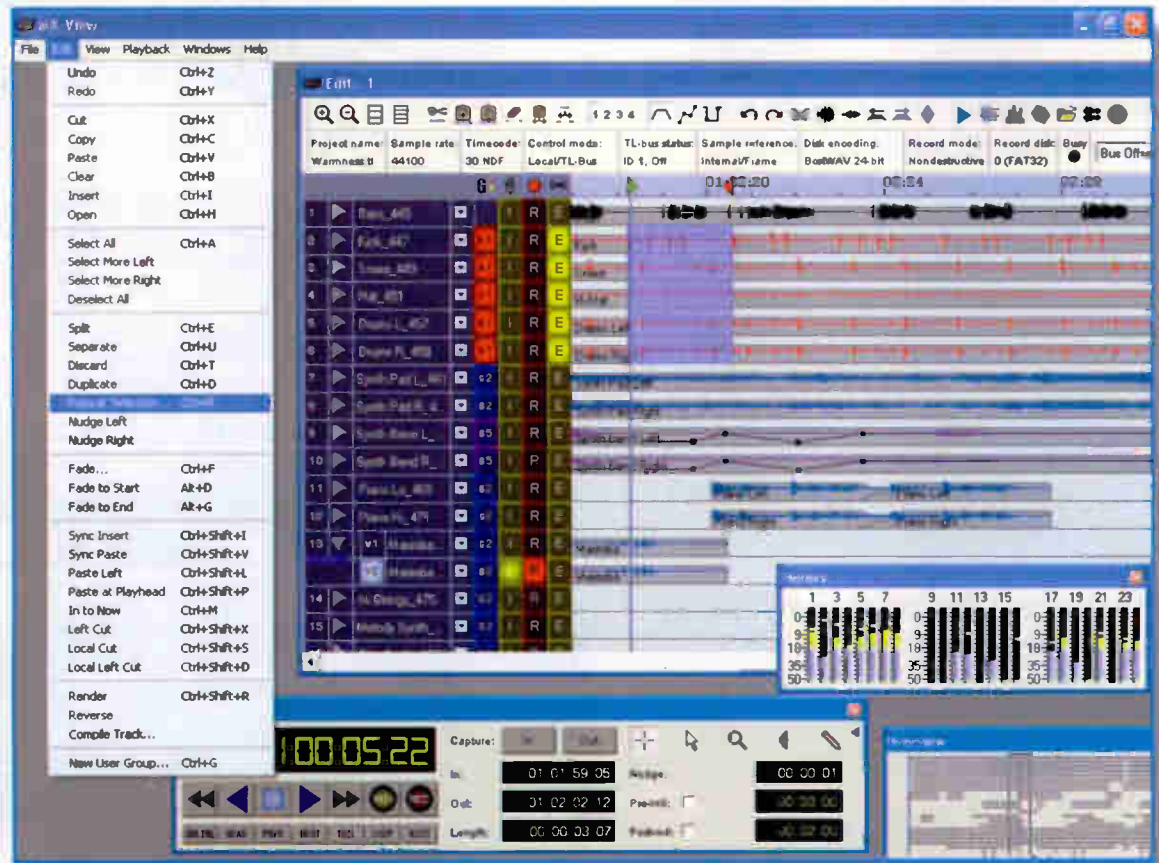


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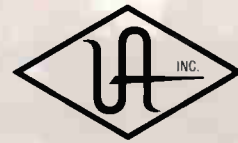
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World Radio History





# MIX

PROFESSIONAL AUDIO AND MUSIC PRODUCTION  
 July 2003, VOLUME 27, NUMBER 8

## features

### 30 Recording the Band

#### Simple Reference or Tomorrow's Release?

Portable, affordable recording technology has revolutionized live recording as much as it has studio life. Live performances are now most commonly captured direct-to-disk or with MDMs, for either archival purposes or DVD-V or album release. Senior editor Blair Jackson asks sound reinforcement engineers about their recording rigs.

### 38 Fleetwood Mac Is Back!

#### Lindsey Buckingham on Recording *Say You Will*

Fleetwood Mac occupies a singular position among music industry types, largely due to the unprecedented success of their 1977 *Rumours*, which generated piles of Platinum. Now, the group (minus Christine McVie) has released its first studio album in 15 years. Blair Jackson sat down with Lindsey Buckingham and mixing engineer Mark Needham.

### 44 Downsizing the Line Array

#### A Quick Primer

There's a new crop of loudspeakers coming your way: compact line arrays suitable for use in clubs and theaters. Sound reinforcement editor Mark Frink offers a primer on available products and how best to use them.

### 50 "The Hulk"

#### Sound Design for Ang Lee's Dark Blockbuster

He's green! He's angry! He'll be huge this summer! Join Blair Jackson and the sound team at Skywalker as they bring animal growls and the interior world of *The Hulk* to the big screen.



On the Cover: Nashville's Paragon Studios was designed from the ground up by the Russ Berger Design Group for owner/engineer Fred Paragano. Control Room A features an SSL 9080K XL console and Dynaudio surround monitoring. For more, see page 20. Photo: James F. Wilson. Inset Photo: Steve Jennings.



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

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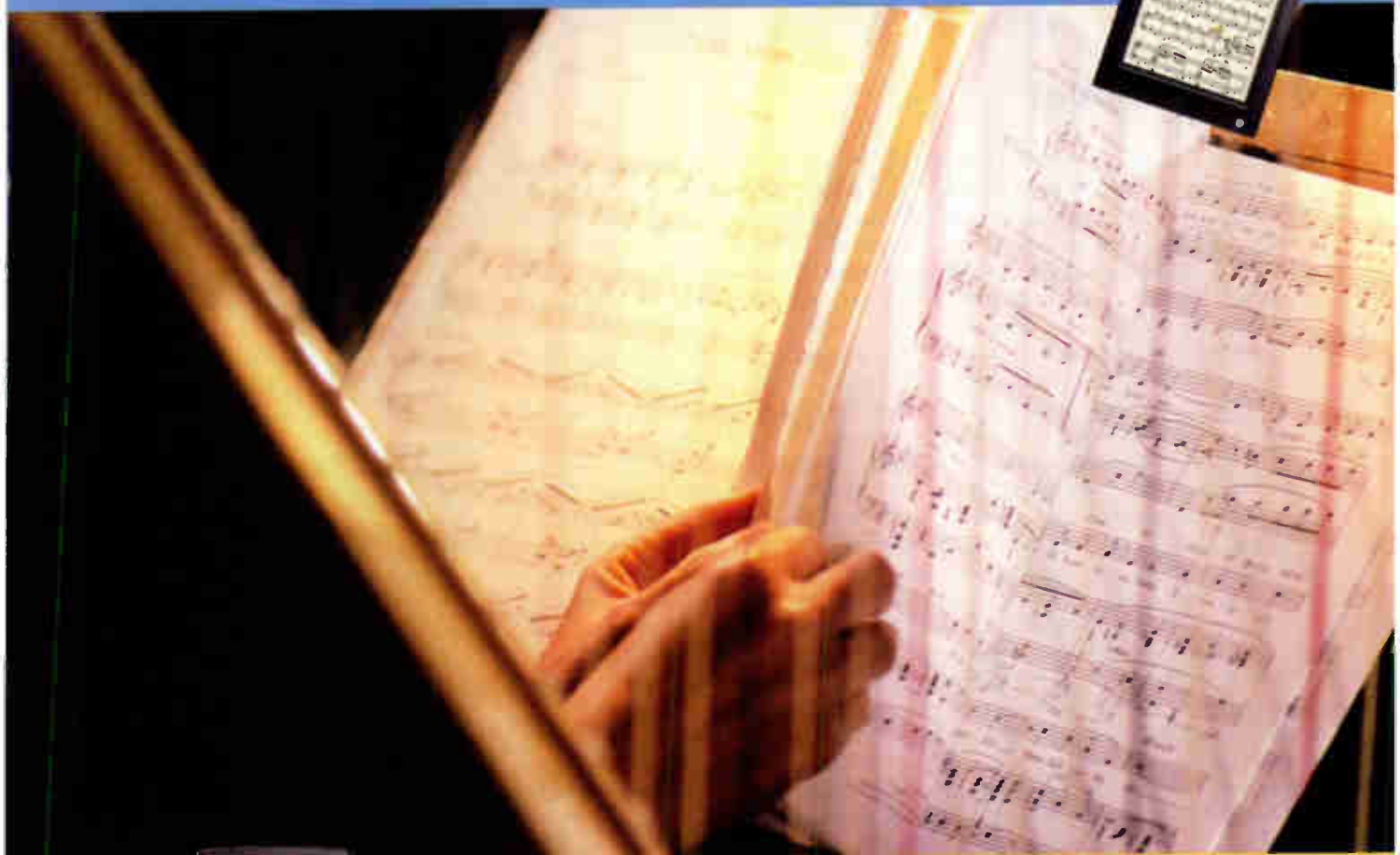
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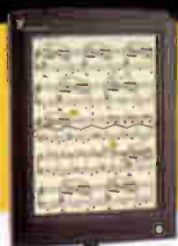
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# Guitarvolution!

Some have argued that rock 'n' roll was born some half-century ago with the debut of Bill Haley & His Comets' "Rock Around the Clock" in 1955; certainly, that was the first big mainstream blast. But there's no denying that there was a whole lotta rockin' goin' on before that, and even before DJ Allen Freed brought the term "rock 'n' roll" into popular use. Actually, rock—modern, vintage or otherwise—owes as much of its lineage to the soulful blues recorded by Robert Johnson in 1936 to '37 as it does to the mid-'50s "pioneers."

But whatever the source of rock's roots, one force has remained constant during the years: Rock is largely about guitar, from Carl Perkins, Buddy Holly and Dick Dale, to Clapton, Hendrix, Santana, Page, Van Halen and Satriani, to today's guitar heroes, such as Tom Morello, Billy Howerdel, Billy Corgan and Kirk Hammett.

A wailing guitar solo evokes a power and feeling no synth could ever hope to match. While other technologies have changed radically over time, it's ironic that a guitar in the hands of a great player plugged into an overdriven amp with a bit of spring (!) reverb is all that's needed to create that emotion. And unlike miking drums or vocals, capturing a screaming guitar amp to tape can be extremely simple, requiring little more than a decent dynamic mic and a couple of minutes of experimentation trying different placements in front of the speaker cone.

Yet, guitar science is hardly frozen into some static, Paleolithic space. Modern electronics brought into the guitar genre has made getting great guitar tone into a fast and relatively painless process. Outboard devices and plug-ins can model new and classic amps with stunning realism, so that producing huge, fat guitar sounds in the control room—with nearly any combination of stompbox effects—is just a few button pushes away. Meanwhile, products such as the Line 6 Variax bring modeling technology into the guitar itself, creating an instrument that can sound like your favorite electric, dobro, acoustic, banjo or even Coral electric sitar, all with the same ease with which a sampling keyboard can switch from Minimoog to B3 to Bösendorfer grand piano sounds.

Just months ago, Taylor Guitars teamed with legendary audio designer Rupert Neve to create a new approach to acoustic guitar electronics. Taylor's Expression System uses two vibrational body sensors and a sub-fretboard string sensor, with the three precisely blended/boosted via no-compromise electronics. A little attention here goes a long way.

At the same time, guitars themselves are constantly improving. I'm tempted to give up my '59 Les Paul! With today's emphasis on quality vintage reissues, custom shop axes from the major companies and more boutique luthiers than ever, there are tons of wonderful new guitars. And it's not just on the ultrahigh end: I recently bought a budget Schecter Diamond Series electric and it rocks: very playable, with a just-right, punchy edge. As the old saying goes, "You can never have too many guitars..."

You may have 50 virtual amps or crank up the real thing, yet getting cool guitar sounds doesn't require a lot of technology. But whether you have one or 100 tracks, the right song and the right player remain all-essential elements in the creative process. Robert Johnson proved that point so long ago.

George Petersen  
Editorial Director

# Mix

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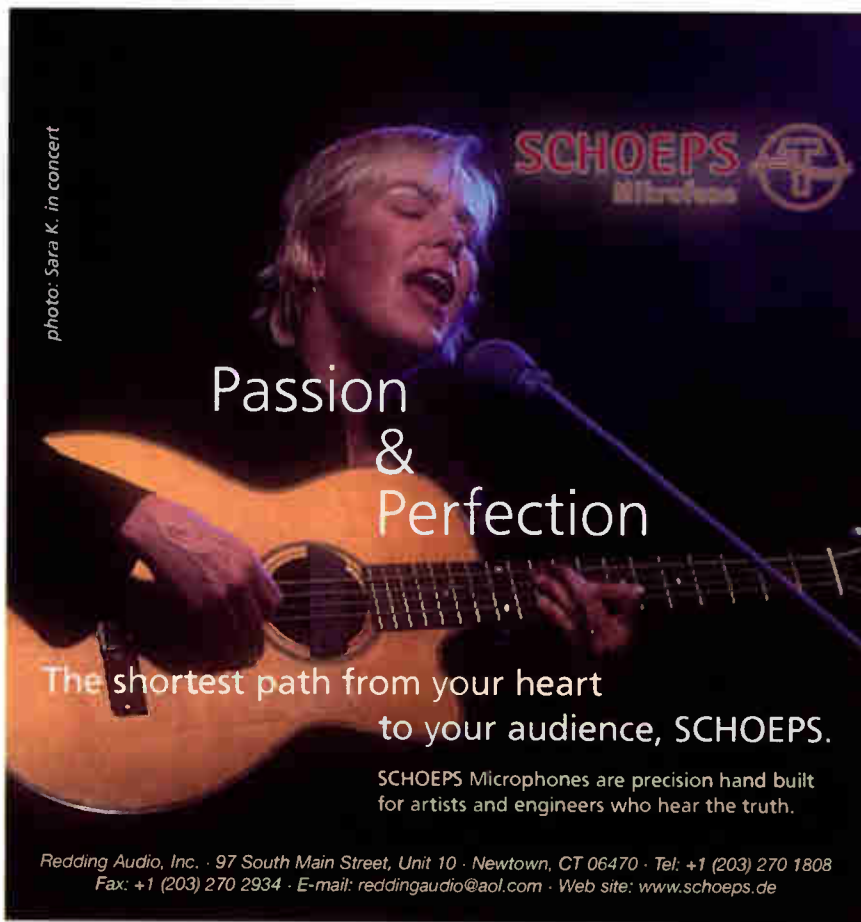
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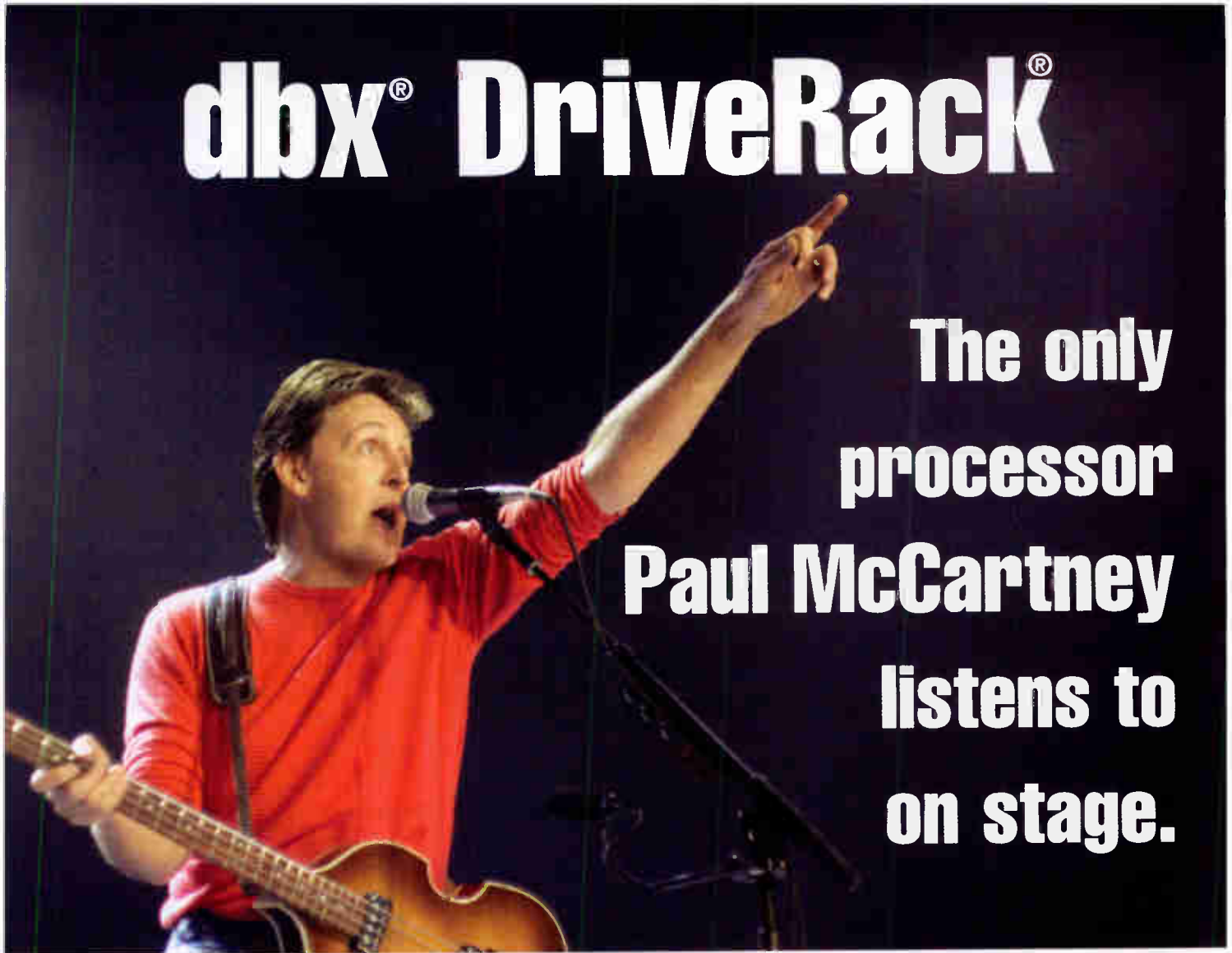
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# Letters to Mix



Once again, most of this month's "Feedback" came in response to our May "What Can Save the Music Industry?" issue. Unabridged versions of these and other letters, and a chance to add your own two cents, can be found at [www.mixonline.com](http://www.mixonline.com).

## WRONG PRICE

The main problem with the music industry is the quality/price relationship of the product. Rather than admit that, the "industry" blames everything and everyone else except themselves. I think they could learn a lot by the incredible success of the recent Norah Jones CD. Nothing on that very pleasant record was revolutionary, but its success was and should be a wake-up call to the industry. In studying one of their rare successes, they could learn the following: It's possible to sell the same CD to different age groups at the same time; melody is in huge demand now; you don't have to oversing and excessively emote to get your point across; and the public longs for something real and "straight-ahead." The answer is *not* in creating more contrived, producer-created "artists" putting out questionable product at inflated prices. Everyone knows CDs cost less than \$2 to manufacture.

Mike Perkins

Whoopy Cat Music (ASCAP)

## WRONG FORMAT

Your May special edition answers the question of how to save the music business very well, in bits and pieces. Bob Clearmountain asks, "Wouldn't it make sense for the labels to add value to the CDs they're trying to sell for \$18 apiece?" Yes, it would. Luke Lewis proposes "great, unique artists and music." Absolutely. Bruce Iglauer says, "Music is losing its prominence as a leisure-time activity, competing with DVD, video games, 100 channels of cable, and rampant copying and downloading." But it's Stephen St. Croix who really puts his finger on it

when he states, "There is *no* excuse for what these things [CDs] cost. But wait. Who cares? The *real* point is that there is no excuse for them still existing at all."

Why are DVDs flying off the shelves while CDs languish in their bins? Value. Why would anyone in their right mind buy a shiny silver disc that just has an hour of a band playing on it for \$18, when two aisles over they can buy a similar disc that has an amazing two-hour, \$100 million mega-hit movie with a great 5.1 soundtrack and tons of extras for virtually the same price and sometimes less? The movie biz has done an excellent job in identifying what used to be called the sell-through point and moving from a rental to a retail market, while the music biz has just tried to force its fantasy valuation down the public's throats. You also report that Listen.com and others feel that the online market will settle out at \$.50/song. Based on that model, we should be paying \$6 for a typical 12-song CD: A great price point for a forward-looking, growth-oriented business, if you ask me.

Tim Sassoon

Santa Monica, Calif.

## WRONG MUSIC

What can save the music industry? In one word: *content!* The Big 5 have gotten too big for their own good. They're too busy trying to make a fast buck by hitching their wagons to the next pop sensation, while alienating great musicians who actually *deserve* to have their music heard!

This whole stink about how file sharing is going to put the record companies out of business is absurd! It's like saying instant messaging will bring down the phone companies. Sure, there are a few cheapskates out there who won't buy CDs when they can just download the tracks. But I can't tell you how many people I know who have heard tunes from bands that they've found through file sharing and then gone out and bought CDs from that band. When I find bands that I like, I'll support them. Who wants to support a handful of multi-billion-dollar companies pumping out the same old crap?

Scott Mogé

## WRONG NAME

Music is not an industry. Music is the deliberate excitation of air molecules. That's the "product." One cannot have an industry based on that. Based on electronic equipment, little plastic discs, advertising, yes; everything except actual music. When you buy a CD, what you are buy-

ing is the plastic and the packaging. It's the only element that can be sold.

The move to CDs—the digitizing of "record albums"—was done for reasons of pure greed on the part of the "industry," and it turned around and bit them on the ass. Once you commit something to the digital domain, you can no longer control its reproduction. You can code it, but codes can be easily hacked. No other industry in the world could survive doing business the way the "music industry" has gotten away with for 100 years. Because it isn't an industry. It's been a house of cards.

If it was a real industry, the head of personnel at XYZ Records could hire a bunch of musicians in China to make records at \$0.20 a song and no royalty rate, just like every other industry is doing. Oh, wait, they sort of used to do that, didn't they? That's why the movie *Standing in the Shadows of Motown* is such a revelation to most people.

Ted Moniak

Laughing Bear

## WRONG MARKETING

If a record company is only marketing five releases, MTV is only playing five releases and a radio conglomerate is only airing those same five releases over and over again on five channels it owns in each of 500 markets, then the record company is only going to sell five releases. Because all five are directed at the same kiddie market, the rest of the listening public is ignored. Why is this such a mystery?

Mark Lipko

Barrington, N.J.

## WE WERE WRONG

Nice interview with Bob Brockman and Yaron Fuchs ("Producer's Desk," April issue), but I must correct several of Fuchs' and Brockman's statements. Lou Holtzman founded Eastside Sound in 1972. I met Lou in 1979, and I was involved in a major renovation of the studio and building at 98 Allen St. Along with several other people, we left our blood, sweat, tears and sanity in that renovation for a period of two years. In what can only be described as a labor of love, we created one of the finest control rooms, and certainly one of the first, on the now fashionable Lower East Side.

Yaron Fuchs made an investment and became a partner in 1990 in a studio that had been around for 18 years. Eastside added a "B" room when Mr. Fuchs got involved.

Richie Bittner

Greenwich, N.Y.

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## TOM DOWD & THE LANGUAGE OF MUSIC

### NEW DOCUMENTARY REFLECTS PRODUCER'S LIFE

At the grand opening of the Stax Museum of American Soul Music, revelers got one of the first glances of the *Tom Dowd & The Language of Music* feature-length, independently produced documentary. Profiling the

life and work of legendary producer/engineer Tom Dowd (who passed away in October 2002), producer/director Mark Moormann premiered the film at the 2003 Sundance Film Festival. The film includes interviews with such notables as Ray Charles, Eric Clapton, the Allman Brothers Band, Les Paul, Arif Mardin, Phil Ramone, Al Schmitt and many others, while historical footage, photographs and classic music tracks expose the audience to the world of the recording studio. Of special interest is Dowd recounting the collaborative nature of his recording sessions and technical achievements.



PHOTOS: TERRY TOWNSEND

2000: Thirty years after recording the song there, Tom Dowd brings up the mix of Derek & The Dominos' "Layla" at Criteria Recording Studios in Miami. A crane arm, dolly and remote head were used to shoot this scene.



From left: Director of photography Patrick Longman operates the jib-arm camera, while assistant cameraman Camillo Jarquin pulls focus and director Mark Moormann operates a handheld camera. These scenes were shot with black-and-white film, evoking the look of a late-1940s recording session.

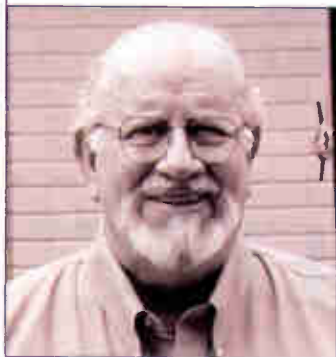
## BOB RICHARDSON, 1927-2003

Atlanta studio pioneer Bob Richardson died in Stuart, Fla., on April 15.

As a district sales manager for Columbia Records, Richardson's frequent visits to Nashville recording facilities compelled him to build his own studio in his Charlotte

home in 1958. By 1972, his Atlanta studio, Mastersound (a partnership with music publisher Bill Lowery), was one of the first to have full console automation, a Jeep Harned custom-designed board, multiple 24-track synchronization and Quad mixing capability; the facility was designed by Tom Hidley and George Augspurger.

During the '70s, Richardson remained active as an engineer, recording albums for Lobo, Isaac Hayes, Dionne Warwick, James Brown, Peabo Bryson and Eddy Arnold. Richardson was inducted into the Georgia Music Hall of Fame in 1987; at that time, he was also the only studio owner and engineer to be included.



## TELEFUNKEN VISITS OCEAN WAY

Telefunken North America has been debuting its newly manufactured ELAM 251 condenser microphone at studios in Southern California, with the trip ending in Ocean Way's Studio D. The new Telefunken mics were set up alongside the vintage models from Ocean Way owner Allen Sides' renowned mic closet, with a talented and dynamic vocalist providing the sound source.

Sides remarked after the de-

monstration, "All of the characteristics that make the ELAM 251 exceptional were there, and the overall sonic signature fit in perfectly with the rest of my collection. I can say without reservation that the new Telefunken ELAM 251 is everything I hoped it would be."

The company is currently focused on producing the microphones one at a time and has plans to expand its product line in the near future.



Pictured, from left, in Ocean Way's Studio D are Craig Allmendinger, Telefunken president; Allen Sides, owner of Ocean Way; Toni Fishman, Telefunken CEO; and Joe Sanborn, Telefunken director of operations

PHOTO: DAVID G



## ON THE MOVE

**Who.** Chris Martirano, founder of Brainchild Group LLC, exclusive U.S. distributor for Evolution Products

**Main Responsibilities:** overseeing all facets of distribution, public relations and advertising placement

**Previous Lives:**

1999-2002, Young Chang America, director of product development

1986-1999, Kurzweil regional and district sales manager

1985-1986, keyboard retail sales for Ed Roman (East Coast Sound)

1985, keyboardist for Voices

**The one profession that I would like to try is...**owning my own scuba diving tour business in Maui. It would be cool to combine underwater recording and sound design and create some new CD-ROM titles.

**The one piece of studio equipment most like my personality is...**the Kurzweil KSP8/RSP8 due to its multiprocessing skills.

**If I could have been a fly on the wall for a recording session, it would have been...**'Yes' *Close to the Edge* or *Relayer* sessions.

**Currently in my CD changer:** Tower of Power's *Power*, Jimi Hendrix's *Electric Ladyland*, Wendy Carlos' *Tales of Heaven & Hell*, the Three Tenors *Volume 1*, Thomas Dolby's *Aliens Ate My Buick*, Steely Dan's *Gaucho*, Pink Floyd's *The Division Bell*, Emerson, Lake & Palmer's *Trilogy*, Peter Gabriel's *Us* and Chick Corea's Elektric Band's *Inside Out*.

**When I'm not in the office, I'm usually...**trying to be a good husband to my wife of 20 years, Deborah, and father to my three sons: Jeff, 18, Stephen, 16, and Christian, 13.



## INDUSTRY NEWS

New York city-based Tekserve opened its pro audio division, headed up by Ken Patnaude...DiGiCo USA (Nashville) hired industry vet Tom Semmes as its general manager to direct U.S. operations...Phil Celia



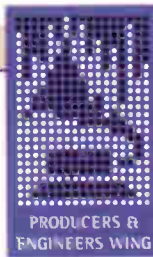
Stefanie Reichert



Joe Giacapelli

was promoted to general manager of Fostex America (Norwalk, CA), while Derek Badala moved up to national sales manager...Based in Tokyo, Nao Ohtake is the new director of operations for DTS Japan...Overseeing product design, engineering and implementation, David Fournier joins Eventide as director of product management...Lars Fuchs (*While You Were Out*) joins Click 3x (New York City) as its first full-time staff editor; Fuchs will call the all-new Avid edit suite his home...SurgeX (Pipersville, PA), a division of New Frontier Electronics, has hired Don Kugler as VP of sales...Korg USA, exclusive distributor for Vestax DJ/pro audio products, named Joe Giacapelli (aka, DJ Joe Jack) as the Vestax associate product manager...Paul Jenkins joins AKG (Nashville) in the newly created position of U.S. national sales manager...Sweetwater (Fort Wayne, IN) welcomes Jim Rorick, studio account executive, and Chris Waldron, art director...Digigram (Montbonnot, France) hired Miranda Hageman as sales and communications director...Sennheiser (Old Lyme, CT) hired its first VP of marketing: Stefanie Reichert...Distribution news: Bag End (Barrington, IL) has expanded Bob White Associates' (Solon, OH) territory to include Indiana and Kentucky; Mackie (Woodinville, WA) signed Eakins/Bernstein & Assoc. (Kansas City) to handle Nebraska, Iowa, Kansas, Missouri and southern Illinois; Evolution products in the U.S. will be handled by Brainchild Group LLC; Marketing Concepts (Dallas) will represent Auralex Acoustics' (Indianapolis) products in the Southwest.

## A MASTER RECOMMENDATION



Twenty-five years from now, when an executive from one of the Big Two labels enters the vault to find the masters for a re-release of *Best of the Dixie Chicks*, what will she find? Tape, hard disk, magneto-optical, session files? And what about the individual tracks? Will she know what went where on the original mix?

In a two-pronged effort to both preserve our national recorded heritage and provide guidelines for delivery of masters, the Nashville section of the Producers & Engineers Wing of the Recording Academy has created a master document called *The Delivery Recommendations for Master Recordings*. The document first specifies the physical deliverables, with the idea that they should be accessible both in the short and long term. It then pro-

vides a glossary of technical terms and recording technologies, and closes with a call for proper note-taking and labeling, with the inclusion of sample forms.

"This has been in development for more than two years now, but it actually goes back to the MPGA days, when a bunch of us started talking about the need for some standards in delivery to labels," says producer George Massenburg, who with producer Kyle Lehning and a small group in the Nashville recording community was largely responsible for kick-starting the effort. "When the P&E wing got a new director, Leslie Lewis, they started talking with us about narrowing it down for digital delivery and making it industrywide. But

I think that this really could have only started in a place like Nashville, where there is a real sense of community, and producers, engineers, label executives and A&R reps will all sit down together."

While there are issues to be worked out on individual projects, the most emphatic statement is that the committee includes a provision that all audio tracks be flattened and migrated to the Broadcast .WAV file format, including headers and metadata. Also, each master must be delivered with two backups of the same or greater resolution in two different formats, among which are some existing technologies—SCSI, FireWire drive CD and DVD-R, and AIT tape—as well as some future technologies.

"Two years ago, we set out to define a single delivery format," Massenburg says. "But we quickly found that we couldn't. Technologies were just advancing too rapidly, and there were strong opinions from across the industry to open up the format list. If you think about it, two years ago, FireWire wouldn't have been an acceptable delivery format. Now it is. In the very near future, we expect Blu-Ray to be on the list."

Existing analog material will be archived by transferring to at least 24-bit/96 kHz or, more preferably, DSD to ensure the best possible preservation.

To view the document, visit [www.grammy.com/pe\\_wing/DeliveryRecs.pdf](http://www.grammy.com/pe_wing/DeliveryRecs.pdf). Public comment is welcome by e-mailing [p&edeliveryrecs@grammy.com](mailto:p&edeliveryrecs@grammy.com).



## WEBCASTING ROYALTIES

### HOW PRODUCERS CAN GET THEIR FAIR SHARE

By Christian L. Castle

The fight to get public-performance royalties for sound recordings in the U.S. has a history that is long, distinguished and largely unsuccessful. Congress took a relatively small step with amendments to the Copyright Act that established a limited public-performance royalty for digital transmissions of sound recordings, but stopped short of suggesting rates. That resulted in the Copyright Arbitration Royalty Panel addressing Webcasting and simulcasting royalty rates, which resulted in the decision of the Librarian of Congress last year establishing rates. Those rates were revisited recently by a negotiation between the RIAA and the Digital Media Association, which established rates through 2004. The good news for producers (and anyone who has a contracted royalty) is that they are finally cut in for some royalties. The bad news: Royalties won't come to them automatically.

to fix this problem.

1. SoundExchange should take flat-fee rates and payment instructions from existing letters of direction that artists provide to the record company copyright owners.

2. SoundExchange should provide Web access to part of its database so that artists and producers can confirm if they are included and are receiving royalties properly.

3. Producers should require artists to send a confirming letter of direction on a go-forward basis to SoundExchange for new recordings produced, which could be included in the producer agreements.

4. Producers and artists should agree on a fixed share of performance royalties to be paid to producers and call upon Congress to amend the Copyright Act to include producers.

If none of these steps are followed, producers will have to ask artists to sign new letters of direction for each old recording, a process that will involve lawyers and cost hundreds of dollars for each letter. When one considers that some recordings could be 20 to 30 years old or older, it may be difficult to find the artists in the first place.

But the real significance may arise when and if SoundExchange starts collecting foreign-performance royalties, and if Congress passes legislation that extends these royalties to regular radio and television broadcasts. Together, all of these streams will likely constitute a significant amount of money. As a result, producers should get their act together now or risk further frustrations down the road.

*Christian L. Castle is senior counsel in the music group at the law firm Akin Gump Strauss Hauer & Feld in Los Angeles. Write to ccastle@akingump.com.*



Christian L. Castle

established rates through 2004. The good news for producers (and anyone who has a contracted royalty) is that they are finally cut in for some royalties. The bad news: Royalties won't come to them automatically.

The Copyright Act divides "Webcasting" royalties among four groups: copyright owners (50%), featured artists (45%), nonfeatured musicians (2.5%) and nonfeatured vocalists (2.5%). Missing are producers, who typically have a contractual right to royalty income from sound recordings.

However, given that producers' royalties are deducted from an artists' "all-in" royalty, SoundExchange, a division of the RIAA that is responsible for collecting these monies, currently requires a separate letter of direction from the artist in order to pay producers, even if the producer has already sent a similar letter to the record company or copyright owner.

However, there are a few ways

## BRUCE SPRINGSTEEN, EDDIE KRAMER AT TEC

Bruce Springsteen will be awarded the prestigious Les Paul Award at the 19th Annual Technical Excellence & Creativity Awards, to be held Saturday, October 11, at the Marriott Marquis in New York City. Also during the ceremony, famed engineer/producer Eddie Kramer will be inducted into the TEC Awards Hall of Fame.

Working with several of the most talented engineers of the era, Springsteen has crafted some of the most powerful and distinctive records of the past 30 years. From the boisterous *Born to Run* through his moving 2002 album, *The Rising*, he has produced a string of Platinum albums, headlined sold-out stadium tours and garnered nine Grammy Awards and an Oscar.

Kramer has worked on classic recordings by Traffic, the Rolling Stones, Led Zeppelin and The Beatles, but he is best known for his work with Jimi Hendrix. Kramer engineered all of Hendrix's original albums (*Are You Experienced?*, *Axis: Bold As Love*, *Electric Ladyland* and *Band of Gypsies*) and helped Hendrix create and design Electric Lady recording studio. Kramer has also had a successful career as a producer of live albums, working with KISS, Peter Dinklage, Joe Cocker, David Bowie and Santana, among others.

For tickets or information about the TEC Awards, call Karen Dunn at 925/939-6149 or e-mail Karen@tecawards.org. Registration forms are available at [www.mixfoundation.org](http://www.mixfoundation.org).



## BUTCH WALKER OPENS RUBY RED

Arista recording artist/songwriter and producer Butch Walker recently opened up his Russ Berger-designed Ruby Red Productions in Atlanta. The retro/modern-inspired studio features two control rooms: "A Control" offers an SSL 4048 E/G with Ultimation, Studer MK III A800 24-track recorder and a Pro Tools rig; B features an expanded Pro Tools MIXPlus system with Pro Control. An A/V SAN Fibre Drive Network connects the two rooms.

"I just wanted a place that would be my musical clubhouse," Walker said. "That's why when you walk in here, it feels like a hangout rather than a sterile recording studio. Plus, it gives me a private place to produce my projects [including his recently released *Left of Self-Centered*], with no worries about whom I'm gonna



PHOTO: FRANK STORNE

*Sevendust inside A control room, from left: guitarist John Cannolly, engineer Rus-T Cobb, Walker, bassist Vince Harnsby, drummer Morgan Rose, guitar/vocalist Clint Lawery and lead vocalist Lajon Witherspoon.*

write the check to for studio time. Beats the hell out of investing in the stock market!"

Recently in to record, with Walker handling production chores, were Sevendust working on their as-yet-untitled fourth studio album.

GENTLEMEN PREFER

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World Radio History

# Paragon Studios

By Barbara Schultz

It was a long time coming. Engineer Fred Paragano's Paragon Studios, a new, ground-up facility in Franklin, Tenn., just outside of Nashville, was the product of seven years of discussions, design and the search for the perfect location.

"I tried to do this a bunch of times, and everything kept falling through," recalls Paragano, whose engineering and mixing résumé includes Amy Grant, Michael Crawford and Third Day. "Whether it was putting [a studio] in at home or going into an existing space, nothing suited my needs. So when I found this property, I thought, 'Let's do the ground-up thing.'"

"I knew from the beginning that I wanted to work with Russ Berger," he continues. "I've admired his designs, and I had been in contact with him for seven years, on and off. When we finally found this piece of property, he checked it out and said, 'Fred, I couldn't think of a more perfect property.'"

The building was constructed in a wooded area about a mile from a main highway, offering privacy, but easy access and plenty of natural light. Paragano, who has also been in the real estate business with his father, Larry, for some time, asked Berger for a design that would give him leasable space, as well as studio space, so the completed structure gives 10,000 square feet to the studios and 12,000 square feet to future tenants. "I would like to attract media-related tenants," Paragano explains. "It becomes a synergistic thing, where everybody feeds each other under the same roof and creates business. For example, one tenant is Rob Graves, who leases a production suite in the studio portion. He is a producer, songwriter and session guitarist. We're always working side by side."

The studio area consists of a large live room; a spacious central machine room that allows the studios to be patchable via audio cable and a multi-seat fiber-channel system provided by Studio Network Solutions; and two control rooms, both of which handle music recording/mixing or sound for picture. The commercial "A" room is equipped with an SSL 9080K XL console and Dynaudio M4+ 5.1 monitoring; the "B" room, Paragano's personal production space, has the same monitoring system but centers around an expanded Pro Tools|HD system. Acoustically



The grand RBDG-designed studio and, above, Fred Paragano with facility manager Amy Hendon

and aesthetically, the control rooms are identical. "Front-wall surround monitoring is accurate across the console and the producer's desk," Berger says. "The finishes are warm and comfortable, the acoustics are inspiring, and the atmosphere is creative." There is also a "C" room, a small overdub, editorial and picture-editing suite currently in use by Dreamhouse Media, a full-service film/video production company owned by Devin Pense.

The recording room shares many of the aesthetic and acoustic finishes chosen for the control rooms: Natural wood, stone, stained concrete, fabrics, glass and leather are used to effect variable acoustics and to create an appearance that is as warm as it is modern. Natural light floods the main space (26x32, with 21-foot ceilings) through 16-foot-high windows, some of which are floor-to-ceiling but can be closed off by retractable acoustic panels. Two iso booths, one of which houses a Yamaha grand piano, also have 16-foot ceilings.

"Fred has always wanted a big-sounding room to record drums, string sections, woodwinds and brass, and large vocal groups," Berger says. "He now has one of the best-sounding live rooms I've ever heard: well-balanced, with a sweet, ambient decay."

Obviously, a project of this magnitude and quality takes many hands to achieve, and Paragano and Berger are quick to recognize the contributions of their colleagues. "My studio manager, Amy Hendon, is amazing," Paragano says. "And we had a lot of

help from Dave Malekpour of Professional Audio Design; they put together the main monitoring and some of the outboard gear. Rob Dennis' Rack 'n' Roll Audio provided equipment and cabling, and they were great. The wiring is all Monster Cable, and that was installed by White Noise Technologies, which is owned by Jason White. Construction was done by J.E. Crain & Son, with supervision by David Curtze and Jim Ballard. These people were all so important."

"I'm so proud of the people in our office that worked as principals on this project," Berger says. "Blane Kelley, Robert Traub, Nichole Bradley Culak, Richard Schrag and Johnson Knowles. I'm especially pleased with the way we are able to work together as a team."

Since it opened last fall, Paragon has hosted sessions with Martina McBride, Brooks and Dunn, Dionne Warwick and others. Paragano's own engineering projects have included multichannel DVD mix work for Stephen Curtis Chapman, music for *The Matrix* video game and a surround demo for Microsoft's MediaPlayer 9.

"Fred is a nice guy and has a work ethic that is an example to all of us," Berger observes. "It's been rewarding working with him on a project where we were called upon to use all of our capabilities and resources." ■

Barbara Schultz is the senior associate editor of *Mix*.



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# Or, If You Like

## You Can Do It This Way



ILLUSTRATION: DAVE CUTLER

This month's subject is really a continuation of the topic at hand, part three in the mini-series on the death of the music industry as we knew her and the resurrection and evolution she is undergoing as we watch (and listen).

But first, for those of you just joining us who wish to pretend that you have read the entire series, I offer the following synopses:

Part one was about the new road kill along the information highway. Its primary feature was a dark and foreboding description of the state of the music industry and how they were refusing to join the real world of instant [www.iwantitNOW!.com](http://www.iwantitNOW!.com). There was a cheery conclusion outlining the basic reasoning and old-school attitudes that make it highly improbable that those in control would be willing to try what was needed to survive.

If you reword the paragraph above, you should sound pretty much like you read the whole column. Also, if you pick one of the basic concepts and argue vehemently against it, you will appear to be actively

interested in the future of our little world. There was, in fact, a rather detailed, if not sharply skeptical, plan for mutation and rebirth. You could even refer to it as the "irrelevant St.Croix Phoenix Plan."

Part two, last month, was a shocked, overwhelmingly and somewhat atypically positive reaction to Steve Jobs and Apple Computer's series of announcements and services, along with associated hardware and software updates. Not only had a plan been devised to save the industry, but that it had already been implemented (and Jobs somehow had secretly struck distribution deals with all of the big boys) when I wrote part one!

It was a done deal. Zeitgeist: the ultimate cosmic competition.

And that would bring you up to date. So let's move ahead.

### AND NOW, AN ALTERNATE PATH

Of course, there have been many other legal MP3 music services online for some time. But the others





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have, for the most part, been structured in somewhat bizarre, experimental ways. The operational models for these services reveal vast areas of confused rights, insane DRM solutions, arbitrarily defined data rates and rip qualities, and, of course, poorly structured and implemented delivery methods.

If you look carefully, you can find just about every damned way to sell, rent, loan or stream music that you could imagine out there. Approaches range from Sort-of-Okay to You-Gotta-Be-Kiddin'-Me!

But who cares? How much does it even matter when the *catalogs* are jokes? But they have to be, don't they? If a little \$2 million start-up wants to serve some tunes, you know there is no way that they can ever get their hands on prime properties. This problem will never be solved, but it has been effectively rendered a non-issue by Apple's coup.

Sadly, I have to say that after visiting many of these sites, I came away almost seeing why the spineless unwashed might be attracted to the significantly easier temptation of theft. Almost. Some of the payment schemes, and what you do and

do not get once you do pay, are, well... insulting.

Don't get me wrong. I understand exactly how they came to be: Anybody wishing to serve music legally has, no doubt, had an indescribably frustrating and crippling experience with DRM. The owners of the catalogs are paranoid as hell. I am amazed that Jobs got them to sign. I wonder what he put in their water...

I mean, wouldn't you be terrified if you had built an empire selling five bucks' worth of intellectual property for 15, and had been delivering it on controllable physical media, and then one day, the world demands that you serve it all up hot, online, in pure digital, copyable form, with no physical components of any sort to track and protect? No comfy blankies to shield you from the hacking public? And to make its point, the same world blackmails you by stealing everything you own, daily, because you have not offered it to them online, on *their* terms? And, of course, their terms are so foreign to you, so alien, that they seem *absurd*. Yeah, it's tough to be King when your subjects are swimming in *your* pool and on their way to break down *your* kitchen door.

## THERE ARE OPTIONS

I said before that I will never buy another CD. That stands, and I add that *I will never buy a tethered MP3*. I'm sorry—you know that I am against theft, and for the development of an honest, functional system—but *renting* my music from a *monthly subscription service* is friggin' insane. The idea alone of all my music instantly becoming unavailable to me one day because the provider that I subscribe to folded is enough to ensure that I never even *try* this. No way.

Ah! But there is a third way to go—almost the opposite of the iTunes Music Store model. I am amazed that this approach is economically viable, but here goes. Ten bucks a month (one-year contract) or 15 bucks (measly three-month contract) gets you unlimited, *untethered* VBR MP3 downloads. Legally (I think). Not prime big label stuff, but off-the-beaten-path alternatives. Thirty-second previews of any and every song! Visit [www.EMusic.com](http://www.EMusic.com).

EMusic just changed its whole setup the day before I tried it, and downloads were failing or arriving empty, but within

—CONTINUED ON PAGE 146



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# The One-Eared Monster

## The Revolution Might Be Televised, But Not in Stereo

Some day, they'll come out with stereo television. I mean, the kind that you have to look at with both eyes, probably through special glasses like at the IMAX 3-D theater. Until then, it doesn't matter whether you use one eye or two: The picture is the same. And that may have something to do with the fact that a lot of people in the world of television still think human beings are born with only one ear.

After all the work we've put into standardizing formats, simplifying delivery systems, bringing costs down and just getting the word out to the video people that, yes, sound counts—and by the way, we do hear in stereo—you'd think they'd get it by now. But don't bet on it. If a recent experience of mine is any indication, then there are many folks on whom, unfortunately, my living and yours will at some point depend, who haven't got a freaking clue.

Sometimes I find myself thinking that there's no longer any way that I can be surprised by people in our business screwing up. At this advanced stage of my life (to plagiarize Tom Lehrer, "When Mozart was my age, he had been dead for 15 years"), you'd think I've seen enough incompetence, wrongheadedness, misconceptions, superstitions, stupidity and plain old recto-cranial inversions that today there is nothing I could encounter that I couldn't shrug off with, "Been there, done that."

Guess again.

Here's the story. About three months ago, I finished producing my very first full-length documentary film. I had received a small (I mean small) grant that allowed me to hire a director on the West Coast (someone who usually hires me to do music for his productions, so this was a nice twist) and shoot some interviews in places like Palm Springs, Santa Barbara and Martha's Vineyard. We shot on DVCAM and MiniDV with professional, although usually one-person, crews. We wrote the script together. He edited on the Avid in his basement, and I mixed on Pro Tools in my attic. Outside of the crews, the biggest item in our budget was for FedEx.

The film is about an avant-garde composer in the last century, and as you might expect, it's filled with his music. The audio goes back and forth between mono for the dialog and narration, and stereo for the music. I wondered for a bit about the wisdom of this approach, but an experienced television mixer I hired to come in and coach me for a couple of hours (at 71 minutes straight through, this was the longest and most complex Pro Tools session I'd ever done, and I needed all the help I could get) assured me it was a

terrific idea, provided that the stereo sections translated well to mono. I'm very happy to say that it went off without a hitch. It's amazing what you can achieve with a G4, a gigabyte of RAM and an 80-gig hard disk.

We actually came in just under budget. With the last few hundred dollars from the grant, I decided I would make about five dozen copies of the film on VHS for the people who had worked with us and those we'd interviewed, including some folks who might potentially be interested in broadcasting or distributing it.

Since the early 1980s, I'd been getting my video dubs done very reasonably and quickly at a local duplication house, so naturally I called them. They weren't there any more: In the three or so years since I had last used them, they had been bought out by a

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bigger company that had shut them down and moved the whole operation to another state. So I called a bunch of other local facilities, but found, to my great dismay, that during those ensuing years, the price of VHS dubs in the Boston area had gone up approximately 400%.

Fortunately, in the back pages of a professional video magazine, I found hope. An outfit about a half-dozen states away from me (no, I'm not telling you their name or divulging their location for reasons that will become obvious) was advertising video duplication at prices not outrageously higher than what I was used to paying. I sent them an e-mail asking for a detailed quote, and they came back to me with some numbers that made a lot of sense. Because I didn't know them from a hole in the wall, I asked for references. They sent me three. I looked them all up on





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the Web, saw that they were legitimate businesses and called two of them. Both reports were just fine: good quality on the tapes, delivery on schedule and no surprises in prices or processes. I decided to go ahead and put in my order.

It proved to be a simple procedure: download a PDF form, fill it out, e-mail or fax it in, and then send the master tape, heavily insured. While we hashed out the details, they made a number of intelligent recommendations, like suggesting that they should ship the master back separately from the dubs (for an extra \$10), and letting me know that if I ordered 100, it would actually end up costing less than if I asked for 60. I needed some European copies, too, and they gave me a good price on a half-dozen PALs and a couple of SECAMs.

One thing I did notice about the order form was that there was nothing on it about audio: They weren't asking anything about whether I wanted hi-fi tracks or separate left and right channels. And how about Dolby on the linear tracks for those six or seven machines still in existence that can handle it?

The last time I ordered video dubs, I

made a point of telling the salesman that the tapes needed to be hi-fi stereo and he was insulted. "Of course we'll do them in hi-fi stereo," he said. "There's no other way!" Surely by now, everyone in the industry recognized this, didn't they? So I figured if my new friends didn't think this was an issue, I wouldn't either.

Okay, I know you're telling yourself, "I can stop reading now." You're right, you do know what's coming. But I'm going to make you squirm just like I did, because it's even worse than you think.

The final cut the director sent me was on Beta SP, and I was supposed to lay the finished audio onto it, which is not really ideal for sound quality. (You folks who've worked with Beta know all about this, but bear with me for the sake of those not so lucky.) When you lay audio onto existing video in Beta format, you can only use the relatively low-fidelity linear audio tracks, not the hi-fi (AFM) tracks. But I had another choice: I could do the master on MiniDV. The video would be slightly lower in quality because it would be a copy of the Beta original—albeit first-generation digital, which looks awfully good—and the audio would come

straight out of Pro Tools onto the tape as 16-bit, 48kHz PCM. Well, actually, that's not quite true, because MiniDV decks don't have separate digital audio inputs. But taking an analog output from Pro Tools and feeding it into the analog input of a MiniDV deck isn't going to hurt the signal very much.

I borrowed a MiniDV deck from the video lab at my school (a Panasonic AG-DV1000; gosh, this thing is cute!) and rented a Beta SP machine. And because I could, I made masters in both formats.

On the MiniDV tape, I dutifully recorded 1kHz tones right after the color bars—left, right and both channels—at -15 dB below full-scale. I wrapped a note around the tape for the duplication engineer, telling him that the audio levels on the dubbers should be set so that the tones were at -3 dB below nominal zero.

A week or so later, UPS dropped two big boxes (and one small one that had the master) on my front porch. I eagerly opened them up and popped one of the VHS tapes into my deck. I was in such a hurry, I didn't even hook the deck up to my audio system but just played the

—CONTINUED ON PAGE 148



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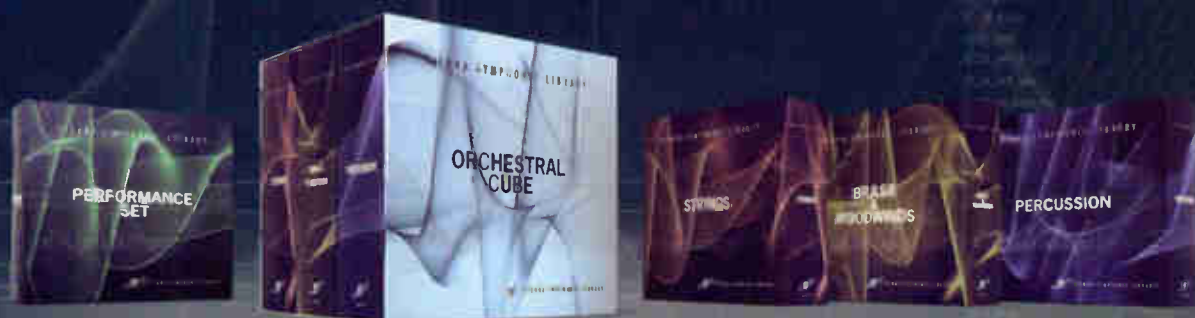
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World Radio History



# Recording



There was a time, not so very long ago, when nearly all “live albums” were recorded by remote trucks. Typically, a performer or group (or, more likely, their record label) would hire the truck to follow a tour, and then the album would be culled from the tapes of that tour. Occasionally, you would find a band—such as the Grateful Dead—who were serious about keeping an archive of *all* their performances for posterity and so made simple stereo recordings from the soundboard’s feed, but they were the exception rather than the rule in the ‘60s and ‘70s. When the Dead would put out live albums

through Warner Bros. or, later, Arista, they were always from multitrack tapes, often involving a remote truck.

Needless to say, things have changed. Now, there are *many* groups who routinely record *all* of their concerts—some in multiple formats—and an increasing number even release an entire tour’s worth of shows to their fans, either on CD or over the Internet, or both, without using a remote truck. Stereo DAT is probably still the most prevalent medium for simple archiving of shows (having replaced the vastly inferior analog cassette), but increasingly, we’re seeing bands capture shows on var-

ious multitrack media, from MDMs to disk-based systems such as Pro Tools. Recently, we contacted a handful of engineers to find out what recording equipment they’re carrying gig-to-gig to capture the music for their private vaults or for future release.

## STRING CHEESE INCIDENT

**Engineer: Jon O’Leary**

The popular Colorado jam band String Cheese Incident have released in the neighborhood of 70 CDs of their live concerts (most encompassing three discs) on their own SCI Fidelity Records label during the past couple of years. Basically, fans

# the Band

By Blair Jackson

## Simple Reference or Tomorrow's Release?

band in 1996, "I just ran a stereo soundboard every night because I liked to hear how it came out for my own sake," he says. "Most of those are on DAT. It wasn't until a year or two into taping that the band started listening much. But then what I also did is I made a tape for them with my audience microphones, which would usually be at the soundboard, if the soundboard wasn't in the last row under a balcony in a theater. If that was the case, I'd usually hang my mics from the front lip of the balcony and then run a couple of cables back to me. I have a pair of B&K 401s that I use for the audience mix. Anyway, the group likes hearing the hall mix more than the soundboard because they realize that soundboard tapes sometimes are the opposite of what you're hearing in the hall. In other words, if someone is too loud off the stage [amps], they're going to be quieter in the soundboard mix, whereas the audience mics let you pick up the way the music sounds in the hall. They like to hear the ambience, and the bass usually comes out a little more realistic on the audience tape.

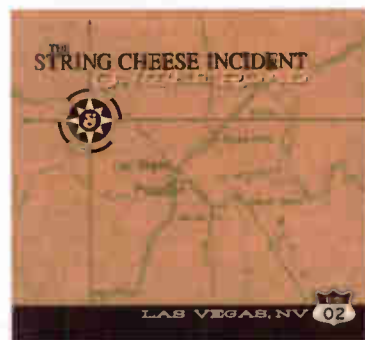
"Then, what I eventually started to do was make what the kids call 'matrix' tapes—combining the soundboard stereo mix and the audience mix—and that goes directly to DAT. We did a tour or two with the DATs, but now we record it onto a Fostex DV-40 4-track digital hard drive [recorder], which sounds really good. The converters are really good in that machine and that's really important. So we put the two audience microphones on there and the two soundboard channels, and then we send those to a mastering facility and they do a quality-control check to make sure any ticks or digital noise comes out.

They do some EQ'ing and compression, and they time-align it." (O'Leary notes that Peter Dressen is the primary recordist, as O'Leary has his hands full at FOH.)

"On top of that, we also multitrack every show; we've been doing that for

several years. We started out on DA-88s, then we graduated to DA-78s when they got up to 24-bit. And now we're doing it on a pair of Mackie 24-channel hard drives. I also back up the 4-track onto four channels of the hard drive. So now, instead of dealing with boxes and boxes of tape, we pull two hard drives and mail them [back to their office in Colorado] and put two new ones back in; we're storing them all at our archive in Boulder. I have no idea what will happen with those, but we'll probably need them at some point for something." O'Leary mixes the band through one of the new Gamble DCX digital boards.

As for future plans, O'Leary says, "I



want to start mastering on the road myself, on a workstation I'm going to put together. I'll get up in the morning, pull my workstation into wherever we're playing, find a little room, put some baffling and remaster the previous night's show, because what we want to do is get the product out about 72 hours after the show. Right now, we can't do that. Our grand plan is to get it so people can download it on either MP3 or .shn within 72 hours of the show, and then for people that want the CD in the package, they can still do that later through our Website. But even that will be quicker, because we're thinking of pressing our own CDs on the road, too."

### MARCUS MILLER

#### Engineer: Dennis Thompson

When jazz/fusion bassist and reedsman Marcus Miller was in Japan a couple of tours ago, says the musician's principal live sound engineer, Dennis Thompson, "A fan came up to him and gave him a CD to sign. Marcus looked at it and said, 'Hmm, I don't



PHOTO: BOE, HASTALIS, COURTESY WARNER BROS.

can own just about any SCI show they see on a tour, and because each night is different (in the Dead jam band tradition), there's plenty of incentive for hardcore fans to collect many or all of their shows.

When Jon O'Leary started mixing the



String Cheese Incident



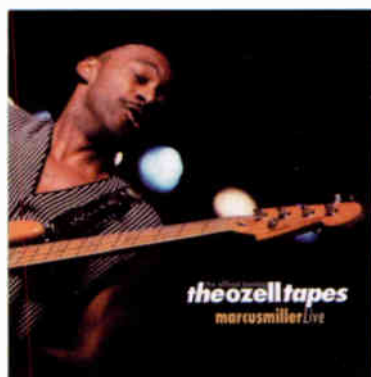
# Recording the Band

remember making this CD.' It turns out it was a bootleg that had been recorded entirely from [in front of] the bass speakers and it sounded *horrible*. So we decided rather than having bootleggers put out this stuff, we'd listen to what we'd been recording and put it out ourselves."

The result is Miller's vibrant and exciting new live album *The Ozell Tapes: The Official Bootleg*, which captures Miller and his six-piece band (along with guest singer Lalah Hathaway) during their spring 2002 tour. Thompson, a Jamaican who has worked with Miller for the past several years, records every show on a Sharp 702 MiniDisc Recorder. (He previously recorded to DAT.) The two-CD set was compiled from those stereo recordings. "No fancy multitrack mixes, just direct from the mixing board," Miller writes in his liner notes for the set.

Thompson generally mixes through either a Yamaha PM4000 or a Midas Heritage console. "You'd be surprised how good that MiniDisc can sound," he notes, "if you take care of the sound that's going to it. Obviously, we use good microphones and have the good console every night. If you listen to the CD...I really didn't have to do anything to it; there's just some EQ after the fact." Thompson did not put up any audience mics: What's on the CD is coming through stage mics.

Thompson admits that not every performance he records in stereo through the soundboard would be usable: "Certain venues you know it's not going to happen. Sometimes things are so loud onstage, you have to compensate for it in the P.A. mix. It's hard to get musicians to turn down sometimes. So it's kind of a 'luck of



the draw.' Sometimes a guitar is missing here or a drum there, etc. Musicians turn up and down during the night. There are a lot of things that can change over a night

onstage, and that will usually be on the tape, which isn't always good."

This is a major reason why Thompson is now considering taking a multitrack Pro Tools rig on the road to record each night's performance. "Marcus is such a fantastic player, and he plays differently every night," Thompson says. "It would be nice to [record] every show and have a little more control over it afterward. That's probably where we're going."

## DAVE MATTHEWS BAND

### Engineer: Jeff Thomas

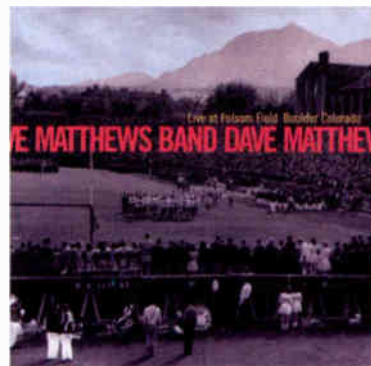
The Dave Matthews Band is the most successful touring group in America right now and they're very serious about recording and archiving their shows, which they periodically release on CD such as last year's *Live at Folsom Field* two-CD package, a forthcoming set from The Gorge in Washington and various DVD-Video releases.

From Matthews' new studio outside Charlottesville, Va., engineer Jeff Thomas described the group's live recording setup: "Every show on tour is redundantly multitracked," he explains. "We run 48 tracks of 24-bit, 48k audio, and we do it on two different formats: Tascam DA-78 tape recorders and MX-2424 hard disk recorders. The 78 tape is considered the redundant backup tape. Then we mail off the hard drive to a gentleman in Charlottesville who does a data-transfer service for us; he transfers all of the data to compact disc, which creates a very long-term stable storage format for the multitrack audio. We use about 100 to 120 compact discs per show, which sounds like a lot—and it is—but megabytes per dollar, it's the most cost-effective and time-stable [method] you can use. We vacuum-seal it in these heavy-duty food bags to remove air and we seal it in a PVC tube that protects it physically. Mitsui is the supplier of the CD media and they guarantee us over 100 years of shelf-life, storing it at 70°, 40-percent relative humidity. During the transfer, there's [also] two different tape-drive formats—AIT-3 cartridge and On-Stream cartridge—that we make, and that's good for five to eight years. We also make a DAT reference and a compact disc reference of every show, so if we need to look at the songs played or a quick check of the performance of the show, we've got that in simple form." The different media are stored in three different locations.

Thomas says the feed for the multitracks is "a nontransformer-isolated split off a snake. We use API 212 mic preamps. We've modified the output transformer to give us a dual-output line, so one output goes to the DA-78 and one goes to the

MX-24s." As befits such a serious operation, the DMB records four tracks of audience for maximum flexibility later.

Until recently, Ryan Nichols ran the group's live recording operation, and Thomas notes, "It's definitely its own job. Everything has to be shipped out the next day, and the transfer process occurs within two to three days of the show; then the disks are shipped back to us. We have 25 to 30 hard disks that rotate be-



tween shows on tour." Where do they keep the recorders? "The machines have been all over the place," Thomas says. "We've had them in monitor world; at front-of-house for many years. Now, we've got them onstage."

## TOM PETTY & THE HEARTBREAKERS

### Engineer: Robert Scovill

Veteran engineer Robert Scovill, currently out with Matchbox Twenty, has been recording Tom Petty from the FOH position for many years. "These days, I have my own Pro Tools rig that I carry with me—a 64-I/O 888 rig—and we do multitrack most nights," he says. "If we think we caught something good, we'll save the multitrack, but if not, we don't save it, because the process becomes so intense if you want to go back and find anything. If we decide to keep it, we dump it off to AIT-2 the following day, and that takes about half the show time to archive it. I'll usually run it at 24-bit, 44.1. I can usually get one entire show at that bit rate and sample rate on one AIT-2 tape.

"Every night that I track Pro Tools, I have other things running in conjunction with it," he adds. "I'll have a couple of CD-Rs going with a wet 2-track mix; in other words, it has all of the ambience. I'll also run a timecode DAT to save as a review for the Pro Tools. The one downside to archiving to some sort of backup media is that, since you're archiving an entire session, if you want to audition one song, you have to pull up the whole archive. So we try to get something that's



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## Recording the Band

synchronous [the timecode DAT] but you can listen to it. Then I also record Samplitude 2-track files, so I've got a lot going on." Scovill says that his audience tracks go to both the Pro Tools multitrack and get blended into the stereo mix.

"I try to take copious notes on song quality," he adds. "Can you imagine what it would be like, say 30 years down the road, for somebody who had no affiliation with the music to come in and start sorting through all of this? It would be impossible. I've done that getting ready for a live Rush record. The sorting process was back-breaking; the hardest work I've done."

Scovill has recorded shows on a number of different formats through the years, from 4-track and 8-track Tascam cassette to ADATs. "It would've been great to have a couple of nice 24-tracks, but it's really difficult to maintain those night after night, and, of course, the tape cost would have been astronomical."

Petty's infrequent live albums have been recorded using remote trucks, but Scovill notes that on the *High Grass Dogs* video, shot at San Francisco's Fillmore nightclub, Petty's management "didn't feel the need for the ADATs recording the show because they had hired a mobile recording truck for the event. To make a long story short, the truck failed on one of the keeper nights, and management called me up and said, 'You didn't by any chance record those on ADAT, did you?' And I said, 'No, I didn't.' But I always record something 2-track, and those ended up being used."

On the road with Matchbox Twenty, Scovill now finds himself occasionally releasing live mixes "right off the front-of-house console. They're putting them up [and selling them] on the Apple Website. So my time put in on all of this is paying off, because I've figured out a way to make it sound pretty good. They already have a track from opening night of the tour on there and there'll be more. It seems like it's heading in that direction."

### CHICK COREA

#### Engineer: Bernie Kirsh

Jazz keyboard great Chick Corea has played thousands of performances in dozens of different bands and groupings over a career spanning some four decades. His longtime engineer Bernie Kirsh says, "We don't do anything very elaborate [for archiving the shows]. The live performances are basically just stereo DAT; years

earlier, they were just cassette. Normally, rather than go through the mixer, I just put up a couple of mics because what the [soundboard mix] usually tells you is what is being *changed* in the room so that it sounds right coming out of the speakers. Generally, we found it's better to just pick up a couple of mics."

Kirsh's mics of choice for that purpose are the ol' reliable: Shure 57s. "I place them by the mixer usually, assuming that's convenient; just an X-Y pair usually, based on the space available and where it is in the hall," he says. "The good thing about 57s is they tend to take the room out of the equation. If you use condenser mics [as opposed to dynamic mics], then you're more reliant on the acoustics of the room, and when you're going from place to place [for gigs], it's much easier not to rely on that because there's no guarantee you're going to get a perfect acoustic environment. The purpose of these recordings is to hear the music, to be able to review the performance, maybe hear some new ideas that occur within the improvisations. They're not meant to be released."

In fact, for Corea's most recent live



album—the amazing two-CD *Rendezvous in New York*, which features him playing at the Blue Note in duets (with Bobby McFerrin, Gary Burton and Gonzalo Rubalcaba), trios, his Akoustic Band and with Origin—was recorded DSD using a pair of DAWs based on Merging Technologies' Pyramix systems; the December 2001 concerts were the first 16-track recordings of that type. Clark Germain engineered and Kirsh mixed the tapes at Media Hyperium Studio in Torrance, Calif. Currently, Kirsh is working on a surround video taken from the Blue Note shows (which celebrated Corea's 60th birthday) and on a series of individual CDs featuring each lineup from the weeklong celebration. Kirsh is mixing those on the Yamaha 02R96 at Corea's home studio in Florida.



Blair Jackson is Mix's senior editor.







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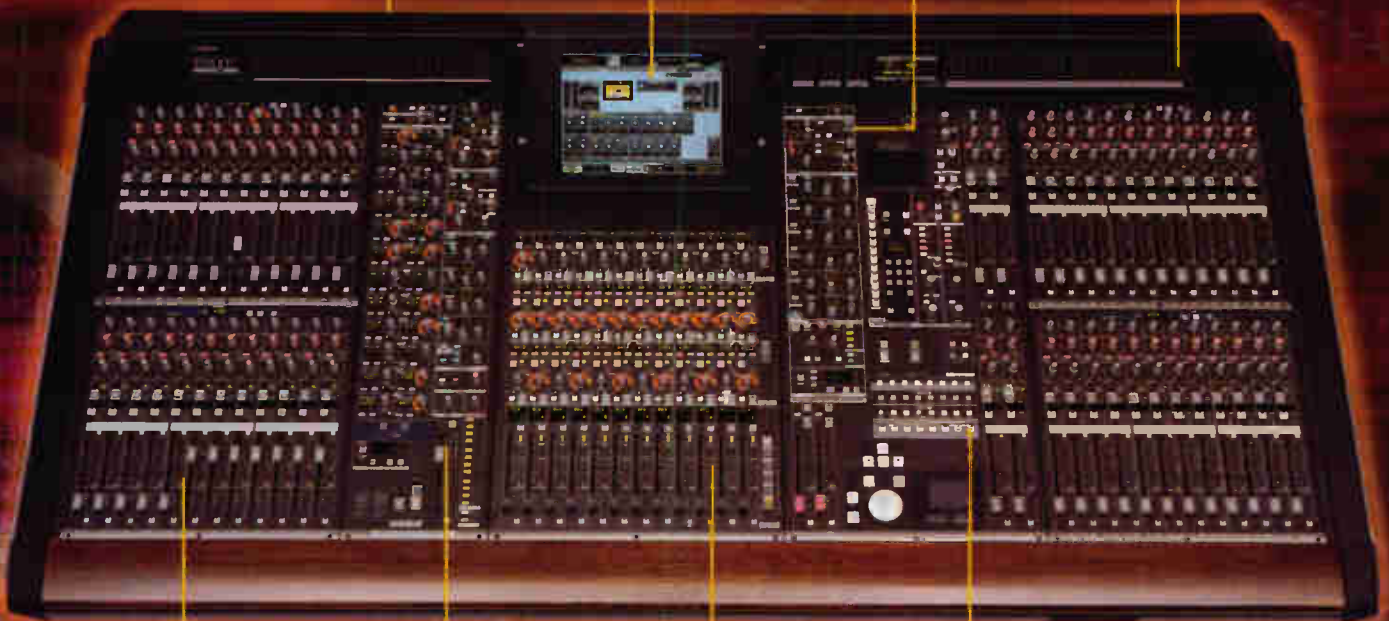
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Today's Mac, L-R: Lindsey Buckingham, Mick Fleetwood, Stevie Nicks, John McVie

# FLEETWOOD MAC IS BACK!

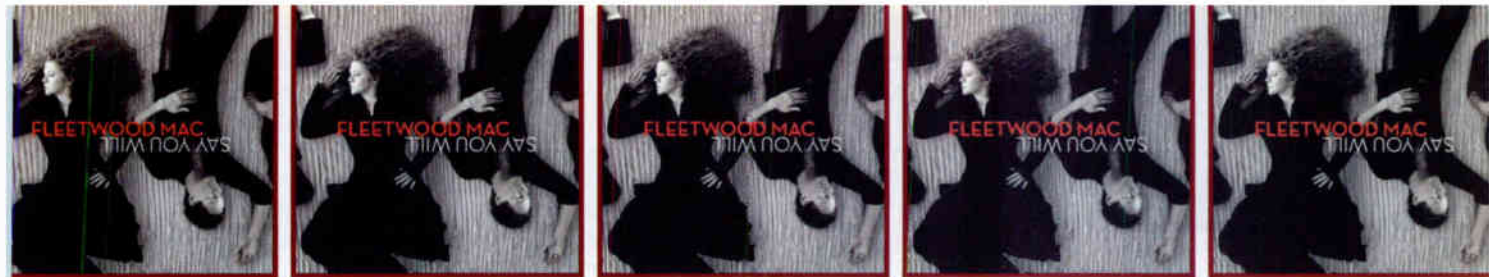
## LINDSEY BUCKINGHAM ON RECORDING THE GROUP'S NEW ALBUM

"Things are good," Lindsey Buckingham says cheerily on the eve of Fleetwood Mac's cross-country tour. "We've got a nice fresh set going and a fresh album that we all like. The band sounds really good. I've got two great kids [both under 5]. It's really a nice time for me."

On this evening in early May, Buckingham is ensconced with engineer Mark Needham at Cornerstone Studios in Chatsworth (in the North Valley, adjacent to L.A.) working on a radio mix for Stevie Nicks' song "Say You Will," which is also the title of Fleetwood Mac's new album: the first studio disc to feature Buckingham and Nicks since *Tango In the Night* in 1987. Missing in action from Fleetwood Mac this time around is singer/songwriter/keyboardist Christine McVie, who left the group during the 1997 reunion tour, which produced the multi-Platinum live "hits" album and video, *The Dance*. (McVie does appear on a couple of tunes but has no songs or lead vocals.) Of course, drummer Mick Fleetwood and bassist John McVie are still on hand to anchor the band; they are the remaining links to the group's distant past as a British blues band and to the multitude of incarnations since.

By Blair Jackson





*Say You Will* really feels like three albums in one. During the course of 18 songs and 76 minutes, there are a number of tunes that have that classic, unmistakable Fleetwood Mac sound: the soaring harmonies, the glistening acoustic and churning electric guitars, the rock-solid rhythm section. Songs such as “What’s the World Coming to,” “Say You Will,” “Thrown Down,” “Steal Your Heart Away” and “Bleed to Love Her” are sure to please the millions of fans who loved *Rumours* and *Mirage* and the more commercial side of the group. But there’s always been an idiosyncratic—even eccentric—edge to this band, too, and *Say You Will* offers plenty of that. Nicks’ tunes have *always* sounded like they come from her own singular universe. And left to his own devices, Buckingham will, more often than not, come up with songs and musical textures that fall outside of mainstream tastes. In a sense, *Say You Will* is a glorious compromise: It began its life as a Buckingham solo album but morphed into a Fleetwood Mac album over time, taking on more of the other members’ musical personalities. In overall feeling and flavor, it most resembles *Tusk*, the group’s alternately puzzling and pleasing follow-up to the mega-selling *Rumours*.

I spoke with Buckingham about the recording of *Say You Will*, and then followed up with a call to Mark Needham (see sidebar), who recorded many of the overdubs and mixed the album on the Neve VR at Cornerstone.

*I’m intrigued by this photo on the center of the album, which shows you and Stevie and Mick and John all recording in a single room; no isolated control room. What’s going on there and where is that?*

That’s totally unfraudulent, really. [Laughs] That is the room in which, not the whole album was recorded—because all of my songs were already done for the most part—but a lot was recorded there. We got Stevie on there.

*Is that the “Bellagio House” mentioned in the credits?*

Yes. I was basically done with a solo album [a couple of years ago] and I took it over to Warner [Bros.] and they were kind of in a period of transition where pretty much the whole regime was going to be leaving because they’d been bought by AOL. So it was not a good time to be thinking about putting out the album. So I said, “Mick, why don’t we rent a house and see if we can record some of Stevie’s songs, and either this will morph into a bigger situation or it won’t. At least we will have started some material for a possible [Fleetwood Mac] album.” So we found this nice house up in Bel Air and set up shop in the living room, and that’s what that photo is. It went really, really well, so eventually I dropped the idea of doing my solo album and a lot of it became part of a new Fleetwood Mac album. Stevie sent over a bunch of songs—she was on the road at the time—and we worked on those. A lot of what you see in the picture is my gear. I have an old Neotek Elite console and a whole bunch of other stuff I’ve had for years.



Those songs were all cut on a Sony 48-track reel-to-reel and that was it. It was a very low-key situation; I did a lot of the engineering myself.

*So John and Mick were already part of the solo album?*

Yeah. There were a couple of stray bass parts that aren’t John’s, I guess, but for all of the other things that got done later that didn’t have them on it, we recut the tracks and then flew the parts in. So it’s all John and Mick. So the stuff that was cut in that room [Bellagio House] was basically Stevie.

*Can you talk about the transformation of your tracks that you’d done for your album into Fleetwood Mac tracks?*

There really wasn’t much to do because so much of it had John and Mick already [on it]. There wasn’t the sense that you had to open up my tracks and shift them one way or the other. They were pretty much already there. The only thing we did was recall most of them and get Stevie’s voice on them.

What we ended up doing with Stevie’s songs was not dissimilar to my own process. I guess that was one of the things that was satisfying for me. It was a more solitary thing of dabbling and trying things out; it’s a more personal and subconscious process. And during a lot of that, I would also engineer, which became very natural for me. It was the whole connection between the songs and the technology for capturing the songs, as an artist would have his brush.

## FLEETWOOD MAC IS BACK!

When you work like that, it gets harder to find someone else to intuitively find these musical ideas that are so specific and elusive and abstract until you find them. So I tended to work best alone.

One of the things that was significant about using this process [on *Say You Will*] was that I was applying this over Stevie's songs for the first time, because there was not an engineer there and there was not the sort of politics that goes along with that or even the verbalizing. It was just a direct connection with that intuition. So the process of making her songs was very similar to the process of making my songs. *Did you do the work on your own album at home?*

Actually, Mick and I started at Ocean Way, where the basic tracks were mixed by Ken Allardyce. And we had [producer] Rob Cavallo down there for some of that. I had just met Rob and we wanted to work together. Anyway, at the end of cutting those tracks and doing some of the basic fill-ins, which would be bass and rough vocals, there was a push to put that album down and do [Fleetwood Mac], which is what I did.

*On your solo albums, you're free to explore any style you choose and work with whatever players you want. Did working with Fleetwood Mac again feel limiting in any way?*

Less so this time. I think it might've felt more like that had we, say, made a single album that had 12 songs on it. You would have really had to marginalize so much of the landscape that was on the esoteric side. But by having nine songs of mine that really run the gamut, it was not that

much of an adjustment for me. It didn't feel like what was wanting to be heard was *not* being heard.

Obviously, though, you're also working with another writer who's going to have a different sensibility, and there can be a push-pull in terms of the end selection of those tunes or how they all add up. Stevie's sensibilities are always going to be a little more mainstream than mine, but that's part of being in a band. I think it worked out very well for both of us.

*When you put together a song and layer it with dozens of parts and use half-speed guitars and various artificial enhancements, do you ever think about whether it's going to be performable or is that something you worry about later, like right now when you're about to go on tour?*

[Laughs] I don't worry about it too much. You have to take a song for what it is; you have to be excited about it on its own

## DIGGING DEEPER

MARK NEEDHAM MIXES THE MAC

Over the course of two decades as an engineer and mixer, Mark Needham has worked with a wide variety of acts, including rockers such as Chris Isaak (eight albums), Bruce Hornsby, Cake and the Red House Painters, blues legend Charles Brown, and jazz greats Pharoah Sanders, Nat Adderley and Cedar Walton. He first met Lindsey Buckingham two-and-a-half years ago when he was brought in at the suggestion of Rob Cavallo to mix what was then to be a solo album for the guitarist at Conway in L.A. The two hit it off, and when the solo album turned into a Fleetwood Mac disc, Needham came onboard to help with some overdubs and mixing.

Needham says that the mixes he'd worked on for the solo album didn't change much when the project changed: "We'd put a lot of time into those already. I guess we reined a few of them in slightly. On the lead vocals on his original stuff, we really kept the vocal pretty buried in, with a lot of effects. When we worked on the mixes again later [for Fleetwood Mac], we brought some of those vocals out a little; maybe another 10 percent closer to the front."

Whereas Buckingham used his Neotek console and Sony 3348 2-inch to cut tracks at the Bellagio House, Needham and Buckingham mixed at Cornerstone, feeding DAW tracks through the studio's Neve VR console, plus racks of his own outboard gear. Additionally, there were some tracks from the solo project that were on analog reels. "For most of the stuff, we're using a 64-channel Pro Tools rig, and then I have probably four or five racks of outboard gear that travel with me. On a couple of tunes, we actually had 128 channels; we brought in a [Pro Tools] HD system. But mostly we were just using my [Pro Tools] 888 24-bit system with the dB Technologies converters on the output. We added some parts in the studio while we were mix-



Lindsey Buckingham and Mark Needham (both seated) at Cornerstone Studios. Also pictured are Conservatory of Recording Arts and Science's students Phil Nichols (far left) and John Halley.

ing, and then I like to add in additional stuff, as well. I usually add in several more drum sounds. And I like to have the ability to be able to split the vocal off onto maybe three or four returns."

While he used "quite a few" plug-ins on the project, Needham notes that "all of my compression and EQs are outboard analog. I have several Neve pre's and EQs and API 550s and 560s. I also use Jeff Daking EQs, Focusrite Reds, 1176s, 1178s. I have a bunch of Manleys that I like. I use the Drawmer 1969 [compressor] on background vocals. Recently, I've been using some SPL [Sound Performance Labs] things that I got hooked up with on some projects I did over in Amsterdam. One is a piece called a Transient Designer, which I love on drums. Then there's the cool [Charisma] Tube [processor] and their Qure EQ. I love what that does for acoustic instruments that have been processed through the mill on digital gear; the top end can get a little dull and hard to fit into a mix, but I've been very happy with

—CONTINUED ON PAGE 42



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terms. You can't think, "Well, gee, this is a nice piece of studio music, but we shouldn't be doing this, or we should change it because it's possibly not lending itself to a live situation." You have to get past that first and deal with the whole act of making an album and not think too much beyond that; or I do, anyway. Usually, even in the most complicated arrangement, there's a song underneath that you could perform. Finding that and developing that becomes another challenge and a new way to think about the song. But not everything works live. *You're famous for being a tinkerer in the studio. Is it hard to know when to stop and when a song is done?*

Oh, yeah! [Laughs] There's always one more thing you can try.

*Of course if you're not using zillion tracks of Pro Tools, I guess maybe you're a little more limited.*

You have to prioritize after you run out of tracks. [Laughs] Actually, I'm getting better about knowing when to stop, and then, of course in a band, it's a bit easier to stop because there is "x" amount of the musicality and the rhythm and the style and the color that's already been covered by this fantastic rhythm section. That's different than working a more overdub-y musician-esque approach, which I have done also. It wasn't too hard this time, plus there were other people to tell me when to stop. [Laughs]

*What was the mix like? Obviously, there are a lot of vocal effects, guitar effects, interesting reverbs and the like. Was most of that done at the mix stage?*

Well, it depends. I predid a lot of that as an aspect of defining the style, really. On songs like "Miranda" and "Come," one of the things I was interested in was breaking up the line of singing so you are

—FROM PAGE 40, DIGGING DEEPER

what [the Qure] did. I have stacks and stacks of gear, and we used a lot of it on this album."

Needham says that he enjoyed the challenge of making a coherent mix out of the many layers of tracks Buckingham delivered. "The goal, of course, is to be able to actually distinguish all the parts. Sometimes you have 20 or 30 vocals going and seven or eight percussion tracks and numerous guitar parts; really, a lot of information."

I asked Needham the same question I'd asked Buckingham: How do you know when it's done? He, too, laughed. "When we've tried every possibility that we can imagine?" He notes that on the two songs that used 128 tracks—"Peacekeeper" and "What's the World Coming to"—"I took two older versions of each [from the solo sessions] and the new versions that the band had recorded, which were in slightly different tempos and keys, and combined all that together, pulling out parts from both; I made a hybrid of them."

One challenge Needham faced was dealing with Buckingham's beloved half-speed guitar parts: "The tempo variations made it a little difficult to transfer it over to Pro Tools because his VSO speeds range from two whole steps up to a whole step down, which caused some problems with the Pro Tools clock," he says.

Needham and Buckingham spent close to four months working on the album, including time spent mixing a 5.1 version. Not surprisingly, the surround medium opened up a lot of possibilities for Needham, because there were so many layers of information available to be spread around. "I tried not to go overboard with things spinning around," he says. "I still like to keep a fairly direct sound up front. I think if you split off too many things, you start to lose the focus of the band's upfront playing."

Asked if he was very conscious of Fleetwood Mac's impressive track record as he mixed the album, Needham says, "It's hard not to be aware of their history and have that make some impression on how you're approaching your mixes. For at least 50 percent of it, we were trying to keep the classic, fat Fleetwood Mac sound, but with a few experimental edges on it, à la *Tusk*. It was a really interesting experience. I've always loved the band, and it was fascinating to go in and mix their album. I can't thank them enough for the opportunity."

—Blair Jackson

aware that the sound is changing, and it becomes dimensional in an artificial way and you are aware of the artificiality of it. The idea was to sort of create facets, as if you were viewing, say, a Cubist painting where the surface had been broken up and made artificial by painting it from different angles or just by breaking it up. It was an idea from [Cubism] to make something more surreal and stylistic, and yet also interesting. So a few of those [effects] were done during the tracking, some as part of the overdub process, and then Mark [Needham] had a few of his own tricks.

**Is it fair to say that this album has more in common with Tusk than other Fleetwood Mac albums?**

Absolutely. After we'd done *Rumours* and it was a big success and all that, and we toured a lot, I went to the band before we made *Tusk* and said, "Look, when we record this album, I want to spend a lot of time at home and I want to try some different things. I want to try to expand our recording process and our songwriting." And, obviously, try to undermine the status quo a little bit, too. So that was an idea that was understood and really embraced quite well by the band at the time, and that was kind of a victory for me.

Then what happened was, when *Tusk* didn't sell 16 million copies like *Rumours*...

**When it failed to sell 16 million copies!**

Right! It was just a horrible situation! [Laughs] It clearly *wasn't* as commercial and there was kind of this backlash that came down and everyone sort of said, "Well, we're not going to do *that* anymore." So *Mirage* and *Tango* were situations where I was, to varying degrees, cut off at the knees in terms of the whole possibility of working that way. And that's one reason I started doing solo albums.

Anyway, working on [*Say You Will*] was more like the *Tusk* model. Of course, things were different: The dynamic had changed, my skills had changed, the times had changed and the context of what we were doing had changed. But given all of that, it was satisfying to me, personally, to be able to get back to what was *Tusk*-like about the process, but also have it be much more inclusive in some ways; not just of the people, but of a [musical] style, which was not just esoteric but also somewhat mainstream. For years, I was very schizoid about the *Tusk*-side of what I wanted to pursue and the *Rumours* side, if you want to pick two albums. And I think this album does really quite well at kind of marry-



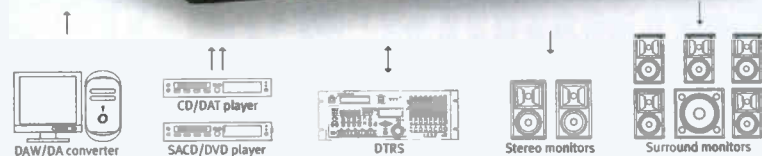
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# Down\$

## The Line Array

### A Quick Primer and Buyer's Guide

**T**he list of large-format line array speakers introduced during the past decade is well-known and well-used. But a new generation of compact



JBL VT4887

systems has emerged to provide smaller venues with the benefits garnered from line arrays. Everyone recognizes the limitations of the big guns: Weight, size, cost and limited ability to bend in a vertical arc have kept line arrays from being much more than a curiosity in smaller venues, where traditional modular speakers are better suited. Smaller,



Nexo Geo T4805

compact line arrays fit smaller budgets and venues better to offer the near-field listening experience to a wider audience.



# izing



E-V Xlc127+

## HOW DO LINE ARRAYS WORK?

There's been much discussion about how sound from an infinite line source defies the inverse square law: Instead of attenuating by 6 dB for each doubling of distance, it only attenuates at 3 dB. This propagation of sound is described as a cylindrical wavefront instead of the usual spherical wavefront generated by traditional speakers and horizontal arrays. As a practical matter, this cylindrical behavior only exists in the near-field of a line array, where a tall column of closely coupled speakers address listeners through a relatively large angle. At farther distances, the array loses its tight vertical-pattern control.

This phenomenon provides improved sound quality in arenas: in smaller rooms, it can guarantee fantastic sound to all seats, provided that the venue's geometry is appropriate. A line array's horizontal coverage is fixed—depending on the manufacturer's design—at somewhere between 90° and 150° wide. If the venue is wider than this, then it must have the side areas addressed by additional side arrays or fill systems. Furthermore, the venue must have hanging points at a sufficient height to get a line array up and prop-

by Mark Frink

erly aimed. Smaller, lighter boxes make this possible in rooms where large-format line arrays would not be practical.

The sound's coherence that is provided by a line array is startlingly clear, as the array elements are vertically arranged so that there is no interference from one enclosure to the next. The coverage throughout the listening area can be very smooth and consistent from one seat to the next, and the difference in sound level can be just a few dB from front to back. This improved sound quality enhances the stereo image so that it can be enjoyed

throughout a much larger listening area, not just down the center of the room. A line array can exhibit great pattern control to provide fewer unwanted reflections off of ceilings and walls, plus greater gain-before-feedback for open mics onstage.

## WHY A COMPACT SYSTEM?

The limits to using a line array in smaller venues include its weight and height. Smaller, compact enclosures are not only less expensive, but they also weigh less and can more



Martin Audio WBLC

# Downsizing The Line Array

easily bend. Due to coupling issues (for fundamentals on coupling, read "Understanding Coupling" on page 47), there is a limit to how much an angle can be placed in an array from one enclosure to the next. Beyond about 5°, the highest frequencies no longer couple together and instead start to beam, which provides spotty coverage from one elevation to the next.

The advantage that smaller cabinets have is that their arrays can bend for more vertical coverage in a shorter height. In smaller venues, it's not unusual to need 20° of uptilt at the top of the array and even more to get down to the front of the audience: 10 cabinets might need an average splay of 5° just to make this coverage.

The pattern control provided by line arrays extends down to the lower frequencies as a function of the array's height. Arrays lose vertical-pattern control at frequencies whose wavelengths are longer than the array's height. To achieve pattern control down to 100 Hz, for example, an array must be over 11 feet tall and with a typical cabinet height of a foot or less; control down to 100 Hz means using 10 or more cabinets in an array.

Most compact line arrays are not designed as stand-alone systems, but are intended to be supplemented with subwoofers for fullrange response. Most have purpose-designed subs that can be integrated into flown or stacked arrays. And

while manufacturers recommend arrays that employ a minimum of four to six cabinets to achieve pattern control down to their lowest octave, there is no rule that says they cannot be employed in short arrays or even by themselves. In fact, some of the smallest models have been successfully used as under-balcony and frontfills due to their height and horizontal dispersion. Other uses for compact line arrays are in short arrays as delay zones in distributed systems for large convention centers, where they can be more effective than individual two-way cabinets with fewer points. Lastly, compact line arrays are the best hope to provide surround sound in live venues due to their enlarged sweet spot.

## THE SYSTEMS

Interested in purchasing a compact line array? The following information and specs in the chart below will help you get started; visit manufacturers' Websites for more.

Adamson's ([www.adamsonproaudio.com](http://www.adamsonproaudio.com)) Y-10 employs a JBL 1.5-inch exit compression driver co-axially mounted with a proprietary 9-inch Kevlar midrange compression driver. On either side of the mid-high chamber is a 10-inch woofer. The company's new (and unnamed at press time) dual 8-inch line array module has proprietary Kevlar Neodymium woofers with a 2.5-inch voice coil and a B&C compression driver.

Apogee ([www.apogee-sound.com](http://www.apogee-sound.com)) was the first manufacturer with a modular line array product, the ALA-3, which employs dual-10s with a pair of conical horns for its

two 1-inch compression drivers between them.

EAW's ([www.eaw.com](http://www.eaw.com)) KF730 is a three-way, bi-amped speaker whose entire face is the mouth of a mid-high horn for its dual 7s and dual 1-inch exit compression drivers. Ten-inch woofers are mounted on the two ends of the enclosure. A companion sub, the SB730, employs a



Renkus-Heinz PNX 102/LA

## COMPACT LINE ARRAYS AT A GLANCE

Manufacturer	Model	\$ List	Weight (lbs.)	Horizontal Dispersion (degrees)	Height Front (inches)	Vertical Splay (degrees)	Angles (degrees)	Step	Width (degrees)	Depth (degrees)
Adamson	Y-10	5,425	150	90	10.5	2.5	0-5	1	42.8	24.5
Adamson	new dual-8	n/a	62	120	8.5	2.5	0-5	log	26	16.2
Apogee	ALA-3	3,570	95	60 or 90	14.5	5	0, 5, 10	5	35	13
EAW	KF730	5,250	85	110	13	6	1.5, 3, 6, 12	log	28.5	17.6
E-V	Xlc127+	4,988	116	120	14.25	3.5	0-7	1	39	22.5
JBL	VT4887	3,649	62	100	14	5	0-10	1	39	20
JBL	VT4888	5,699	108	90	11	5	0-10	1	31	16
L'Acoustic	dV-Dasc	3,600	70	120	10.1	3.75	0-7.5	1	27.4	18.7
Martin Audio	W8LC	5,999	128	90	14.5	3.75	0-7.5	1	39.4	21.7
McCauley	M.Line	2,995	73	60, 90 or 120	10	5	0-10	1	27.3	18
Meyer	M1D	2,950	31	100	7.2	2.5	1-7	1	23.2	8.5
Meyer	M2D	7,500	116	90	12.1	2.5	0-7	1	39	17.5
Meyer	MILO	14,500	235	90	14.5	2	0-5	0.5	54	22
Nexo	Geo S805	2,175	29	120	9.6	2.5	0.31-5	log	16	8.6
Nexo	Geo T4805	8,795	109	90	10	2.5	0.125-5	log	36	25
Renkus-Heinz	PNX 102/LA	2,625	72	150	12	2.5	0-5	0, 2.5, 5	23.8	16
SLS	RLA/2	2,000	56	100	9.625	5	0-10	1	28.3	13



pair of high-excursion 12s in a clam-shell arrangement.

Electro-Voice's ([www.electrovoice.com](http://www.electrovoice.com)) Xlc127+ is a tri-amped, three-way enclosure that uses two of the same compression drivers as its larger X-Line. Its asymmetrical design places a single-12 at one end, a pair of horn-loaded 6.5s at the other and a pair of NDym compression drivers on plane-wave generators down the center. The Xlc124 is the downfill version. The Xlc118 is a companion single-18 subwoofer designed to be flown in adjacent arrays or integrated at a 2:3 ratio.

JBL's ([www.jblpro.com](http://www.jblpro.com)) VT4887 is a smaller version of its original large-format VerTec based around dual-12s instead of 15s, and using the same type of pinned hinge bars for rigging. JBL's smallest VerTec, the VT4888, is a bi-amp, three-way, dual-8 enclosure whose quad-4s are passively crossed over to dual-2407 ring radiators. The VT4881 is its companion single-15 subwoofer. All three of JBL's VerTec Line Array elements can be self-powered by the addition of a Crown-manufactured Drive-Pack.

L'Acoustic's ([www.l-acoustics-us.com](http://www.l-acoustics-us.com)) dV-Dosc is one-half of the mid- and high-frequency section of its large-format V-Dosc cabinet, the original line array. The triple-15 companion dV-Sub uses the same drivers as the V-Dosc, and is intended for use at a 1:3 ratio to provide identical response in small arrays.

Martin Audio ([www.martin-audio.com](http://www.martin-audio.com)) is the only company with all horn-loaded line array solutions, and, like its large-format W8L, the W8LC is tri-amped. Its

## Understanding Coupling

Coupling, the mechanism by which a line array works, is familiar to anyone who has assembled large quantities of speakers into systems. Coupling between transducers occurs when the distance between their acoustic centers is less than half of a wavelength. The best case for 12-inch speakers, with their drivers nearly touching, can provide coupling up to about 550 Hz. For 10-inch speakers, coupling can occur up to 630 Hz, and for 8-inch speakers, coupling can extend up to 800 Hz. (This is why simply putting a hand's width of space between adjacent speakers in a traditional array attenuates the mids.)

At higher frequencies, the drivers' acoustical centers must be even closer for coupling to occur. For coupling clear up to 20 kHz, acoustical centers of adjacent drivers would need to be a fraction of an inch. Clearly, this requirement makes it impossible to create line sources with high-frequency coupling unless there's another way to couple the output of drivers.

Modular line array developer Dr. Christian Heil has shown that the output of individual compression drivers' horn mouths can couple when their output is in phase at all points of the mouth's cross-section and when they are in close enough proximity. The patented DOSC waveguide is his solution for high-frequency coupling from the openings of tall, thin isophasic horn mouths. Different manufacturers have come up with their own waveguides to vertically couple high frequencies from one speaker module to the next, while others have abandoned line array principles at higher frequencies. Readers should understand that it's possible, and sometimes even prudent, to employ a hybrid design that provides low-frequency coupling, while employing multiple horn elements for high-frequency pattern control when an array must be bent more than a few degrees per cabinet. There are line array speakers that, strictly speaking, do not behave as line source arrays at all frequencies.

—Mark Frink

individually horn-loaded elements are able to provide even horizontal coverage down to 500 Hz.

McCauley's ([www.linearray.com](http://www.linearray.com)) M.Line is a two-way speaker that comes in three models with three different high-frequency horns. Nominal vertical coverage of 60°, 90° or 120° allows designers to create systems with high-frequency coverage tailored to a listening area by employing

narrower horns at the top and wider horns at the bottom. The company's In.Line is similar to the M.Line, but its simplified rigging system saves weight and cost; it is only meant for permanent installs.

Meyer's ([www.meyersound.com](http://www.meyersound.com)) M1D is a self-powered, bi-amped enclosure employing dual-5s and triple dome tweeters. Like all of its dual-woofer speakers, one driver is lowpassed to pro-

Low-Freq. Driver(s)	Nominal Impedance (ohms)	RMS Power (watts)	Crossover Frequency (Hz)	Mid-Freq. Driver(s)	Nom. Imp. (ohms)	RMS Power (watts)	Crossover Frequency (Hz)	High-Freq. Driver(s)	Nom. Imp. (ohms)	RMS Power (watts)
dual-10	2x 8	700	315	single-9	8	300	2,000	1.5-inch	8	150
dual-8	8	500	300/800	n/a	n/a	n/a	n/a	1.5-inch	8	150
dual-10	4	600	1,000	n/a	n/a	n/a	n/a	dual 1-inch	4	150
dual-10	16	700	160	dual-7	16	350	passive	dual 1-inch	n/a	n/a
single-12	8	300	500	dual-6.5	8	200	1,600/passive	1.5-inch	8	150
dual-8	8	700	300	quad-4	8	225	passive	dual-2407	n/a	n/a
dual-12	2x 8	700	180	quad-5.5	8	400	1,200	1.5-inch	16	150
dual-8	8	380	800	n/a	n/a	n/a	n/a	1.4-inch	8	66
single-12	8	400	300	dual-6.5	8	400	3,000	{3} 1-inch	8	100
dual-8.8	8	800	1,200	n/a	n/a	n/a	n/a	1-inch	16	120
dual-5	self-power	n/a	1,000/1,900	n/a	n/a	n/a	n/a	{3} dome	n/a	n/a
dual-10	self-power	600	350/575	n/a	n/a	n/a	n/a	1.4-inch	n/a	n/a
dual-12	self-power	1,200	300/560	1.5-inch	n/a	250	n/a	{3} 0.75	n/a	300
single-8	16	375	1,800/pass	n/a	n/a	n/a	n/a	1-inch	passive	n/a
2x dual-8	2x 32	n/a	250/1,300	n/a	n/a	n/a	n/a	1.4-inch	16	n/a
dual-10	16	400	1,000	n/a	n/a	n/a	n/a	dual 1-inch	16	100
dual-8	2x 16	2x 250	250/1,200	n/a	n/a	n/a	n/a	ribbon	8	70

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## Downsizing The Line Array

vide more even midrange coverage. Also available is a companion dual-10 M1D subwoofer. The company's M2D is a self-powered, dual-10 enclosure that employs an amp package similar to the powered UPA and the same compression driver as Meyer's CQ-2. The companion self-powered dual-15 M2D Sub is easily integrated into arrays and packs twice the power of the 650-P. At 235 pounds, Meyer's new dual-12 MILO is a bit too heavy to be called compact, so it fits at the top end of this category. It has a single 1.5-inch compression driver, and above 4 kHz, three 0.75-inch compression drivers take over to provide plenty of highs for long throws. MILO can easily be integrated into M3D and M3D Sub arrays.


Nexo's ([www.nexo-sa.com](http://www.nexo-sa.com)) Geo S805 employs a single 8-inch woofer passively crossed over to a 1-inch driver mounted on its patented Hyperboloid Reflective Wavesource. The S830 is a companion downfill module with 30° of vertical coverage; its companion subwoofer is the CD-12. Nexo's new Geo T4805 employs dual 8-inch drivers, plus another pair of rear-firing 8-inch drivers—lowpassed at 250 Hz—that not only create cardioid coverage in the low frequencies, but also contribute to forward pattern control. Its unusual rigging system, designed by SSE director Chris Beale, comprises the T2815 downfill box that provides 15° of vertical coverage and the companion CD-18 subwoofer.

Renkus-Heinz's ([www.renkus-heinz.com](http://www.renkus-heinz.com)) new PNx 102/LA is a two-way enclosure with dual-10s and dual 1-inch exit compression drivers that boasts 150° dispersion with no horn-loading. It can also be ordered as the self-powered PN 102/LA enclosure, which has an R-Control supervision network and weighs an additional 10 pounds.

The SLS ([www.slsoundspeakers.com](http://www.slsoundspeakers.com)) RLA/2 uses its unique PRD1000 ribbon driver to provide a very smooth high end; coupled with other array elements, it can be used as a planar line source. Though it can run as a bi-amp system, when ordered with NL-8 connectors, the cabinet can be tri-amped and the outside woofer lowpassed at 300 Hz to improve its horizontal coverage in the mids. ■

Mark Frink is Mix's sound reinforcement editor.



A photograph of two men, Nathaniel Kunkel and Russ Kunkel, standing in a recording studio. Nathaniel is on the left, older with a grey beard, and Russ is on the right, younger with dark hair. They are both wearing black shirts. In the background, there are studio monitors and various pieces of equipment.

**Nathaniel Kunkel** is one of today's hottest producer/engineers. It's his job to know good mics when he hears them. A few of Nathaniel's credits include: Robert Altman, Billy Joel, Little Feat, Lyle Lovett, Graham Nash, Aaron Neville, James Taylor, Anna Vissi, and dozens more.

Legendary studio drummer **Russ Kunkel** is Nathaniel's father. Russ's credits span four decades of illustrious session work for artists that range from A-to-Z – Herb Alpert to Warren Zevon. And as a successful producer of Jimmy Buffett, Graham Nash and many others, Russ also knows a good mic when he hears one.

"A-T's 40 Series are my 'go to' mics, without hesitation," says Nathaniel. "When I first heard the **AT4050**, I was very impressed. It was transparent, open and predictable. It is a stunning acoustic instrument microphone with the ability to handle extreme dynamic range very musically."

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World Radio History

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He's Green  
He's Angry  
...and He Sounds

PHOTO: E.M. © 1993 UNIVERSAL PICTURES



**O**n the final day of April, the Technology Building at Skywalker Ranch is buzzing with activity, as post-production work on director Ang Lee's eagerly anticipated film *The Hulk* charges toward its final mix and its much-hyped June 20 opening. Outside, the rolling Marin County hills are Hulk-green, thanks to heavier-than-usual spring rains. Inside the main mixing theater Oscar-winning sound designer and re-recording mixer Gary Rydstrom is rolling his chair down the length of the Neve DFC console, making minute adjustments to a scene in which the Hulk battles a trio of giant, vicious dogs who have been blasted with the same type of gamma rays that turned scientist Bruce Banner into the brutal Hulk. Assistant Krysten Mate sits at a computer helping Rydstrom find the right combination of growls. Rydstrom is at a slight disadvantage because he is working from an unfinished visual. The refined version of the action has yet to be completed by the folks at Industrial Light & Magic.

"There are three dogs," Rydstrom explains, "and the problem when you do any sort of creature vocals is to make them distinguishable. The first one I'm doing today is mostly from bear recordings that Eugene [Gearty, co-sound designer with Rydstrom] had. The [Hulk] poodle sound is mostly from dogs: pit bulls and other dogs pitched down a little bit. One dog has a particularly drooly, wet mouth, so we emphasize that. We're trying to make them not so overtly dog-like, now that they're big and they're Hulk-like."

Of course, Rydstrom is no stranger to this sort of sound work, having contributed to many big effects shows through the years, including *Terminator 2*, *Jurassic Park*, *Titanic*, *Saving Private Ryan* (all of which earned him Oscars), *The Phantom Menace*, *Attack of the Clones*, *A.I.*, *Minority Report*, *Monsters Inc.* and dozens of other films. Before beginning work on *The Hulk*, he had completed Pixar's latest, *Finding Nemo*, a children's film as benign as *The Hulk* is disturbing.

Making a big, and at times very loud, blockbuster action film is new for director Ang Lee, best known for *Sense and Sensibility*, *The Ice Storm* and *Crouching Tiger, Hidden Dragon*. Filming on Universal soundstages and on location around the San Francisco Bay Area, Lee initially assembled a technical crew that mixed veterans of his previous films and a number of new faces. The former included cinematographer Frederick Elmes, film editor Tim Squyres, production sound mixer Drew Kunin and supervising sound editor Gearty.

#### CAPTURING HULK

"This is the second time we see Hulk freak out," Gearty says with a smile, pointing at the not-so-jolly green giant on the computer screen. The New York-based Gearty, who earned an Oscar nomination for his previous film, *Gangs of New York* (see *Mix*, December 2002), is working this morning at the Pro Tools rig in Rydstrom's usual suite. "What's key to this scene is Hulk is bigger than the first time we saw him, and he will get bigger as he gets madder. So by reel eight, he's in the street in San Francisco and he's the size of a small apartment complex. We have to start with the building blocks of the Hulk sounds and add to them as the film goes, because he keeps changing and getting bigger and scarier."

However, Hulk is more than just a monster, and clearly this was one aspect of the Marvel Comics story that appealed to Lee. Gearty says that in his early discussions with the director, "Ang kept emphasizing that the Hulk is not a bad guy and he's not a creature. He's a *human* and we want to have compassion for

Great!



him. He has a lot of internal strife. He's struggling with his inner rage. He needs anger management!

"One thing we did was give Hulk his own set of premixes, so we literally have four or five 5.0 premixes of just Hulk," Gearty continues. "So there's one [premix]



When not on the Universal soundstage, the Hulk can be seen rampaging through San Francisco.

for his footsteps and one for what he steps on underfoot. When we first did Hulk's foot stomp, Ang thought it was too singular, so we went back and re-addressed it as a heel-toe stomp. For some of the foot stomps, we took a tree trunk and wrapped it in leather, and we'd [pound] that on certain surfaces, and then that gets sent to a subwoofer, which makes it really big.

"Then, to give a further sense of the Hulk's size and his physicality, we've done the equivalent of a Foley rustle track for him, which is all of this skin movement. Then we've used his regular movement to gate a rumble, so every time he moves, he has this sort of air-pushing presence that gives him some heft. Also, Ang has this sound he wants to have every time the Hulk's around. And [composer] Danny Elfman has been scoring around this low-frequency rumble: the Hulk tone. It's the equivalent of the *Jaws* theme, I guess."

Gearty adds, "Ang also wanted the transformation to be painful; his whole

thing was, 'This is *not* a happy experience.' He wanted to hear cartilage and bone growth and muscle tendon tearing and growing. He wanted sinewy sounds of stretching and ripping. This is a very traumatic transformation. So we did the usual Foley stuff..."

You mean the dog food coming out of the can noise? "We didn't do the dog food," he says with a laugh. "It's about the only thing we didn't do, and actually Ang mentioned it: the sucking can. But we did a lot of ripping of things, like hemp door-

mats, anything that was fibrous and gave an interesting sound of individual rips."

Gearty did his initial sound work on the film at C5 Editorial in New York (where he often works) and that company's new Foley facility in northern New Jersey. "Skywalker is responsible for all the effects editing, and Gary [Rydstrom] is then mixing everything," he notes. "That said, C5 and I have done all of the Foley editing, but there's a complete layer of what I would call nontraditional Foley. I spent a week up there [at C5 in N.J.], just doing wild recording where we examined some of the bigger areas in the film and went at them, non-synched to anything, which then became a library. We would do things like set up a crane and break down cinder-block walls and wooden frames, smashing

them to pieces. There was lots of broken glass. We needed that for Hulk's rampages."

Hulk's vocalizations—his grunts, growls and roars—created a special challenge to the sound team, as well. "At the very beginning," Gearty comments, "I passed it on to Gary, thinking, 'Well, he's the man for dinosaur vocals, he'd be perfect for Hulk.' So he did a pass and Ang heard it and he thought it was too creature-like. So I started to develop some ideas and I decided, 'You know what, fellas, let's get an actor; let's have Ang direct this vocal.' So we went down to Universal in L.A. about two months ago and we got a loop group happening. Barbara Harris brought in some actors. There was one particular actor in the film who doesn't even have a speaking part, but everyone said, 'You've got to hear this guy's voice, you won't believe it.' And I didn't believe it! He had the deepest voice I've ever heard, like Barry White two octaves down. It was to the point where you can count the cycles. But we started to realize that the depth of the voice wasn't the issue; it was more the depth of the cavity of the chest and hollowness and the resonance of the chest. So we started with the loop group and I added some formant-based pitch-shifting using this [Pro Tools] plug-in called Pure Pitch, and I also started to play around with the Ultra-Harmonizer, which has some cool formant-based pitch-shifting that allows you to play a little more with intonation, as opposed to just sheer math of plus or minus pitch." In the end, the vocalizations also incorporated bits of Gearty's, Rydstrom's and even Lee's voices, sweetened with animal/creature sounds.

#### NOT JUST A COMIC BOOK

"This is an action film with a comic book figure, so it can be larger than life," Rydstrom notes. "Everything gets *really* big. But everything has its unique side, and what makes this film not standard action summer fare is that Ang Lee has directed it in sort of a quirky way sometimes, or a very personal way. There are a lot of internal moments: getting inside the mind of the Hulk, with memories and flashbacks and dreams. The story of the Hulk is a very psychological story, so those kinds of moments demand a different and very stylized and almost metaphysical treatment. Then we have mo-



Co-sound designer Eugene Gearty





When Bruce Bonner must come to terms with his true identity, the sound design helps the audience with the transformation.

ments where he's beating up a tank or fighting the dogs and it becomes fairly standard action, but even with that, who's seen a large Hulk poodle before?"

According to Rydstrom, Lee "wouldn't talk about specific sounds as much as the *feeling* he was going for. He's looking for sounds that reflect the inner Hulk. Even before the Hulk turns into the Hulk, Ang wanted us to create a sound world that suggested something lurking really deep inside him that was struggling to come out. After that discussion, we came up with sounds that almost sound like internal growls. It's all about the rage that turns him into the Hulk. What does that inner rage sound like?"

"We played with growls, but not making them from real animals. We made some of it from a cello played *really* low,



Gary Rydstrom, sound designer and re-recording mixer

so you get this weird, stylistic growl. Then we played a lot of sonogram ultrasound recordings of heartbeats and arteries and babies: living internal sounds." Where did he get those recordings? "We used our hospital friends at Marin General to hook into that," he says with a smile. "We have weird things swimming around his head;

things that sound like a voice, but is not really a voice. Things that sound like growls but are not really growls. It was an interesting challenge."

Even the standard battle-action scenes have a twist, and not just because the main character is the Hulk. Lee's advisers made sure that he had the most up-to-date military hardware to battle the Hulk in the film; indeed, there are pieces that are still technically classified but appear in the film in CG form.

"There's this amazing Comanche helicopter that we didn't actually see, but we were allowed to talk to people who flew them," Rydstrom says. "It doesn't have the traditional chop of a 'Huey'; in fact, you don't really hear them until they're almost on top of you. So in the film, you first hear them as wind, and then when they come on you, we had to make them sound different from other helicopters. If they were *completely* stealthy, the audience would think we made a mistake, but we made them spier than regular helicopters."

Rydstrom and company also had to deal with the sounds of the new F-22 superjet that features "a movable after-burner that swivels and pitches, which allows it to take corners and move quicker than regular jets"; and a bizarre gun called Metal Storm, which can shoot up to *a million* bullets a minute: "It's mounted on the Comanches," Rydstrom explains. "It can shoot at different rates, and at the slower rates, it sounds like a traditional machine gun. But then it gets faster and faster, and when it gets to a million rounds a minute, it essentially fires off all of its bullets at once and sounds like a .38 pistol; it just goes *pop!* It's one of those things where the more impressive it is on paper, the less impressive it is in sound."

## BUT WAIT— IT IS SORT OF A COMIC BOOK

One of Lee's most audacious experiments in *The Hulk* is the occasional use of comic book-style panels. A scene might emerge in a triangle at a top corner of the screen and then gradually expand to take up the whole screen. There are up, down and sideways wipes, and even a fair amount of multiple-image moments, where we see a scene from different angles, with different emphases, or even the action taking place in different locales at the same time.

"The split screens and dissolves are difficult from a sound aspect because, at this point [in our work], we can't tell which of the split screens is going to be favored [sound-wise], so we have to edit all of them," notes co-supervisor Richard Hymns, as he sits in his workroom overlooking a vineyard. "There might be five things going on: There'll be a SWAT van here, there'll be a police car here, there'll be another police car here, there'll be the Hulk here and something else here,"



Co-supervisor Richard Hymns

Hymns says, indicating different areas on the monitors. "And sometimes, one of them zooms in a bit bigger than the others, so you get a sense that *that's* the one they're going to favor, but what we have to do is edit all of the screens as if they're *all* going to be the sound playing at that moment. And then there are all the extensions of that: Are they bringing the SWAT van from the right surround into its skid-stop here? Is the police siren going to come in over our heads? You have to allow for all of this, and it may be that ultimately, Ang will say, 'Oh, no, I only want to hear the Hulk roar there and nothing else.' Or he may say, 'I want everything, but I want them all featured in different moments.' So we have to allow for that."

Rydstrom, who is leading the final mix, loves this aspect of the film: "There

—CONTINUED ON PAGE 144

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# D I O M O N I T O R I N G

# Richard Dodd

## Grounded in Engineering

The career of engineer, producer and mixer Richard Dodd has taken many interesting twists and turns over the past three decades. Since the early '70s, when he was recording hits like Carl Douglas' "Kung Fu Fighting," Dodd has worked with the likes of George Harrison, Roy Orbison, Boz Scaggs, Wilco, Green Day, Steve Earle, Delbert McClinton, Robert Plant, the Traveling Wilburys, Clannad, Tom Petty & The Heartbreakers (Grammy™ nomination for *Echo*) and Petty's solo album *Wildflowers* (which earned Dodd a "Best Engineer" Grammy). After nearly 15 years, Dodd's longest ongoing creative relationship has been with Petty, culminating in the artist's newest release, *The Last DJ*.

In the interview that follows, Dodd, an Englishman who now lives in Nashville, shares a number of provocative thoughts on issues facing the industry today, as well as some insight into his methods in the studio.

*Tom Petty's latest album, The Last DJ, was a strong statement against many of the ills he believes permeate the music industry.*



*the latest Petty album was largely done with manual mixes.*

That's right. When we started mixing *The Last DJ*, we started with the intention of using automation. The majority of the board, which was a classic old Neve at Cello Studios in Los Angeles, had automation, while the monitor section didn't. Three of the songs on the album used significantly more than 24 tracks, because they involved orchestra. So I set up the console to



PHOTO: RICK CLARK

leave the orchestra on the monitor section and had it submixed onto the automated side of the console. George Drakoulis, the producer, was very busy with the monitor faders during playback and eventually said, "I wish we could mix on the monitor side," so we did with the rest of the album. Only the overflow of the 24 tracks and effects returns went through the automated side of the console. As a result, the mixing went a lot faster. [Laughs] It made the process immediately a lot less tiring for those involved.

Today, however, mixing manually is more the exception than the rule. It's the exception, because it requires a very strong artist/producer/engineer relationship and an understanding that the dreaded recalls are just not going to happen in the way that fully automated and documented mixes operate.

*A manual mix has a feel and rough edges, whereas a computerized mix often has all of the edges smoothed out, and that isn't always a good thing. Manual mixing still has the facility of analog or digital editing to change a section or part of the mix.*

I mixed George Harrison's *Cloud Nine* album manually in his home, as were both of the Traveling Wilburys' albums. They were done on a console without any computer whatsoever. It even had Quadrant faders, the kind that went up and over. All of Boz Scaggs' *Some Change* album, Clannad's *Magical Ring*, Tom Petty's *Into the Great Wide Open* and 17 out of 22 tracks on *Wildflowers* were done manually. In fact, "Mary Jane's Last Dance," which appeared on Tom Petty & The Heartbreakers' *Greatest Hits*, was my rough mix that was done on an old Soundcraft 1600. It's funny: The faders feel more alive.

When you are doing manual mixes, [engineers] go,



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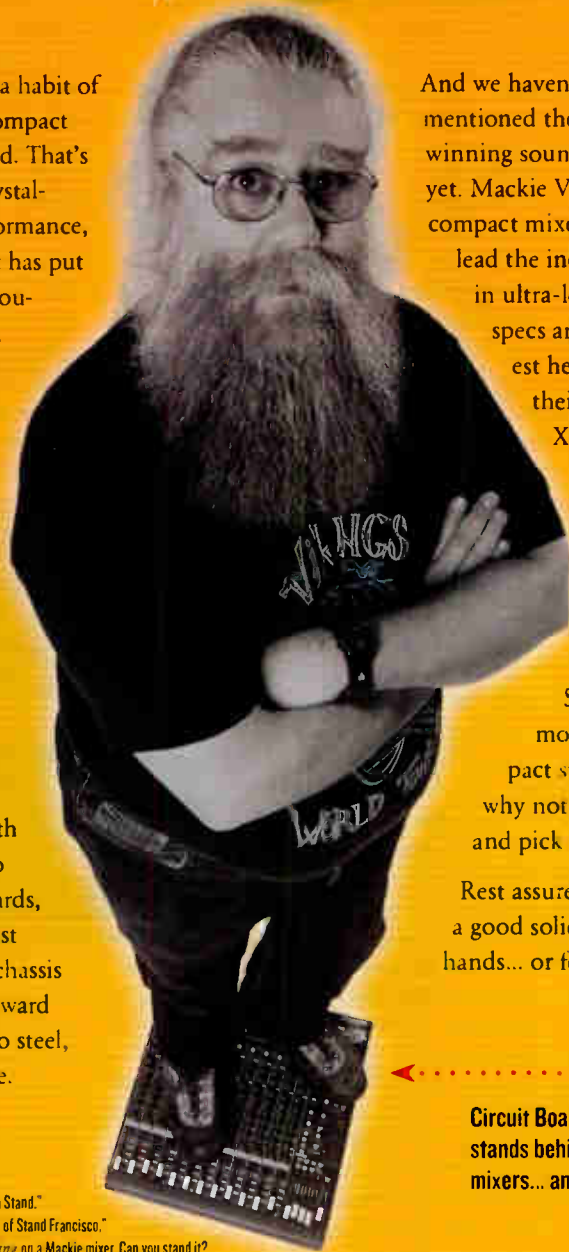
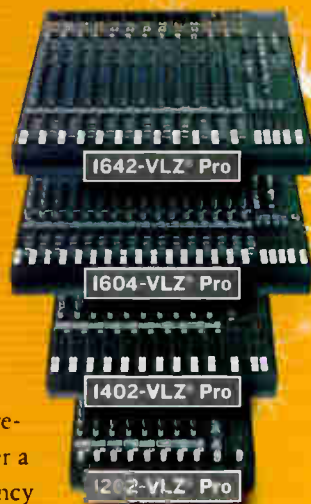
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World Radio History



Richard Dodd on Tom Petty: "Tom Petty takes charge of the track. He wouldn't suggest, I don't think, that he is perfectly in tune or anything like that, but he always performs perfectly."

"That felt great," or, "Oh, I don't know. Did the voice feel loud enough?" They refer to feeling. When you're working on a computer, they refer to tenths of a dB, which really annoys me. It doesn't annoy me to the extent that I won't do it. It doesn't make any difference to me. If someone could tell the difference as to whether something was up or down a tenth of a dB in a mix, then they are a better person than I.

*When I look at the range of your mix work, you go from very open, ambient, rather wet soundscapes, as with Clannad, to extremely dry, in-your-face mixes like those with Tom Petty. The voice, in particular, is very dry on many of those mixes.* Yes. I think it would be fair to say that I was given the confidence to present that by having the privilege of working with Jeff Lynne so much. When I came into contact with Jeff Lynne, it was like I was able to breathe a sigh of relief. There was this kindred spirit. It was fantastic: Here was somebody asking me to do something that I wanted to do. We got into it, and we found that we could make things drier and drier and drier. We could actually make it sound like it was drier than it was. [Laughs] We certainly developed a method between us of getting vocals.

Tom Petty takes charge of the track. He wouldn't suggest, I don't think, that he is perfectly in tune or anything like that, but he always performs perfectly. His vocal is interesting. If it is interesting, then it is worth listening to. If it is worth listening to, then there is no need to disguise it and cover it up and make excuses for it, which is what reverb can become.

I'm not against reverb; I'm against reverb used inappropriately. At its best, reverb can take you into an additional level

of understanding. That is not meant to sound deep. It just can give you some of that element of fantasy when used correctly. In the wrong cases, it completely detracts from what is going on in the performance. The fantasy is already in there and the story and the way the artist has cleverly constructed the lyric and the melody, the tone and phrasing. There are a million-and-one more important things than whether something has reverb on it, like are they going to spend any money and effort on promoting the record?

*So what do you do to achieve that hyper-dry sound? Is it mainly an EQ kind of technique?*

What I do is no surprise; it is all of the same things that anyone would do. I probably just do it a bit more extreme. While we were mixing Boz Scaggs' *Some Change* album, we had done a little vocal overdub. We had a lovely mic and all of this stuff. While we were listening to it on this track, Boz said, "The vocal sounds great, but I wish it sounded like it did on my headphones." He had these really hype-y, wonderful Sony headphones that had this top end that never really exists anywhere in real life. So I went and got a microphone and I put the voice through those headphones and I miked them up and mixed that in with the track, and it worked! [Laughs]

Distortion and noise have never bothered me. If someone can sing the tune, then you've got it right. If you haven't captured a compelling performance, nobody is going to listen to it anyway, no matter how clean or undistorted it is. If the listener hears an attractive performance, then you've played your part. Try not to screw up!

*Doing what?*

Technically, we can ruin everything. We can add reverbs and delays and sink the voice into a track and hide a perfectly good performance and kill a song: We can make it uninteresting. By the same token, when all you've got is a person with a good-sounding voice—not the greatest singer in the world, but an interesting voice—the more you put that up front and say, "Here I am. I mean this," the more credible it is. They're not hiding be-

hind anything. It's just real.

You ask me a specific question: "How do I do it?" I use lots of limiting.

*Any particular limiters that you favor?*

Yes, I do, and they are getting more expensive and cloned by the minute! They're black-face UREI 1176s.

When you imagine all the things that you do to get a dry, up-front sound, the last thing that you want to do is record on analog, because of all the extra noise and stuff you are going to bring up. But unless you do, you are not going to achieve that wonderful sound.

*So it's like a Catch-22.*

Exactly. Therein lies the secret. If you do all of the right things, chances are you will end up with the wrong thing. You can record in the poshest studio with the most expensive microphone and through the most popular console and the most widely used digital format, and then consequently mix it through all of those same things again, and you are going to end up with a textbook vocal that doesn't have anything added to it in terms of interest, in my opinion.

*So it is the anomalies of the analog format...*

It is easier than that to describe. It is called distortion.



Richard Dodd at Marquee in 1977

*Just part of "that thing you do."*

I've strived to not be pigeonholed and I'm satisfied that, to a large degree, I've succeeded. However, the successful stuff I've been fortunate to be associated with does probably fit into a narrow bandwidth. But the stuff I've done overall in my career is a lot wider, so I'm personally satisfied. I can listen to my body of work and there are very few things that sound the same. I'd like to think that I consider everybody's product to be a unique work and do my best to try and find something fresh each time. I have to consider what I do





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and how I do it on a daily basis because I'd like to be better than I am.

I have a picture of The Beatles in my mixing room and I use it as a little ego-squasher for myself. When I think that I have done something "new," I'll look up there and mentally scan through their body of work and think, "Yeah, they've probably already done it."

*Even though you have expressed a fondness for manual mixes and all things analog, I also get sense that you aren't demonizing things digital in a blanket fashion.*

Digital extends a massive palette of options for engineers and mixers. I will go as far as to say that the shift away from analog is so profound that I don't ever see us returning to it again, as we once utilized it. That said, I'm concerned that we seem to be frequently working in a world where professionals are prepared to accept facility over sonics.

*In an art form that exists because of sonics.*

Exactly. We are there to record a musical event. The fact that we're prepared to compromise in order to manipulate the

audio event is very sad. That said, we are in a time when the musical event itself is being created in and of the digital world and its facilities. The reasons for using digital are many, but sound isn't one of them. However, not all analog sounds good. There, I've said it!

*What is your philosophy concerning the use of EQ?*

I try to remind myself that you don't always have to add. Sometimes the answer is to take away. I often look for what I don't want, rather than what is needed. If something is not coming through the track, make some space. Try to *avoid* adding an equalizer. On a drum kit, for example, try listening to the mics that have been positioned farthest away first. Usually, more of the natural tone and dynamic exist there.

*I notice that many of the environments that you work in are not conventional recording studios.*

I do hate it if the room is dead. If I walk into a room and I get that oppressed feeling, I know it is not going to work. I would much rather work in someone's living room than a designed, acoustically perfect room any day of the week. Studios are sometimes the worst place to record, in my opinion. A recording "studio" environment is set up to do one thing, and invariably it is not what I want to do.

*One of your biggest production credits was with the Irish group Clannad.*

The first thing I did with them was a milestone in my life, which was that one song, "Theme From Harry's Game." I'm eternally grateful and thankful and I can't tell you how much that affected my life. The making of the album, which was called *Magical Ring*, is something that I try to forget. It was the scariest thing that I ever did. It was a time during all of the bombings in London and everything, and [Clannad] were all staunch IRA supporters. Instead of saying "Good night," they'd say, "Don't forget to check under the car, Richard." You know, this can be a dangerous job! There are often unsavory elements that are attracted to those with creative energies.

*"Harry's Game" enjoyed a major resurgence a few years ago in the movie Patriot Games, which dealt with the topic of the IRA and terrorism. On a lighter note, it was also a theme in a major Volkswagen ad campaign. It practically became known as "the Volkswagen song."*

I know, and much to Volkswagen's chagrin, people were calling up and asking

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where they could get the music, not where they could buy a Volkswagen. [Laughs] It was lovely to get a little boost for that. The "Theme From Harry's Game" has been on at least 20 records.

*I noticed in the credits that you mastered the new Tom Petty album.*

Much to my surprise, mastering has been a huge source of my work during the past few years. I would say that it is probably 35 percent of my work and growing.

*What instigated your move to include mastering?*

A few years ago, a producer asked me where he should get a project mastered, and I offered my preferred choices on the East and West Coasts. He took the masters to one of them, and when I heard the results, I was horrified. Having spent all of his mastering budget on my recommendation, I felt bound to put the situation right. Other people got wind of this, and, subsequently, I was asked to do their records. On *The Last DJ*, George Drakoulis suggested to Tom [Petty] that I do the mastering. Tom's reaction was one of surprise and relief. Unbeknownst to me, Tom's experiences in mastering haven't always been that enjoyable. The master-

ing on *The Last DJ* was quite painless, and the refs that Tom, George Drakoulis and Mike Campbell took home on that first day turned out to be the final master.

*While Tom is tackling commercial radio and promoters and so on, what recording industry issues currently being discussed are hot on your mind?*

Number one: the demise of record sales as we know it. Number two: adding to the problems.

Roger Nichols recently brought to light the issue of engineers' rights. I agree with the principle that a work-for-hire ends when all commissioned versions are handed in and accepted by the record company. From that point in time, in perpetuity, the creative part of the existing mix should remain under the control of the original mixer. The record company has every right and facility to access the source of those mixes and to remix them. However, in my opinion, they do not, or *should* not, have the right to manipulate that existing mix and represent it as fresh product without consultation, input and further payment to the originator of that mix.

We should be realistic about the way

to go about this. Let us not waste time in the courts or feed the legal system. We can quite easily turn in the masters the age-old way; i.e., all source materials, all final and requested versions. The session discs should be retained by the engineer and copied to one other responsible, honest broker or escrow-type storage facility. The immediate method to achieve this is to "omit" some of the "creative additions" from the session discs.

Perhaps the DAW software writers could give us a "Save Session As" option that locks out all visual information and prevents adjustments, only allowing transport functions. This means that the label can hit Play, listen to the agreed-upon turned-in mixes—Master, Vocal Up, Vocal Down, TV, etc.—transfer those mixes into their desired or future storage medium, and they won't have the ability to mess with the creative process that culminated in the mix that they accepted. As of now, the use of "analog outboard equipment" is the only "control" we have to prevent an unqualified misrepresentation of our efforts. ■

*Rick Clark is Mix's Nashville editor.*

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# You Ain't Seen Nothin' Yet

## Randy Bachman's Rammed Earth Barn

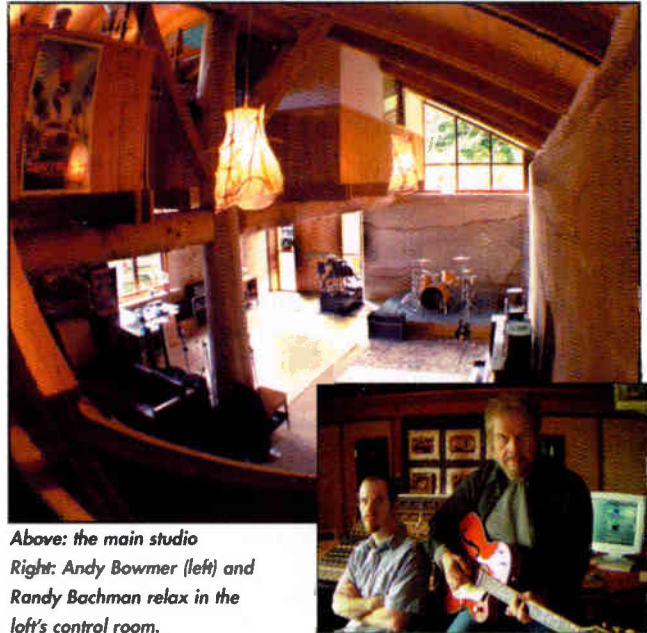
Think of a small, picturesque island in Vancouver, and the phrase "hard rockin' town" probably doesn't come to mind. But maybe it should, for on one such windswept locale, guitarist extraordinaire Randy Bachman (of Bachman Turner Overdrive and Guess Who fame) has made his home and private recording retreat.

"We just call it the 'Rammed Earth Barn,'" says Bachman, describing the facility's unusual construction. Creating a building using compacted earth or rammed earth techniques is "a lot like doing a concrete basement of a house," Bachman explains. "The whole thing is set on a concrete footing. You put up your forms, yet instead of 8- to 10-inch-wide concrete walls, the rammed earth walls are about two feet wide, but in two segments. The outer wall is about 18 inches thick, then you leave a 10-inch air gap, and there's an inner wall that's a foot or so thick."

Beyond providing effective, additional insulation against the Canadian winters, the cavity in the wall doubles as a wiring trough. "We planned a lot in advance, so every wall in the studio and house [also a rammed earth design] has cabling for mics, modems, telephones, security and house automation," Bachman adds. One might think that setting cabling into what equates to stone walls might be problematic. However, this is no sweat, according to Bachman: "To add an AC outlet, for example, you just drill a circular hole in the wall, tap into the wiring, add the outlet and you're set. If you don't want it, pull it out and plaster over it with more earth to seal the hole."

Bachman notes that there are other advantages, as well. "These rammed earth buildings can last for hundreds or thousands of years. There are no mice, no carpenter ants, no termites. There's no maintenance or painting required, inside or out. Nothing deteriorates. It's just solid rock; actually, it's a lot like cement, which is basically just clay and water. The earth can be taken from your site, or brought in from other places in the world, such as red Georgia clay. Here on Vancouver Island, it's bluish-gray. You don't need a uniform color: We used a mixture of brick red, browns and grays, and then threw in seashells, branches and various types of rock, so our walls ended up looking like cave paintings!"

The rammed earth design simplifies the construction of nonparallel walls, and the room's rounded corners create an ideal setting to record acoustic instruments. But versatility was also important to Bachman: "We can create any type of acoustics. We can leave it live or hang packing quilts on the ceiling or walls to deaden the room. We also have 6-by-8-foot,



*Above: the main studio  
Right: Andy Bowmer (left) and  
Randy Bachman relax in the  
loft's control room.*

18-inch-thick foam chunks that we use to build 'houses' for amps, surround a drummer or break up the room for a smaller room sound."

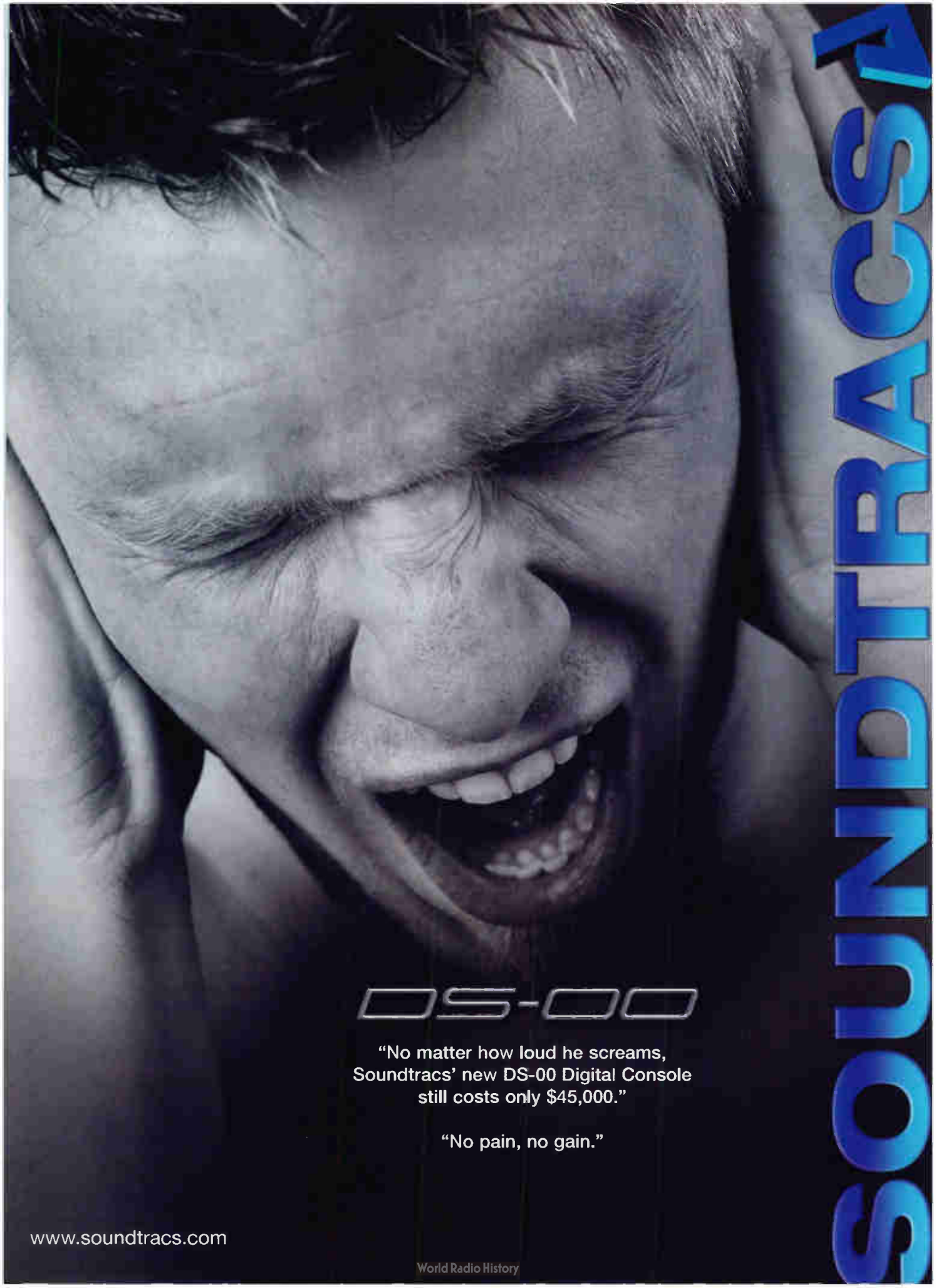
The ceiling design was key to the room's sound. "We found a tree farm where the trees were bent inward from the constant wind," says Bachman. "We bought 10 of these huge, boomerang-shaped trees, and used them to make curved beams for the roof. This created a dome-like, 20-foot ceiling, which really improved the acoustics."

Upstairs from the main floor is a huge loft area, divided into a control room and an open space that's large enough to comfortably handle a trio. The studio—which features a Neve 8058 MkII console, Neve 5524 sidecar, Digidesign Control|24 with 192kHz Pro Tools|HD3, a 48-track/96k RADAR system, three DA-88s and a huge collection of vintage outboard toys—was built by John Vrtassic and Andy Bowmer. "John, who built Vancouver's Little Mountain Sound, as well as studios for Bob Rock in Maui, Metallica in San Francisco and dozens more, also rebuilt the 8058 and modified it from 32 to 64 inputs," Bachman says. "And after the studio was completed, I was able to persuade Andy to stay on as my engineer and tech."

Ironically, the studio started out by "accident," Bachman recalls. "It was originally meant to be a barn for animals, but ended up costing so much money that I decided to use it as a studio. The local music community here was dying for a place to record, so we started doing acoustic, folk and bluegrass and then did rock projects for other bands, as well as for my son Tal and my own work."

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World Radio History

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## News



**The Benjamin and Marian Schuster Center for the Performing Arts**, a new \$121 million facility in Dayton, Ohio, had its grand opening on March 1,

2003. **Evening Audio Consultants** (New Hampshire) acted as audio producer for the event and used an InnovaSon console at FDH, custom EAW speakers, Live Technologies monitor gear and Sennheiser MKE2 miniature lavaliers and body-packs...The new owners of the **Midland Theater** (Newark, OH) faced challenges when upgrading audio systems for its reopening. The cultural center was renovated by the **Longaberger and NBBJ** architecture teams, and consultants from **Tiffin Scenic Studios, Acoustic Dimensions, Crosslights, Live Technologies and M-Engineering**. The facility now boasts two Yamaha DME32 digital mixing engines, Crown amps, Electro-Voice Xi-1123 speaker systems and a 40-channel Yamaha M2500 analog console...Atlanta's newest club, **Level 3**, is the new resident in the former Planet Hollywood space on Peachtree Street. Sound contractor **Dwayne Walters** used custom-built Turbosound TFL-768 Floodlight Series speakers, comprising a TFL 760 with a TSW 718 built into the bottom, all powered by Crest CA amps...**Acoustic** has established a new leasing program for the professional touring industry. For more info, contact Paul Freudenberg at paulf@l-acoustics-us.com...**Onstage Audio** (Elk Grove Village, IL) expanded its scope to include the live sound market. DSA purchased new Drawmer gear, including 30 DL241 and 10 DL404 compressors, 20 DS501 power gates and seven 1969 mic pre's. Latest events include headlining acts such as Billy Idol and Pavarotti.



## AFI

On the first leg of what promises to be a long tour, Bay Area rockers AFI made a splash with two sold-out nights at San Francisco's re-opened Avalon Ballroom. The band, consisting of vocalist Davey Havok, guitarist Jade Puget, bassist Hunter and drummer Adam Carson, are touring in support of *Sing the Sorrow*, which was co-produced by Butch Vig (Garbage, Smashing Pumpkins) and Jerry Finn (Rancid, Green Day).

FOH engineer Mikey "Rhino" Bakowski has been a fixture in the AFI camp for the past five years. "Because this is the beginning of the tour, I'm not carrying an FOH console or P.A.," he explains. "What I carry in my rack is basically for Davey's vocal [which is miked



PHOTOS: STEVE JENNINGS

Davey Havok

with a Shure Beta 58]. My old faithfuls are two [Yamaha] SPX90s. I use the [Empirical Labs] Distressor on Davey's voice and then I compress the subgroups. I also use BSS gates and Opal Series compressors for the top snare and kick drum mics."

Bakowski is also carrying drum mics, including a Shure SM91 and a Sennheiser 602 on kick, Beta 57 on snare top, Beta 98 on snare bottom, SM98s on toms and SM81 overheads. Guitar mics are Shure KSM32 and SM57. "I use Radial DIs for the samplers, bass and direct guitar," adds Bakowski. "The Radial's passive DIs bring out so much more than an active DI." —Steve Jennings



MIKEY "RHINO" BAKOWSKI

## Fixt

TEC Award-winning FOH mixer David Morgan, whose credits include Steely Dan, Paul Simon and countless others, is currently completing a world tour with Boz Scaggs.

*Some newer arenas seem to be very bright, with lots of reflective surfaces, from skyboxes, etc. How should I deal with an overly live venue?*

Modern line array technology offers the best way to deal with highly reflective, reverberant large spaces. Here, it's best to fly the array as high as possible, aiming the majority of the cabinets downward to minimize the "slapback" effect. It's also important that each cabinet is vertically splayed. A flat array in the vertical plane will send too much energy toward reflective areas such as skyboxes and wall surfaces. If properly hung, the wide dispersion of acoustical energy in the horizontal plane and tight pattern control in the vertical plane will make for surprisingly good results in what have traditionally been difficult venues. —David Morgan



DAVID MORGAN

PHOTOS: PAUL FREUDENBERG



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PHOTOS: PAUL KATZMAN

## On the Road

### Hugh Johnson

After 14 years of mixing FOH for Vince Gill, Hugh Johnson stays focused. During one of those rare moments when he's at his West Nashville home, Johnson took a few minutes to chat with *Mix*.

*What do you use on Vince's vocals?*

We've used the Shure SM87C for years. It's flat-sounding and is great at rejecting onstage sounds. After the board's pre-amp insert, his vocal goes through a Summit DCL-200, BSS 901 and a Showco TEQ graphic EQ. I use TC reverb exclusively on vocals. The System 6000 is miraculous, and the 24/96k processing has revolutionized digital electronics for me.

*Does your enthusiasm extend to consoles?*

I've just switched to a DiGiCo D5 Live console, the first digital mixer I've used that sounds good and functions like an analog mixer.

*Have you discovered any "must-have" piece of gear?*

The Clair I/O unit: a crossover/EQ device that operates from a touch-screen. Wireless Ethernet connects a Gateway Tablet PC to FOH single-rack-space devices.

*Do you have a preferred venue?*

Probably the Kiel Center in St. Louis.

*What do you do when you're off-duty?*

I'm a Harley rider and ride as often as I can. I play a little golf, do woodworking and a lot more lawn maintenance than I care to admit.



## Now Playing

### "Aida" on Broadway

Sound company: Masque Sound  
 Sound designer: Steve Canyon Kennedy  
 Associate sound designer: John H. Shivers  
 FOH engineer/console: Phil Lojo/Cadac J-Type  
 Assistant engineer: Alain VanAchte  
 Loudspeakers/amps: EAW speakers/Crest amps  
 Key outboard gear: XTA EQ, XTA DP-200 and Valvotronic compressor  
 Selected mics: Sennheiser MKE-2 Platinum and SK-50 wireless

### Alan Jackson

Sound company: Showco  
 FOH engineer/console: Phil Somers/Crest-Gamble EX56  
 Monitor engineer/console: Scott "Punko" Holloway/ATI Paragon II  
 P.A./amps: Prism Arena Speaker System/Crown amps  
 Monitors: Prism SRM Stage Reference Monitors  
 Key outboard gear: TC M5000; Yamaha SPX900; Apogee CRQ-12; dbx 160A, 165; Summit DCL-200  
 Selected mics: Shure Beta 58A (all vocals), Beta 57s, SM98; Sennheiser 409; Audio-Technica 4050

### Blue Man Group

Sound company: Audio Analysts  
 FOH engineer/console: Matt Koenig/Yamaha PM1D  
 Monitor engineer/console: Mike Prowda/Yamaha PM1D  
 Loudspeakers/amps: JBL Vertec Line Array/Crown Amps  
 Monitors: Shure PSM 700 and 600 in-ears.  
 Key outboard: Eventide DSP4000 Ultra-Harmonizer, Lexicon PCM90, Roland SDE-3000 delay, MXR Flanger  
 Selected mics: Shure KSM32, SM98; Audix D4, OM7; Beyer M88s



COURTESY: COUNTRY MUSIC ASSOCIATION

PHOTO: STEVE JERWINGS

## New Nashville Symphony Hall

Slated for completion in September 2006, Nashville's proposed Schermerhorn Symphony Hall is on track, with groundbreaking slated for this December. The neoclassical design, clad in limestone and featuring a 180-foot-long colonnade facing Nashville's Gateway Park, was presented by architect David Schwarz (Washington, D.C.) and acoustician Paul Scarbrough of Akustiks (South Norwalk, Conn.). According to a study



released in late May, the 1,900-seat, \$120 million project will generate \$19.9 million in local economic impact in its first year.





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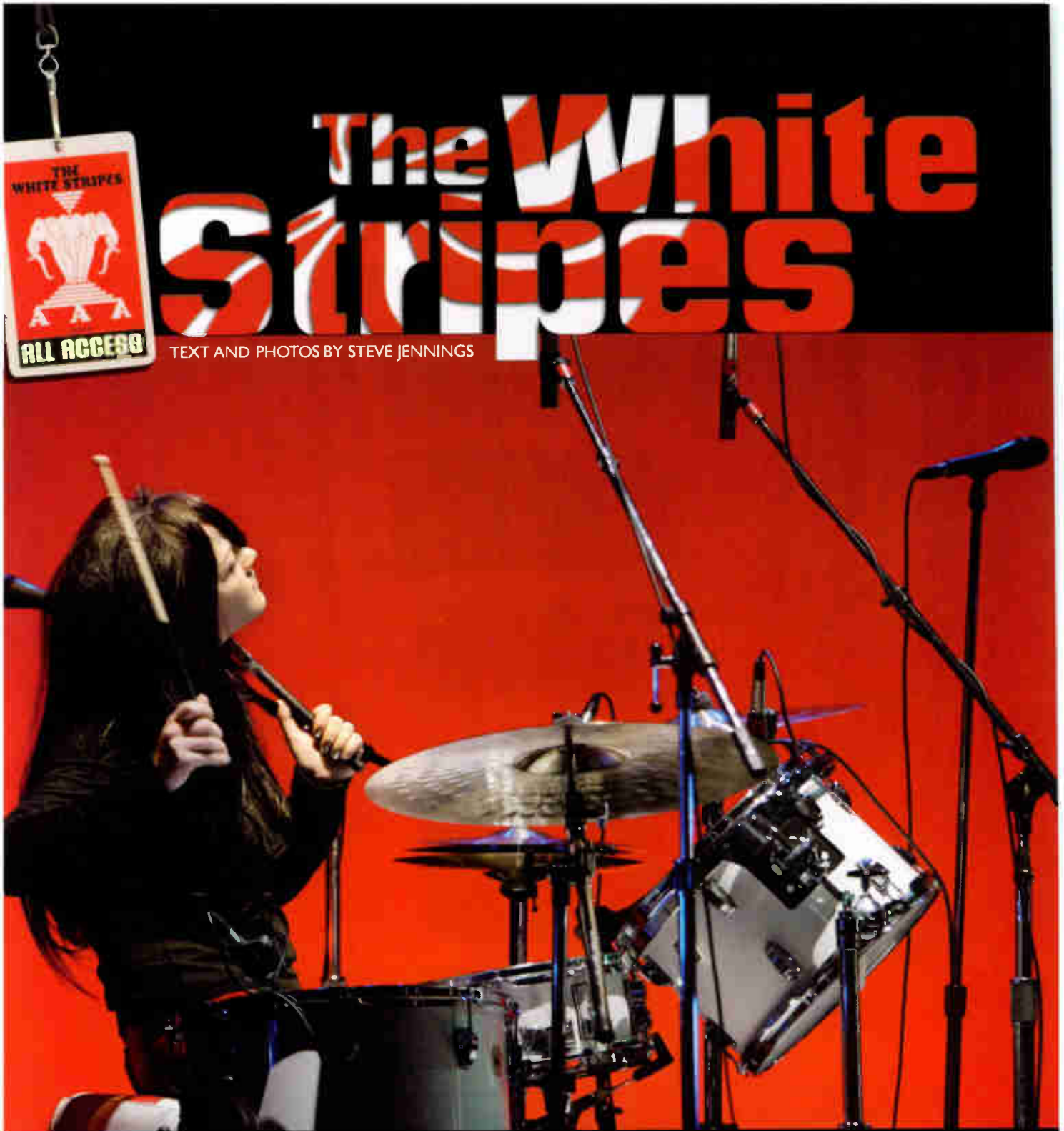


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TEXT AND PHOTOS BY STEVE JENNINGS

**R**iding high on the success of their latest album, *Elephant*, the White Stripes embarked on an ambitious world tour that included two sold-out nights at San Francisco's Warfield Theater. Consisting of only Jack White (vocals, guitar and piano) and Meg White (drums and vocals), the band delivered two energetic and frenzied sets that Jack made up on the spot. Drawing from a modest catalog of albums and EPs, the band had little trouble keeping the crowds entertained.





Monitor engineer Eric Baecht maintains a number of custom mixes at various positions onstage. "Jack likes a really loud and powerful mix. He has three different vocal mics, so he likes to hear everything all over the stage. There's four mixes onstage, plus sidefills. People just see two people onstage and they tend to think it's easier than it actually is. His guitar is pretty bass-heavy, so you don't feel you're missing the bass guitar. It's interesting; lets say if he doesn't feel the song, he'll just start playing keyboards. It's totally up to his whim."

Drum mics include Neumann KM184s for overheads and hi-hat, Sennheiser 604s on toms and snare, and a ne602 on kick.



Monitor engineer  
Eric Baecht



FOH engineer Matthew Kettle mixed the San Francisco dates from a Yamaha PM4000 console. For this leg of the tour, the crew relies on a rental P.A. and consoles. "We're not carrying a console or P.A. right now," Kettle explains. "I hope to have a Midas XL4 or the Heritage 3000 down the line."

"Jack constantly rearranges and restructures songs," says Kettle. "He does improvised melodies, intersperses covers with their own material and draws from all four of their albums. Jack has three open vocal mics that he runs back and forth to. Because it's so unpredictable, I'm changing the mix all of the time."

The three vocals mics used by Jack are all Sennheiser Evolution 8651s. Kettle feels that the mics are well-suited to Jack's style of performance because they combine a great deal of gain before feedback with the open sound of a condenser mic. "[Jack] will work out how the mic works so he can get weird off-axis and distance EQ effects," Kettle explains. "He's very creative with all of his gear, and he'll take the idiosyncrasies of something and take advantage of it. He uses an effected mic that he likes to control onstage. He likes it to have this giant kind of vintage plate sound on it for a cavernous effect."

Kettle relies on number of outboard processors, including a UREI 1178 compressor on guitar and an Empirical Labs Distressors on vocals. "I compress almost everything going on, because he can go from screaming into his mic to singing really quietly," says Kettle. All of the shows are also archived with an iZ Technologies RADAR 24.



FOH engineer Matthew Kettle



ALL PHOTOS BY STEVE JEROME/GS

World Radio History

# annie lennox



*A Theater of Sweet Dreams*



**W**ith three acclaimed solo albums and more than 12 million in sales to her credit, pop singer Annie Lennox must have been waiting for just the right time and the right album with which to launch her first solo tour. She found it with *Bare*, Lennox's first collection of original material in more than a decade, released June 10 on J Records. Though it's been four years since her reunion with Eurythmics partner Dave Stewart on the 1999 album *Peace*, and eight years since her last solo album—the covers collection *Medusa*—hit stores,

by Heather Johnson

ties experienced a dramatic switch in musical genre and venue, but adapted well to their new environment.

Prestigious rooms such as Chicago's Shubert Theatre, Toronto's Center for the Arts, San Diego's Copley Symphony Hall and New York's Apollo Theatre vary dramatically in size and character, each offering unique hurdles to cross in terms of preparing for an amplified music event. "In an arena, the same amount of P.A. goes up and you're exactly the same distance from the stage each time," says Ebdon after soundcheck at San Francisco's Orpheum Theatre. "This is more of a challenge, but it's very rewarding."

#### LAYERS OF CONTROL

Ebdon travels with the DiGiCo D5 digital console, a lightweight, compact 64-channel board designed by Soundtracs. The 24-bit audio board interfaces with the stage inputs through a proprietary fiber-optic network that allows for cable runs of up to 100 meters. "Being a completely digital work surface, the DiGiCo has complete memory recall and memory reset," Ebdon says. "We can run the fiber-optic cable from a box onstage out to the console, so there's no thick cables anymore, which is great. And the quality's fantastic."

The console's small size makes it easier for Ebdon to set up shop in venues that are unaccustomed to holding expansive mixing desks, large loudspeaker setups and elaborate lighting systems. "Had we brought a traditional analog console, it would have been a headache," Ebdon confides. "With this tiny little thing, I've got three small racks, the desk and that's it. My total footprint's about six-foot-by-six-foot."

Ebdon, who worked as a studio engineer at Surrey Sound (recording home of The Police) for nine years before moving into live sound, first used the DiGiCo during Lennox's two-week rehearsal in London. He learned the board in a matter of hours, he says, and liked it so much that he bought one. The versatile engineer uses minimal outboard gear, relying mostly on the console for EQ and other effects. He does, however, travel with a Focusrite ISA 430 Producer Pack and BSS 901 compressor for use on Lennox's vocals. "She has a very dynamic vocal, and I like to compress the high mids in her voice," he explains.

Ebdon needed a microphone that wouldn't alter the distinct character of Lennox's voice and found that the Audio-Technica 4054 fit the bill. "It's a good-quality microphone and doesn't color the sound at all," he says.

Audio-Technica's 4050 microphones captured the drums, electric and upright bass, and acoustic and electric guitar. The backing vocalists sang through Sennheiser 90s during the tour's U.S. leg, but Ebdon plans to switch to an Audio-Technica model for the UK dates. Neumann and AKG mics provided additional support. Mackie SDR-24 hard disk recorders took care of the minimal drum loops and sampled keyboard parts for Lennox's set. Loops found their way into only half-a-dozen songs, and prerecorded keyboard parts



FOH engineer Jim Ebdon

Lennox's rich, distinctive alto hasn't lost one decibel of power or character. The same holds true onstage, where she entertained large crowds of expectant fans during a month-long, consistently sold-out U.S. tour.

Backed by a full ensemble that included keyboardists Bernie Smith and Adam Wakeman, guitarist Tony Remy, bassist Paul Turner, drummer Steve Barney, and backing vocalists Beverley Skeete, Claudia Fontaine and Carol Kenyon, Lennox danced her way through a set that included a number of old favorites. Some of the highlights were "I Need a Man," "Walking on Broken Glass" and a call-and-response rendition of "Sisters Are Doing It for Themselves."

#### SOMETHING SO RIGHT

The platinum-blond chameleon—who morphed from a slouchy beatnik to a feminine sophisticate in a shimmering top and strappy heels during the course of an evening—rounded out her single-encore set with a series of piano ballads and acoustic numbers accompanied by a pared-down band. Her choice of sonically pristine symphony halls and performance theaters not only complemented her elegant mix of contemporary pop and vintage soul, but also provided daily challenges for FOH engineer Jim Ebdon and monitor engineer Tim Paterson.

Ebdon, who recently handled live sound for Sting and the *American Idol* tour, had just finished a six-month stint with Aerosmith when he got the call to serve on the Lennox tour. Paterson, whose credits include jazz phenom Herbie Hancock, among others, had just wrapped up a tour with Cream bassist Jack Bruce before meeting up with the former Eurythmic. Needless to say, both par-

were incorporated in very few spots on the mostly live performance.

**CUSTOM-TAILORED**

Ebdon mixed the show at a reasonably low volume, saving the ears of thousands of Lennox fans and preserving the venue's integrity at the same time. "There are a couple of loud moments, but, primarily, it's a quiet show," Ebdon says. "When it's just Annie and the piano, you can hear a pin drop." The Clair Bros. P.A. and I-4 line array system provide sonic support.

"A lot of people said to me, 'Oh, you're taking the I-4 on a theater tour? You must be mad,'" Ebdon recalls. "But it's actually worked quite well. I've used this system in arenas, but it was with the old crossovers. This is a completely new P.A. now, and I'm glad I got to have a go with it."

The Clair I/O loudspeaker controller, manufactured by Lake Technologies, works in tandem with the I-4 system to allow the user to control all P.A. parameters according to the venue's characteristics. With the aid of a wireless computer,



Monitor engineer Tim Paterson

the user can walk around the room and adjust the EQ curve and delays, ensuring consistent sound quality for every seat in the house. "We can really fine-tune the P.A.," he says. "It's actually one of the best pieces of audio equipment I've seen in a long time."

At the Orpheum Theatre, the system P.A. included two 5° and four 10° cabinets per side, two Clair I-4 B bass cabinets and two S-4 subwoofers per side, and a series of P2s to cover the outer reaches. Ebdon and Paterson—along with Clair Bros. reps Chris Fulton, Andy Sottile and Greg Hall—flew four cabinets and stacked two on each side of the stage to compensate for the low balcony.

**FRONT AND CENTER**

Paterson mixes on the popular Midas Heritage 3000, adjusting levels on six Sennheiser 3000 Series wireless in-ear monitors and a complement of Clair/ShowCo SRM wedges. Mindfulness plays a key role when working with various systems simultaneously, according to Paterson. "You've got to be very aware of how much you give people with the levels of anything," Paterson says. "The best way to get around that is to listen to every mix as you change things. It makes life harder, but it's worth doing."

After nearly 20 years with Eurythmics and over a decade on her own, the Grammy-nominated singer certainly has the right to a specific monitor mix, but her preference comes from a desire for excellence, rather than the stereotypical diva-esque attitude of a high-profile pop star. With an abundance of adoring fans, critical acclaim and a respected *Billboard* Century Award to her credit, Lennox remains humble and reportedly experiences bouts of anxiety at the thought of a live piano vocal. "She writes at the piano, but she had never played a piano onstage," Paterson says. "It's great that she had the confidence to do it, and she has the confidence in us to make it sound good."



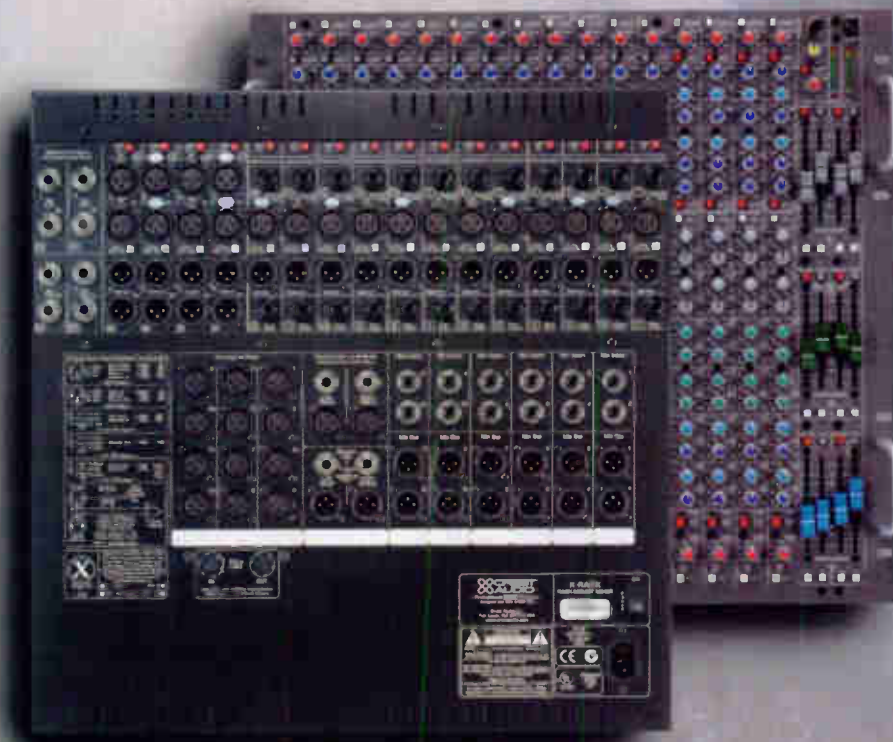
*Heather Johnson is a freelance writer based in the San Francisco Bay Area.*

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## New Sound Reinforcement Products



### COMMUNITY TANDEM DRIVE LOUDSPEAKERS

Tandem Drive loudspeakers from Community Professional ([www.loudspeakers.net](http://www.loudspeakers.net)) include the new full-range TD2212 and TD2215 models, which can be used as is or paired with the TD2115 and TD2218 (single-15 and double-18) subs via steel mounting poles. Ideal for smaller systems, the compact, 49-pound TD2212 is a two-way design with dual 12-inch Cool-Coil woofers and Community UC1 HF driver. For high-SPL environments, the TD2215 has dual 15-inch Cool-Coil drivers with the same 90°x40° UC1 horn-loaded HF section as the TD2212. All enclosures offer ErgoGrip handles, road-resistant TufCoat™ finishes and IntelliSense™ protection for maximum output without the risk of speaker damage. Prices range from the \$659 TD2212 to the \$1,399 TD2118.

### NTI SPEAKER TEST SOFTWARE

NTI's ([www.nti-instruments.com](http://www.nti-instruments.com)) Version 2.20 RT-Speaker software for automated transducer and loudspeaker production testing includes an online statistical overview of the test results. Also featured are measurements of frequency response, impedance curves, resonance frequency, rub and buzz, SPL levels, speaker polarity and Thiele/Small parameters. All results are compared in real time against defined QC tolerances, allowing for proper pass/fail comparisons. The system contains the high-speed RT-2M audio analyzer with the PureSound™ module operated via the PC-based production software.



### XTA DP6i CONTROLLER

The DP6i Audio Installation Controller from XTA (dist. by Group One, [www.g1im.com](http://www.g1im.com)) is a 2-in/6-out unit. Both inputs have an 8-band parametric EQ, base delay and gain control; all outputs feature crossover filters, 5-band parametric EQ, HF/LF shelving filters, limiter and delay. Four memory buttons store different system setups with fast switching between them, and panel lockout is provided. Centralized control of up to 32 DP6i units is available using XTA's AudioCore Windows software.



### TURBOSOUND QLIGHT TQ-315

Turbosound ([www.turbosound.com](http://www.turbosound.com)) expands its QLight Series with the compact, trapezoidal, two-way TQ-315, featuring the company's proprietary Converging Elliptical Waveguide horn design for horizontal and vertical speaker installs. The TQ-315 is a switchable bi-amped/passive design with a 15-inch woofer and 3-inch diaphragm HF driver on a rotatable 80°x50° Converging Elliptical Waveguide. It's made of 3/4-inch birch plywood, finished in black (TurboBlue optional) with reticulated foam grille. Standard features include a pole-mount socket and two Speakon NL-4MP jacks; flying hardware is optional.



### ALLEN & HEATH EXTENDS PA SERIES

Allen & Heath ([www.Allen-Heath.co.uk](http://www.Allen-Heath.co.uk)) has expanded its PA Series of consoles with the PA20 and PA28 unpowered mixers. The PA20 has 16 mono, plus two dual-stereo channels, for a 20-input channel count; the PA28 has 24 mono ins and the same stereo configuration. Both feature a new padless preamp, internal digital FX, parametric output EQ, and both analog and S/PDIF digital outputs. Mono channels have XLR inputs with switchable phantom power and TRS line inputs: 4-band EQ with shelving LF/HF, a fixed 250Hz LM band and fully sweepable HM; four aux sends (two pre-fader, two post-fader); mutes and PFLs; peak metering; and a 100mm fader. Outputs are stereo (with 100mm fader) and a mono sum out with level control for lobby or subwoofer feeds.



# THE IDEAL INDUSTRIAL AUDIO SOLUTION



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# Hit Factory/Criteria

## From Analog Troughs to 100BaseT, the Detail Is in the Wiring

Last winter, I had a speaking engagement that gave me the opportunity to visit my old stomping grounds in Miami. Back in the early '80s, Criteria Recording Studios was my home away from home. Actually, it was a madhouse, but a fun madhouse. Nowadays, it's Hit Factory/Criteria Recording. I thought I'd drop by to check out the current state of tech at the shiny new facility and fill you in on a top-notch install.

I wanted to see what a well-funded, state-of-the-art install looks like and hopefully discover some ideas for future purchases and upgrades. My HFC tour guide was Simon Soong, whose journey into audio madness began with an undergraduate stint at the University of Miami's Music Engineering program, where an undergraduate EE degree also earns a BFA in Music. He had heard about an opening at Criteria and was eventually hired, joining a team of two other techs; for the past 18 months, he's been chief engineer, supervising a staff of three.

My tour started with infrastructure, specifically the wiring: All harnesses were preassembled in the UK by White Mark and installed on-site. Mogami-to-Elco connectors were specified for analog carriage, with Category 5E from Belden for data connectivity. All rooms, save one, have floor troughs, but each machine room has wire trays coming in. All cable types—analogue audio, analogue video, data and digital audio—are in individual bundles but share the same raceway. Initially, one room had a digital desk that didn't require a trough, but it was yanked. The re-



Patch panels keep audio, analog video, data and digital audio cables organized.

placement, an SSL 9000, required trough wiring and so one had to be cut into the slab. Simon decided to go deep, cutting a 3-foot trough so that he'd never have to worry about carrying capacity.

### PATCH PANELS

The photo above shows an example of patch panels in each machine room. The rackspace shown are:

- A) Motionworker (firmware Version 5.0), Audio Kinetic Synchronizer ES1.11 and ES 1.12;
- B) EDAC/Elco patchfield for analog audio;
- C) BNC patchfield for analog video, video house sync, AES/EBU workclock and MADI;
- D) Sigma SS2100 audio distribution amp and video-sync distribution amp, NVision NV5500 sync generator, NVision NV1000 wordclock distribution amp and TT patch for AES/EBU.

In addition to the pipes above, there are two remotely patchable video feeds into each control room, along with ISDN access in each machine room.

Performing the master clock duties is an NVision 5500, which generates both video house sync and wordclock. When a session needs a combo analog/digital mix, house sync feeds an Audio Kinetics ES-Lock synchronizer in conjunction with a Motionworker machine-control interface, which then feeds analog slaves. Of course, that same house sync feeds a Pro Tools USD (Universal Slave Driver), keeping everyone on the same page.

Hit Factory/Criteria has the luxury of keeping many Digi drives online, so Simon sticks with FWB's



Engineer Simon Soong (left) and general manager Trevor Fletcher



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Canadian Musician  
Professional Sound  
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Denmark  
Soundcheck

Finland  
Rytä\*

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Keyboard  
Keyboard

Germany  
Gitarre & Bass  
Keyboard  
Musikmaschinen.net  
Production Partner  
Sticks  
DJ-Magazine

Greece  
Hxoσ-Etkona (remix)

Italy  
Beikstage  
Citterre  
Percussionist  
Rock & Play  
Strumenti Musicali

Poland  
Estrada i Studio  
Gazeta Muzyczna  
Gitarra i Bas  
Swiat Gitar

Russia  
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Best Music

Brasil  
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For the third time, Logic Platinum has been honored with one of the most prestigious awards in the music business – the 2003 Musikmesse International Press Award for best recording software. The prize, conferred by 55 editors from leading international music magazines, demonstrates once more the uncompromising standards of Logic Platinum. We are honoured by this, but more importantly, the prize is for all users worldwide who put their

trust in working with Logic every day. It gives them the assurance that they have invested in the right recording software – namely, the best. We also hope that this award will make the decision that much easier for those who have not yet decided on Logic. For Emagic, this award is a clear indication that we are on the right track, and it gives us further incentive to work even harder to improve Logic Platinum, and retain the title of best recording software.

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## BITSTREAM

Hard Disk Toolkit when tweezing the beasts, even though the SCSI HBAs are from Atto. His team performs drive maintenance once a month, a high-level format before it's rotated back into service. If the drive's been "naughty," then the drive gets a low-level format instead. Though FireWire drives usually ship with installable OS 9 system extensions, these are always disabled prior to joining the in-service pool. Simon still finds that the current implementation of drives, bridges and drivers yields a maximum of 48 channels on FireWire, whereas a modern SCSI drive will reliably yield a satisfying 64 channels.

All rooms have Ethernet on the same phone-line-combo wall plate that is fed from a Cayman Systems DSL router/Fire-wall, which provides DHCP services for the 100BaseT network. That, in turn, is fed from an ADSL bridge with services provided by the local ILEC, Bellsouth. Future plans call for an upgrade to SDSL (symmetrical DSL), as well as an in-house OS 10 server because, as Soong says, "out of the box, it comes with everything!" Simon also adds, "The license costs are very reasonable." They use Xdrive Technologies for now to move MP3 or .WAV files but not to move session files. "We haven't had much call for that [shipping whole sessions over public networks], so it suffices."

When Simon first started out as a tech, the gear was fixable but remarked that, "you can't troubleshoot anymore. The circuitry is all surface-mount so repairs become very difficult." Upon reflection, he laments that, "it's very hard to find a good maintenance person." After racking up huge college debts, "You don't want to start as an intern! A great thing about the Hit Factory family is we take maintenance and the technical aspects of the business very seriously."

On the subject of classic analog gear, he continues, "We have four EMT 140 plates, all with Martech [retrofit] electronics, but very few clients request them. Despite their sound, engineers increasingly rely on emulation rather than the real thing." Weird shit, sez I. They still have my fave old-school vocal processor, a Cooper Time Cube, though it lives in storage. Speaking of old school, analog decks consist of straight-up Studer A827 multitracks, a few are Gold Edition, along with stock Ampex ATR-102s and Studer A820 two tracks with a full range of head stacks for all.

Because Miami is a wee bit south of



Hit Factory/Criteria machine room

Duluth, HVAC is a serious issue about 10 months out of the year. Air handlers are a mix of Rheem and Carrier. The 30 existing roof-mounted air handlers were either remounted or put on slabs for proper mechanical isolation, so now the units don't contribute to structurally borne noise.

Speaking of noise criteria, general manager Trevor Fletcher related a great story about Studio C during its construction phase. He had booked in a string date as the very first session in the new room, and it turned out that parking lot renovations right outside coincided with the same time slot as the recording. He sat by his phone, dreading to make the call to hold up excavation of the coral bedrock that underlies all of southern Florida, but the call never happened. The room was dead quiet, the date went off without a hitch, and nobody was the wiser.

Studio F, a small and really comfy tracking and mixing room, has a unique "tram" feature for near-field monitors. The wicked cool, custom-aluminum track system devised by White Mark allows optimal placement regardless of operator position. Small but sturdy speaker platforms ride on rails that wrap around the room so that mini-monitors can be placed anywhere in the horizontal plane; amplification for minis is by Bryston. Crown M5000s are used for the mains and BGWs for the subwoofers in all rooms save Studio C, which is space-constrained. A gaggle of Haflers are used for foldback, which are fed by 16-channel Intelix Psychologist mixers.

That's all I have for you this month. I hope this deviation from my standard techie fare was appetizing. Let me know if you'd like more back room tours or specific topics. Write me at [bitstream@seneschal.net](mailto:bitstream@seneschal.net). Till next month, keep on tweaking! ■

*OMas was an iterant tweaker as a youth, particularly after he discovered Nikola Tesla and the joys of high-voltage electricity. This column was created while under the influence of Trevor's mojitos, Obliq-Sound Remixes and the satisfying acoustic pop of The Vessels.*



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World Radio History

## Tools of the Trade



### DIGIDESIGN 002 RACK

Digi's ([www.digidesign.com](http://www.digidesign.com)) 002 is being reborn in a rack: The FireWire-based 002 Rack offers all of the features found in the 002, minus the control surface, in a single 2U rackmount box. The unit is bundled with Pro Tools LE and a variety of RTAS/Audiosuite plug-ins, and operates at up to 24-bit/96kHz resolution. The interface includes eight channels of balanced analog I/O, eight channels of ADAT optical I/O and two channels of S/PDIF I/O, plus four mic pre's with phantom power, MIDI I/O and more. The 002 connects via FireWire to Macs; Windows PCs will be supported in a Pro Tools 6.1 release. Retail price is \$1,295.

### TASCAM US-122

Targeted at the desktop recordist, the Tascam ([www.tascam.com](http://www.tascam.com)) US-122 allows portability of audio and MIDI data to/from a computer (Mac or PC). The USB-powered device has two XLR phantom-powered mic inputs with ana-

log inserts and two double-duty line/instrument inputs on balanced 1/4-inch TRS jacks. The US-122 also offers 16 channels of MIDI I/O for use with synths and other MIDI gear. Drivers for the US-122 provide for compatibility with ASIO, WDM, GSIF and Apple Core Audio (OS X) software systems. Price: \$269.

### NEUMANN TLM 127

Neumann's ([www.neumannusa.com](http://www.neumannusa.com)) newest mic is based on its popular TLM 103, but features onboard switching for cardioid or omni polar pickup and a remote five-pattern switching option to be offered in the future. The mic also includes a switchable pad and low-cut filter, and includes an elastically suspended shock-mount. The mic will handle 140dB SPL and has a noise spec of 7 dBA (DIN/IEC 651) or 18.5 dB (CIR 468-3).



### WIZOO'S CUBASE SX/SL—MIXING AND MASTERING

Wizoo's ([www.wizoo.com](http://www.wizoo.com)) easy-to-read practical book provides help to improve arranging/mixing/mastering skills of Cubase SX/SL users. It offers a basic intro to the world of sound engineering, with

advanced music-production tips and a CD-ROM with audio examples and Cubase projects. Price is \$40 directly from Wizoo or music/book retailers.

### SADIE VERSION 5 SOFTWARE

SADiE ([www.sadie.com](http://www.sadie.com)) has launched Version 5 software as the core OS for a new range of workstation products for both PCM and DSD production. New enhancements to the existing user interface include a major playlist and mixer tweaks. Significant V. 5 features include the provision for enhanced real-time DirectX support, allowing users to access a vast range of third-party plug-ins from Waves, TC Electronic, Antares and others. Standard Windows networking functions are now supported, opening up greater multi-user-access possibilities to SADiE clients.

Responding to user comments, SADiE has changed its editing model, making it more friendly.

### DK-AUDIO PT5202

DK-Audio's ([www.dk-audio.com](http://www.dk-audio.com)) PT5202 Compact VariTime Sync Generator includes basic features for pro sync, timing and test signals, plus a user-friendly front control panel. The unit features high-stability reference and Genlock to PAL, NTSC or 10MHz clock for slave applications. Outputs include black burst (x3), one SDI signal generator, one analog video generator, one AES/EBU or analog audio, and one Word Clock out operating at 44.1/48 kHz.

### MIDDLE ATLANTIC D12SD

Middle Atlantic's ([www.middleatlantic.com](http://www.middleatlantic.com)) newest addition to its Edit Center line of products is a dual-bay outboard rack featuring two 12-rackspace bays. One side is open, while the other features a gasketed Plexiglas front door and gasketed, laminated rear door, which provides excellent noise control. The unit rides on casters that allow it to be rolled easily, and is available in marbled graphite or cherry laminate finishes.





### ELECTRO-HARMONIX LPB 2UBE STEREO PREAMP

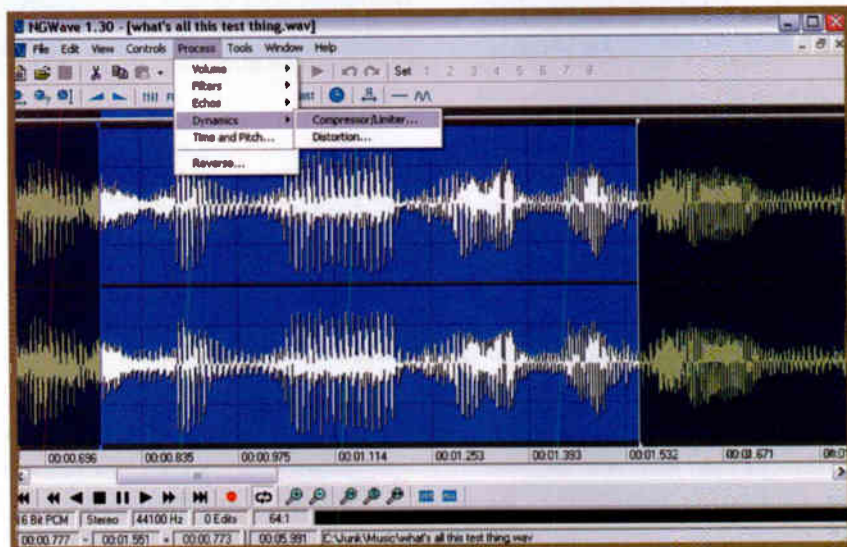
Electro-Harmonix ([www.ehx.com](http://www.ehx.com)) claims that this line-level preamp delivers smooth gain while remaining quiet and transparent. In either stereo or dual-mono mode, the LPB offers numerous applications for either live or studio use. The user can gain from the two inputs/outputs, making a clean preamp stage with both a master volume and master drive controls. Price: \$289.

### VIENNA SYMPHONIC LIBRARY ORCHESTRAL CUBE

Vienna Symphonic Library (dist. by Ilio Entertainments, [www.ilio.com](http://www.ilio.com)) has released the Orchestral Cube in Emagic EXS24 Mk II format. The Cube includes strings, brass and woodwinds, and percussion, and will eventually be bundled with the EXS Performance Tool plug-in. Unlike the GigaStudio version, whose Performance tool operates as a stand-alone application, the EXS tool will operate as a plug-in within Logic, allowing the user to access all of the expression toys within the application. Users who purchase the complete orchestral package will receive the Orchestral Cube and Performance tool as soon as they're available at a special price.

### BEHRINGER ADA8000

Behringer ([www.behringer.com](http://www.behringer.com)) recently released the Ultragain Pro-8 Digital ADA8000, an 8-channel digital front end. The new box has eight Behringer IMP (Invisible Mic Preamp) pre's, accessible through either XLR or 1/4-inch TRS connectors. From there, the user can send the signals out to a DAW or other digital device through the analog outputs or an ADAT Lightpipe. Sample rates are 44.1 or 48k at 24 bits and synchable via wordclock or the ADAT input.

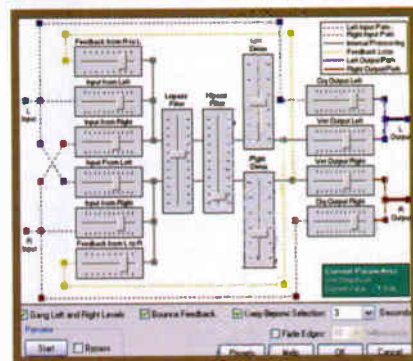


### NEXT GENERATION SOFTWARE NGWAVE 1.41

NGWave 1.41 from Next Generation ([www.ngwave.com](http://www.ngwave.com)) offers a \$19.95 PC audio editor with basic edit/DSP functions. NGWave lets users record sounds from any installed sound card and perform copy/cut/paste operations. It offers EQ, filtering, delay/reverb, dynamic compression and more. NGWave's Waveform display and unique internal storage format let most edit operations take place nearly instantaneously. NGWave runs on Windows 98/ME/2000/XP and requires a Pentium II or better.

### RYCOTE MIC DATA CD-ROM

Modeled after its impressive mic data hardcover book, Rycote has captured the details of just about every single mic in professional use—more than 1,000 from over 60 manufacturers—and put them on a searchable CD-ROM. The disc is loaded with pictures, specs, response curves and polar diagrams, all to standard references and scales for easy mic-to-mic comparison. For anyone into mics or audio education, this is a must-have. To order a CD, visit [www.microphone-data.com](http://www.microphone-data.com).



### HANNAY UPDATES CABLE REELS

A necessary accessory to keep long cables manageable, the Model AVC1150 storage reel from Hannay ([www.hannay.com](http://www.hannay.com)) comes with an optional folding handle and a cam-lock brake. Also useful is an opening in the drum that permits the cable end to be inserted to initiate winding. The AVC weighs in at 44 pounds, and comes in nonreflective, black air-dried enamel.

### MAXELL DVD-R PLUS DISCS

Maxell Professional ([www.maxell.com](http://www.maxell.com)) extends its DVD line with the DVD-R Plus Series discs for video, audio and data-storage applications. The 4.7GB-capacity discs support 4x write speeds, and a proprietary organic dye offers excellent media compatibility. The discs are write-compatible with any DVD-R recorder and read-compatible with DVD-ROM, DVD-Video and DVD-Audio players.



**TC ELECTRONIC P2 LEVEL PILOT**

Targeted at broadcast and post users, the P2 from TC Electronic ([www.tc-electronic.com](http://www.tc-electronic.com)) provides lockable dynamic control for experts and novice users. The unit comes loaded with a host of standard presets, ensuring compliance with audio standards, maximum loudness, spectral balance and total level controls. Included PC ICON software provides detailed access to all parameters for editing and creating tailor-made presets, and settings can easily be cloned to other P2 units.

**PEARL CO 22 OMNI**

Sweden's Pearl Lab (dist. by Independent Audio, [www.independentaudio.com](http://www.independentaudio.com)) introduces the CO 22, its newest studio condenser microphone. This large-diaphragm, phantom-powered omni boasts low self-noise and flat response both on- and off-axis.



**SURGEX SA-15/SA-20**

SurgeX ([www.surgex.com](http://www.surgex.com)) announces the release of its latest products, the SA-15 and SA-20. The new 15/20-amp-capable units offer high-quality surge suppression and power conditioning with upgraded performance over their predecessors. SurgeX uses proprietary, certified A-1-1 technology, has an ETL 1449-2 safety listing and carries a 10-year warranty.

**URSA MAJOR**

**SPACE STATION RETURNS**

Rekindled by Ursa Major founder Christopher Moore, Seven Woods

Audio ([www.sevenwoodsaudio.com](http://www.sevenwoodsaudio.com)) announces the new SST-206 Space Station, combining the reverb/effects of the classic Ursa Major Space Station with a powerful, mod-

ern reverb in a paperback book-size case. The new Space Station features 24-bit, 44.1/48kHz AES/EBU digital I/O, and accepts 24-bit audio at 48 or 44.1 kHz and—at 6.4x4.8x0.6 inches—is smaller than the remotes to other reverbs. Operation is push-and-go, with 12 simple knobs that show the current settings.

**CAD E100<sup>2</sup> MIC**

Part of CAD Professional's new ([www.cadmics.com](http://www.cadmics.com)) Equitek<sup>2</sup> mic line—which also includes the e202 and e303 vocal models, e50<sup>2</sup> kick and e60<sup>2</sup>/e80<sup>2</sup> instrument mics—the e100<sup>2</sup> is a side-address, multi-purpose studio condenser. Like other high-end CAD mics, the e100<sup>2</sup>'s servo-condenser design uses an internal power reservoir that can supply 10x the current from phantom powering alone. The mic includes a switchable -20dB pad, 80Hz lowcut filter, shock-mount and carry case.

**NTI MINILINK USB**

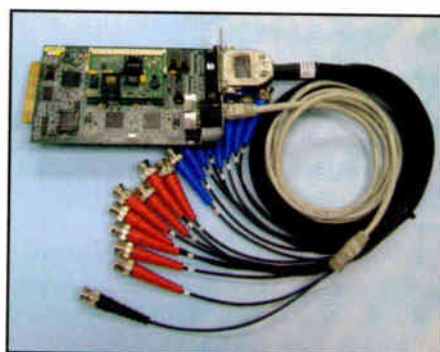
The MiniLINK USB interface from NTI ([www.nti-instruments.com](http://www.nti-instruments.com)) allows documentation and data acquisition of all Minilyzer ML1 and Digilyzer DL1 functions to a PC. The data I/O lets users store and transfer screen shots and measurement data for post processing. The new tool



requires the most recent firmware upgrade and the addition of a simple, user-installable USB port to the hand-held units.

**PRISM DSD INTERFACE**

Prism Sound ([www.prismsound.com](http://www.prismsound.com)) recently announced the availability of its first DSD-compatible product: the DSD processor and interface module for the ADA-8 converter. The new processor not only provides a high-quality, multichannel AD/DA conversion path for origination and playback of DSD recordings, but also supports high-quality conversion between PCM and DSD formats.



**SERAFINE AMBIENCE 5.1 COLLECTION**

Frank Serafine ([www.frankserafine.com](http://www.frankserafine.com)) has just released the Ambience 5.1 Collection of the Serafine Collection of sound effects libraries. Ambience 5.1 is a 20-DVD collection of surround sound samples from both natural and city environments. Ambient sounds include traffic, rain, waterfalls, forests, wind, countryside, neighborhood, weather, aquatic, crowds and more. Audio files are .AIFF and 5.1 DVD-Audio. Ambience 5.1 begins shipping in August. Price: \$1,999.





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**ADK MODEL S VIENNA EDITION**

Debuting at Summer NAMM from ADK Microphones ([www.adkmic.com](http://www.adkmic.com)) is an upgraded version of its popular A-51 studio condenser mic but with an Austrian-inspired tonality. The new Vienna Edition features Class-A discrete electronics, dramatically improved specs (15dBa noise) over its predecessor, an 18dB pad and 80Hz HP filter. Retail: \$595.



**MILLENNIA TD-1 TWIN DIRECT RECORDING SYSTEM**

Far beyond ordinary direct boxes, the all-discrete TD-1 Twin Direct Recording System from Millennia Media ([www.mil-media.com](http://www.mil-media.com)) offers a 1/4-inch instrument input, XLR line in, 1/4-inch Speaker Soak® input, and optional 65dB-gain HV-3 mic preamp in a half-width, rack-mountable chassis. Featured are selectable tube or solid-state DI amps, full-range (20-25k Hz) parametric EQ and three input-impedance settings. Nine

outputs include line-level (XLR or 1/4-inch), an audiophile-grade headphone amp, a 1/4-inch (buffered or unbuffered) direct out, and a custom DI transformer for an isolated, mic-level DI out with 3-300k Hz response. Two extra 1/4-inch outs offer Les Paul and Strat emulation using REAMP® technology,

letting engineers work on live guitar recording techniques after the guitarist leaves the studio. Utility functions include switches and internal jumpers to set ground isolation, -20dB input pad switch, signal presence and clip LEDs, polarity reverse switching, 100-240 VAC powering and more. Retail: \$1,395.

**UPGRADES AND UPDATES**



WiebeTech ([www.wiebetech.com](http://www.wiebetech.com)) announces major capacity improvements to its UltraGB high-capacity, trans-portable bus-powered drive: It's now available in capacities to 250 GB (\$699.95); formerly, the capacity limit was 120 GB. Prices are also reduced in 80GB and 120GB capacities...Cakewalk's VST Adapter converts VST format plug-ins to DirectX and DXi formats. It's downloadable at Cakewalk's Website ([www.cakewalk.com](http://www.cakewalk.com)) for \$59 or as a free upgrade for registered FXpansion VST-DX adapter users...Contour Design adds Pro Tools support to its Shuttle Xpress multimedia controller. The new app lets the Xpress replicate any Pro Tools-supported keyboard command,

and is a free download at [www.contourdesign.com](http://www.contourdesign.com)...Logitek released V. 3 firmware for its Audio Engine and has increased the capabilities of the system's Supervisor software. For more info, visit [www.logitekaudio.com](http://www.logitekaudio.com)...Microboards enhances its DiscPrinter and TowerDiscCopier products: PrintFactory can now have up to five units connected to a single PC, increasing production to 1,000 discs/hour. In addition, its DSR DVD Series copiers now have 16-drive capability, greatly increasing copy turnaround times...Dialogue Intelligence for Dolby Labs LM100 Loudness meter simplifies the process of quantifying the subjective loudness of dialog between television programs and channels. Visit [www.dolby.com](http://www.dolby.com)...Native Instruments will support the RTAS interface in all new products released during 2003; all existing products will support RTAS in upcoming revisions. An RTAS support schedule is at [www.native-instruments.de](http://www.native-instruments.de)...Digidesign is now distributing the TC Works Master X TDM plug-in and the TC Tools bundle of TDM plug-ins. MSRP for Master X is \$495, and TC Tools is \$795. Visit [www.digidesign.com](http://www.digidesign.com)...The latest version of Syntrillium's Cool Edit

Pro audio editing software adds Mackie Control support. Go to [www.syntrillium.com](http://www.syntrillium.com) for details...Now shipping: an upgrade for Otari's Lightwinder LW-50 Colosseum optical-fiber-based audio transmission and routing system. Existing 20-bit analog modules have been discontinued: The new analog input (A/D) and output (D/A) modules support 24-bit word lengths. For more, visit [www.otari.com](http://www.otari.com)...Now available: APM Music Big Shorts is a six-CD micro-library designed to offer custom-tailored, big-sounding cuts for short spots. For full info and a listen, visit [www.apm-music.com](http://www.apm-music.com)...Berklee Press, the publishing division of Berklee College of Music, has released the second edition of *Producing in the Home Studio With Pro Tools*. Written by producer, engineer and songwriter David Franz, the second edition is fully updated for the new features in Pro Tools 6 software and Digidesign hardware products. A new chapter on digital audio editing was added, and new hands-on projects have been added in every chapter. The second edition also features more advanced Pro Tools sessions with audio examples, plus QuickTime movies that explain techniques. ■



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World Radio History

# Cakewalk Project5

## Sampler, Synthesizer and Drum Machine, Plus DX and VST Hosting

**P**roject5 is the new synth/sampler/drum machine-in-a-virtual-rack application from Cakewalk. This is not a new idea, but Project5 is different from many of its predecessors and more sophisticated in a number of ways. The key distinction is its ability to handle DXi and VST synthesizers and signal processing, plus ReWire support. While there are a number of nice VST and DX hosts available, it's helpful to have everything integrated into a tidy package.

### UNDER THE HOOD

Project5 features the P-SEQ sequencer. Though it's not a super-deep world-class sequencer, it definitely does the trick. The maximum resolution is a 128th-note triplet, which should be sufficient for most electronic music, the primary intention of this product. Inputs can come in the form of pre-existing patterns (from the Pattern Bin) or from an external MIDI controller. MIDI input can be live and in real time; step sequencing is available, as well. P-SEQ can be used to create patterns that are then "sent" to the Tracker, the main area where the song's layout is displayed. The Tracker shows two "panes": Track and Arrangement. The Track pane displays a list of the various instruments used in the song and information about them. The Arrangement pane is where the patterns that form the song are edited and arranged. P-SEQ also enables automation of quite a number of parameters.

SYN.OPS—"synthesizer operations"—is a window that enables the instrument output to be sent to any of four auxiliaries. It's also where the various parameters of the instruments are controlled. There is also an analog-style step sequencer known as "Synchron 32" that is used as a MIDI plugin. Once a pattern is entered into Synchron 32, it can be triggered by events in Tracker; synchronization is automatically maintained.

The Cyclone DXi is essentially a loop player. It can accept ACIDized or .WAV files, and behaves similarly to Propellerhead's ReCycle. Loops can be broken into constituent "slices," and each slice can be



*Project5 is a complete software synthesizer workstation.*

altered individually in terms of level, pan and pitch.

The DS864 Sampler yields a lot of power. All of the typical sampler features are there, including key mapping and diverse velocity zones for rich piano patches or realistic percussion. Looping is supported, and volume offsets, tuning and panning are adjustable, as well. There are some basic effects available—like wave reversal, phase inversion and bit decimation—to emulate vintage low-resolution samplers. Separate envelope generators are provided for each of the two filters: pitch and amplitude. Lowpass, highpass, bandpass and notch filters are available in filter 1, while filter 2 is a lowpass; both filters are resonant. There are also three LFOs with five different waveforms that can be routed to many parameters. Another nice touch is the Portamento sample that handles quite a number of formats, including .WAV and .AIFF, .AKP (Akai), .KRZ (Kurzweil), .SF2 and DS864's proprietary format, .DP8.

According to Cakewalk's manual, the nPULSE Modular Drum Synth is "reminiscent of Roland's TR808." Indeed, this virtual drum machine offers 12 voices, each of which is essentially a subtractive synthesizer. The module can be key-mapped for easy MIDI play, and offers ring and frequency modulation between certain voices. These voices go beyond just oscillator/filter/envelope. The kicks and

toms have a Drive parameter that imparts some color to the sound. Each voice can be routed to any of five distinct outputs.

Project5 also provides the PSYN Virtual Analog Synthesizer. This is a very respectable, 64-voice polyphonic synth featuring four oscillators. Each can deliver sine, triangle, pulse, up saw, down saw, noise or virtually any combination thereof. There is also a suboscillator that renders a sine wave an octave below the main oscillator. Ring modulation and FM synthesis are available, as well. There are two filters: The first is a 2-pole that can be configured as lowpass, highpass, bandpass and notch; the second is a 4-pole lowpass that is intended, according to the manual, to emulate the "traditional Moog filter of the 1960s." Both filters are resonant. It's nice that the filters can be inserted in series or parallel, because it adds a lot of flexibility. There are five envelope generators with attack, decay, sustain, slope and release. As with the DS864 Sampler, there is also a Delay parameter that Cakewalk claims is a sixth stage of the envelope, but it simply delays the onset of the attack and gives no control over the envelope's dynamics. On the other hand, it's quite nice to be able to delay the onset of an envelope that controls a filter or VCA, or delay the onset of another voice when the patch uses layered oscillators. There are three LFOs available, essentially with the same features as those in the DS864 Sampler.



# Personal Monitor Mixing

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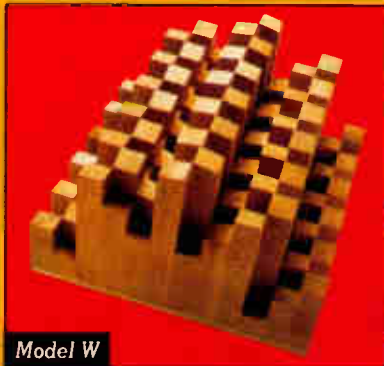
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If nPULSE's electro drums are not working for your acoustical project, then Velocity Drum Sampler is available. This is similar to Native Instrument's Battery (although not as deep) or LM-4 from Steinberg. (Incidentally, Project5 supports LM-4 samples.) You have a bank of 18 samples set up for triggering via MIDI. To emulate vintage samplers, each sample can be changed in terms of pitch, reversing, start or end offset, looping and bit decimation. There are envelope generators for amplitude and pitch and a resonant lowpass filter. There is also a "choke group" that stops sample playback when any other sample in the group is played.

**IN ACTION**

I opened up a few of the included sample sequences to get a feel for the operation of Project5 and found the interface reasonably accommodating. This is not the only "rack-full-of-virtual-modules"-type application that suffers from the difficulty of having a lot of features to squeeze on-to the screen simultaneously. Still, I was able to navigate freely through the features. Most of the interface is self-explanatory, with the typical Save, Open and Browse icons that do exactly what you think they do. I was able to play sequences both via MIDI controller and also by literally dragging notes into the pattern sequencer. Loops and other chunks of audio are loaded from and saved to disk via menu dialog, and I was able to create automation of much more than level and panning very easily in the P-SEQ, as well. The interface is visually appealing, but the signal processors in the mix panel lack the photo-realistic sheen of other such products. The knobs are easily "grabbed and turned," even with my rotten little track pad!

**CONCLUSION**

Project5 is a robust environment for the creation of electronic music. Among its higher points are the ReWire support, analog synthesizer and the ability to use VST and DXi plug-ins. Once again, while there are plenty of VST/DXi hosts to choose from, it's nice to have all of the sequencing, mixing and automation capabilities integrated together. The idea behind Project5 is not new, but this is a unique and useful application.

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*John McJunkin is the principal of Avalon Audio Services in Phoenix.*

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# Audio-Technica AT3060

## Phantom-Powered Tube Condenser Microphone

The AT3060 tube condenser microphone is a new addition to Audio-Technica's 30 Series but with a twist: Its onboard tube electronics are 48-volt, phantom-powered and use ordinary XLR mic cables; no bulky external power supply is required. According to A-T, removing the PS allowed the company to put more money into the mic's components and manufacturing. Beyond the added expense of a power supply and specialized cables, other practical advantages become apparent once you put this side-address cardioid mic to work. An ideal 3060 application is location recording, where an AC source near the mic may not be readily available. Live sound mixers who would like to use a warmer tube mic will appreciate the mic's "plug-and-play" aspect: no power supply to hide and protect onstage.

The 3060's silver-painted brass body is the same as that of the AT3035's open acoustical housing design, which reduces case resonances. The one-piece internal mic assembly—held in place by three small Phillips screws—easily slips out for inspection. The 1-inch Mylar diaphragm is two microns thick and gold-vapor deposited. The entire capsule assembly with nickel-plated brass acoustic baffle is similar to the one used in the A-T 40 Series mics.

The tube is a hand-selected, pre-aged, subminiature Raytheon 6418 triode. Mounted near the bottom of the mic, it is connected by whisker-thin wires soldered to a PC board below it. The rest of the amplifier components, voltage converters/regulators for the plate and filament (and output XLR) are on this board. To prevent tube microphonics, the peanut-size triode is surrounded in foam and shock-mounted in a brass block. I was pleased to see a big output transformer (A-T says this contributes to the 3060's low-frequency character) and that the top end extends out to about 17 kHz, according to the frequency response plot.

### IN THE STUDIO

Using the AT3060 is the same as any other phantom-powered mic: plug it in and go. The manual recommends waiting 10

minutes for warm up and stable operation, but the mic comes on nearly instantly (with no thump or pop) and is ready to rock in a minute or so. The included AT8458 shock-mount works well due to its clever design: Instead of a captive clamp arrangement—which on other shock-mounts can wear out or break with repeated use—the 3060 body has a groove machined around its circumference that mates to supporting elastic cords. Once the cord ends click into this groove, it takes a good tug to remove the mic. Not surprisingly, the mic never fell out, even when it was inverted or shaken.

I used the AT3060 to record two different female singers, a chromatic harmonica and acoustic guitars. For the singers, I used an Avalon VT-737SP channel and found the mic very clean, accurate and open-sounding, with a very low noise floor. (Specs list EIN as 17 dBA.) The frequency chart shows a 2dB rise from 4 to 5 kHz and this was a good touch here; I didn't use any EQ when recording or when I mixed the project later on. I liked the warm bottom end, even when the girls sometimes "kissed" the mic: proximity effect, yes; boominess, no.

I had no mic overload or compression with loud and close singing, which is an initial concern, as there's no attenuator pad. I encountered no sibilance problems or high-frequency hiss, even though the mic's response extends to 17 kHz. This high-frequency response is flat and smooth rather than lifted like many tube mics: yet another reason to have this mic in your studio. However, the 3060's tight cardioid polar pattern did require my singers to stay more "on their marks," aimed at the front of the mic. With this in mind, I'm sure the 3060 would also be suited for live stage work due to its good off-axis rejection. I'd like to try an omni or maybe a multipattern version of this mic someday.

Recording chromatic harmonica was trouble-free: I miked it from above the instrument, just above the top of the player's head, looking down at the middle of the harmonica about 10 inches away. My player moved around a little to work the



mic and I did have to EQ out a little of the 2 to 5kHz area as the producer was looking for a more mellow tone out of this bright instrument. The 3060 captured all of the player's mouth noises and breathing perfectly, while rejecting the noise coming from a nearby air-conditioning vent. (I aimed the musician and the back of the mic toward that vent.)

Acoustic guitars sounded full, yet bright and balanced. I required no roll-off (the mic has none) and placed the 3060 between the sound hole and the start of the fretboard, and about 18 inches out front. For fingerpicking, I aimed the 3060 more toward the bridge and cranked up mic gain on Universal Audio's new UA 6176 channel. I usually don't like the sound of large-capsule condensers on acoustics, but this mic surprised me! With nearly the same articulation as smaller-capsule condensers, there was plenty of gain to capture it all with a good, solid bottom end.

The AT3060 retails at \$599 MSRP and—like all Audio-Technica mics—has a one-year warranty. I found the mic's all-around usefulness, smooth high-frequency response and warm sound make this one a solid winner. If you work in recording or live sound situations where external supply is an issue, you'll be even more impressed.

Audio-Technica, 330/686-2600, [www.audio-technica.com](http://www.audio-technica.com). ■

*Barry Rudolph is an L.A.-based recording engineer. Visit his Website at [www.barryrudolph.com](http://www.barryrudolph.com).*



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# Eventide ClockWorks Legacy Plug-Ins

## Old Standbys Gone Virtual

It would be hard to find anyone who's worked in and around pro studios during the past 30 years who hasn't used an Eventide product. It seems that there has always been some kind of Eventide product currently in vogue, but unless you've collected some choice pieces, the older gear is often relegated to some dusty corner. The result is that you seldom get to play with the audio toys of the past, especially since DAW's rise in popularity. That is, until now. Eventide has given new life to some golden oldies by porting five of its legacy effects for Pro Tools. The new ClockWorks Legacy plug-ins (list price \$795) are accurate representations of the Instant Phaser, Instant Flanger, Omnipressor, H910 Harmonizer and the H949 Harmonizer.

The plug-ins operate in either Mac OS 9 or OS X, all at up to 96k, but only the Phaser and Omnipressor operate at up to 192k. Installation and iLock authorization were a breeze, and I was up and running quickly without any problems. Although some of the plugs will require a quick read through the manual to master, the interfaces are intuitive and mouse-friendly, allowing either broad, mouse-only adjustments, or finetuned tweaks using the Command key and mouse. The well-written user's guide is handy in a pinch, and Eventide has even included the original owner's manuals; both are in .pdf format. All of the plug-ins checked in at a measly six samples of latency and include a number of importable presets for those who want to see what the creators could come up with.

### OMNIPRESSOR (1976-1984)

By far my favorite of the bunch is the Omnipressor, partially because I own the hardware version and mostly because there's nothing like it. It takes compression/expansion to a new level and adds a load of fun in the process. The unit's versatility has allowed me to inject dynamics into lifeless loops, expand my way out of noise problems, put lead guitars right in the listener's face and much more. This is a great utility compressor that can create a wide variety of interesting dynamic effects.



The Omnipressor plug-in offers Threshold, Attack and Release controls, as well as unique Function, Atten Limit and Gain Limit functions.

Basic controls include the expected Threshold, Attack and Release, but what's unique here are the Function, Atten Limit and Gain Limit knobs. From full counterclockwise to full clockwise positions, the Function control takes the unit between gating, expansion, limiting, extreme compression and, most interestingly, dynamic reversal, where +10 dB of input results in a -10dB output and vice versa. Atten and Gain LEDs, situated on either side of the meter provide the user with feedback as to what exactly is going on dynamically. Input control is achieved by the Input Cal buttons, resulting in -10 dB, -20 dB or, if both are pushed, -30 dB of attenuation. The Bass button is a switchable highpass filter across the sidechain input (frequency response is not affected), and the three Meter Funct buttons switch the meter between input, relative gain and output readings. Lastly, the Output Cal buttons allow a gain boost of +10 dB, +20 dB or, if both are pushed, +30 dB.

For the test, I took my hardware Omnipressor and put it across a track insert in Pro Tools and called up the plug-

in version on a copy of the same track in the Mix window. The track I used was a trashy loop that had the dynamics squashed right out of it. I set both Omnipressors to the same settings and compared them. They were close, but quite different. However, this was more the fault of the hardware box being quirky and old than a mismatch in functionality. After a bit of tweaking, I was able to match the tracks perfectly. I then fiddled with the Attack, Release, Gain and Atten Limit controls and got similar results from both units. Simply put, Eventide has nailed the functions of the Omnipressor in the software version.

### INSTANT PHASER (1971-1977)

One of the two mono-in/stereo-out plugs in the bunch is the Instant Phaser. The main controls include Manual, Oscillator, Envelope and Remote. These functions can be accessed manually from their individual sections on the front panel or you can switch between them using the Function button on the far right of the unit. Manual does what you'd expect it to do: It lets you manually control the phas-



Unlike the original, the H949 Harmonizer plug-in lets you save settings.



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ing effect. The Oscillator takes the phase sweep from a slow 0.1 Hz up to a vibrato effect at 10 Hz. The Envelope button is an envelope follower that triggers phasing from the input signal and is controlled by threshold and release knobs. The Remote button—as with any of the other plug-ins that have this ability—is an upgrade from the original version, letting the effect be externally controlled by a MIDI Mod Wheel. The Depth control takes the effect from a 50/50 mix up to 100%. Sonically, the Phaser was fun to play with, although not a knockout by my standards. This is a purely subjective

opinion, but phasing as an effect is just not something I'd use or that I've heard of as a retro trend. Of course, your applications may be different.

#### INSTANT FLANGER (1976-1984)

The Instant Flanger is the second mono-in/stereo-out plug-in that provides a nice range of effects. Controls include Feedback, Bounce, Depth, Oscillator, Manual, Envelope and Remote. Feedback adds output back to the input, giving the user the ability to create interesting, if not out-of-control, effects. Bounce simulates the effect of a servomotor changing speed.

The remaining controls operate the same way that they do in the Instant Phaser and can be switched in and out individually. The Depth control is different from the same control found on the Phase. However, here the full left and right positions swap in- and out-of-phase signals to the two channels. When the control is placed in the center (Doppler), there is no flanging effect until the frequency is varied by a control change. I used the Flanger across a number of tracks including guitar, vocals and keyboards and was able to create a nice array of flanging effects, although not as wacky as I'd like.

#### H910 HARMONIZER (1975-1984)

The original H910 was not only one of the first digital studio tools, but also the first in the Harmonizer line, whose progeny still graces the racks of studios around the globe. It was glitchy and had the ability to drive you to madness, but when set up properly, it provided some degree of usable and interesting time-based effects. Controls include Input Level, Feedback, Manual, Remote and Anti-Feedback. Input level, as you would expect, sets the amount of input signal and has an accompanying LED that lights just short of full-scale. Feedback adds output back into the unit determining the decay times of the delay, and if taken to extremes, can send the unit into oscillation. Manual gives the user the ability to dial in up to one octave of pitch change, either up or down, with the degree of change reflected in the Pitch Ratio window at the center of the box. Anti-Feedback adds some amount of frequency shift to the output signal, serving to decrease room-resonance peaks. The Manual, Anti-Feedback and Remote controls are switched in and out using the three Pitch/Control/Select buttons at the bottom of the unit. The unit doubles as a limited delay-only device, providing various delay times by pushing a combination of the 7.5, 15, 30 and 60 millisecond buttons. This was my least favorite of the plugs, and in my opinion would have limited use because of its glitchy and troublesome nature. There's a reason why Eventide improved on it with the H949: Time marches on.

#### H949 HARMONIZER (1977-1984)

In 1977, H949 reflected a leap in Harmonizer function and usability with groundbreaking features such as three octaves of pitch-change with micro and random settings, reverse effects and time compression and expansion (when used in conjunction with a tape machine). Another first was the Repeat button that

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captures and repeats up to 400 ms of non-triggerable audio (Cro-Magnon sampling). The controls are numerous and include Input Level with a five-segment LED meter and pitch, which can be controlled either manually or via MIDI. Compared to the H910, feedback control is greatly expanded: The main signal controls the system output to system input, delay feeds back delay outputs in the Delay/Reversal modes, and a fixed-frequency hi and low EQ provides boost/cut EQ control over the feedback signal. The Function button acts as

a Shift key, switching between either the red or green labels below and above the four buttons to the right. The red labels reflect "norm," which is normal pitch shift that is operated manually, and "extend," which permits an extension of the length of the audio segment over which pitch change will be affected, up to 400 ms. The last is the Micro Pitch-Change mode, which operates as advertised. The green labels reflect delay, which adds gangable amounts of delays by combining the six

fixed-value delay buttons. Random causes the delay to vary between zero and 25 ms at a constant rate and pitch. The pitch is adjustable using the Manual dial. Flange drops the unit into Flanging mode, and Reverse plays the captured audio in reverse. Another nice feature is the Algo-



The Instant Phaser is one of two mono-in/stereo-out plug-ins in the bundle.

rithm Select, which gives you the ability to de-glitch the audio, depending on the source material and pitch change used. By using the six dedicated delay buttons on the left of the unit, the H949 can be used in delay-only mode.

This plug is worth exploring. It is easy to get lost in (I mean that in a good way), but just as easy to find unique and usable effects. Of course, unlike the original, whatever you dial up can be saved and recalled for future use.

## IN CONCLUSION

Eventide has created a winning bundle of plug-ins that accurately represents classic effects of the '70s and '80s. Each plug, in its own right, is an artful and accurate representation of the original, although some will have limited use. The value of the individual plug-ins is strictly up to the user, as some of the effects have been far surpassed in newer gear, such as the Eventide Orville. The ability to automate the plugs—and on some, include Mod Wheel control—certainly makes the bundle more usable for 21st-century

production. The Flanger and H949 were contenders for my favorite, but the one plug that stands strongest is the Omnipressor, which is worth the price of admission itself. Can you tell that I'm a fan? The bundle is certainly unique and would be a nice addition to the plug-in palette of any Pro Tools user.

Eventide, 201/641-1200, [www.eventide.com](http://www.eventide.com).



Kevin Becka is a technical editor at Mix.

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# PSPaudioware VintageWarmer

## Multiband Compression and More, Served With Cream

**P**SPaudioware's VintageWarmer plug-in delivers creamy-sounding dynamics processing in two flavors: via its wideband compression (with shelving pre-equalization) and multiband compression modes (the latter followed by a brickwall limiter). I'll warn you right now: This plug-in's processing chain and user interface are a bit counter-intuitive and take a little getting used to. But for all of its quirks, VintageWarmer earns your dollars because it sounds terrific. The plug-in works with VST, RTAS and MAS on a Mac, and VST and DirectX on PC; I reviewed the MAS version in Digital Performer using an 867MHz dual-processor G4 fitted with 768 MB of RAM and running Mac OS 9.2.2.

### AT THE CONTROLS

VintageWarmer's graphic user interface toggles between two screens, showing virtual front and rear panels, respectively. (You click on the plug-in's title, inside either panel, to toggle back and forth between the two screens.) Most of the audio processing parameters, along with meters, are found on the front panel. Additional processing controls and metering tweaks (for metering preferences) are found on the plug-in's rear panel.

A toggle switch on VintageWarmer's front panel alternately selects between single-band and multiband compression modes. Single-band mode features both high/low-shelving equalizers placed before a single wideband compressor. Multiband mode offers three band-limited compressors, the outputs of which are summed and sent on to a brickwall limiter.

In single-band mode, four knobs let you adjust the corner frequencies for the high/low-shelving equalizers and independently boost/cut up to  $\pm 12$  dB in each band. Permissible corner-frequency settings range between 25 and 400 Hz for low shelving and between 1 and 16 kHz for high shelving, providing excellent control.

When you switch to multiband compression mode, the four knobs I just mentioned now become gain boost/cut and crossover frequency controls for the low- and high-compression bands, respective-

ly. The boost/cut controls remain "pre-dynamics," rather than serving as makeup gain controls. This rather unusual arrangement forces you, for example, to readjust VintageWarmer's threshold control(s) to higher settings whenever you boost in-band gain (assuming that you want the degree of compression unchanged). Separate controls on VintageWarmer's rear panel independently adjust the thresholds for three frequency bands. These threshold controls work in conjunction with VintageWarmer's Ceiling control, which is a global threshold adjustment for all compressors (in either mode) and the multiband mode's brickwall limiter.

A Drive control adjusts the input level to the compressor(s) in both single-band and multiband modes. There are no ratio controls offered, but a wide-ranging Knee control serves up a variety of useful compression curves for all of the compressors. (The brickwall limiter is always set to hard-knee operation and is unaffected by the Knee control's setting.)

A Speed knob on VintageWarmer's front panel simultaneously adjusts the attack and release times for all compressors in proportional fashion. This knob works in conjunction with three release-multiplier knobs (low, mid and high) that serve VintageWarmer's respective band-limited compressors, as well as with a master/global release-multiplier control. To get a fast attack and slow release, for example, you would increase the speed control's value (which would speed up the attack and release times) and decrease the master release multiplier and/or the dedicated release multiplier for each band as needed (in multiband mode) to counteract the Speed control's fast release setting.

At the end of the signal chain are continuously variable mix and output controls. Controlling the end of the signal chain are Mix and Output knobs. Mix provides a continuously adjustable balance between processed and unprocessed signals. Output provides makeup gain for the plug-in's entire output.

VintageWarmer also provides switches for mono/stereo operation (the latter for



VintageWarmer's virtual "front panel"

use on stereo/split-stereo, and not dual-mono, tracks), stereo linking, processing bypass and various functions for the plug-in's two virtual VU-style meters. The meters' ballistics can be toggled between VU and PPM. You can also set the meters to show pre- or post-compressor(s) signal levels (which are sourced after the EQ or in-band boost/cut) or gain reduction. Ingenious clip LEDs complement the VU-style meters: They indicate both current and past clipping by lighting in different shades of red. VintageWarmer's rear panel provides a plethora of controls to tweak the meters' and clip LEDs' behaviors, including meter integration (reaction) time, 0VU reference-level setting and an Overs counter.

### MISSING YOU

As mentioned earlier, there are no separate attack controls for each compressor in multiband mode. I also wish there were a separate boost/cut control for the middle band. To boost the input level to the middle band without changing levels in low and high bands, you have to boost the Drive control and then cut the low- and high-band gain controls a commensurate amount to compensate for their Drive boost. That task is made more difficult by the lack of separate threshold indicators and gain-reduction meters for each band. You also can't bypass processing for each band independently nor can you disable the brickwall limiter. That last complaint is largely pedantic, however, as the brickwall limiter sounds really transparent and



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serves as a safety net against digital overs.

Finishing off my complaints, numerical data entry is not possible, screen redraws can be a little slow, the owner's manual is often vague and confusing, and the procedure to edit/save custom settings is troublesome. When you save an edited preset under a different title, it always overwrites/replaces the original preset in the preset's pop-up menu. That's unfortunate, as it motivates you to avoid editing presets that you wish to retain in the menu. And the preset you can most live without (and thus don't mind replacing) may not have settings that are even close to what you want to accomplish with your edits. On the plus side, you can save multiple custom presets to any location on your hard drive, load them in any combination into the presets menu and then save the entire lot as a custom bank that can be recalled at a later time.

**HOT STUFF!**

Even considering all of its quirks and omissions, VintageWarmer is a truly awesome plug-in. It sounds so incredible that I quickly forgave it for all of its shortcomings. I got consistently outstanding results using VintageWarmer on nylon-string guitar, electric bass, voice-overs, electric gui-

tars, trap drums and entire mixes.

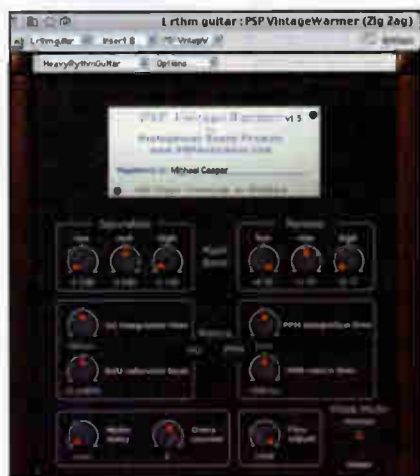
VintageWarmer gave me subtle control over microphone proximity effect on a voice-over track, making the timbre more consistent throughout the performance. On hard-rock rhythm guitars, I could create a thick wall of sound that never got out of control. VintageWarmer spewed out over-the-top lead solos that made it sound like guitar amp speakers were on the verge of destruction (think The Beatles' "Revolution"). It was also a snap to alter-

nately dial up tight, trashy, deep and cracky snare-drum sounds. And I got an absolutely phenomenal kick-drum sound—a spine-tingling blend of deep, tight shell resonance and slammin' beater attack—using only one mic input with VintageWarmer. Go ahead and use VintageWarmer on tons of individual tracks as it uses very little CPU power.

I got equally impressive results using VintageWarmer as a two-bus finalizer for mastering purposes. Despite my list of complaints regarding its unusual algorithm chain, feature set and user interface, I must stress that I adapted remarkably quickly to working with this plug-in and always got great results. In fact, PSPaudioware argues that it's exactly this unique design that gives VintageWarmer its distinctive, analog-like character.


The best news of all is that it costs only \$149 for the downloadable version, making VintageWarmer a veritable bargain. Make that an inferno!

PSPAudioware.com, +48 601 96 31 73 (Poland), www.PSPAudioware.com. ■



VintageWarmer's virtual "rear panel"

*Michael Cooper is a Mix contributing editor and owner of Michael Cooper Recording in beautiful Sisters, Ore.*



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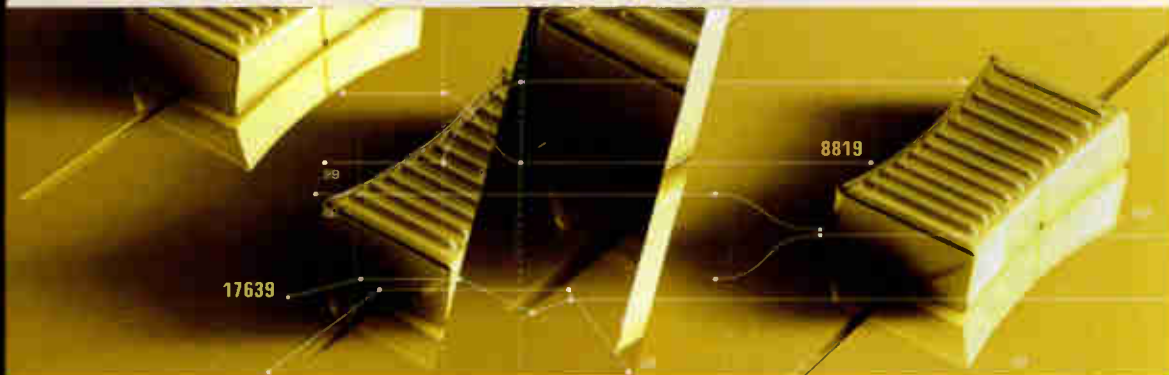
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# Marantz Professional CDR300

## Rugged, Portable and Packed with Pro Features

Marantz Professional continues its tradition of creating rugged and portable recorders with the CDR300 (\$849), a tough, little CD-R and CD-RW burner. Anyone who is familiar with the Marantz/Superscope PMD Series cassette recorders, which included a built-in condenser microphone and a small speaker, will feel right at home. However, unlike its tape-based siblings, the CDR300 offers professional features that make it worthy of further scrutiny.

The CDR300 is a tabletop unit with a hard plastic shell that weighs just seven pounds. The review unit fits easily into my laptop computer case, which was a blessing for road trips and air travel.

The CDR300 has a pair of XLR mic inputs, a pair of 1/4-inch TRS mic/line inputs and discrete input level controls for each channel. A dedicated 48-volt phantom power button sends power to both XLR jacks. The quality of the mic preamps is similar to what you would get from a medium-price, small-format mixer. This meant that I could leave my external preamp at home if I wanted to travel light and return with quality recordings.

A number of handy features prove that Marantz did its homework: The CDR300 has dedicated buttons and switches that cover most of the basic functions, making this an exceptionally easy recorder to use. The standard transport controls (Play/Pause, Stop, Record, Cue and Rewind) and the Erase and Finalize buttons reside on the top panel in plain view. A front-panel switch selects the input for both channels (mic, line or the internal stereo microphone), and you can choose whether the input signals are sent to separate channels or to both simultaneously. Other useful items include two limiter settings, a 20dB attenuation switch, and preset bandpass and highpass filters that can be added to each input independently. The data selects the operating mode and track IDs during playback. However, you'll need the wireless remote to increment track IDs while recording, so keep it handy.

The CDR300 has a pair of rear-panel

aux inputs so you can record a line-level source while you're tracking with the other analog inputs. The rear panel also includes S/PDIF coaxial digital I/O and inputs for a wired remote and a foot pedal.

The CDR300 offers two stereo pairs of analog outputs on unbalanced RCA jacks running at -10 dBu. The mix outputs carry the audio coming from the mic/line and aux inputs prior to reaching the CD-R drive or tone controls. These outputs can be used for monitoring or recording, because the signal is present even if the CD-R drive is not in Record mode. Alternately, you can modify the signal going to the line outputs using the top-panel tone controls and front-panel level control. The CDR300 also offers four headphone-monitoring options: mic/line input, aux input, line output and mix output.

Although I was skeptical about needing the built-in speaker, I found it handy more than once to audition takes in the field when I didn't have enough headphones to go around. The three tone controls located below the speaker—Treble, Mid and Bass—can be used during speaker playback.

The CDR300's Minute Track record option automatically writes a new ID every minute. I found this mode indispensable when recording long environmental takes. If I need to hear what happened 32 minutes into the session, then I can choose track 32 during playback.

In Sync Record mode, the CDR300 begins recording when it detects a signal from an external analog or digital source.



Sync Rec+Final mode works the same way but automatically finalizes the disc at the end of the session. The CDR300 has the option of adding text to your CD-R or CD-RW, such as song titles and other session details, before you finalize the disc. Of course, the added text can only be read by CD players that support the CD text format.

The CDR300 is also the only stand-alone CD burner that I know of that can run off of a battery. The RPS300 Remote Power System (\$199) includes a lead-acid battery and recharger. The battery weighs almost as much as the recorder, but it offers approximately four hours of operation. That allowed me enough time to set up a field session, do a quick soundcheck and still have enough power to record a couple of discs.

In addition, the RPS300 can be used like a UPS when you're running the CDR300 on AC current. If the AC power is interrupted or lost during a session, then the battery system will automatically take over so you don't lose any data. This gave me extra confidence while recording live concerts.

The CDR300 is a great value for your money, even factoring in the battery system's price. The recorder's size makes it suitable for studio and live work when portability and ease-of-use are important. Considering its sound and versatility, the CDR300 is hard to beat.

Marantz Professional, 630/741-0330, [www.marantzpro.com](http://www.marantzpro.com). ■

*Laura Pallanck is a recording engineer based in Northern California.*



# Introducing Nuendo 2.0 - The professional solution

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World Radio History



# Snapshot Product Reviews



## ROGER LINN DESIGN ADRENALINN

### Groove Filter FX/Amp Modeler/ Drum Box

From the father of the LinnDrum digital drum machine and Akai's MPC Series groove boxes, Roger Linn's AdrenaLinn takes the stompbox concept to the limit by adding a bank of filters, a looping sequencer, synth-style modulators and amp modeling for a wide array of rhythmic effects. Playing in sync to MIDI or its internal 40-sound drum machine, effects range from traditional (tremolo/flanging/auto pan, etc.) to sequence-driven, dynamically looped filter tones, creating a bazillion sounds that you've never heard.

AdrenaLinn is housed in a 4.5x7x2-inch stompbox chassis. The back panel has ¼-inch jacks for instrument input (mono), stereo main outputs, a headphone jack, MIDI In/Out ports and a connector for the (included) wallwart DC supply; there's no provision for onboard batteries.

Considering the unit's power, the interface is deceptively simple. Besides its two momentary footswitches (for bypass/tempo entry and sequence start/stop), the top panel has a three-digit alphanumeric LED, an input level pot, four selector pushbuttons, four multifunction rotary controls that either set presets/drumbeats/tempo/output volume or—in Edit mode—control dozens of parameter settings.

This box could really use a nice rack enclosure and a large LCD, as navigating the interface takes some getting used to, and editing can be a chore. Alternatively, all parameters are MIDI-accessible, and one can edit using Emagic's SoundDiver

editor/librarian program, which also provides unlimited preset storage on a PC or Mac. AdrenaLinn does include 100 cool factory presets and space to store 100 user settings, so finding the right sound is often a case of starting with a preset, tweaking it a bit and storing the result.

Functions can be used in combination or separately, so it's just punch and go if you just need drum grooves (100 presets or make your own from the 40 onboard sounds) or excellent amp modeling (choice of 12: Fenders, Marshalls, Vox, Boogie, fuzz, clean DI and more). But what really sets AdrenaLinn apart is its Groove Filter Effects, which alter tone dynamically, synched to the drum machine or an external MIDI clock. These beat-synched effects include modulation (flange, tremolo, delays, rotary and more), filter sequences (looped patterns of filtered tones) and filters (auto-wah, envelope filter or talk box, etc.).

AdrenaLinn does have a few minuses—such as no line input (guitar input only), tiny knobs and a sometimes-vexing edit interface—but considering AdrenaLinn's power and minuscule \$395 retail, nothing else comes close. On guitar, bass or keys, the sounds are amazing (even otherworldly), but when the drums are routed through the superb filter effects, you're into some huge, slamming stereo grooves that nobody's ever heard—fast!

AdrenaLinn inspires. Plug in, click it on and ideas start flowing. And that may be its most valuable feature.

Roger Linn Design, 510/898-4878, [www.rogerlinndesign.com](http://www.rogerlinndesign.com).

—George Petersen

## GROOVE TUBES DITTO Direct Box/Line Driver

The Groove Tubes DITTO box (Direct Input, Tube Transformer Output) is a direct box/line driver with 12AU7 and 12AX7 tubes; a custom, nickel-core, transformer-balanced output; and ground lift switch. Retailing at \$399, DITTO's primary application is to provide an isolated, balanced, low-impedance output for electric guitars, acoustic guitars with pickups, keyboards and electric basses for studio recording and as a line driver for live sound.

The front end has two ¼-inch unbalanced input jacks: One serves as a "loop," allowing the DITTO to feed an amp on-stage while also driving the balanced output. A pot between the stages offers up to 30dB gain to the balanced output.

In the studio, using a Digi 001 to record tracks from my custom Thinline '72 Tele with humbucking pickups, I compared a straight-in connection, a Whirlwind passive IMP-2 direct box and the DITTO. Straight in, the Tele sounded like mud. The IMP-2 restored some of the clarity. The DITTO pulled out more mud and restored the top. It didn't have the edge I get when I plug into my '67 Fender Super Reverb, but it was a lot better than the other two options.

I also checked out DITTO in a live situation with bassist Carey Ziegler at a recent gig. Ziegler, recording engineer Doug Milton and Jeff Byron (who mixes Ziegler's band) said Ziegler's PRS bass sounded much better than with the bassist's usual passive direct box.

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## AUDITIONS

through his floor monitors allowed Ziegler to keep the vibe and back off his stage amp. The band, Byron and the front row appreciated the DITTO as much as Ziegler did. In the studio or onstage, Groove Tubes' DITTO was a win-win.

Groove Tubes, 818/361-4500, [www.groovetubes.com](http://www.groovetubes.com).

—Ty Ford

### SENNHEISER E609 SILVER Instrument Amplifier Mic

Years ago, I had the pleasure of recording guitar genius Ronnie Montrose. In anticipation of his arrival—and to save time—I set up about six different mics: condensers, tubes and dynamics. When Montrose showed up, he said that he had a favorite mic and asked if we could try that, as well. He pulled out a Sennheiser MD 409 dynamic with a flat-bar mount that slid into a slot cut into his amp, putting the mic about an inch in front of the grille and toward the edge of the speaker cone.

We tried them all, and sure enough, his mic won out over everything else! I became an instant convert to the mystic 409 cult and was greatly saddened when Sennheiser (what were they thinking?) discontinued the 409 a few years later. Later, Sennheiser came out with the Evolution 609, which resembled the original but wasn't the same.

Fortunately, with the debut of the new E609 Silver, the magic is back. Like the original, it's a side-address design so it can be simply hung over an amp, suspended by the cable (with three inches of duct tape to secure it) and be exactly in the sweet spot. With its high-SPL handling and supercardioid pattern to eliminate any bleed, this one's ready for anything.

On a variety of amps—Marshall, Fender, Ampeg, Yamaha and even funky Danelectro—the E609 Silver was spot-on, particularly when combined with a distant tube mic. The Sennheiser provided the punch, fury, growl and edge, with the room mic adding a smooth hugeness. Yeah!

But it's not just for amps: The E609 Silver was also great on bass amps, toms, trumpets and trombones. At an affordable list of \$199.95,

this one's a great addition to anyone's mic cabinet.

Sennheiser USA, 860/434-9190, [www.sennheiserusa.com](http://www.sennheiserusa.com).

—George Petersen

### APPLIED ACOUSTICS SYSTEMS LOUNGE LIZARD

#### Virtual Electric Piano Software

Lounge Lizard uses physical modeling to emulate the sonic characteristics of Rhodes and Wurlitzer electric pianos from the '70s (and imaginary instruments that never physically existed). The result is a dynamic and expressive virtual instrument that can function in stand-alone mode or as a plug-in for several DAWs.

Lounge Lizard will run under Mac OS 9.x with a 400MHz G3 processor or better (G4 recommended), or in Windows 98, ME, 2000 or XP running on a 500MHz PIII processor. The program requires 32MB RAM in both Macs and PCs. Supported plug-in formats are MAS, VST, DXi and DirectConnect. I worked with Version 1.0, mostly in Digital Performer V. 3.02.

The software's intuitive interface gives you wide-ranging virtual control over numerous parameters. For example, you can adjust the mallet's hardness and how forcefully it hits the fork, and apply keyboard tracking and velocity scaling independently to either or both of these mallet parameters. In real instruments, the mallet produces noise in addition to a musical tone when it hits the fork. Lounge Lizard gives you outstanding control over noise parameters, such as volume, decay time, pitch/spectral content and decay-time keyboard tracking.

Four other controls independently adjust the volume and decay times for the





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## AUDITIONS

tine and tone bar (i.e., two controls for each part of the fork). You can also apply keyboard tracking to the tine's decay time and adjust the tine's pitch over a four-semitone range. The harmonic content of the tine's output can be tweaked by moving the virtual position of the piano's pickup vertically and/or horizontally with respect to the tine. Along with pickup I/O level controls, these parameters give you a wide range of sounds from sparkly clean to overdriven and downright funky.

Lounge Lizard supplies a helpful pallet of effects tailored to create classic keyboard sounds. You'll find wah, phaser, tremolo and delay sections here, each offering control over several parameters. Neither delay time nor modulation rates can currently be synced to MIDI clock. But on the plus side, all of Lounge Lizard's parameters can be controlled by MIDI continuous controllers of your choice.

Beyond providing convincing emulations of vintage keyboards of yesteryear, its plethora of wide-ranging controls allows you to create hybrid instruments and even startling synth tones that venture beyond piano bars and soul trains. With a \$199 list, Lounge Lizard is more than a class act, it's a bargain.

Applied Acoustics Systems, 514/871-8100, [www.applied-acoustics.com](http://www.applied-acoustics.com).

—Michael Cooper

from -24 dB to +6 dB. Three "LED"s let the user know if overdrive occurs at the input, EQ or output sections. The screen's five identical bands default to high/low-shelving filters on the ends with three fully parametric bands in the center. However, in the digital world, any band can be anything. A pull-down menu can alter each band's duty, so users can call up an EQ offering a parametric peak/dip, low/high shelf or low/highpass at -6 dB or -12 dB per octave.

A series of circles with a center parameter on each band lets you grab-and-drag a parameter up/down, double-click to enter a value manually or Command-drag to fine-tune the value. Bands can range from 10 Hz to 41k Hz, which makes sense, as the plug-in operates at up to 96k Hz. (Internal processing is extended even when operating at 44.1k Hz.) Q control is adjustable from 0.1 to an absolutely surgical 25.6, and gain can be cut/boost  $\pm 24$  dB. Operation can be mono or multi-mono, and all individual parameters are automatable.

The EQ is a standout for what it doesn't do: sound harsh at extremes. Its subtle nature lets users craft a track's sonic quality in a number of ways. The simple interface is great: At first, I was underwhelmed with the design, but soon I appreciated its ease of use. It was also a hit with nontech-types in the studio: One user called it a great "EQ for



### MASSENBURG DESIGN WORKS MS269

#### High-Resolution EQ Plug-In

Massenburg Design Works signature MS269 EQ for Mac-based Pro Tools | HD—a single-channel, 5-band EQ—is the progeny of the ubiquitous Model 8200 stereo EQ, a favorite of discerning engineers worldwide. However, in no way should these be compared: The plug-in is sonically and visually unique.

The EQ's familiar-looking gain/frequency x/y graph provides instant feedback as you change parameters. Its dB scale can be set to show 6, 12 or 24 dB of gain change, and input level can be set

Dummies." However, even a dummy can hear how excellent this EQ sounds. On a variety of sources, it excelled, especially when used with vocals or to add air to percussion and drum overheads. Knocking off a boomy acoustic guitar's low end, using the highpass filter at the -6dB per octave setting, produced nice, natural results.

At \$795, this tool should be in everyone's digital bag of tricks. It will quickly become a nouveau classic for Pro Tools users searching for sonic excellence.

MDW, dist. by Digidesign, 800/333-2137, [www.digidesign.com](http://www.digidesign.com).

—Kevin Becka ■



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# Guitar Amps and Tubes

## Or...No Bare Feet!

I have more than a passing interest in guitar-amplification technology, specifically the tubular variety. Here are a few tips that range from safety to sonics, and noise immunity to tube testing. As you know, the inner workings of tube amps can expose you to hazardous voltage. Proceed at your own risk: Keep one hand in your pocket and wear shoes, please! No bare feet!

### NO MORE HOT LIPS

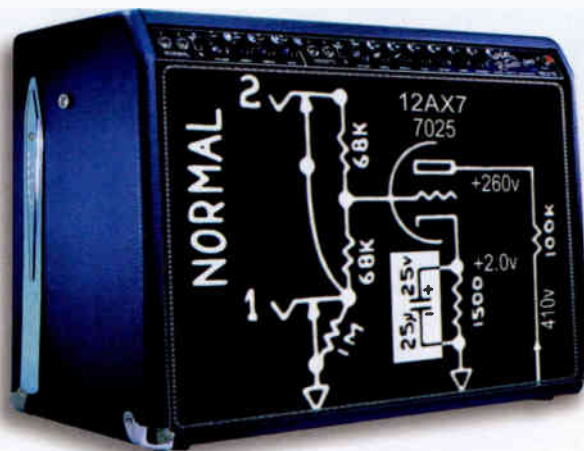
Anyone who's been "zorched" by a nasty shock when your lips touch a mic while playing through a miswired guitar amp will appreciate this: All guitar amps with a two-pronged AC power plug will most likely have a ground switch. The switch must be removed and a three-conductor cable installed, initially without attaching the ground (green wire). Unplug the amp before soldering. There are two possible ways to connect the black and white wires (hot and neutral, respectively) from the new power cable. Determine correct orientation first by connecting an AC voltmeter from the chassis to a known ground: the third "hole" or plate screw of the AC outlet. Of the two possible voltages—the "wrong" one will be in the neighborhood of 60 volts—choose the connection that yields the lesser of the two and then connect the green wire to the chassis. No more hot lips!

### MAGIC TRICKS

Guitar amps and other "classic" audio gear are all about nuance. One fairly simple explanation for this magic is simply to count the number of "active devices," tubes or transistors. Keep in mind that a typical IC operational amplifier may have two-dozen transistors. We all know what op amp clipping sounds like: It's nasty and symmetrical, but from noise floor to fuzz, it's linear-clean all the way. This is a design goal; an op amp is not supposed to have character, just like digital without plug-ins.

The magic, which just about everyone is looking for, originates from a *single* tube or transistor gain-stage running at full-bore. *Between* linear-clean and full-overdrive is the region that I refer to as "the sonic air bag," that classic richness full of lovely, inherent flaws (distortion). Some designs have an inherently larger air bag.

A guitar amp with four output tubes and four dual-triodes becomes a baker's dozen of devices if a tube rectifier is included. While the actual number of gain stages in the primary signal path is less than this total, each device makes it mark. Changing the tube rectifier to solid-state will reduce the amount of



A preamp circuit from a 1965 Fender Twin Reverb, still considered by many to be the "Holy Grail" of guitar amplifiers

"sag" in the power supply when the power amp is overdriven. Choosy guitarists utilize tubes even in the power supply.

While vacuum tubes do have unique sonic characteristics, they can be configured to deliver linear performance like an op amp. Whether solid-state or "valve," an op amp benefits from a greater number of active devices, capable of incredible amounts of gain, but operating far more comfortably in their linear region. Add some negative feedback to reduce gain (as required by the task at hand) and distortion is reduced, as well—to nearly unmeasurable levels across the dynamic range—until the AC signal hits the DC power supply rail(s). There's no nuance in hard clipping; lots of gain equals gobs of sustain, aka, instant fuzzbox.

### TUBE E OR NOT TUBE E?

For circuit designs that are all about character, every component plays a role, from the amplification devices to the resistors and capacitors. And when vacuum tubes are considered, heat not only accelerates the aging process of all components, but also changes their properties as temperatures shift from cold to hot. This vacillation is good to keep in mind if a tube replacement yields a temporary fix or when you're specifically looking for "masked" or sporadic problems.

Everyone knows to scrutinize plate resistors for noise, but another source could be the cathode resistor, although its noise may be "hidden" by the bypass cap. If disconnecting the cap reveals some "rocky" noise, then that resistor should be replaced. In addition, a funky/thermal cap might be responsible for in-



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mittent noise and frequency anomalies. The figure shows an input preamp schematic from a Fender Twin Reverb. The white section indicates the cap in question.

**PRE-STRESSED**

Some tube vendors specialize in selling "glassware" that is pre-tested and selected for high performance. Audiophiles pay a premium for this type of service, though it generally does not apply to studio and guitar types who require a better value for their dollar. Tube per-

formance varies among manufacturers—especially now—and even compatible tubes like the 6L6 and 5881 are very different, the latter being far more linear.

It is common to match *power* tubes so that each equally shares the load. These days, I recommend that *all* tubes be tested before purchase, even in the most basic way, at minimum, to screen the clunkers. All equipment manufacturers (hopefully) put their valves to the test, selecting the best for preamps: delegating the noisier "bottles" to driver duty, with the rest ending up in the trash.

**PRE-TESTING THE 12A77 DUAL-TRIODE**

Many circuits rely on several 12A77-type tubes, the "?" may be a "U" or a "T" or an "X," just a few of the letters that refer to performance characteristics, the most obvious of which is gain. (In tube lingo, that's amplification factor. For semiconductors, it's called Beta.) Military tubes have only a four-digit number instead. Tube and transistor parameters have a tolerance window that varies during production; the differences between new-old-stock (NOS) and more recent products can be extreme.

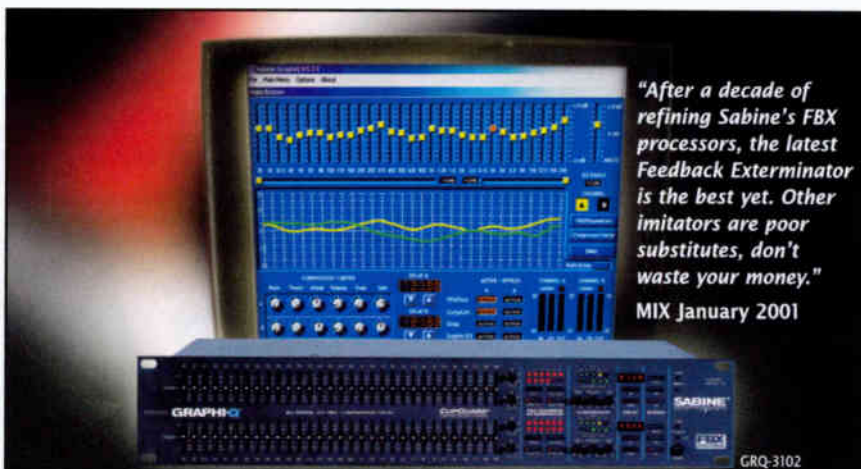
Most tube-testers measure only "static electron emission," enough to determine that a tube is functioning as displayed on either a numeric or a bad/good meter. A tube could test "good" and also be bad if it suffers from "gas," a condition that can cause extremely nonlinear amplification. Because just about everything tubular uses a 12A77, I began by testing each triode section for "equal emission." The booklet included with my "Supreme" TV-7/U military test set specifies a "minimum value" of 32 per triode. (This number is specific to the tester and does not relate to any other unit or specified parameter.)

It is easy for military-grade NOS tubes to meet this spec *and* have nearly identical triode sections—off-the-shelf—but it is far less common among modern tubes, hence the need for pre-testing. Variable- $\mu$  compressors and some Pultec amplifiers prefer "matched" triodes, while most preamps do not. I use this test only to weed out the junk.

Okay, so maybe you're not going to test tubes, although testers are available from eBay, some with full-service documentation. So when purchasing tubes, request that the dual-triodes be selected for a best match. I happily paid a \$1-per-tube additional charge last year (well worth the cost), compared to the extremely poor-quality tubes I was sent the first time *by the same company!*

**TESTING: ONE, TWO, THREE**

Whether in a guitar amp or a mic pre-amp, a high-gain circuit is the perfect rig for noise tests. There's no space here to provide enough examples: Simply tap on all of the tubes while the gain is up to determine "the sensitive one." Then, short the input connector (if applicable) and listen to the "tube symphonia" as the preamp is powered up. A whole array of whooshes and clinks can be heard as metals expand. When things settle down,



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note the noise. Your memory should be good enough for comparisons, but for documentation, find a high-resolution digital meter. Cool Edit Pro's level meter is worth the price of the software alone at [www.syntrillium.com](http://www.syntrillium.com).

The noise spectrum will vary considerably from loud to not-so-loud, rocks or hiss, plus another variable known as microphonics. High-gain tubes must be built to exacting tolerances for mechanical noise immunity. Unlike transistors, tubes can resonate to the point of oscillation if they're in the same enclosure as a soloing guitarist's loudspeaker. For the purpose of microphonics and noise testing, all of the 12A7 family can be tested in the high-gain socket. Keep in mind that lower-gain tubes like the 12AU7 will have less noise.

**BIAS**

Of the many contributors to a guitar amp's efficiency and overload characteristics, output tube bias is one of those voodoo variables. Mesa Engineering solved this issue by "fixing" the bias to a value that matched its pretested tubes, choosing only those valves that make the grade both at the time of manufacture, as well as future replacement. Other amps have adjustable bias that can easily be misadjusted.

The purpose of bias is to set a comfortable operating environment for the output tubes that will optimize their life and minimize nasty crossover distortion in a push-pull (Class-A/B) circuit. Many amps run the plate voltage at maximum so that only higher-performance tubes can do the job. Electro-Harmonix ([www.sovtek.com](http://www.sovtek.com)) claims its 6V6 EH can tolerate the juice that Fender Deluxe and Champ amps deliver. The easiest way to observe this is to watch the tubes in a dark room. Only the filament is supposed to glow red and not the outer shell, called the plate. This is the result of the grid being too positive (beyond Class-A).

A grid that's too negative (Class-B) will make the amp run much cooler, but it won't sound very good. There are many ways to optimize bias, including some after-market boxes from Groove Tubes ([www.groovetubes.com](http://www.groovetubes.com)) that make the process "more safe." The highest voltages are at the output tube sockets, so if you don't want to invest \$120 in the kit, then you may want to leave this tweak to a pro. ■

*Eddie Ciletti is Mix's resident tech. Visit [www.tangible-technology.com](http://www.tangible-technology.com) for more fun.*

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# Justin Niebank

## Cutting to the Chase

**I**t wasn't easy to catch up with Justin Niebank. A Nashville-based producer/engineer with a penchant for roots music, Niebank was in the middle of three projects the week I first tried to reach him: mixing for Brad Paisley, cutting vocals with Rebecca Lynn Howard and recording a Keith Urban single.

As his very respectable credits demonstrate, Niebank is equally comfortable recording, mixing and producing. His engineering clients include George Strait, Delbert McClinton and Vince Gill, among others, and he's handled production chores for such artists as Marty Stuart, Blues Traveler and Nicole C. Mullen.

Fortunately for me, Niebank was heading for a quick busman's holiday at the New Orleans Jazz Fest to kick back and check out the music, including a set by The Iguanas, whose just-released *Plastic Silver 9-Volt Heart* he'd produced. In typically efficient Niebank style, he and his wife, who raises horses, were also taking the opportunity to check out a noted Big Easy-area horse trainer. On a break from that business, he found a cell phone-friendly spot outside the barn and gave me a call. With no time to waste, the basics were quickly established: Chicago native, childhood music fanatic, electric bass player. The story goes on from there.

### *How did you go from playing to recording?*

I'd been recording as a hobby. But once I got in a studio, I was totally jazzed. I knew that's what I wanted to do. I started out doing jingles, then I began doing records for Alligator Records, a blues label out of Chicago. I must have done over 20 records for them [including Albert Collins' Grammy™-winning *Show-down*]. As a result of those records getting attention, I worked with Barry Beckett from the Muscle Shoals rhythm section, which I totally jumped on. Any opportunity I had to get closer to the source of real American music was what I wanted. And that took me to Nashville.

### *From jingles to blues is a pretty big jump.*

At the time, I just wanted to get my chops together.



People may pooh-pooh jingles, but if you're a musician or an engineer, they're a fantastic way to develop your chops and learn how to cut to the chase, which, to me, is probably the most important thing for an engineer to know: how to keep momentum going and get the gig done so the technical side is invisible to the creative side.

Doing jingles, I could work on three or four different kinds of music in one day. Bruce Iglauer, who ran Alligator Records and was in the middle of a Johnny Winter record, heard through the grapevine about my engineering and gave me a shot. Then I was doing jingles all day and blues records at night.

### *Do you think you have an engineering style?*

I like to record performances; I don't like to record microphones. I love to be involved in the environment that's created when the music is bigger than anyone in the room. I enjoy more live, organic recording processes. Not to mean that I'm not jazzed by technical stuff: I do a lot of sequencing and I love using computers for that. But, ultimately, give me a spellbinding performance. That's what I want to record.

### *In that case, you're lucky to live in Nashville.*

Well, I usually do a wide variety of music, not just country. I had a session with a singer [Rebecca Lynn Howard] yesterday that was just jaw-dropping. Everyone looked at each other and went, "Yeah, this is why we do what we do."

### *What equipment do you like to work on?*

I'll work on anything. I'm pretty typical in that I love

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great old Neve and API stuff for recording. I love putting things through tubes and getting them all flamed up. At the same time, there are a lot of newer pieces of gear I like. But even using new gear, I'm still drawn to the sound of great old recordings, the ones from L.A. in the late '50s and '60s, and the great English recordings from the late '60s and '70s. Those are still the barometers for me.

Like most engineers, I'm a complete gear freak: I'm always looking for new things and wanting to try the newest, coolest thing that might get me closer to what I hear in my head. I'm really taken with the Empirical Lab stuff: the Fatso and the Distressor. I've been messing around with the Chandler EMI compressor. That rocks. I also really like the new Universal Audio 610 mic pre's. One of my other favorite pieces of gear is the TC Electronic M3000 reverb. Those are all in my collection of stuff that makes me go, "God, I love this!"

*What do you use the Fatso for?*

The thing that's so cool about the Fatso is, I want to try it on all sorts of different things; it's not just my drum mix compressor. But when I track, I tend to put it across my overhead mics. When I mix, I've used it as a drum submix compressor. I've also had it after another compressor on the submix to give that little bit of tape-compression sound. I use it across the kick and the snare for that tape-saturation sound, and I've also used it across vocals to warm them up ever so slightly.

It's got a wide range. You could use it strictly for tape saturation—almost like a limiter—but it also adds a little different distortion that's very pleasing. You can also use it as sort of a high-end de-esser; once again, emulating tape compression of the high end.

*What about the Chandler EMI?*

I've used it as my two-mix compressor on its Compression mode, and it did hearken back to that late-'60s Abbey Road Studio 3 sound. On another mix, where I thought the drum mics were a little flaccid, I used it in the Limiting mode and it really helped bring out the fire in the track. The attack times are set, but release is variable. I tend to use a pretty fast release, because I'm an American guy in the 21st century and I want everything to pop!

*What's your recording format of choice?*

I've been a huge fan since day one of the RADAR system. That's been my main digital format, and I still cut RADAR and

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then transfer into Nuendo, which is my DAW of choice. I'm not a Pro Tools guy, although, obviously, it's the most used multitrack on most of the projects I work on. That's fine with me; but for my own projects, I like to use Nuendo.

For my taste, it does sound better. It also seems more intuitive, more fluid. I don't feel like I'm waiting for things. For me, it's elegant and easy, and it sounds "killah." I've got nothing bad to say about Pro Tools. I *could* say something bad about people over-using it....

*Let's talk about the latest Iguanas record that you produced and engineered.*

We cut it at The Castle in Franklin, just outside of Nashville. We tried to cut it as organic, live and vibe-y as possible. I used a lot of ribbon mics and a lot of minimal miking to try to create space and room around the instruments, while still getting the sense of the guys playing together.

The overdubs were down in New Orleans at one guy's house. I took Nuendo and a laptop and did all of the overdubs on them. We did vocals and guitars and saxes and weird noises during the day,

and I'd go back to my hotel at night and comp vocals and make rough mixes. In fact, a lot of the mixes I did on headphones in the hotel were the basis for the final mixes. I took the laptop home and transferred to my main computer and we mixed off of Nuendo.

Ultimately,  
give me a spellbinding  
performance.  
That's what I want to  
record.

*It sounds like you're into "get it right when you record it."*

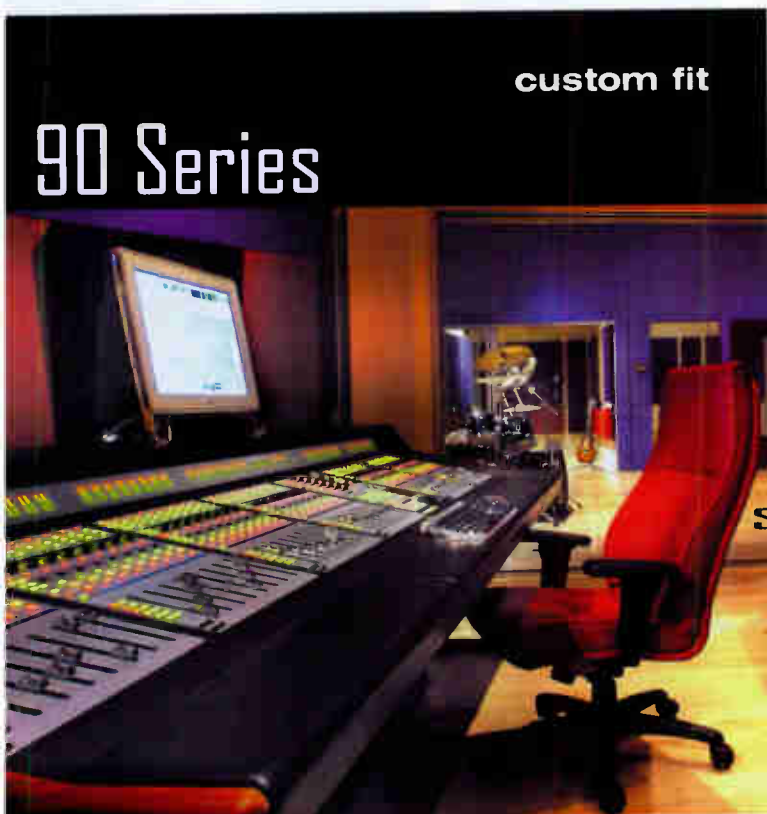
If there's one thing I've learned during the past five years of trying to push my own personal bar up, it's that when I get to the mix, I want to be able to push the faders up in a row and go, "There's the damn record." I've had a couple of rough mixes I've done that become hit

singles, so I'm very aware that you can have roughs that you have to beat when you go to mix. The rough on Keith Urban's "But for the Grace of God" that we spent about 45 minutes on after we'd finished background vocals was his first Number One record.

Not to make too big a deal out of it, but it's nice to know that sometimes that kind of thing can make it through the filter. Sometimes, all of the whistles and bells can get you away from the song and the feel. *Describe your setup at The Castle. Did you use iso rooms?*

We used a couple of different drum setups. For the old, classic thing of everyone leaking into each other's mics, we put the drum kit out in the room with everyone, and I only used three mics on it. Another setup in another room was more traditional.

Then for every song, we cast a different setup: We'd move amps around, sometimes isolate them, and sometimes have all of them in the same room blowing into each other. We didn't just go in and roll tape on every song; we'd discuss how the sound would reflect on it first.



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**Okay, setup "A" with three mics on the drums. What three mics?**

I'm a ribbon mic fanatic; I own way too many of them. I had my old, funky Russian Oktava, a small ribbon mic, on the kick; a [Neumann] U47 as an overhead; and another ribbon mic, a Coles, out in the room.

**A mono setup.**

Well, on certain songs, I'd pan the overhead and the room mic slightly left and right.

**What was the more traditional drum mic setup?**

That was off in a drum booth, actually sort of a porch off of the side because The Castle is like an old house: It has a lot of stone. It's not carpeted, but there were drapes behind the drums. I tend to like softer surfaces behind drums to focus the cymbals and make the sound kick forward. I used standard mics: a [AKG] D112 on the kick, a [Shure] SM57 and a [AKG] 451 on the top of the snare, and a [Shure] SM81 on the bottom. I've been really enjoying the Audio-Technica ATM-25s on the toms. For the overhead, I used the new RØDE NT4 stereo mic. For room mics, I used a Coles ribbon mic, set up sort of ripping off the [Glyn and Andy] Johns broth-

ers, and I filled out the room mic with an RCA 44 [pointed at the] kick drum.

The third setup was sort of in-between. There was a door between the two rooms, and we'd kind of mix and match, using the leakage out of the drum booth into the main room.

**What about bass?**

Bass we'd always go direct. But I also have a vintage Ampeg B15 amp that we'd run. I think on that we mostly used a [AKG] 414 in omni. Other times, we'd use a Coles set a good six feet off.

**What about bass EQ and compression?**  
No EQ. Distressor and Avalon direct box.

**Guitars?**

I have an iso box—an enclosed speaker cabinet—made by Randall that has a 12-inch speaker. I put a Royer 121 in there, and we did the bajo sexto [12-string Mexican bass guitar] and some guitars using that. If on certain songs I wanted more leakage, I'd just lift the lid.

For the guitar amps, I have this new switcher box, the RD7 Radial Injector, made by Radikal Technologies that allows me to set up a row of half-a-dozen amplifiers and try different combinations. It's a great box, and it absolutely proved itself on this album. I also took it direct, which

## Justin Niebank Selected Discography

P = producer; E = engineer; M = mixer

**Blues Traveler:** *Travelogue: Blues Traveler Classics* (P/E/M, 2002)

**Confederate Railroad:** *Rockin' Country Party Pack* (M, 2000)

**Robert Cray:** *Heavy Picks: The Robert Cray Collection* (E/M, 1999)

**Vince Gill:** *Next Big Thing* (E/M, 2003)

**George Jones:** *The Rock: Stone Cold Country 2001* (E/M, 2001)

**Marty Lloyd:** *Marigold* (P/E/M and various instruments, 2003)

**Patty Loveless:** *Bluegrass and White Snow: A Mountain Christmas* (E/M, 2002), *Mountain Soul* (E/M, 2001)

**Shane McAnally:** *Shane McAnally* (M, 2000)

**Delbert McClinton:** *Nothing Personal* (E/M, 2001)

**John Mellencamp:** *Mr. Happy Go Lucky* (E, 1996)

**Nicole C. Mullen:** *Christmas in Black and White* (P/E/M, 2002), *Talk About It* (P/E/M and various instruments, 2001), *Nicole C. Mullen* (P/E/M and various instruments, 2000)

**Veronique Sanson:** *D'Un Papillon À Une Étoile* (E/M, 1999), *Indestructible* (E/M, 1998), *Comme Ils L'Imaginant* (M, 1996)

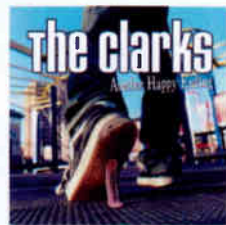
**George Strait:** *For the Last Time: Live From the Astrodome* (M, 2003)

**Marty Stuart:** *The Millenium Collection: The Best of Marty Stuart* (P, 2002)

**Pam Tillis:** *Thunder and Roses* (E/M, 2001)

**Keith Urban:** *Golden Road* (E/M, 2002)

**Chely Wright:** *Never Love You Enough* (M, 2001)





I ran into the computer. Later on, I'd run the direct line through Amplitude or other plug-ins to supplement the sound of a solo, or to do things like adding some Leslie guitar on the B section of a song. *You didn't cut saxes live, though.*

Sure we did. One of them was in the iso and the other guy was out in the room with the guitars and the bass going. One of my favorite sax solos on the record was cut live that way. I think there's that indescribable thing that happens with leakage that you just can't get with reverb and plug-ins.

*There's a legendary Bay Area engineer, Fred Catero, who used to say, "Leakage is my friend."*

It's the best. Part of an engineer's job is to provide as many options as possible and not to back people into corners. A lot of times, that makes you want to just go ahead and separate everything, because that way, you're not going to be in any trouble. But every time I work on a project where there's leakage, my assistant and I always look at each other and say, "This is the way it has to be!" You can't *always* do it that way, but it thrills me when it happens.

*What sax mics did you use?*

RCA DX77s, a U47 and we tried one of the new Oktava ribbon mics on a few songs. *Are you one of those guys who likes to spend a long time getting things organized on the first day?*

Both when I mix and when I record, I like to have all of my options up on the board. So as the creative ideas fly, it's not, "Okay guys, give us three hours while we set up this next thing." I like to have it ready to go. And when I mix, I always have everything plugged in the same place on the console.

I spend a fair amount of time getting set up, but I still like to work pretty fast. [For The Iguanas], we set up for six hours and I thought that was a long time. Maybe that's left over from my jingle days: "What, it takes longer than half-an-hour to set up? Are you kidding me?"

*What's your home studio like?*

I live on a farm outside of Franklin, and I built a small studio, attached to my house, just for overdubs. It ended up being a really great little place to do small, low-budget records and some small mixing. We did the Patty Loveless *Mountain Soul* record there. It's really good for mountain and bluegrass records and for small ensembles. I try not to spend too much time there because I like to spread [the work] out if I have the opportunity. I really feel like it's my obligation to give work to as

many studios as I can in Nashville.

*What's the console?*

A [Yamaha] 02R96. I love it; it's the greatest.

*How do you choose whether to mix in Nuendo or on the 02R?*

If I've got a rough mix that's already feeling good and I've got it coming through Nuendo, then I'll just stay with that. But if it's not moving me, I'll go multichannel and start over on the 02R.

*What are your monitors?*

I have a pair of Tannoy Golds with Mastering Lab crossovers that I've been us-

ing for 12 years and a pair of Genelec 1031As. At home, I still use NS-10s with the Yamaha subwoofer.

*Do you have some goals for the rest of the year?*

To try to be a lot better than I am today, and to be among the people trying to get more soulful records on the radio. And I want to see Tony Brown [who suffered a serious accident in April] back in the producer's chair. He's been a big part of my life in Nashville. If I had only one goal this year, it would be to see Tony back in the game. ■

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## PRODUCER MARK HUDSON

THE LONG AND WINDING ROAD TO RINGO

By Matt Hurwitz

Former Beatle Ringo Starr calls it, simply, The Cupboard. It's a shrine to The Beatles in more ways than one: a tiny wooden office over a Thai restaurant in West Los Angeles, up whose rickety wooden back stairs have climbed some of the biggest names in modern music to drop in, laugh and make dynamite records. The room is former Hudson Brothers Mark Hudson's Whatinthe-whathe? Studio. The walls are covered with pictures of the Fabs themselves (and others), some autographed, some posed with the proprietor. "When Ringo first came here, I actually had to take some of them down," Hudson confesses. "I was afraid he'd think I was a stalker!"

Hudson has been Starr's producer (as well as,



Mark (center) with brothers Bill and Brett during the Hudson Brothers' heyday. Below: with Ringo at The Cupboard.



PHOTO: MATT HURWITZ



occasionally, for Aerosmith, Hanson and others) since the recording of the 1998 *Vertical Man*. He's done four albums, including the recent, very well-received Koch release, *Ringo Rama*. They've been friends even longer, dating back to the early '70s, when fellow Beatle John Lennon was in L.A. for his "Lost Weekend" period. Pals with both Starr and legendary songsmith/singer Harry Nilsson, Hudson was even in attendance that fateful night at The Troubadour when Lennon heckled the Smothers Brothers and was asked to leave after donning a sanitary napkin on his head and annoying a waitress. "It was a pretty raucous time," he recalls.

It all started after Mark Salerno and his brothers, Bill and Brett, saw The Beatles play in concert in 1965 in their hometown of Portland, Ore. "It was probably my first and only homosexual experience," jokes Hudson. "It was my lust for loving what they were doing and wanting to be a part of that. I just saw them having so much fun." Mark soon joined brother Bill's garage band, The MySirs ("I don't even know what that meant."), playing drums.

Not long after changing their names to Hudson ("Salerno sounded like we should be shot out of a cannon."), the three boys got a manager, a "Mr. Bailey," who produced their first record in 1966. "It was in the days when the engineers wore white smocks, and 'recording on multitrack' meant 3-track," says Hudson. The following year, at age 16, Mark and his brothers landed a deal with Scepter Records, changed their name to the New Yorkers and moved, suitably, to New York

—CONTINUED ON PAGE 124



# STANLEY CLARKE FITS IN A SOLO CAREER

By Chris J. Walker

Though jazz and fusion superbassist Stanley Clarke has been ubiquitous on the music scene for decades now, playing a strong, supportive role with a wide variety of disparate artists, it has been a decade since he put out an album of his own music. The fact is, he never really had the opportunity to record one during that 10-year period, such were the demands on his time. For a working musician, that's a *good* thing.

In the '70s, as a co-founder (with keyboardist Chick Corea) of the highly influential group Return to Forever, Clarke influenced a generation of both rock and jazz bassists, and won the admiration of people all over the world with his inspired and, at times, flamboyant fret work. Whether playing electric or acoustic bass, Clarke was regarded as a true pioneer; indeed, some of his harmonic innovations on electric bass predated those of Jaco Pastorius, who emerged as the iconic god of electric jazz bass through his work with Weather Report, several years after Clarke's tenure with RTF. As fusion waned in the early '80s, the Philadelphia-born bassist started venturing into more accessible and commercial aspects of contemporary jazz. Funk and R&B were emphasized with keyboardist George Duke for the Clarke/Duke Project. Other collaborations included stints with a host of top jazz and rock players, such as Corea, drummer Lenny White (also a member of Return to Forever), violinist Jean-Luc Ponty, Rolling Stones' guitarist Keith Richards (their group toured extensively and introduced Clarke to a whole new rock audience), Police drummer Stuart Copeland and vocalists Chaka Khan and Nancy Wilson.

Another aspect of his career—album production—began with his first solo project, the 1973 *Children of Forever*. By 1977, he had branched out and produced



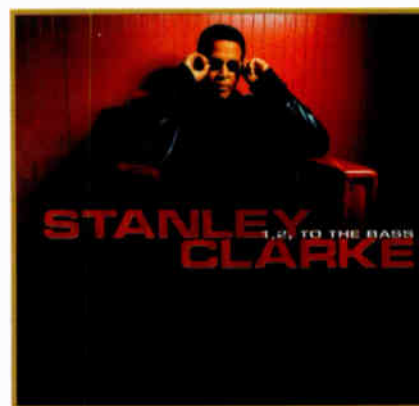
R&B/jazz vocalist Dee Dee Bridgewater's *Just Family*, pop vocalists Natalie Cole, Howard Hewett and Brenda Russell, R&B/jazz vibraphonist Roy Ayers and others. By the early '90s, Clarke spread his wings even more, moving into the demanding (but lucrative) world of writing and/or arranging music for films and television; to date, he's worked on some 50 films, including such notable soundtracks as *What's Love Got to Do With It* (*The Tina Turner Story*), *Boyz In the Hood*, *Poetic Justice*, *Higher Learning* and last fall's sleeper hit, *Undercover Brother*. It's kept him extremely busy, to say the least, and has put his promising solo career on the back burner for a while.

"After my last solo album in '93, I got heavily into the film-composing thing," he explains from a hotel in Oakland, Calif. before a gig at Yoshi's, the San Francisco Bay Area's most prominent jazz club. "I didn't really have much to say [from a solo perspective]. I was going through a divorce at that point, and to be quite honest, I really wasn't in the mood for making a CD then. I've been involved with some big soundtracks, but it's very different from being a solo artist, and the movie has to take precedence over everything else. I think I've done more recording in the past 10 years than most people, but it's all been directed toward film compos-

ing and soundtracks. Just the same, it's been great."

But attitudes and outlooks change over time; these days, the bassist is happy to return to his solo career for a spell, making a fine new album called *1,2, to the Bass* and touring to support it. "Usually, when I do a soundtrack, the music from the movie doesn't have anything to do with me personally," he comments. "It's music to enhance to the film. My own [solo] stuff is more introspective and about what's on going in my head."

Another significant distinction between film-music work and conventional music recordings is the time constraint. In cinema, music is usually composed late in the process, with tremendous pressure placed on it being written and recorded very quickly. By contrast, Clarke says *1,2, to the Bass* was created in a "laid-back" time frame: Overall, it took about a year-and-a-half, from conception to finished product, definitely a luxury never afforded a film soundtrack. Dan Humann, who has helped Clarke with technical matters for two decades, notes, "We just didn't have to rush through stuff, and also there was a lot of editing on this record as far as assembling pieces of music to create songs."



Humann set up and now operates the bassist/producer/composer's home studio, located in the Topanga Canyon area of Malibu, and is also Clarke's FOH engineer on the road. Serving in multiple ca-

—CONTINUED ON PAGE 132

# ARLO GUTHRIE'S "CITY OF NEW ORLEANS"

By Dan Daley

Sometimes, a so-called "career record" can affect more than one career. When Arlo Guthrie's cover of the late Steve Goodman's paean to America's fading railroads, "City of New Orleans," came out as the single from Guthrie's *Hobo's Lullaby* LP in 1972, it gave the folk-singing son of America's own hobo poet laureate, Woody Guthrie, his first bona fide chart hit. Arlo had already become known for his cult classic, talking-blues epic about draft-dodging, *Alice's Restaurant*, which launched his recording career in 1967. And his drug-joke tune "Comin' Into Los Angeles" in 1969 showed that Guthrie could straddle both the rock and the folk idioms. But "City of New Orleans" left the adolescent humor of both of those earlier tracks behind, giving Guthrie a song for the ages rather than of the moment.

It also was a turning point for Lenny Waronker, who, in 1972, was in the midst of building multiple careers: as an A&R man at Warner/Reprise Records, where he signed Little Feat, Rod Stewart and Curtis Mayfield, among others; and as a producer, where he handled the likes of the Doobie Brothers, Maria Muldaur and Rickie Lee Jones, among others. But Waronker credits "City of New Orleans" with making him a better record producer. "That was the record that taught me to get the hell out of the way of the song," states Waronker, now a partner at the DreamWorks SKG label. "If you have a great song, let it be. Learn when to let it be itself."

"City of New Orleans" was recorded, along with a few other tracks from *Hobo's Lullaby*, at Amigo Studios, a North Hollywood facility owned at the time by Warner Bros. Records. Waronker had helmed Guthrie's previous LP, which spawned "Comin' Into Los Angeles," and the producer understood the depth of Guthrie's desire to establish himself as a rock artist. "He wanted to separate himself from the family [folk-music] legacy, and that was understandable at the time," says Waronker, who, at the same time, had a busy production schedule underway, producing records for Gordon Lightfoot, Ry Cooder and Randy Newman.

The ace up Guthrie's sleeve was a song he and co-producer/guitarist John Pilla were holding by Steve Goodman, the esteemed Chicago singer/songwriter and recording artist, who had already been diagnosed with leukemia. Guthrie and Pilla recognized that "City of New Orleans" was a special song and invited Waronker to hear it in a concert Guthrie was playing in San Jose, Calif.

"The plane was late and I got to the concert just as Arlo started playing the song," Waronker remembers. "I didn't

## ARLO GUTHRIE-HOBO'S LULLABY



realize it was the song that they were talking about till they were halfway through it, but you could easily recognize it as a very unique and beautiful song. It was almost like watching a movie, it was so cinematic. The three verses were a play in three acts, united by the soaring chorus." Guthrie had created a rock arrangement for the song, which Waronker and Pilla were less enthusiastic about. "John and I sensed the song being done in a sort of pop version of a Johnny Cash approach," he says.

The first tracks for *Hobo's Lullaby* were recorded at Sun West Studios in Hollywood, where Guthrie's arrangement of "City of New Orleans" was recorded along with several other tunes. Waronker and Pilla continued to nudge Guthrie toward another less-aggressive vision of the track, "but Arlo was adamant at the time," Waronker says. "He didn't want it to be like Goodman's own version of the song, which was folkier, the kind of thing he was trying to get away from. But Arlo also liked a good argument. He knew we were trying to finesse him on the song to see it our way, and that just made him dig in harder about it. He is a great guy with a big heart, but he did like to take part in a benign conflict."

On another session, this one at Amigo, hunched over the console that was custom-built by engineers Lee Herschberg and Al McPherson, and listening over the Westlake monitors, Waronker and Pilla saw their chance. They had assembled a killer crew of musicians, including Cooder, Burritos bassist Chris Ethridge, drummer Jim Keltner and Jim Dickinson on piano. Toward the end of the evening, around midnight, when fatigue was setting in and Guthrie's resistance was a bit lower, Waronker and Pilla prevailed, stressing that this particular crew of players could get their idea of the song across.



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Don "Turk" Schell, Front of House for Lucinda Williams, Ryan Adams



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They did. It was the simple, uncluttered and laid-back arrangement that Waronker had envisioned, and Guthrie soon agreed. The problem, however, was that take late in the night resulted in an even more laid-back tempo. "We had rushed to get it done before it got too late, but we didn't really think it out in terms of tempo," Waronker recalls. "It was way too slow."

So engineer Donn Landee, who had worked on many records with Waronker, tweaked the multitrack deck's VSO, speeding up the song at least a semitone higher, just barely getting to a tempo that Waronker thought would work. Because overdubs were done to the sped-up multitrack, it meant that Guthrie's vocal range was stretched and that tunings for overdubs had to be done to the track which is always a tricky business. The good news, though, was that the VSO'd track covered up some of the rough edges of the late-night recording session; Waronker says there's still a guitar clam or two on the record. And as it turned out, testing Guthrie's vocal range worked positively, bringing out new aspects of him as a singer. But most of all, Waronker reports, it gave "City of New Orleans" its ultimate charm. "It had a kind of rickety sound to it sped up," he muses, "like toy musicians were playing it. It was a technique we used to use a lot; we used it all of the time with Harper's Bizarre. It was a way of tightening things up on a track and it smoothed out pitch issues. But this time, we did it because it was a way around what was becoming a depressing tempo. And we didn't reach that conclusion the first night; we were just so happy we got the track. It took us a couple of days to realize and then admit that the tempo wasn't where it should be. So we sped it up for very different reasons than we had used that technique for in the past. But we really got lucky, because it gave the track the charm."

Waronker and Pilla wanted to stay with the vibe of the accelerated track so instead of strings, they had Nick DeCaro play accordion on it, using a reedy register for the verses and a fuller, more mournful sound on the choruses. The choruses also had a choral effect achieved by triple-tracking singers Clydie King and Venetta Field, and then adding stereo delay and reverb and double-tracking Guthrie, a technique that the singer apparently was not fond of. "We wanted an angelic sound, but not too much church," Waronker explains. "So we told them to

back off on the vibrato, and we built up at least three tracks of background vocals, plus Arlo's vocals, and they really took the chorus to another place." Another aspect of the record was the fact that overdubs were done in real time, in contrast to the sped-up basic track; quite an effective juxtaposition it turned out to be.

But it was during the overdub process that Waronker had his epiphany about producing songs, not just artists. "There were a lot of things we could have kept adding to the track," he says. "It was becoming so magical. We were all still young and still learning how to make records. But I had this moment of clarity at one point, and said, 'That's enough!' It felt good, because I had been having this internal battle about how far to take the track. It felt good to let it go, and that's when I realized about getting the hell out of the way of the song. It's a lesson I took with me from that day on."

"City of New Orleans" made it into the Top 20 in the summer of 1972 and was ubiquitous on both AM and FM radio for months: *Everywhere*, people seemed to be singing that impossibly catchy chorus: "Good morning, America, how are you?/ Don't you know me, I'm your native son/ I'm the train they call the City of New Orleans/I'll be gone five hundred miles when the day is done." And though neither Guthrie nor Goodman ever scaled such heady commercial heights again, they created a slice of Americana that has become an undeniable classic, likely to be remembered decades from now.



## MARK HUDSON

FROM PAGE 120

City. The group got on one of those amazing '60s package tours with their regional Scepter hit, "Mr. Kirby," playing on an impressive roster that included The Who, Deep Purple and Spencer Davis, all behind headliner Herman's Hermits.

Eventually, the group moved to L.A., making records with producer Dick Monda and singing backup for other artists, such as Kenny Rogers, who paid them each \$8 for their services. "There was a camaraderie back then in recording," recalls Hudson. "You'd be walking down the halls of A&M and you'd see Joni Mitchell flirting with Graham Nash, and then suddenly someone would say, 'Hey, we're doing handclaps in here,' and



Hudson with Ozzy Osbourne

everyone would get up and just walk in and handclap on your record. Now, you gotta go through their lawyer to make sure they can get a release and someone has to rub their neck."

In 1972, Elton John took notice and signed the newly renamed Hudson Brothers to his Rocket Records, assigning Bernie Taupin to produce. Two years later, the Hudsons had a Top 20 hit with Mark's Lennon-esque "So You Are a Star" on Casablanca Records. It was around this time when the trio met *Sonny and Cher Comedy Hour* producer Chris Bearde at a party. He was looking for a replacement for his stars. "He said, 'You guys are brothers, you're funny, you're cute, you're zany, come on down,'" recalls Hudson. "It was really the beginning and the ending of the Hudson Brothers. The TV guys didn't take us as serious comedians, because they thought we were a rock band. And the rock people didn't take us as serious rockers because we were on TV."

The group continued recording for a few more years before disbanding in 1982. Meanwhile, Mark picked up a few minor acting roles and eventually landed a brief spot in 1986 as the musical director for Fox's *The Late Show With Joan Rivers*.

But it was his relationship with producing legend Phil Ramone that led Hudson to return his focus to the recording booth. Acquaintances since the late '70s, Hudson decided to pursue "The Pope of Pop," as he (and quite a few others) refers to Ramone, "to learn more about this great lust that I had for sound. When the Hudson Brothers broke up, I sort of pursued bothering him, until he said to me, 'Okay, hang out.'"

"We just hit it off, and we started doing musical things together," Ramone remembers. Hudson began attending sessions—





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Billy Joel, Barbara Streisand, the soundtrack to *Flashdance* among them—and “I did everything from shutting up to assisting with vocal arrangements,” Hudson says.

At that point, Hudson admits, he knew very little about the recording craft itself. “But I started to learn,” he says. “I just would watch an engineer to see what he was doing, never really understanding it. In fact, I still don’t really know. But I know, ‘When he does that, *this* happens,’ and ‘When he doesn’t do that, that *doesn’t* happen.” Little things like compression began to make some sense: “It’s like a musical version of Prozac: no real lows, no real highs, just right in the middle. It kind of squashes everything and makes it pump.”

At the same time, Hudson learned some even more important concepts from his mentor. “Phil would talk to me about the importance of making the artist feel comfortable. He said, ‘If you make the band feel great or the singer trust you, that’s when you’re a great producer. Half of your great production will not be what



Paul McCartney, Ringo and Hudson

you know musically; it’s what you know emotionally.”

“Mark puts the fun back in recording,” pal Ringo enthuses. “We always have such a great time. We sing through toys! He had found a toy in a store called a Megamouth and we used it on the record. He lets the musician know that anything is possible.

“One of the problems with recording today,” Starr continues, “is a lot of the

younger guys not only don’t know about the fun part, but probably couldn’t mike a drum kit. It’s almost like they have to relearn what they tried to forget.”

Another element, often forgotten, that Hudson learned from Ramone was the importance of a good song: “A lot of engineers who have become producers really don’t know about the song part. Great at sound, great at whatever, but the song has to come first.”

“I found him very helpful to people, especially in the song department,” notes Ramone. And, Aerosmith buddy Steven Tyler tells *Mix*, “Mark has an uncanny ability

to write songs that would appear to be missing outtakes from *Sgt. Pepper*.”

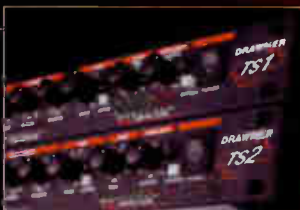
“Once you’ve got a great song, it’s tough to screw it up,” notes Hudson. “After that, you’ve got to see how much fun you can have recording it. And when your act is having fun and enjoying themselves, they trust you completely. So when you say to them, ‘You’re out of tune,’ or, ‘We’re gonna look at re-doing the bridge again,’ they believe you. That’s what I learned

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from Phil. As opposed to these guys that say, 'Shut up and do as I say.'"

Hudson first worked with Ringo in 1991 during the recording of the ex-Beatle's *Time Takes Time*, which featured several tracks produced by Ramone. "To this day, Ringo brings up that his voice has never sounded better than with Phil Ramone," Hudson says. "He's the only one who took the care of finding the proper mic, which, I believe, was a U47."

Not long after, Hudson was "pushed out of the nest," as he puts it, and sent off on his own. "I was so comfortable in 'Phil Ramone Land' that I was afraid to go away," he admits. "To me, he was like a dad." By 1993, Hudson had settled into a new home, a large office across the hall from the present Whatinthewhathe?, where he not only worked but also lived for a time. Hudson began writing and producing demos, both his own music and for others. "I called myself the 'George Martin of demos,'" he says with a laugh, "because I knew about bouncing, which is another lost art. You don't have to do that anymore, but I had to [then]."

Working with a Tascam PortaStudio 488 8-track cassette machine, he began working with such acts as Aerosmith, Celine Dion and Ozzy Osbourne. In 1993, Hudson co-wrote Aerosmith's hit, "Livin' on the Edge," which garnered the group a Grammy. "Once that happened, people wanted me to write songs with them," he recalls.

Hudson says his first true production gig was for an album by Chastity Bono. "John Kolodner, the A&R guy at Geffen, knew that I had known her since she was a child and asked if I'd produce her group's record. I was scared, but I knew I could, so I said, 'Yeah.'" Unfortunately, the record went unreleased, as did another project important to Hudson: "I did an entire Ozzy Osbourne album on that 488. And it's great!" he says proudly. "It's called *Ozzyland*. Ozzy tells me he plays it over the loudspeakers for the audience before he goes onstage."

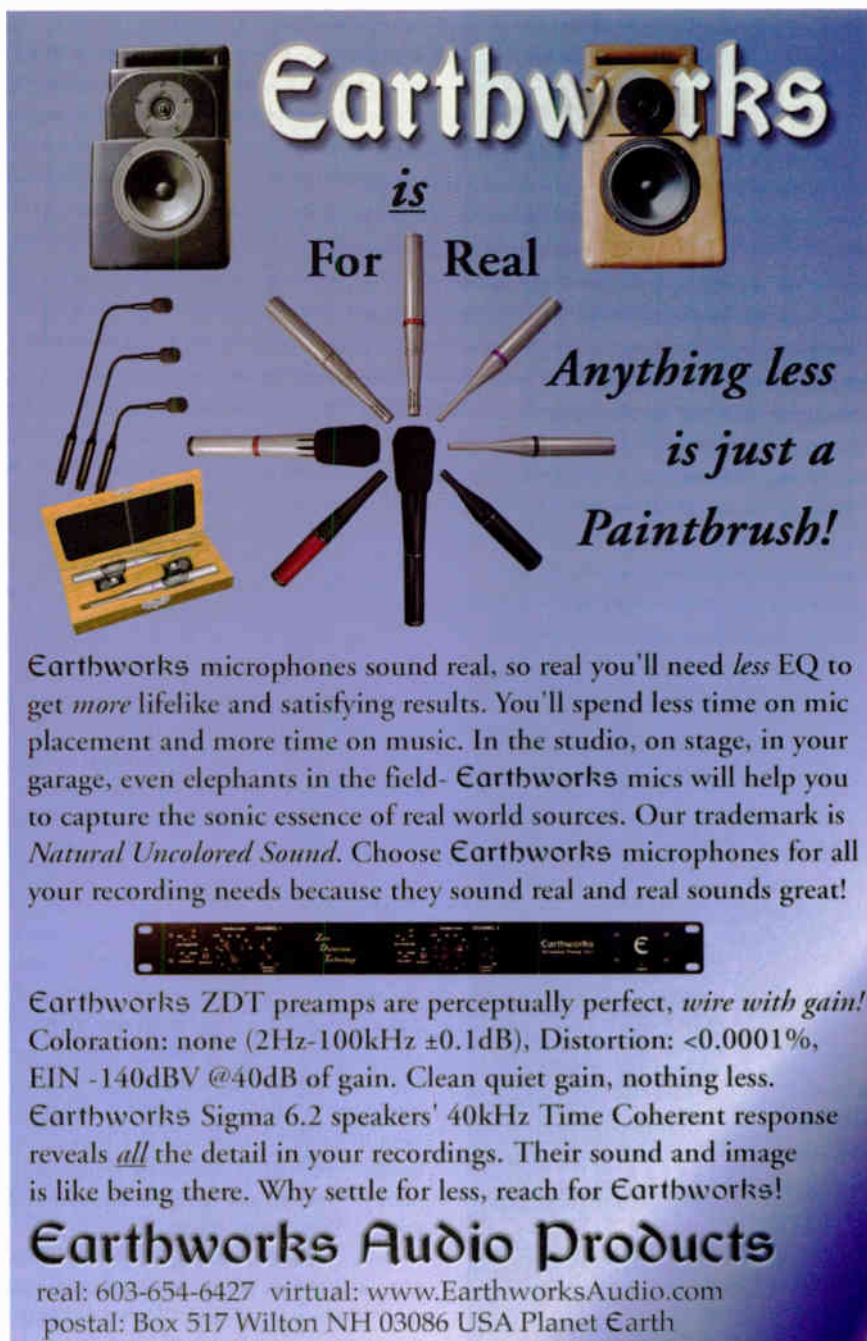
By 1996, Hudson had moved across the hall to his present digs, where he had the opportunity to work with three young hit-makers, Hanson, directing vocals for their chart-topping *Middle of Nowhere* album ("MMMBop," et al). "They wanted me to work with Hanson because they were three brothers and I came from a three-brother act, someplace I really didn't want to go back to," Hudson says. "But then all of a sudden, these three guys

walked in, like a little German version of the Hudson Brothers, with blond hair in bowl haircuts, and I saw the dynamic, the competition and the camaraderie." Hudson would work again with the group a year later to produce their Christmas album, *Snowed In*.

Hudson's next big break came when Ringo selected him to produce the 1998 release, *Vertical Man*. "Ringo was the first guy who took a chance [on me]. He told the record company, 'This is my guy, and if you don't like it, you're not getting me.' Any young producer


out there, I hope you find a Ringo."

Starr assembled at Whatinthewhathe? with Hudson and his small group of conspirators, which Ringo dubbed The Roundheads. These included longtime Hudson guitarist Steve Dudas, lyricist Dean Grakal and keyboardist Jim Cox. At the Printemps de Troubadour, an annual songwriting retreat in France, Hudson met Scott Gordon, the house engineer. Gordon soon became the Whatinthewhathe? house engineer when things got to the point where Hudson could no longer engineer and perform at the same time.



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By this time, Hudson had graduated from the 488 to more professional studio equipment, at least as complicated as he could deal with. "I don't really know what I'm doing. I suffer from, 'I keep turning the knob till it sounds good,'" he says, half-kidding. "I always wished I could find a prince somewhere; somebody who could just say, 'Marky, here's what you need.'"

In stepped David Frangioni and North Miami Beach-based Audio One. "Mark's approach to equipment, like his approach to anything involving music, is very unique," Frangioni says. "I told David I had a Mackie board coming and that I just want it to work," says Hudson. "So he set it up for me like a caveman. Track 1 was my bass; 2, 3, 4, 5, 6 were drums, etc. So track 8's always the keyboards, no matter what I do."

To accompany Hudson's Mackie 24x8 desk, Frangioni initially set him up with Alesis ADATs and, later, Tascam DA-88s. Hudson also has an impressive collection of vintage microphones, including an original Edison Voicemaster, an RCA 44 and a 1953 SM57, though the workhorse of the lot is an AKG C12VR, a gift from pal Timothy B. Schmit of The Eagles. The studio also boasts a fine guitar and amp collection: It's not surprising to learn that Hudson regularly plays a 1965 Hofner Beatle bass through a vintage Vox Super Beatle amp on Ringo recordings.

So, The Roundheads began meeting regularly at the studio, writing and recording together in what has now become a routine arrangement for the group. "Ringo often will sit there with us playing a TrapKat, an electronic drum kit, which is run through the board so we can adjust the level and hear each other talk," explains Hudson. "We all write together, sometimes three of us, sometimes five of us. And we usually get it till it's done completely."

Once recording began for real, Scott Gordon was asked to join the festivities. "I loved how Scotty worked," says Hudson. "He could put up with my multiple personalities. I need someone who, when I go, 'I want all high end, like a "cocaine mix": no bottom, I want it to straighten people's hair,' Scotty Gordon was there, going, 'All right, you mean like this, Marky?' And he just turned the knob, and I'd go, 'Yes!' It was great.

"An engineer really needs to be like a gunslinger," he continues. "There were so many times when I said, 'You've got to do this in a minute-and-a-half,' and he would

just scramble and plug, and the next thing, Ringo's playing the drums. I wrote the song when I was hearing those drums. If we hadn't had that drum track, we would have had nothing." Hudson says he also prefers engineers who are, themselves, musicians and preferably drummers, as Gordon was: "I like their sense of rhythm. I think if more engineers were drummers, they would know how to punch in and out earlier."

Hudson also credits Gordon with capturing the unique, rich drum sound heard on Starr's Hudson-produced albums. "Scott Gordon was responsible for making Ringo love this room and the drum sound," he says. "Ringo always complained that during the first five years of The Beatles, you never heard the kick drum. Ringo said, 'I want a kick drum of death [on my album],' and Scotty nailed it, using a [AKG] D-30."

Starr enjoys the down-to-earth atmosphere of Hudson's studio, which is 180' from the traditional recording environment. "He likes that there's no glass window here," Hudson says. "There's no click-track. He always used to complain, 'Why can't I just count it off and start playing?' Here, he does."

Soundproofing was initially not a concern in the 1920s-era structure, which still features the original wood floors and doors. During a track on *Vertical Man*, the neighbors came a-knocking. "At the very end of the song 'Mindfield,' Joe Walsh and I were playing our guitars, holding the last note of the song, waiting for the sustain to die out," Hudson recalls. "Suddenly, we hear these angry-sounding high heels marching down the hallway. It was the lady from the Thai restaurant downstairs coming to complain! She pounded on the door to tell us to turn it down. But when she saw Ringo sitting there at his kit—"Elo!"—she got all friendly and offered to bring us Thai food. I wish I were a Beatle!" During the mix, Ringo decided to keep the high heels at the end of the track. "He said, 'Then at the end, we'll blow her up!'" an effect achieved by dropping a Fender Reverb amp on the floor and recording the "explosion."

In between recording *Vertical Man* and *Ringo Rama*, Hudson was introduced to Pro Tools while working on Aerosmith's *Just Press Play*, and the producer incorporated the technology into his studio for the new Ringo disc: "It became very, very effective from an editing point of view," he notes. Once again,



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Frangioni and Audio One were called on to create not one, but two nearly identical studios: one at Hudson's and one at Starr's new home studio in Sussex, England, known as Rocca Bella. The album was recorded at both locations. "We needed to have a robust, high-quality, scalable solution in place for both studios," explains Frangioni. "The studios had to be completely compatible and had to be compatible with other studios outside of their own." Frangioni suggested the Pro Tools HD 13 system, running Pro Tools 5.3 on Apple G4 computers, operated with Digidesign Focusrite Control 24 control surfaces. The systems each utilize a single Digidesign 192 interface (16x8 I/O). For recording, a half-dozen Rorke Data Cheetah removable drives are used, backed up by 50GB Sony AIT-2 tape utilizing Rorke drives.

For effects, Rocca Bella got a TC Electronic System 6000 effects processor, while Hudson's studio features a Lexicon 960L. Hudson supplements this with his trusty Alesis MidiVerb 3, the source of a favorite slap echo: number 51 on the dial. "It's a simple, cheap digital echo," he says. "You just turn it to '51' and you become Elvis and John Lennon; we use it all of the time." (Fans of Starr's 1999 release, *Ringo Starr...I Wanna Be Santa Claus*, produced by Hudson, will remember the beginning of the disc's first track by Hudson calling out to engineer Gordon: "A bit more 51, a bit more 51, a bit more 51—thank you!")

Along with Pro Tools came new engineers: Steven Tyler sideman Paul Santo, who did basic tracking at both studios, and Bruce Sugar, who handled the majority of later overdubs at Whatinthewhathe?

*Ringo Rama*, like all great Ringo records, features the usual lot of big-name guests, this time including Willie Nelson, Van Dyke Parks, Shawn Colvin, David Gilmour, Charlie Haden and Eric Clapton. Hudson had met Clapton during a brief stroll to the little village near Starr's home, and Starr promptly invited him to play on the George Harrison tribute, "Never Without You." "He just showed up with his guitar and his amp and said, 'Where do you want me to set up?'" Hudson remembers. "Our jaws just dropped. No lawyer, no masseuse; he just came and set up himself." Evidently, Hudson and The Roundheads (now including Nashville singer/songwriter Gary Burr) are not immune to being star-struck: "As soon as Ringo called Clapton out to show him something in the house, we each grabbed

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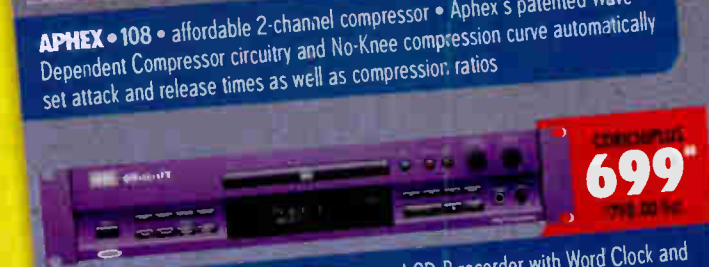
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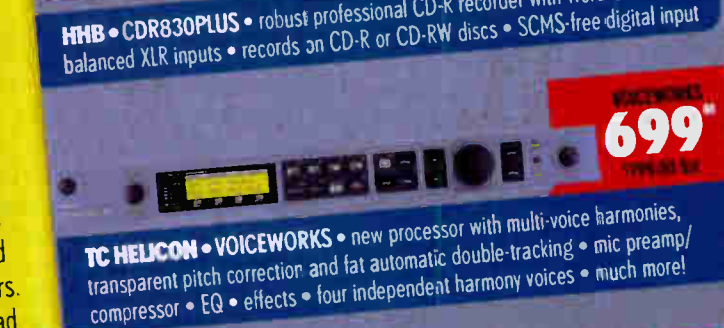
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his guitar and posed for pictures of ourselves with it!"

Directing such luminaries in recording is not without its challenges, especially for such a fan as Hudson. "It's easy working with a baby band, because they want to be bitch-slapped. But when you're working with icon-proportion guys, you get kind of intimidated about asking them to do anything, because half of the licks that you've learned and used in your own songs you stole from them anyway! And you gotta be cool. He can't see you openly weep or blow an air bis-

cuit [i.e., offer a flatulent response] or anything." Let's hope not.

Air biscuits and Hofner bass aside, Hudson continues to bring an incredible appreciation of a '60s Fab sound into the 21st century, with remarkably entertaining results. "If music is the brandy of the damned, then it's no wonder that Mark Hudson gets drunk on his passions," comments Steven Tyler. And, as Ringo says of him, "Besides being a terribly handsome man and rather tall for his age, he's a great musician, has lots of energy and he's a lot of fun to work with." ■

## STANLEY CLARKE

FROM PAGE 121

pacities has made Humann indispensable to Clarke's endeavors, and over the years, they've matured into a solid working team. "He's the bulk of my work," states the engineer, who's originally from Idaho. "We're old friends, and I just ended up taking care of all of his [recording and touring], and it's less people for him to deal with. He loves it when we do a concert and blow up speakers in the house. That's one of his favorite moments," he says with a laugh.

At the studio in Malibu, Humann designed a room based around a Fairlight MF3.48 digital audio workstation system, a Mackie D8B console, JBL 28 V Series speakers and various plug-ins and outboard pieces. He considers the setup fairly basic; nevertheless, he's very happy with the Fairlight DAW: "It's an amazing system that's very reliable. And I don't have to worry about losing data or clips disappearing. We've had it for three years now, and during that time, we've only had four hours of downtime, and half of that was just waiting for the Fairlight techs to show up."

Material on Clarke's *1,2, to the Bass* runs a gamut of genres and moods. As you might expect, there's some contemporary jazz, but there's also a symphonic composition, a fusion/R&B jam ("Hair") with high-voltage guitarist Joe Satriani and hip hop-styled grooves. Clarke says that he's especially proud of the title track, which is a collaboration with A Tribe Called Quest's MC, Q-Tip (Jonathan Davis). "My son [Christopher, 23] says it's a great day for hip hop," Clarke beams, "cause it's different and we did this thing on it that's really unusual. If you saw Q-Tip and me on paper, you'd wonder, 'How the hell is that going to work?' He came with this rap that's really positive, but not in a corny way. It's uplifting and very poetic, with sophisticated music and a stone hip hop beat, plus me."

"We had a lot of other people contribute to the CD," Humann adds, "such as Oprah Winfrey reading Maya Angelou's poetry ['I Will Not Be Moved,' produced originally by Quincy Jones eight years ago] and John Robinson, along with Vinnie Colaiuta sending drums tracks over on Digital Performer files. 'Just Cruising' [originally written for *Undercover Brother*] had George Duke, Gerry Brown, Paul Jackson Jr. and others for a live session. Also, he had other bass

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players, such as Jimmy Earl and Reggie Workman come in, too. There were several string sections recorded on analog 2-inch tape [cut at Ocean Way, Capitol and Sony in L.A.] and later transferred to ADAT through an Apogee converter." There is a pair of tracks featuring renowned Indian violinist L. Subramanian and, Clarke adds, "I also do a remake of an old Donny Hathaway tune, 'Where Is the Love,' [with] two young singers, Glenn Lewis and La Melle, on it. They're kind of like Patti Austin and James Ingram on an old Quincy Jones album. They are really killer singers and radio really loves them. I had an idea for that tune and always wanted to do it. It's really nice with strings and a hip hop beat underneath."

All in all, the different sessions and formats equated to a lot of transfers for the engineer and a fairly complicated mixing strategy. Ultimately, though, Humann mixed through the Mackie board, with the Fairlight used as a playback deck and a 24-bit Alesis MasterLink as the mixdown destination. This was a strictly D/D operation, and Humann averaged about a song a day in a span of about two weeks during October 2002. Clarke notes, "We

stayed in the digital domain, but when we mastered, we took it to Bernie Grundman's. There, it came out analog and kind of warmed it up. They have a real nice way of doing it over there, and it really helps."

I think I've done more recording in the past 10 years than most people, but it's all been directed toward film composing and soundtracks. Just the same, it's been great.

Fans who just want to hear Clarke wail on the bass need not worry: He does plenty of that, too, on a wide range of basses. "On this album, I played reg-

ular, tenor, piccolo and acoustic [bass]," he says. "The acoustic piccolo bass sounds much like an acoustic guitar. Also, I have a new bass from Alembic, because I had to retire an old bass [Series A]. [Alembic] came by and copied it and it's actually better than the old one." Humann adds, "He tends to lean toward the Alembic basses. He tries other ones occasionally, but he's really attached to the sound of them. On the record, they're just *ripping* and EQ'd to the max. But not on the low end; more so on the high and midrange. Also, it's a hard bass to record because it's so alive, with hot dynamics and transients."

Even though he made his mark on music many years ago, Clarke feels that he's making some of his best music now. He's a better composer and player today than he was when his public profile was larger. As he says, "If I knew back then what I know about music now, I would have really increased possibilities in that area [composing/arranging]." And now, through his film work and his revived solo career, there's more of his music to go around than there has been for quite some time. ■

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**L.A. GRAPEVINE**

by Maureen Droney

Tight security is one of the value-added services that commercial studios are able to offer. For Linkin Park's chart-topping *Meteora*, North Hollywood's NRG Recording Services kicked it up more than a notch.

Piracy is serious business, and labels are getting very serious about plugging leaks. "When you have the cooperation of the band and management, you can protect [the music]," Warner Bros. Records' chairman Tom Whalley told the *Los Angeles Times* in a discussion of the *Meteora*

tant engineer Sean "Fox" Phelps held keys to Studio A. Bypassing NRG's SAN, the band supplied its own network and passwords, along with private security guards who logged the names of everyone who entered their sessions. Rough-mix CDs were logged out for off-site listening, then returned and destroyed.

Outside NRG, extreme measures also prevailed. A guard accompanied the multi-track masters on their flight to New York, where final overdubs and mixing took place. Guards were also stationed at the New York studios, and each night, hard drives were turned over to a security service for safekeeping. Upon completion, final mixes were returned to L.A.

**NASHVILLE SKYLINE**

by Rick Clark

One of the things that I have always liked about Nashville is how closely knit and supportive members of the music community are. The level of altruism around here is also quite impressive. Every May, the Nashville AES chapter puts on the Audio Masters Golf Tournament, which is sponsored by Quantegy and *Mix*, and held at the scenic Harpeth Hills golf course south of Nashville. Proceeds from the event and the accompanying auction go to the Nashville Engineer Relief Fund (NERF), which has aided many individuals and families in the local engineering community who have suffered from health and/or financial predicaments. NERF is a nonprofit group, with all donations tax-deductible to the extent allowed by federal law.

The tournament is also a great chance for local engineers and producers to get together, brush up on their swings and hang out. The range of golf expertise runs from serious players to total novices. Local studios and companies sponsor the holes and provide swag, spirits and food. My personal fave stopover was the Paragon Studios/Studio Network Solutions sushi tent, also a hit at last year's event. (Paragon was also the scene of the pre-tournament party the night before, with plenty of great food and drinks.)

The Audio Masters Golf Tournament began in 1998, but its genesis was in the fall of 1997, when the AES Nashville Section and NAPRS held the First Audio Yard Sale at Belmont University to help out a local engineer. "This came out of the recognition that someone in particular was having a serious health issue, and we said, 'Let's just go have a yard sale and raise some money, just like any group of people might do,'" says Jim Kaiser, director of technology at Master Mix, as well as chair of the NERF board and a member of Audio Masters' committee. "After the yard sale, we recognized there ought to be something here that we could car-



PHOTO: MAUREEN DRONEY

NRG's Wade Norton (left) and Kelly Garver

security measures. "But it has to start from the time they hit the studio."

NRG is already a security-conscious facility, equipped with a centralized, password-protected, fiber-optic SAN/Pro Tools system, to which only designated employees have access. There are also combination safes with electronic keypads in each control room for safe storage of CDs and DATs. But for the Linkin Park sessions, a number of new policies were instituted. Throughout the three-month project, only manager Kelly Garver, chief engineer Wade Norton and assis-



personally by band manager Rob McDermott, who drove them from the airport straight to Warner Bros. in Burbank. There, under guard, on a computer disconnected from the Warner Bros. internal network, six watermarked and copy-pro-

—CONTINUED ON PAGE 138



ry on with. The idea of the golf tournament piqued everybody's interest because it seemed like such a fun thing to do. The first tournament went really well, certainly due to a lot of hard work on many people's parts and a lot of generosity and good luck, and we've continued each year since."

Among those who played or hung out at this year's tourney were Chuck Ainlay, Brian Ahern, Gary Hedden and Norbert Putnam, who was in fine golf form. The winning team for this year's Audio Masters Golf Tournament was sponsored by Carl Tatz Design: members included David Malloy, Rob Henden, John Henden and D. Vincent Williams. Look for photos from the tournament in an upcoming issue.

Recently, while I was bopping into Georgetown Masters to see what they were up to, I had the good fortune to catch up with John Nowland of Redwood Digital, who has been Neil Young's engineer and archive wizard for years. Nowland came to Nashville to make production masters on four classic Young albums that are finally being released domestically on CD: *On the Beach*, *American Stars 'n Bars*, *Hawks & Doves* and *Re-ac-tor*. To hear the master of *American Stars 'n Bars*, one of my favorite Young albums, on Georgetown's mammoth system was a big highlight for me, especially "Like a Hurricane" and "Hold Back the Tears,"

—CONTINUED ON PAGE 140

## NEW YORK METRO

by Paul Verna

If you ever spot a gleaming, silver tractor trailer with the words "Remote Recording Services" discreetly emblazoned on its side, you can safely guess that it's heading toward a major production. It might be the Academy Awards telecast, a David Bowie concert or an all-star event on the scale of Live Aid or the Rock and Roll Hall of Fame induction.

Founded in 1979 by president and chief engineer David Hewitt, Remote Recording has been a fixture on the road for more than two decades, its flagship "Silver Studio" helping to make musical history by recording and broadcasting performances across a wide spectrum of styles, from heavy metal (Ozzy Osbourne) to Broadway (*The Lion King*) to classical (the Berlin Philharmonic).

If there is a constant in the company's dizzyingly diverse credit list, then it is the star quality of the performers who consistently call upon Hewitt and his team. At a time when every industry is being pinched by shrinking budgets and down-



Remote Recording Services was on hand to capture two recent Eagles performances at the Office Depot Center in Fort Lauderdale, Fla. Shown, from left, are Remote Recording president and chief engineer David Hewitt, sales and marketing manager Karen Brinton and producer/engineer Elliot Scheiner, who oversaw *The Eagles'* recordings.

sizing of equipment and facilities, Hewitt proudly hauls his gargantuan rig all over the country. His clients, he says, appreciate the large truck's size and comfort. Neither they nor Hewitt would have it any other way.

"In the upper-end of the field, I sometimes feel like we're in the real estate business," Hewitt says. "A big chunk of what we're hired for is having the large studio, the acoustic environment and the isolated environment, not to mention the crew and the equipment. For these serious bands, where there's just no contest, they don't want the package arriving in a roadcase. They want a place where they can sit down and be comfortable in an environment like what they're used to."

While the need for space and a full-fledged mixing facility is desirable for recording projects, it is essential to pull off a live broadcast job like the Oscars. "For that project," says Hewitt, "we're providing a number of different services. There are live announcers and all kinds of submixes of musical elements. That kind of project is way too complicated for a small unit."

Among Remote Recording's recent

—CONTINUED ON PAGE 142



Pro Sound News editor Frank Wells, left, presents first place awards to Carl Tatz's winning crew, from left: Rab Henden, David Malloy, Tatz and John Henden. Not pictured: D. Vincent Williams.

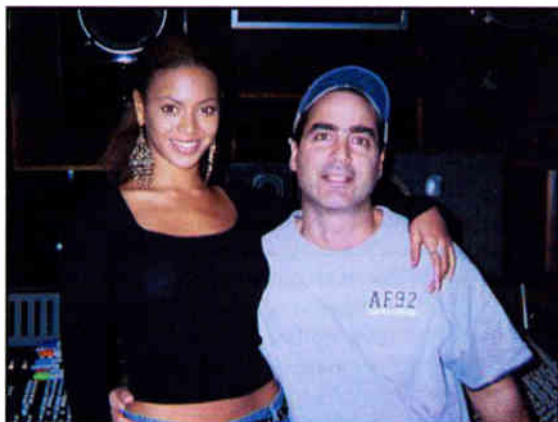
## SESSIONS & STUDIO NEWS

### NORTHEAST

Clive Davis, Rob Mathis and Phil Ramone gathered in Sound on Sound's (New York City) Studio E to work on a series of Rod Stewart sessions for J Records. Also for a J Records release, FunkMaster Flex was tracking in Studio C with producer Joey IE and engineer Kamel; Lil' Kim also stepped into C with editors Rob Tewlow and Richard Furch... Working on additional installments of the *Behind the Beats* radio series, host Colby Colb brought Busta Rhymes and Tyrese into Indre Studios (Philadelphia); Mike Richelle manned the board for both events. Also at Indre, Billy Corgan's new band, Zwan, were recording a radio broadcast session for Y100 with Michael Comstack handling console duties... Blues rock guitarist/harpist Jon Paris visited PIE Studios (Glen Cove, N.Y.) to mix his sophomore release, *Paris Blues*; the effort was mixed by Perry A. Margouleff and produced by Paris.

### SOUTHERN CALIFORNIA

Paul McCartney stepped into Scream Studios (Studio City) to mix a live version of "Hey Jude" with producer/mixer David Kahne and engineer Michael Brauer. Sugar Ray also hooked up with Kahne and Brauer to mix their forthcoming album... Curb recording artist LeAnn Rimes was working in Sound Image's (Van Nuys) Studio A on her Christmas album. Producer/engineers Peter Amato and



Tony Maserati is all smiles hanging out with Beyonce Knowles at The Hit Factory (New York City).



Power rock band Prong is currently in the studio with Klown Records (L.A.) owner and producer Steve Bruno (Nikki Sixx, Union Underground, Fear Factory) recording their 14-track record, which is expected out this month in time for their supporting slot on the Anthrax/Motörhead summer tour. Pictured from left are Monte Pittman (guitar), Steve and Tommy Victor (guitar and vocals).

Greg Pagani were at the controls, while Matt Lavella assisted. Also feeling the Christmas spirit, country music artist Ty Herndon booked Studio B to work with producer/engineer Jim Crichton on his upcoming holiday album.

### NORTHWEST

*MerleFest Live! The 15th Anniversary Jam*, the debut DVD release of the Merle Watson Memorial Festival, was mastered and authored in Boulder-based Airshow Mastering and its authoring partner, Zapp Labs... Nettleingham Audio's (Vancouver, WA) engineer Kevin Nettleingham mastered releases for Portland-area artists Dennis Winslow, Relent For No One, jazz guitarist/songwriter Judd Janes, gospel artist Jennifer Klotz, Larry Laatz and Jon Hull.

### MIDWEST

The Black Castle (Golden Valley, MN) hosted Black on Black with producer/engineer Dargi and engineer Hunter Voorheis for tracking and overdubs; Ian Thomas assisted.

### SOUTHEAST

Jessi Alexander recorded her MCA debut album at Memphis' Ardent Studios

with musicians Greg Morrow (drums), Richard Bennett (guitar) and The Heartbreakers' Benmont Tench (keyboards). Gary Nicholson handled co-production duties and John Hampton engineered... Recent sessions at Atlanta-based Stonehenge: Brian Michael Cox produced tracks for Raheem's and Jasmine's upcoming releases, and James Maynes produced a cut on Nivea's next album. Sam Thomas engineered all of the gigs and was assisted by Kelly "Dred" Liebelt.

### STUDIO NEWS

Deaf Dog Studio (Chicago) has recently taken in a 10-year-old, 64-track analog Focusrite board... LedBelly Sound Studio of Atlanta recently installed a new Audient ASP-8024 recording/mixing console. A new Pro Tools MIXPlus 5.1.3 system has been interfaced with the ASP-8024. Since the installation, LedBelly hosted sessions for Tooth and Nail, Norma Jean, Sloppy Meateaters, Under the Weather, Mastodon, 5 More Dead and many unsigned local bands. All sessions were engineered and produced by Matt Washburn... Conway Recording (Los Angeles) owner Buddy Brundo has upgraded his Studio B with the addition of an SSL XL 9000 K Series SuperAnalogue board. ■

Send your Sessions & Studio News to [sbenzuly@primediabusiness.com](mailto:sbenzuly@primediabusiness.com).



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L.A. GRAPEVINE FROM PAGE 134

tected CDs were made for senior promotion execs who reviewed them to decide the first song that would be released to radio. Those six CDs were then destroyed, with the pieces returned to Rochelle Staab, the Warner Bros. marketing exec in charge of overseeing *Meteora's* security.

No promotional discs were distributed, and the first single, "Somewhere I Belong," was distributed to radio via satellite. Reviewers were required to visit the Warner offices, where, before listening,

they were checked for recording devices. McDermott and members of Warner International, accompanied by a security guard, made a worldwide promo tour with a single copy of the album, which they played for selected listeners, leaving behind only samplers with five incomplete tracks. All in all, Warner Bros. asserts, only 10 album CDs—seven in the hands of the band—were in existence before *Meteora* went to manufacturing.

Okay, some of these tactics were probably just good theater, but the payoff for such extra diligence was twofold: It prevented the bulk of those pesky early Internet leaks that have drained sales and

excitement from the official releases by such groups as Korn and Radiohead; and, with the music shrouded in secrecy, an enhanced buzz—among both industry and the public—was created.

"We have to remind people of how precious what we're working with here really is," stressed Warner Bros.' Staab, in a conversation that only touched the surface of the intellectual-property issues facing artists today. "The bottom line is, it only takes one person to get it out there on the Internet—to the pirates—to ruin a marketing plan, to ruin all sorts of other things. That person is rarely the one that you actually gave the music to. It's the peripheral people, and when people are careless...I've heard all sorts of excuses, from 'It got lost in the mail,' to 'My secretary picked it up,' to 'I just didn't know.' So now we don't take anything for granted."

Musician/producer Pete Anderson's Little Dog Records label is now 10 years old. That's 70 in dog years, which is probably more what the last decade sometimes felt like as the company navigated the labyrinth of indie marketing and distribution. Now, Anderson (best known for his production and guitar work on Dwight Yoakam's albums) is putting his mubiz equivalent of a doctorate degree to work in new directions.

A guitar player with a passion for blues and Bakersfield-style country, Anderson paid his dues shopping acts back in the day before his Grammy"-winning, Platinum-selling success with Yoakam. To his surprise, a winning track record didn't change things all that much; post-Platinum, he still found himself shopping artists to unresponsive A&R execs. Little Dog was born out of the frustration Anderson—and his then-partner, producer/bassist Dusty Wakeman—experienced when they failed to get artists they believed in signed.

"When I first got into this business," Anderson recalls, "I'd have meetings with A&R guys. They'd play me this horrible stuff by artists they wanted me to produce, and I'd think, 'Well, obviously, this guy knows more than I do, because he's got that job and I don't.'

"But when I found myself back shopping again after a lot of success, I did about five of those meetings and—not to be arrogant, but—I decided that they really *didn't* know what they were doing. As a result, Dusty and I, with two other partners, started our own label."

A long and expensive haul left Anderson the sole owner, and a series of distribution deals left him older and wiser, but with Little Dog's catalog safely returned. Three years ago, with his wife, respected

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PHOTO: MAUREN DROONEY

Pete Anderson of Little Dog Records

engineer Sally Browder (Flaco Jimenez, The Plimsouls, Eliades Ochoa), he set up in Burbank at The Dogbone Studios—a small, Pro Tools-equipped facility—and

started making more of the blues and country-rock records he loves and waited for the right time to release them.

"I learned that you can get upside-down really quick with distribution deals," he says ruefully. "They'll press more than you'll ever need, and you'll never get a check because you're always paying back manufacturing. There's also a huge marketing responsibility. The marketing dollars that they want just to get it in the stores are more than you ever thought you were going to make.

"Now I know I just want my records in the right stores: the mom and pops, the mini chains, like Antone's and Waterloo in Austin; those places are community centers. The people behind the counter are musicians and music fans. They'll tell you where to find the best barbecue, the best band and what records are cool. Those are the stores I want to be in, and I only want to sell on consignment."

Anderson has used his Dogbone studio for Yoakam's recordings. The first Little Dog release out of The Dogbone was *A Country West of Nashville*, a 2003 alt-country reprise of *A Town South of Bakersfield 1 and 2*, the '80s compilations from the Los Angeles cowpunk scene that featured such artists as Lucinda Williams,

Jim Lauderdale, Rosie Flores and Yoakam. This time around, the geographic base was enlarged: *West of Nashville* includes cuts by unsigned artists from Seattle, Austin, Oklahoma, Texas, Arizona and Arkansas, as well as L.A.

Set for a July release is *17 Jewels* by East L.A.'s The Blazers, known for their rocking roots blend that integrates everything from blues, country and surf to norteño and cumbia. The hard-working Blazers, fronted by guitarist/singers Manuel Gonzalez and Ruben Guaderamma, play approximately 200 dates a year and fit the Little Dog master plan: relentless touring, a home-grown digital video, indie stores and a few friendly radio stations.

There's definitely a unique sound coming out of The Dogbone. Although the recording format is Pro Tools, everything goes to Tools through an analog 16-track Studer A800. "It's my analog effects box," Anderson says with a laugh. "I've basically got a 64-track 2-inch Studer. We record different parts at different speeds and use that for color. Like, I might record bass and drums at 15 ips—or maybe cranked down as slow as it will go—and then record guitars and vocals at 30. That gives me that sludgy-thud thing in the drums, where the tape noise doesn't matter, while the clean-

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er stuff I pump in at 30.

"Our competition, especially with Dwight's records, has been the way they make records in Nashville," he continues. "They make great records there: beautiful, sonically perfect. But we're a little more aggressive here, with a different landscape to our sound." Anderson has some big plans for The Dogbone: He's currently retuning the studio and considering adding a mastering studio and duplication business, making the facility a one-stop shop for indie artists and labels. Look for a full-length interview with Anderson and

engineer Browder in our "Recording Notes" section later this year.

And the L.A. Grapevine "Employee of the Month" award goes to: Ty Griffin of Alesis. Quality customer support is rare these days; we're all used to the "death hold," endless voice mail and supercilious techs. I didn't expect much when our beloved Masterlink lost its operating system after a particularly vicious power outage, but Alesis and Griffin surprised me. I reached him immediately, he patiently walked me through down- and reloading, and all the while stayed straightforward and courteous. Thanks, Ty. ■

Got L.A. news? E-mail MsMDK@aol.com.

NASHVILLE SKYLINE FROM PAGE 135

featuring the angelic harmonies of Emmylou Harris and Linda Ronstadt.

While I was at Georgetown, Andrew Mendelson turned us on to some projects that were being recorded over at Bucky Baxter's new studio, Three Trees Recording. The sound and sensibility of the production was so intriguing, as was the story about the studio's creation, that I had to go check it out.

Baxter is probably best known as the ace pedal steel, banjo, dobro, guitar, all-round musical utility guy for Bob Dylan, Steve Earle and Ryan Adams. He has also recorded with R.E.M., Los Lobos, Jim Lauderdale, Suzy Bogguss, Sara Evans, Joe Henry and a host of others over the years.

Three Trees Recording is Baxter's vibey recording compound tucked away in the heavily forested tall hills north of Nashville. While it is less than a half an hour from

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PHOTO: RICK CLARK

The good Doctor Moonshine, Bill VomDick, right, with his assistant, Dr. Clyne.

Music Row, Three Trees feels like it could be in rural upstate New York, hours away from any municipality. "I just wanted to get off the road and create a really comfortable place to make music," says Baxter. "I wanted to produce records and write songs and also build a place for bands to come in and rent by the month. We'll take care of them in every way. You can get this place with lodging and everything for the price of what you would pay for just the studio in L.A. or New York, or half of that."

Three Trees' assemblage of buildings has an interesting history: Much of it is built out of old structures from the Opryland theme park that existed in Nashville for many years. The huge beams that frame most of the main studio building came from the Grizzly River Rampage roller coaster, while the tracking room was created out of the Opryland gift shop. The





Bucky Baxter (left) and engineer Jeff Servais in the Three Trees garden.

piano room was originally part of a structure that sold a lard-heavy confection called Elephant Ears. The cabin near the front of the compound was once near the Opryland railroad line and housed all of the theme park's computers and P.A. gear.

"When the demolition crews were crushing up Opryland, we cut [the buildings] up and moved them here," Baxter

says with a laugh. "I dug 20 or 30 thousand dollars' worth of shrubs from Opryland and moved them out of there."

The facility's first project came to them before the doors were officially open. It was Cerys Matthews, the female lead singer from the popular Warner UK band, Catatonia.

Matthews had been touring the South-

ern states and originally approached Baxter about producing an album of traditional blues, folk and roots music from the South. Baxter convinced her that she should take these inspirations, create a body of original work and do it at Three Trees.

"The basic theme behind it is to take the music that turned into jazz and the blues and country music—which is basically Celtic music and black music—and have it re-collide again," states Baxter. "You will either like it or you won't. We intentionally made this record to slightly offend people the first time they listened to it. 'Cause I really didn't care for all my favorite records at first, either. Then I couldn't stop listening to them."

The resulting album, which just came out, is called *Cockahoop*, a word meaning "Over the Moon." The sound on the album recalls the kind of intimate ambience of the first two Band albums and Van Morrison's *Astral Weeks* or *Veedon Fleece*. Baxter's production is very organic, with unusual instrumental arrangements he and Jim Hoke scored. Throughout, Matthews' voice runs from frail vulnerability to an almost punkish brashness, sometimes in a single phrase.

The project was engineered and mixed by Chad Brown, one of Nashville's finest



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up-and-comers. Brown has also produced modern pop/rockers Mod Lang (named after a Big Star song) and singer/song-writer Troy Johnson. Shawn Camp also recently cut there, as were overdubs for the upcoming Be Good Tanyas album.

In the meantime, Baxter is looking to refine Three Trees: "We are currently building some cabins up around the crest of the hill for people to write and sleep. The main thing is this is just a really comfortable and affordable place to work."

Thanks to Andrea Pizzano, Nicole

Cochran, Jim Kaiser and Andrew Mendelson for help on this go-around of the Skyline. ■

Send your Nashville news to MrBlurge@mac.com.

**NEW YORK METRO FROM PAGE 135**

projects were two dates with The Eagles at the Office Depot Arena in Fort Lauderdale, Fla.; a James Taylor live broadcast from the Tanglewood Arts Center for Premier Radio Networks that was carried by approximately 150 of the company's affiliates; the Placido Domingo and Friends "thank you"

concert, featuring the Washington Opera at DAR Constitution Hall; and Viva Puente, an all-star celebration of the late Puerto Rican legend's music, recorded at Lincoln Center's Avery Fisher Hall.

"The Eagles dates," reports Remote Recording sales and marketing manager Karen Brinton, "were done to capture a live version of the band's new single, 'Hole In the World.' Elliot Scheiner recorded it, and it's always a joy to work with him."

The Taylor project, adds Brinton, kicked off the artist's summer tour. The 90-minute set included such hits as "Something In the Way She Moves," "Copperline," "Mexico," "October Road," "Fire & Rain," "Shower the People" and "Sweet Baby James." The band featured, among other players, Steve Gadd on drums and Luis Conti on percussion.

For Placido Domingo and Friends, the Silver Studio pulled up to Constitution Hall and recorded the all-star show featuring Veronica Villarroel, Tatiana Pavlovskaya, Denyce Graves, Salvatore Licitra, Danil Shtoda, Lado Ataneli, Rene Papé and the Three Mo' Tenors. Domingo had to cancel due to illness, but his absence did not hamper the evening's spirited mood. The show was hosted by Mrs. Eugene B. Casey, life chairman of the Washington Opera, as a gesture of gratitude to the opera's many supporters. Mixed by Jay Saks and Bill King, the recording is scheduled to air on PBS later this year.

Besides Hewitt and Brinton, the Remote Recording team includes chief technical engineer Phil Gitomer, engineer Sean McClintock and a small army of second engineers who are called upon for their specific expertise in different musical styles.

"Phil does the work of three men and a small boy," says Hewitt. "He's responsible for the truck, and he's a real master at documentation. One of the more important things about remote recording is keeping track of everything from timecode, machine numbers, video sync, takes, etc. Phil does all of that and a lot more."

McClintock, who has engineered projects by Maxwell, John Mellencamp and Southern Culture on the Skids, among others, has recently gone freelance, but continues to work with Remote Recording.

Inside the Silver Studio, Remote Recording offers a wealth of equipment that ranks with any world-class studio, mobile or otherwise. The truck's centerpiece is its Neve VRM analog console, a 48x48 model featuring Flying Faders 3.0 and Total Recall. Additionally, the Silver Studio is equipped with four Studer 900 Series consoles that can complement the Neve as sidecars or be used separately in portable packages. For jobs that demand

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Shown at 38 Greene, the Soho studio they co-own with partner Gary Moskowitz, are brothers Dan Price (left) and Jim Price.

that mic preamps be placed in close proximity to the stage, Remote Recording has 40 Millennia HV-3 units and 12 API 212Ls.

Remote Recording offers all leading recording formats, including Pro Tools. However, the vast majority of Hewitt's clients opt for the company's Studer D-827 48-track digital recorders. There are also some analog diehards, including Neil Young and Natalie Merchant, who prefer the Studer A820s.

Hewitt built custom KRK main moni-

tors into the truck, but he also offers a wide selection of near-fields, including KRKs, Auratones, Yamahas, B&Ws and JBLs. Like any analog-oriented operation, Remote Recording is stocked with loads of outboard gear and 200 microphones from all major manufacturers. While many location-recording specialists have gravitated toward digital consoles in recent years, don't look for Hewitt to make the switch anytime soon.

"It's very much a client-driven decision, and as far as basic analog technology goes, the bulk of our clients want to keep it that way. In terms of sound quality, I don't think it gets any better. I'm not dissing anybody's digital console, but I'll still take the sound and reliability of analog gear."

Brothers Jim and Dan Price count their blessings when they talk about how good business has been at 38 Greene, the advertising-oriented studio they co-own with

partner Gary Moskowitz (best known for his Baker Sound facility in Philadelphia).

"From what I'm hearing, there's not a ton of work out there, but we seem to be busy, which is great," says Jim Price. Dan adds, "We've been booked almost eight hours a day in each studio for several weeks."

It helps matters that 38 Greene is an in-house studio for radio-production company Oink Ink. However, Dan Price says that at least 60% of the studio's bookings are coming from "outside" work, a pretty good ratio considering that the Price brothers and Moskowitz built their business plan assuming that 100% of their revenue would come from Oink.

The 10,000-square-foot, three-room facility features 5.1-channel Pro Tools HD systems with AV Option for video. Besides Moskowitz, staff includes chief engineer Joe Gauci and engineers Leslie Monamathus and Emily Frankfurt. Among 38 Greene's recent sessions were radio and TV spots for such products as Viagra, Ben-Gay, Mercedes Benz, BMW and People's Bank. ■

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# HULK

—FROM PAGE 53, HULK

are all sorts of wild moves, sweeping transitions, multiple panes based on a comic book model, I suppose. Even with something as simple as the ambience of a room or a street, the sound is sweeping in spatially with [the visual], so if it comes in from the right, the sound of the neighborhood comes in from the right. We're using the spatial element of the track to help differentiate different panels of information and how they transition into each other. And since there are a lot of these quick-sweep transitions, we're trying to come up with natural sounds from *within* the scene to kind of give you a sweep that matches the visual change, as opposed to some pink-noise thing. It's a great way of both moving the film along and gluing it all together."

## ONWARD TO THE FINAL!

At this stage in the film's posting—less than two months before it hits your local multiplex—there is still much to be done.



Throughout *The Hulk*, the sound crew had to develop an internal "growl" to show his anger.

As he fine-tunes the Hulk's movements, Gearty is thinking ahead to how the sound team will give voice to Bruce Banner's father (played by Nick Nolte) after he is transformed into some sort of humongous rock creature late in the film. Rydstrom is still building backgrounds and mixing in effects, and *everyone* is dealing with the minute picture changes that stream in daily as the folks at ILM

complete their work.

"The biggest challenge," says Hymns, "has been just getting everything in place and in time against a very tight schedule for this enormous film with such an enormous scope and an enormous amount of visual effects that are still not ready. With a one-frame edit in the picture that takes them 30 seconds to do, we might have 100-plus tracks to do something to. It

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could take us a day-and-a-quarter to straighten [that] out, because even a simple edit across that many tracks takes a lot of time."

And then, lurking even further down the road, is the matter of Elfman's score, which was still being worked on down in Los Angeles the day I was at Skywalker. Though a gifted composer, Elfman is not exactly Mr. Subtle. How will the music, which the sound crew won't hear until the final mix, affect the intricate dance between Foley, effects and dialog?

"Well, that's always the big question, isn't it," says Hymns with a smile. "We have no choice but to proceed as if there is no music, so we've basically covered everything every way that we can and been as creative as we can, and we'll just have to have our battles in the final mix. It'll be me and Eugene and Gary and Michael Semanick [dialog] and the music mixer [Ellen Segal], and we'll be huddling with Ang seeing what works and what doesn't."

"It's a difficult situation because the music editor is fighting for the composer at all costs, and we're fighting for our effects at all costs, and sometimes the director doesn't know which way to go. And we'll try things: 'Let's hear it with effects only.' 'Let's hear it with music only.' 'Let's try it with this passage of music and effects, and then duck out the effects for this piece and take the music out only for this.' I could make some guesses as to what Ang wants, but we want to keep the options open as much as possible."

"It's a very wide mix that we've done; much more so than usual. Instead of pre-mixing everything onto one batch of tracks with no leeway, we've spread the effects out over two ambience MMR8s—that's eight tracks each—and nine or 10 effects MMR8s, and then three sound design MMR8s. So the magnitude of tracks that have material spread out on them is really huge. But I think in terms of picture changes and choices in the mix, it's going to be a very wise decision to be spread out that far, because we're locked into less than we ordinarily might be."

Whichever way it goes in the final mix, the viewing audience will be blissfully unaware of the behind-the-scenes skirmishes, where this brilliant piece of music was dropped in favor of some bone-rattling roar, or this ingenious effect—a product of countless hours of work—ends up stranded, unheard, on some hard drive. The audience will (hopefully) be swept away by the totality of the director's vision; wowed—but not distracted by—the genius of his million-and-one hard choices.



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—FROM PAGE 24, OR, IF YOU LIKE

10 days, EMusic had it pretty much ironed out. So if you read complaints on its chats, don't worry. They went from ratty 128 MP3s to higher-bit-rate VBRs—a huge improvement—and they limited the amount you can download unsupervised to counter the heavy hitters who download 12 hours at a time. Kind of annoying, but I appreciate why it had to be done.

Certain fascinating glitches remain for Mac users, and some albums that I want are defective and remain so despite my informing them as per its protocol. More on that some other month, maybe.

If you like fringe and early historical recordings, and even contemporary non-prime offerings, this site is worth a shot.

**AND SPEAKING OF FAILURE...**

The sad truth is that most, if not all, of these services will fail. I have done research on the business models and assumptions made concerning several of these ventures, and the odds are spooky. Complicated temporary rights contracts squeeze from one end, while the difficulty in predicting market response squeezes from the other. There simply is no historical model of suc-

cess; nobody knows what will work or what it is going to take to make it work. Every one of these services is caught between a rock and a roll model. They exist within a risky business limbo.

It will all shake out. There will eventually be a few big providers, each signed with the same heavyweights and each offering the same tunes. Their long-term model will be like Apple's, with most catalog single-song prices gravitating toward 50 cents, and prime current releases pulling what the market will bear.

And there will be the fringe boys, where you go for heavy-metal surf and for every demo, compilation, side-contract live album and all those "historically important" early albums that today's artists are constantly having nightmares about. This is basically what EMusic is, and if you have the time to wade through a sea of mediocre-to-pretty-bad stuff, you can build quite a nice collection of really good stuff that you might have otherwise never discovered. I did.

EMusic has several very well-thought-out features, including a cool place to store selections that you think you might want but aren't sure about called "My

Stash." I used this a lot. Its genre and sub-genre structures are very good; in fact, better than Apple's. And its "because you downloaded this you might like this" engine is downright impressive and is the direct cause of 4 gigs of music on my drive that I hadn't expected to download.

**AND NOW, ONE LAST PASS AT APPLE**

If you use the exceedingly dangerous and thrilling One-Click buy feature (licensed from Amazon), iTunes has no "Stash" section like EMusic. If you use the more sane but decidedly less-rushy shopping cart method, your planned purchases are stored on another screen where you can actually compare songs. This allowed me to buy *The Doors Greatest Hits* (yes, last month there were no Doors) and then remove five additional Doors singles that I had added, thinking they were not on the *Hits* album. There is no other place where you can compare song lists to check for redundancy, but it works quite nicely here.

Now, don't think that Apple is the only one to hook up the big boys; they are not. But they seem to be the only one to hook them up and offer you such unrestricted

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access and use rights. Unlike the other services that also have major-label contracts, there is no subscription and no tethered anything. This, along with fast, predictable audition response and almost flawless total integration from shopping to playing tunes on your boat, makes the iTMS historically important.

In 16 days, 2 million tunes were sold, and hackers began accessing private iTunes servers to steal their songs. Nice.

At three weeks, official sales stats stopped, but it is estimated that Apple did about \$3 million. And the hackers? There are now four different apps available that lie to any iTunes that is sharing streaming audio over the Net and allow the user to actually download and steal songs while appearing to be a benign streaming listener. Nice again.

Apple was forced to respond by disabling the Internet sharing feature in iTunes. So as we all climb onboard, the thieving assholes steal our songs and cripple our software. We can only hope the laws change so we can shoot them.

Jobs probably paid—and I want to be clear here, this paragraph is pure speculation and should be used only as a theoretical example—about 10 meg to each of the labels to lease all available properties for “x” months. So that’s 50 meg. Apple instantly generated many, many millions’ worth of solid positive press and praise, and pulled in 1 meg cash to pay for the servers. The labels got cash to try this out, and we know there are options waiting in the wings for every foreseeable outcome. On the other hand, it is a pretty safe guess that Jobs has only a one-year test contract with the labels, so theft and other troubles now can be devastating.

Why did the big boys allow Apple to do this at all, to offer portions of their catalogs so openly and totally untethered? And why is the iTMS only available to Mac users, and only those living in the rarified atmosphere of OS X, and only in the U.S.? Well, these two questions have the same answer. This is the perfect limited-liability experiment. If it all crashes and burns, the disaster is confined to the smallest, most controlled community imaginable! This is *less than 1%* of the real potential market! And if it flies, Apple can expand its market and exposure) in steps that are naturally predefined: Windows U.S....and then the World. Mmmm. ■

*SSC has way, way too many tunes now. He is dazed and confused. Actually, he has three versions of it.*

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—FROM PAGE 28, THE ONE-EARED MONSTER  
tape through the TV. Immediately, I knew something was wrong. Even through the crummy speaker in my set, the audio sounded squashed and off-balance. I looked down at the deck and saw that its "hi-fi audio" indicators weren't on. I stabbed the Audio Monitor button a few times, but nothing changed. There simply was no hi-fi track; my beautiful audio had been squashed onto the VHS tape's linear track (which sounds far worse than Beta SP linear), in lousy, hissy, over-compressed mono.

Of course, I jumped to the phone and called the duplicator. "Gee," said the engineer, "you didn't say anything about 'stereo.' I don't even think all of our machines have that high-quality audio thing." I imagine you have to go a long way these days to find a VHS deck without hi-fi audio, or was it that their machines were all 10-plus years old? But in any case, why the hell did he think I put separate tones on the two channels if I didn't want stereo? He had no answer for that. "How many of your decks can handle hi-fi?" I asked. "Oh, most of them. About two-thirds, I think," was the reply.

And what about the European-format copies? I had no way of checking them, but he straightened me right out: "Oh, our PAL and SECAM machines don't do high-quality audio." So they were a total waste of money. I demanded a refund on those, and he complied.

There were lots of friends and colleagues waiting anxiously for their copies of this film, and I wasn't about to make them wait another two weeks while I shipped the bad dubs back to the duplicator and went through the whole process again. So I proposed to the engineer that I would go through all of the tapes, pick out the ones that were hi-fi and send him back the rest. I'd pay for the shipping, and I'd send them overnight. He agreed, and so for the next four hours, I plowed through 100 VHS tapes, checking to see if the hi-fi lights went on when I shoved each one into my deck. I ended up keeping 26. The rest I put back into their boxes, scratched out my address and replaced it with theirs, and sent them off.

After UPS came by to pick up the box, I put the 26 good tapes into the padded envelopes that they had sent me and started to address them. Before I could put the stamps on, however, the engineer called me back. "Hey," he said, "did you say you want these in stereo?"

'Cause I don't think any of them are." What the hell was he talking about?

"Well, when I did the run, I noticed that the two channels on your master were, like, at different levels? And I know that a lot of clients don't like it when that happens? So I put a Y-connector on the outputs to combine them and then another Y-connector to split them so they fed both channels on all the decks."

At first, I was sure he was kidding me: I could see on the tapes I kept that the two channels weren't at the same level. But before I let him off the phone, I plugged headphones into the deck and listened to one of the tapes. When the first big music passage came, the sound went from mono to...mono. No change. The channel levels were different because, well, they were different. Maybe this was hi-fi, but it certainly wasn't stereo.

I demanded to speak to the boss, who, of course, was unavailable, but he did call me a few minutes later and was genuinely apologetic. They'd send me 100 new dubs, give me credit for the European tapes and for the extra shipping charges, and get the whole thing to me as fast as they could. And to their credit, that's exactly what they did. The color on some of the copies is a little funny, but I'm going to leave that alone.

The scariest part of all of this isn't that the engineer ignored my notes, misunderstood what I wanted or had somehow developed this bizarre technique. (When he called a few days later to tell me that the new dubs were ready, he said, "Well, I guess this will cure me from combining the audio channels again." Hey buddy, glad I could be of service, but usually I get paid to teach.) No, the scariest part was that when I picked out that one tape to check, there was actually a 74% chance that I would never have realized anything was wrong until it was much too late. Had that first tape been one of the hi-fi dubs, would I have put on headphones and thus noticed it was in mono? Good question. Maybe I would have. Or maybe I wouldn't have bothered until after I'd sent out a few dozen.

Some day, they will come out with stereo television. But until they do, whenever you find yourself entrusting your tracks to anyone who dwells in the murky world of video, first make sure that they know how to count their ears. ■

*Except for a missing upper-right molar, all of the parts of Paul Lebrman's head are in perfect symmetry.*





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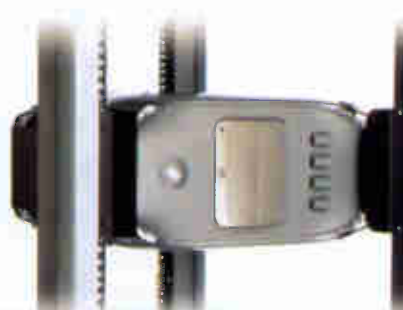


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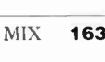
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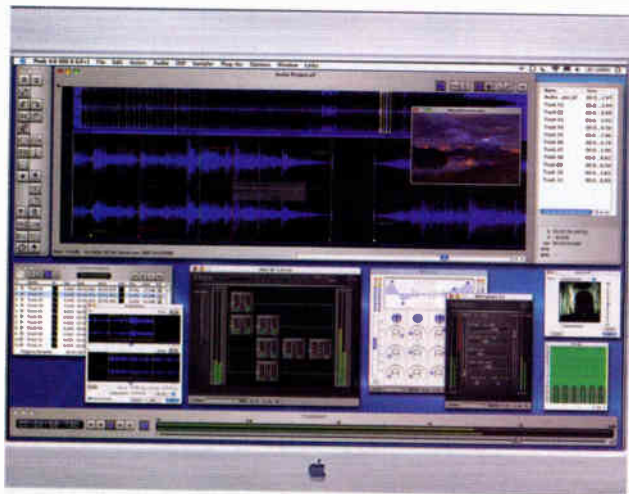
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# Cycling '74 Pluggo 3

## Reining in the Never-Ending Plug-In

Cycling '74's Pluggo 3 is a vast collection of plug-ins that covers nearly every aspect of processing and synthesis, from tone generators, filters and modulators to synchronizers and routing modules. And new plug-ins are being added regularly. With more than 100 plug-ins to choose from, it's easy to become overwhelmed each time you scroll through a pop-up menu looking for an effect or an instrument.

### PLUG-IN MANAGER

To manage this wealth of plug-ins, Pluggo 3 comes with Plug-In Manager, an application that lets you assign plug-ins for a project to a specific folder. The disabled plug-ins are kept out of your insert's pop-up window, so you have fewer items in the list to scroll through.

Plug-In Manager lets you do more than just organize your favorite effects. When I first began using Pluggo 3, I found it difficult to determine whether a plug-in was an effect or an instrument, due to the strangeness of the names. For sessions where I wouldn't be using MIDI instruments, I created a folder that contained only effects, as well as ancillary items such as the Pluggo Bus plug-ins.

If you are using Pluggo with Steinberg Cubase (4.1 or later) or Emagic Logic, then you can create nested plug-in folders within your VSTPlugIns folder. This allows you to organize Pluggo's effects and instruments conveniently by type or preference.

### RANDOMIZE AND EVOLVE

Here's a neat trick to try when your favorite effect begins to feel stale: Command-click anywhere on the plug-in window and the Parameter Change menu will appear. Choose Randomize All to reset most of the plug-in's parameters to a randomly chosen value. (Some parameters, such as output gain, may not be affected.) The Randomize All feature is especially useful when you're looking for inspiration from a parameter-rich plug-in, such as Chamberverb, which offers 16 sliders.

To change the parameters subtly, choose Evolve All, which will keep the

randomization of each parameter to about 5% of the current value. By command-clicking directly on a slider, you can Randomize or Evolve that parameter only.

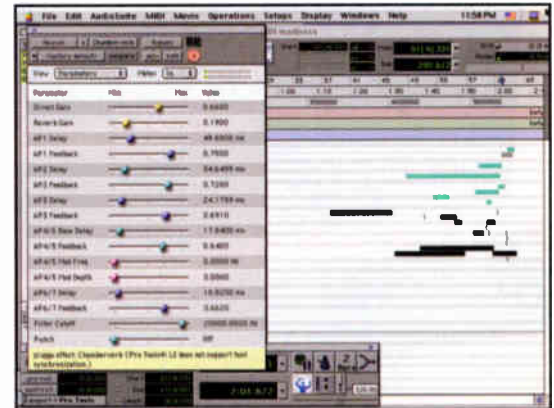
The Parameter Change pop-up also offers Undo Last Change, which gives you one level of undo/redo; Touch Parameters, which updates your sequencer's automation system with any changes you've made to the plug-in; and Copy All From Program, which immediately calls up the parameter settings of a preset of your choice. The Parameter Change pop-up menu also works with Pluggo's instruments, although the parameter-specific Randomize and Evolve commands are not available for instruments.

### FUN WITH LFOs

If you are looking to put a little action into your Pluggo synth sounds, then try adding an LFO to one or more of its parameters. This is relatively easy to do: Just call up an LFO as an insert after the synth instrument.

In Digidesign Pro Tools, for example, put your instrument in the top insert slot of an audio track. Make sure it is receiving MIDI data by clicking on the output tile of the MIDI track and selecting the correct instrument from the pop-up window.

Just below the instrument in the audio track, add an LFO as an insert. When the LFO window appears, you can select up to three destinations for this waveform to control: Click on the arrow next to where it says "no connection," and the pull-down menu will show you your options. If your synth is Additive Heaven, the 8-harmonic additive synthesizer that comes with Pluggo 3, your choices for LFO destinations include each of the four stages of the master envelope (attack, decay, sustain and release), each of the individual oscillator's volume or harmonics, panning and master volume.



With Pluggo 3, you can use an LFO plug-in to control the parameters of synths, such as the Additive Heaven synthesizer (top), as well as randomize the parameters of a feature-rich effect, such as Chamberverb (bottom).

In order to initiate the effect after you've chosen your three destinations, click on the word Off and change it to Set. Next, select the LFO's waveform (sine, square, ramp-up, ramp-down or custom); the speed of the waveform in bpm; and the note duration to which you wish to synchronize (from whole note to 1/4-note triplets). If you want to control more than three parameters of your synth, then simply add additional LFO plug-ins in the remaining insert slots. Doing this also allows you to add substantial complexity to your patch, because each new LFO can have a different tempo, waveform and control destinations. Going back to the Additive Heaven example, if your MIDI part consisted of drones, then you can have several LFOs raising and lowering individual partials at slightly different rates. Keep in mind that each LFO plug-in you add will require additional CPU time, and the more the LFO is doing, the more it will tax the CPU. ■

*Bay Area-based sound designer Laura Pallanck wishes to thank Darwin Grosse and Gregory Taylor for the inspiration.*





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# Introducing the 828mkII

24-bit 96kHz resolution. DSP-driven mixing and monitoring.  
Front-panel programming. Stand-alone operation.



## 828mkII feature highlights

- **CueMix DSP™** — the 828mkII delivers DSP-driven digital mixing and monitoring for all 20 inputs. Connect mics, guitars, synths and effects processors, and monitor everything from the 828mkII's main outs, headphone out or any other outputs with no separate mixer needed.
- **Front-panel control** — access your entire mix, or any 828mkII setting, directly from the front panel.
- **Stand-alone operation** — program your mixes at the studio and then bring the 828mkII to your gig — no computer needed. Need to tweak the mix? Do it on site using the back-lit LCD and front-panel controls.
- **Multiple CueMix DSP mixes** — create different monitor mixes for the main outs and headphones. Add send/return loops for outboard gear — with no latency.
- **Front-panel mic inputs** — connect a pair of mics or any TRS input with front-panel convenience.
- **Mic/guitar/instrument sends** — insert your favorite outboard EQ, compressor, amp or effects processor to the two mic/guitar inputs, before the signal goes digital.
- **20 inputs / 22 outputs** — there's no channel sharing in the 828mkII; the mic inputs, SPDIF I/O, headphone out and main outs are all handled as separate channels.
- **Support for 96kHz ADAT optical digital I/O (S/MUX)** — provides 4 channels at 88.2 or 96 kHz.
- **Sample-accurate MIDI** — connect a MIDI controller and/or sound module with no separate interface needed. MIDI I/O is sample-accurate with supporting software.

## Basic features

- **Expandable 24-bit 96kHz audio interface** for Macintosh and Windows with 20 channels of input and 22 channels of output (simultaneously).
- **24-bit S/PDIF digital input/output** up to 96 kHz.
- **Sync** — word clock in and out; built-in SMPTE (LTC) in and out; sample-accurate ADAT sync input.
- **Compatible** with virtually all audio software on Mac OS 9, Mac OS X and Windows Me/2K/XP.
- **Includes AudioDesk®** sample-accurate workstation software for Mac OS with 24-bit recording/editing and 32-bit automated mixing/processing/mastering.
- **2 mic/guitar inputs** with phantom power and sends.
- **8 TRS analog inputs** with switchable input levels.
- **8 TRS +4dB analog outputs** — perfect for surround.
- **Separate TRS main outs** and front-panel headphone jack, each with independent volume control.
- **8 channels of 24-bit ADAT optical input/output** with sample-accurate ADAT SYNC.
- **MIDI I/O** — no separate MIDI interface needed.



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