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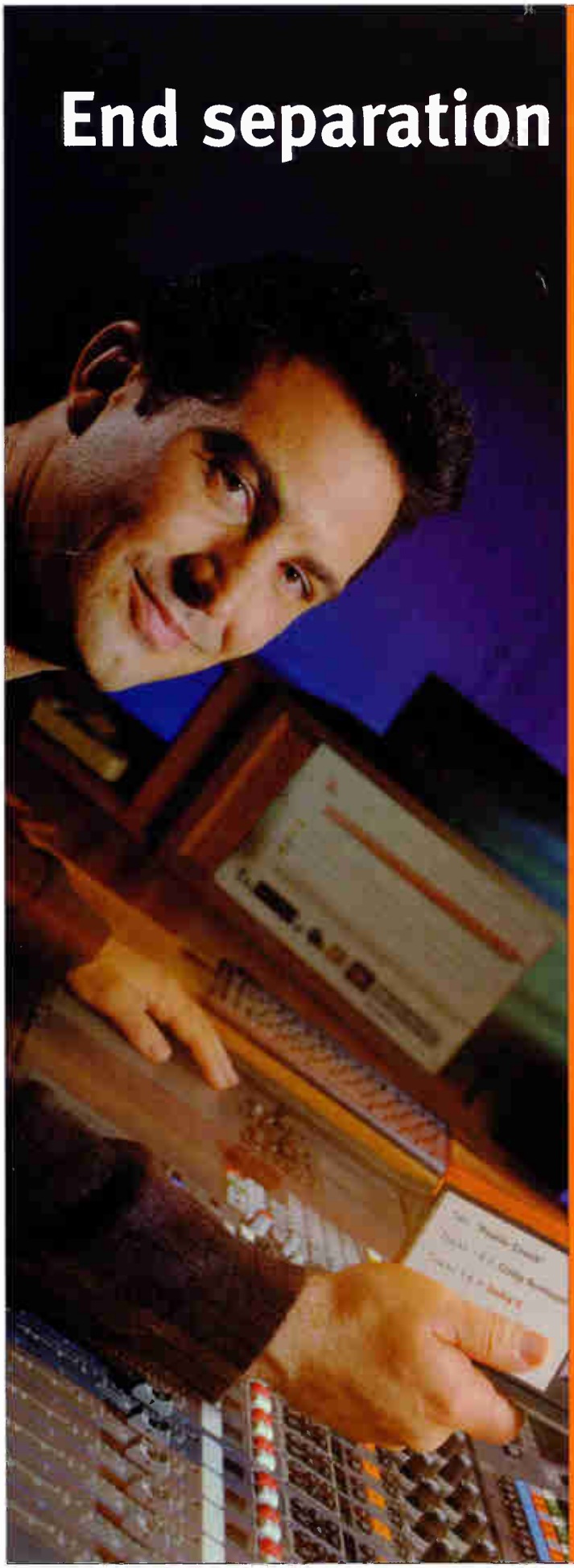

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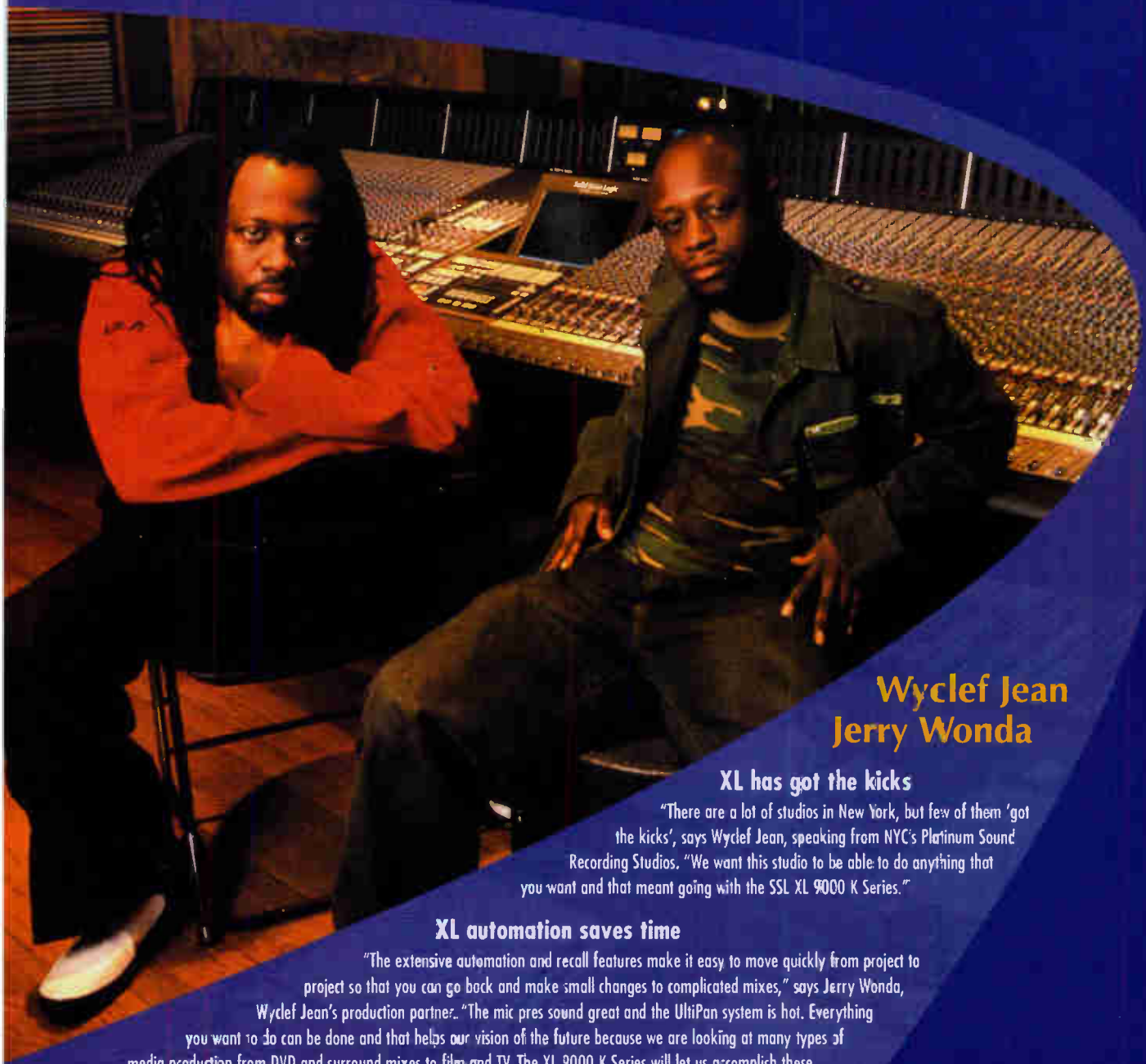
XL Has Got The Kicks



Wyclef Jean
Jerry Wonda

XL has got the kicks

"There are a lot of studios in New York, but few of them 'got the kicks', says Wyclef Jean, speaking from NYC's Platinum Sound Recording Studios. "We want this studio to be able to do anything that you want and that meant going with the SSL XL 9000 K Series."

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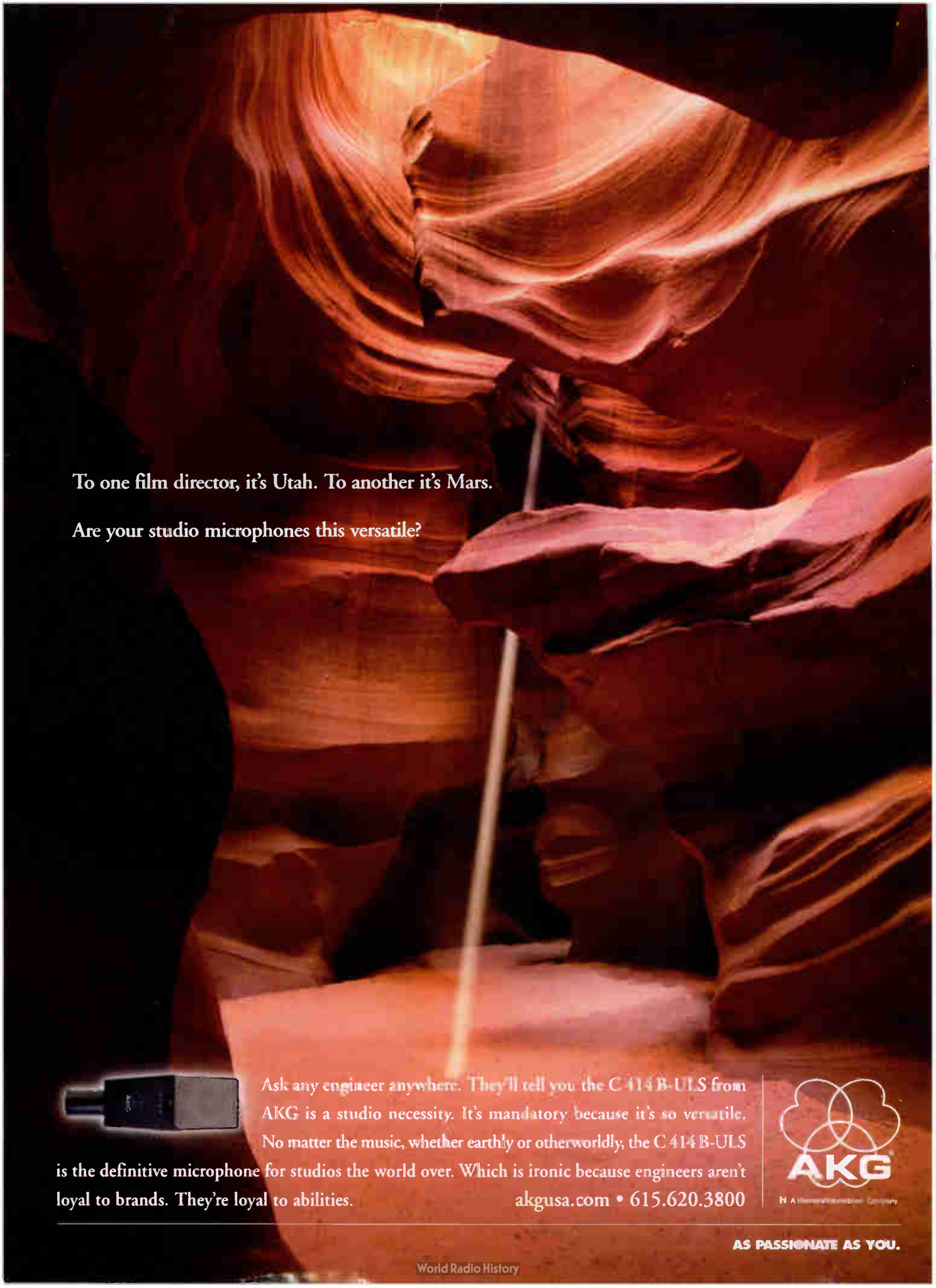

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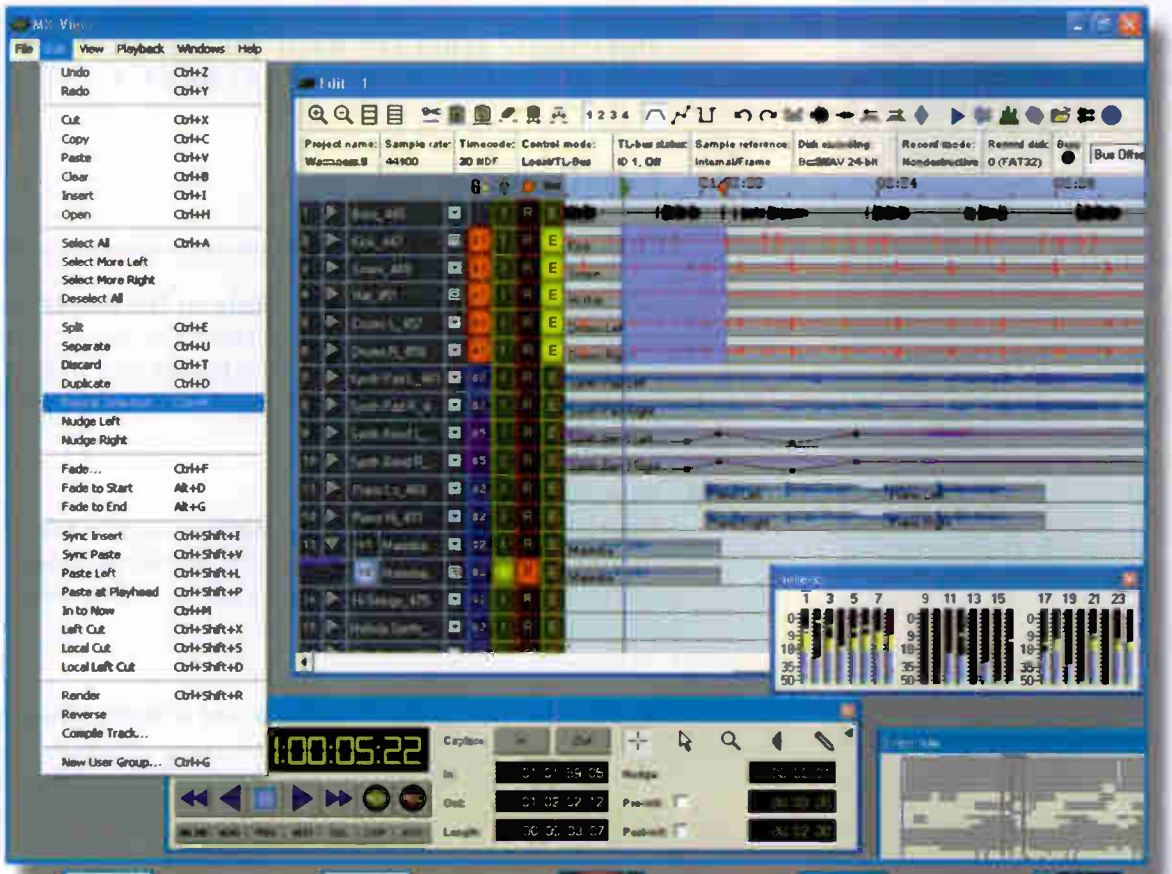

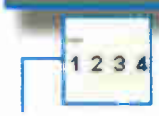

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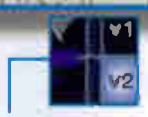

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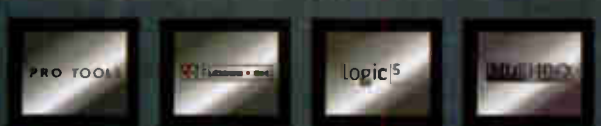

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March 2003, VOLUME 27, NUMBER 4

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Multichannel mixing means using outboard gear in novel ways, yet working in new formats is not without caveats. Barry Rudolph talks to eight engineer/producers about signal processing in the surround environment.

40 Surround Variations
Recent Projects Highlight a Range of Multichannel Sound Work
Four very different projects, four very different approaches: Senior editor Blair Jackson talks formats and techniques with top engineers who are mixing multichannel music.

58 Hardware/Software Multichannel Effects Processors
Surround effects processors are very much in demand these days, and pros now have more options than ever. Contributing editor Randy Alberts queried software and hardware developers about their surround processor offerings.

48 Product Hits From Winter NAMM
There were plenty of music and audio toys at NAMM, and *Mix* editors George Petersen and Sarah Jones offer their picks of the hottest new gear from the show floor.

66 The Quest for Power
The Benefits of a Multiple-CPU Setup
Engineers who don't blink at buying a $4,000 mic still balk at adding another CPU to their studio. Why? Computers are cheap, and a second CPU hosting samplers or sequencers provides for faster workflow and fewer crashes. Ned Mann looks at the power to be gained by a relatively simple addition.

On the Cover: Studio D at The Village, West Los Angeles, features a 72-input Neve 88R analog board, with custom Vincent Van Haaff-designed monitors (TAD components). For more on The Village, turn to page 20. **Photo:** Edward Colver. **Inset Photo:** Steve Jennings.

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The "Forgotten" Surround Format

In the never-ending quest for dominance in the "my surround format can beat up your surround format" struggle, proponents of DVD-A, SACD and DVD-Video continue to slug it out. And with good reason: The winner—or, more accurately, the survivor—has a lot to gain, both financially and in bragging rights. But in terms of music releases, one hugely successful surround format has been largely ignored: Dolby Stereo, aka Dolby Pro Logic.

Beginning with the theatrical release of Barbra Streisand's *A Star Is Born* in 1976, Dolby Stereo became hugely popular with blockbusters such as *Star Wars* and *Close Encounters of the Third Kind* a year later. The format matrixed four channels onto a stereo track, and the theater's Dolby Cinema Processor would decode the information for full LCRS playback. The key advantage here was that the soundtrack could be played mono, stereo or 4-channel from a single print, offering forward and backward-compatibility.

In the early '80s, stereo home VCRs became popular, and millions of videotapes of popular movies were sold worldwide. But it wasn't until years later (1987) that the first home Pro Logic decoders began appearing, fueling the home-theater revolution. Today, most network TV programming is broadcast with Pro Logic-encoded surround sound, and some 80 million multichannel receivers with decoders have been sold. The situation evolved in 2000, when Dolby debuted its Pro Logic II system, a playback decoder that creates a 5.1-style, split surround effect from a Pro Logic LCRS feed. At next month's NAB show, Dolby will unveil a Pro Logic II upgrade for its DP563 hardware encoder, which will allow broadcasters to encode 5.1 mixes to a stereo signal that's easily transmitted without changing existing gear.

Like the original concept for 35mm Dolby Stereo releases, tracks encoded as Pro Logic II are backward-compatible with mono, stereo, LCRS or 5.1 playback systems. So Pro Logic II is great for game soundtracks, videotape releases and broadcasts (TV and radio), but what does that mean in a world of discrete 5.1 releases, whether Dolby Digital (AC-3), SACD or DTS? Maybe not much. However, it could mean a mini-revolution for our old friend, the humble 44.1kHz, 16-bit CD, onto which producers could pack 5.1 mixes on the same release format that also plays back just fine on a stereo boombox. It may not be the ultimate medium, but it sounds much better than a VHS Hi-Fi; so in providing a convenient alternative to DVD surround formats, Pro Logic (I or II) releases can also offer a bonus to the CD music customer.

While we're on the subject of bonus materials, in this issue of *Mix*, we introduce "Online Extras." Every month, we're constantly faced with deciding what to do with the extra text or photos that would otherwise be cut when an article is too long. The decisions aren't easy, but thanks to the Web, we can offer an alternative. The "Online Extras" logo at the end of an article indicates that additional information, graphics, tips, photos and even audio clips are available on our redesigned and expanded www.mixonline.com. Check it out.

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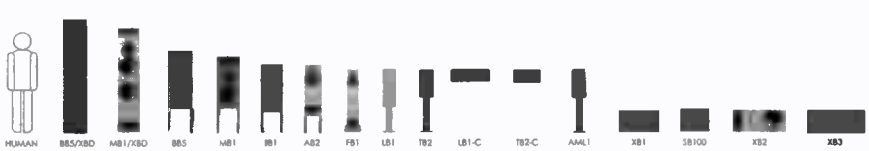

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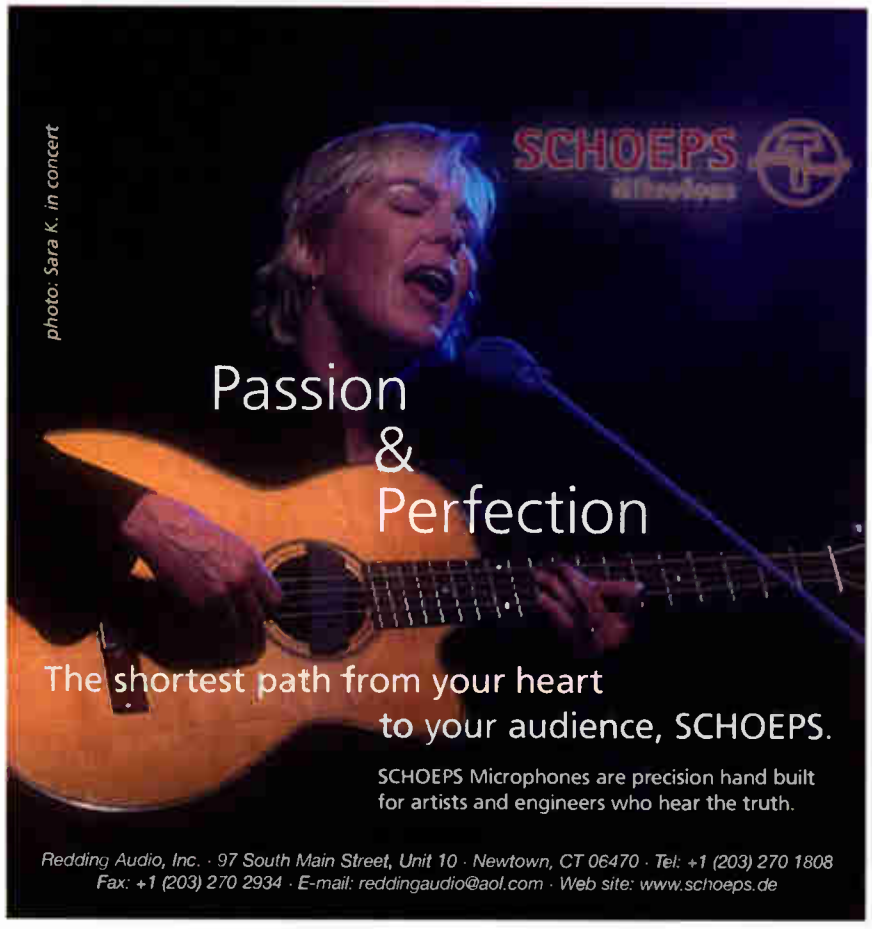

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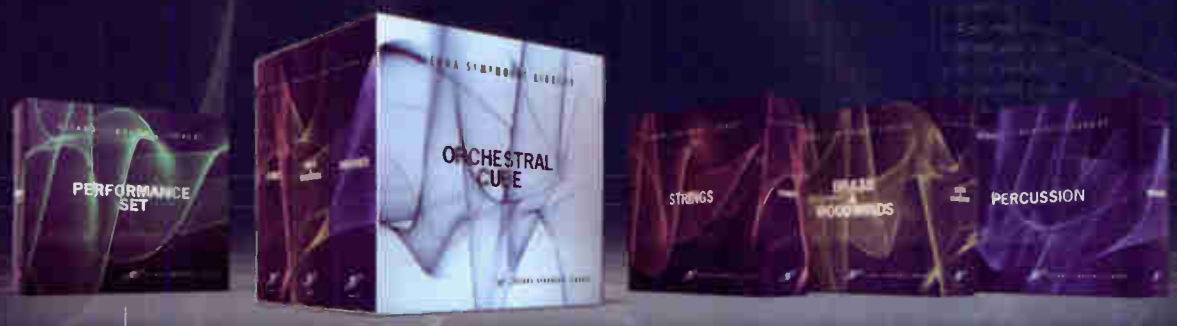
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Letters to Mix

THE FRANK I REMEMBER

My name is Michael Braunstein, and it was with amusement that I read the Chris Michie piece on Frank Zappa in the January 2003 issue of *Mix*. I began working as Frank's recording engineer on January 3, 1975, when Kerry McNab (arguably the best engineer Frank ever had) began his slow withdrawal from the scene and subsequently from engineering entirely. Because of a contractual obligation to Kerry, Marty Perellis (Frank's then-manager) insisted on listing me as "recordist" on the *One Size Fits All* LP, though I did much of the actual engineering. I went on to engineer all or part of six or so albums with Frank.

Later, during the spring of 1975, I was engineering for Frank, and Davey Moire was the front desk receptionist. He was such a Zappa fan—so eager to get into the studio—that I asked to have him be my assistant. He even ended up doing some vocals and playing harp on a couple of tunes.

Davey is correct in describing Frank's memory. Would that Davey's were as good! (For example, I used the Pignose in the Bosendorfer in Studio B at the old RPLA on the *Rufusized* LP in October of 1974; concocted it with Gary Olazabal.)

The most eloquent part of the story for me was the small photo of coffee, Winston cigarettes and Frank's hand on the VCA groupers on the old API in Studio B. *That* defines the every-night location of where Frank sat as we worked. Frank and I spent months in that room. Frank never drove; I would drive him home every morning to the Woodrow Wilson house. I also lived in Laurel Cyn.

I am forwarding a unique photo that was snapped one night while I was mixing the Grand Funk album that I coaxed Frank into producing. It's in the old Studio A at RPLA on another API that I think went into the DesignFX remote truck, if I recall. It's kind of a rare photo of one of Frank's rare production gigs.

Frank was always fighting with record labels. At the time we worked together, he was trying to get out of his Warner Bros. contract. We were cramming to finish a bunch of albums to deliver to them. At 7 a.m., on the last day the material was due, Frank grabbed a legal pad and hand-wrote a letter to Mo Ostin to accompany the masters we were sending over to Burbank, Calif. One of my favorite artifacts is a copy of that three-page demand for "payment by the end of business day today."

There have been many events *Mix* has written about that I have been part of during the 20 years I spent in L.A. engineering or producing. This is the first time I have commented on any of them. It's because Frank and I worked together for a long time—over three years—and I saw a lot of people come and go. We got to know each other pretty well, and I have a real spot in my heart for him.

mbraunstein3@cox.net

EAR Q? SAY IT ISN'T SO!

Several years ago, I was discussing music, mixing and hearing with a good friend who's a veteran mixing engineer. He had critically damaged his hearing by mixing at high sound levels, and he noted that a hearing self-test system could have saved his career by giving him timely information. I suggested that such a self-test system could probably be developed for a personal computer, and that it could readily be adapted to a DAW environment to provide musicians and engineers with instant, accurate and confidential information about their hearing. I liked the idea so much that I developed and patented the technology, added Suggested EQ Settings to help engineers equalize their personal monitoring systems (rather than the final mix) to compensate for their tested hearing curve, and then began marketing the system as the Ear Q Hearing Analyzer.

Unfortunately, in spite of its apparent utility and in spite of consistently favorable press, Ear Q has not yet met with much market acceptance. Therefore, I regret to report that due to extremely slow sales, Ear Q Technologies has been forced to temporarily suspend shipping all versions of its Hearing Analyzer product line. We apologize to those few of you who have recently tried to order a system from us—we only wish that there were hundreds more like you so that we could remain in production. Perhaps Ear Q needs to wait until hearing conservation becomes a key concern in the audio world, just as workplace safety became of critical importance in all other industries. Then we'll pick up again.

I'd like to thank the *Mix* editorial staff for its enthusiastic support and for the clear and comprehensive product review the magazine published this past January.

Tony Eldon
President, Ear Q Technologies Inc.
tonyeldon@earq.net

WHO SAID IT HAS TO BE LOUD?

I have nothing but admiration for Stephen St.Croix's excellent article "I Sing the Body Electric" (*Mix*, November 2002), and I wholly believe that technology, and our belief in its necessity, is sucking the very soul out of music.

I've heard and read a lot of mastering engineers talk about the "loudness wars" that they're forced to be a part of, regardless of their personal beliefs. And I've also heard them comment that, particularly in pop radio today, you simply have to have the loudest single out there in order to be competitive; that some stations "won't even play a single that's not slamming zero."

But it's also true that these radio stations compete to be the loudest station on the dial; they spend a fortune on custom multiband compressors so that everything that goes over the air is squashed to hell and back. Every song gets the same treatment so that a Creed cut can be played right alongside an AC/DC album from 1977, with no discernable loudness difference.

Mastering engineers and producers say they "have to squash it or they won't be competitive," yet a Beatles song will be exactly as loud, on the radio, as a Linkin Park song.

The same holds true for club DJs. With a Finalizer in every rack today, Michael Jackson's "Beat It" has more punch and low end on the dancefloor than anything produced during the past 10 years; with "Beat It," Bernie Grundman left enough loudness energy for the low end to move some booty.

Why are you using this flimsham excuse to destroy dynamics and balance in music? If every cut ends up being the exact same loudness as the "competition," why does it matter how loud you master it?

Take a stand. And stop whining that the big bad wolf made you do it.

Mike Ingram
Cincinnati

Send Feedback to *Mix*
mixeditorial@primediabusiness.com

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SUN CAPITAL INFUSES MACKIE

Jamie Engen

Mackie Designs announced that it has agreed to an equity investment by an affiliate of Sun Capital Partners, a Boca Raton, Fla.,-based private investment firm.

Under the proposed transaction, Sun Capital would acquire approximately 9.8 million shares of Mackie common stock—approximately 65% of Mackie's total common stock outstanding—for a total of approximately $10 million in cash. According to Mackie CEO Jamie Engen, the transaction is expected to close by the first week of February; upon closing, Mackie will receive $6.4 million in capital. Engen also said that although company founder Greg Mackie is selling a portion of his shares, he remains a shareholder and will be on an exclusive consulting agreement with the company.

According to Engen, "Greg will continue to be involved as an exclusive consultant in the area of product development." Commenting on Mackie's long-term outlook, Engen said, "In addition to financial support, Sun Capital brings tremendous business management insight. Additionally, Sun Capital has strong relationships with some of the top lending institutions in the world. All of this is beneficial to Mackie's customers because the long-term health of the company is assured and the resources are available to research and develop the type of cutting-edge products that Mackie is known for."

Mackie plans to file voluntarily to delist from NASDAQ National Market effective as of the closing, and intends to be approved for trading on the OTC Bulleting Board.

SANKEN MICS AN "AMERICAN DREAM"

On the set of NBC's *American Dreams*, production sound mixer Stephen Halbert fixes Sanken's CUB-01 boundary mics on the vintage broadcast console or in the studio on the old TV cameras to capture the voices of the "crew." Halbert also employs Sanken COS-11 lavalier mics throughout the show: "I hide them a lot in the knots of ties. Before the Sanken lavalier came along, I had to put the mics down on the body where there is a lot of clothing rustle, and you lose signal when the actor's head moves from side to side."

In the control room of Philadelphia's WFIL-TV, production sound mixer Stephen Halbert demonstrates placement of the Sanken CUB-01 boundary microphone.

A TOYBOX ON WHEELS

Colorado Sound Studios (www.coloradosound.com) and Audio Consultant Services have brought their studio expertise and experience inside a truck: toybox remote recording. Partners Kevin Cook, Allen Baca and David Soran inaugurated their truck with the 2003 recording at Denver's Fillmore Auditorium of Big Head Todd & The Monsters for a national multi-radio station broadcast.

Adding to its already-impressive list of gear, toybox features a 40-input Amek console, a variety of 24-bit recording formats, classic 2-inch analog recording and Pro Tools; outboard gear includes products from Lexicon, Grace Designs and more.

SOUND ON SOUND ON KEY

Sound on Sound's (New York City) Studio C hosted Alicia Keys, who tracked voice-over for the soundtrack to the TV show *The Proud Family*. Working with her were producers Gillian Higgins and Mercedes Sichon and engineer Cortez Farris.

From left: Kelly Cook (SOS night manager), Alicia Keys and Sam Branch (general assistant)

TEC AWARDS BENEFIT HEARING

Karen Dunn (left), president of the Mix Foundation for Excellence in Audio, and Hillel Resner (right), executive director of the TEC Awards, present a check for $25,000 to Marilee Potthoff, marketing director of the House Ear Institute. The money, representing more than half of the proceeds from the 18th Annual TEC Awards, will support the efforts of the Sound Partners hearing-conservation program.

World Radio History

COMPILED BY SARAH BENZULY

KORG STRUTS DOWN ROCKWALK

PHOTO: VICTOR SPINELLI

From left: Joe Zawinul, Herbie Hancock and Tsutomu Katoh

On January 15, 2003, Korg chairman and founder Tsutomu Katoh was inducted into Hollywood's Rockwalk, celebrating the electronic musical instrument pioneer's 40th anniversary. Sharing the honor with Katoh were Herbie Hancock and keyboardist/Korg player Joe Zawinul (founding member of Weather Report). For an interactive tour of Korg, visit www.korg.com.

SKYLINE STUDIOS REOPENS

Skyline Recording Studios (New York City)—which has churned out hits for Eric Clapton, Madonna, Chic, David Bowie, Mariah Carey, LL Cool J and many others—has been reopened by Jonathan Mover and Ron Allaire.

Skyline's main room consists of the original third-floor studio with a live room, ample isolation and an updated control room to accommodate the Neve VR60 (with Flying Faders) and George Augspurger main monitors. Construction has begun on a B room, as well as a Pro Tools|HD production suite, which will be occupied by the Boston production team of Steve Catizone and Leo Mallace, aka Mixmen.

Ron Allaire (left) and Jonathan Mover

Steely Dan has been in Skyline's main room since July 2001, working on the follow-up to the Grammy-winning *Two Against Nature*.

Mover is an accomplished drummer/percussionist with various studio and live credits associated with Aretha Franklin, Fuel, Joe Satriani, Alice Cooper, Oleander and Mick Jagger. Allaire has engineered/produced on sessions with Keith Richards, Bad Brains, Joe Williams, Queen Latifah and Pantera. Allaire also handles chief technical duties at Skyline and designs/builds custom tube electronics.

Skyline Recording, 36 West 37th Street, 3rd Floor, New York, NY 10018; 212/714-9691; www.skystudnyc.com.

ON THE MOVE

Who: John Oakley, general manager of Klark Teknik

Main responsibilities: Everything to do with the Midas and Klark Teknik brands. I'm the one who carries the can for everything from sales, marketing, R&D and manufacturing. The buck stops here.

Previous lives:

- 1990s: director of R&D at Soundcraft for six years, then group technical director of Harman Pro for three years before moving on to become managing director of Amek for four years
- 1980s: various computer and communications system-design companies
- 1970s: engineering design at the BBC

If I weren't involved in the pro audio industry, I would be...reconstruction and restoration of historic buildings because I am both fascinated and inspired by the sheer craftsmanship involved.

The ultimate compilation album would comprise... Annie Lennox, Eric Clapton and The Zombies!

The last great movie I saw was...*The Lord of the Rings: The Fellowship of the Ring*—I haven't had time to see the second part yet.

Currently in my CD changer are... Queen's *Greatest Hits*, The Eagles *Greatest Hits*, Carole King, Widor and Bach.

When I'm not at work, you can often find me...at home with my wife, four kids and two black labs.

WINDY CITY TO MUSIC CITY

Chicago blues legend Eddy "The Chief" Clearwater recently tracked his forthcoming Bullseye Blues & Jazz/Rounder album (slated for Summer 2003 release) at Nashville-based **Tone Chapparal Studio**, the former home of classic country legend Jim Reeves. Produced by Jake Guralnick, the album features members of masked surf-rock combo Los Straitjackets, along with saxophonist Dennis Taylor and keyboardist Steve Conn. Studio owner and vintage guitar guru George Bradfude manned the console.

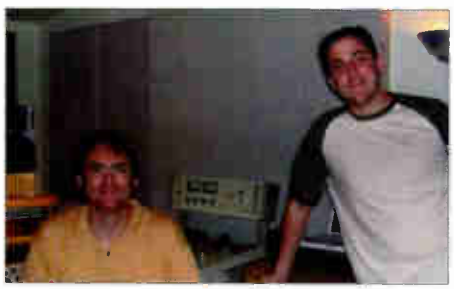
—Heather Johnson

World Radio History

DIBS ON ENGINEROOM AUDIO

Mixer/tracking engineer David "DibS" Shackney has opened the doors to DibS Reaction, an independent Pro Tools-based mixing suite inside New York City-based EngineRoom Audio. DibS Reaction revved up its presence at EngineRoom with recent work on Avril Lavigne's *Let Go*, four songs for Diana King's latest album and a radio mix for Italian pop star Laura Pausini's upcoming English album.

In addition to his engineering work, DibS composed a house track for KROC DJ Liquid Todd and then teamed up with New York City-based DJ Red Boy for an upcoming release.

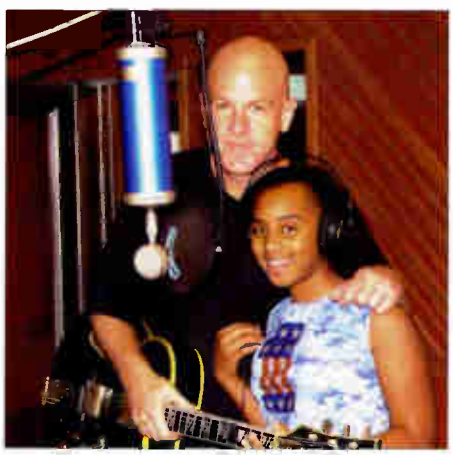


Pictured in EngineRoom Audio's mastering suite are studio owner/mastering engineer Mark Christensen (left) and mixer/tracking engineer David "DibS" Shockney.

Recently in at EngineRoom Studios, Christine Matovich manned the producer's desk for a Parthenia Quartet (Beverly Au, Lawrence Lipnik, Rosamund Morley, Lisa Terry; www.parthenia.org) recording; studio owner and mastering engineer Mark Christensen coordinated and engineered the live recording (direct to a SADiE 24/96, and subsequently mixed and mastered the CD, *Within the Labyrinth*. Christensen relied on Tannoy PBM 6.5 II reference monitors, Apogee PSX-1000 converters, Royer ribbon mics, Universal Audio 2-610 mic pre and Neumann U87s for spot mics.

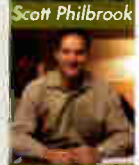
I COME TO BLESS THE SHED

Twelve-year-old Honey Chile was recently in The Shed (New Orleans) working on her first album, *I Come to Bless Hip Hop* (Prototype). Mark Chatters produced the effort with Ron Black, who also handled recording/editing/mixing duties. The album was recorded entirely in Pro Tools with Apogee converters and Avalon mic pre's.



Industry News

Scott Philbrook



Scott Robbins

Joel Motel

Video, film and multimedia solutions provider **Henninger Media Services** (Arlington, VA) has tapped **Eric Hansen** as its COO...**Clear-Com Intercom Systems** (Emeryville, CA) welcomed **Michael Wang** to its team as general manager...Fluid (New York City) has expanded and launched **Fluid Editorial**; new hires include Avid editor **Scott Philbrook**, who will work alongside executive producers **Marc Schwartz** and **David Shapiro**; editor/designer **Alex Frowein**; visual effects artist **David Sullivan**; assistant editor **Dillion De Give**; and producer **Lindsay Dunn**...**Scott Robbins** has rejoined **Crown International** (Elkhart, IN) to serve as the company's VP of sales...Industry vet **Peter Kehoe** joins **Euphonix** (Palo Alto, CA) as director of sales, Eastern region, and will work out of the company's New York office...Based in Nashville, **Joel Motel** returned to **BSS Audio USA** to serve as the distributor's Eastern regional sales manager. In other news, **Hanoud Associates** (Rehoboth, MA) named BSS Audio USA as its rep of the year for 2002...**Mike Mann** joins pro audio distributor **Autograph Sales** (London, UK) in the newly created post of technical manager, providing pre- and post-sales support for customers and technical training for the company's sales staff...**Mackie Designs** has brought **Ken Berger** onboard as senior VP of marketing for all of the company's brands...**Andrew Hall** has signed on as director of business development, marketing and sales for L.A.-based music production company **Musikvergnuegen**.. **Sweetwater** (Fort Wayne, IN) new hires: **Mike Seltzer**, sales engineer; **Brad Every**, sales engineer; and **Mark Van Cleeve**, Web director...**X-Vision Audio** is the new exclusive North American distributor of **SEK'D**'s (West Hollywood) Samplitude and Sequoia.

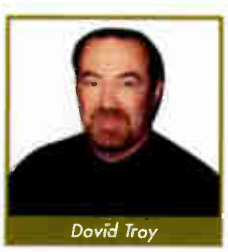
WHEN AUDIO MET VIDEO

NEW POST-PRODUCTION FACILITY OPENS IN L.A.

Award-winning video editor David Troy (co-founder/creative director of Synchroneon Digital Pictures) and Glen Hartford from audio specialist GM Digital Studios have teamed up to open a full-service audio/video post operation, dubbed c, serving Los Angeles' film, television, commercial and music-video production needs.

For a complete equipment list, visit www.gmstudios.com or www.synchroneon.com.

Glen Hartford



David Troy

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SONY

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SIU-RM101 MIC PRE REMOTE

DMBK-S101 8-CHANNEL MIC PRE AMP BOARD

DMBK-R109 MADI INTERFACE BOARD

With the DMX-R100, Sony introduced perhaps the world's finest small-format digital mixer. A professional mixer that works like a pro: fast and intuitive. With a full input module that gives you a knob for every key function, so you don't get lost in menus.

You used it. You liked it. You told us how to make it even better. The result is an improved Sony DMX-R100. With a new MADI board option, for compatibility with MADI-based recorders – and for cascading two R100's together, giving you more than 100 inputs. Plus a new SIU-100 I/O expansion system for remotely controlled mics during both studio and live productions as well as expanded digital I/O. And the SIU-100 also supports I/O networking for multi-room facilities with Ethernet IP remote control.

Of course, we saved all the features that make the R100 so popular. Including easy-to-learn operation. 10-bit precision, touch-sensitive faders and a comprehensive automation system. Even a large color touch-screen, so it's simple to assign I/O, perform surround sound panning and monitoring, and view EQ curves and dynamics settings.

What more could we do? Make new pricing with special financing terms available to qualified customers through Sony Financial Services*. And to meet all your needs, we offer optional R100 operations training through the Sony Training Institute as well as optional on-site support packages through Sony Professional Services.

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DMX-R100

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LONG-AWAITED POLICY PRINCIPLES

RECORDING, TECHNOLOGY INDUSTRIES SHUN GOVERNMENT INTERVENTION

Representatives from the recording and technology industries issued a core set of seven principles to guide future legal policy actions for distribution of digital content. The Business Software Alliance (BSA), the Computer Systems Policy Project (CSPP) and the RIAA's document says that content creators should be able to use technology to protect their property, citing that government mandates are not the way to go; rather, it is a business decision, based on the dynamics of the marketplace.

This decision helps derail Sen. Fritz Hollings' (D-S.C.) P2P Privacy Prevention Act (the Hollings Bill) that requires electronics manufacturers to create and implement security technology on their products.

The members of the BSA include: Adobe, Apple, Autodesk, Avid, Bentley Systems, Borland, Cisco Systems, CNC/Mastercam, Dell, Entrust, HP, IBM, Intel, Internet Security Systems, Intuit, Macromedia, Microsoft, Network Associates, Novell, PeopleSoft, SeeBeyond, Sybase and Symantec. Members of CSPP are: Dell Computer Corporation, Intel Corporation, Hewlett-Packard Company, Motorola Corporation, NCR Corporation, IBM Corporation, EMC Corporation and Unisys Corporation.

One of the more significant points concerning this resolution is who didn't sign it: the Motion Picture Association of America (MPAA). According to Jack Valenti, president of the MPAA, the motion-picture industry is concerned about Internet distribution of digital TV and movies copied from DVDs. Valenti told a *New York Times* reporter, "We are not prepared to abandon the option of seeking technical protection measures via the Congress or appropriate regulatory agency, if necessary." On the consumer front, the Consumer Electronics Association (CEA) "believes that legislation is required to strike the necessary balance between protecting copyrights and consumers' fair-use rights," according to CEA president and CEO Gary Shapiro.

SIRIUS ABOUT PRODUCTION

SIRIUS satellite radio service has formed WAGS Recordings (Working Artist Group at SIRIUS), a program designed to gather unsigned artists and expose them to listeners worldwide.

SIRIUS will record and produce these artists in its state-of-the-art recording studios and in-house producers. Certain songs will go into rotation, as well as be made available via www.Sirius.com.

"The biggest hurdles for an artist today are studio time and getting airplay," commented Teddy Zambetti, an in-house composer/producer and architect of the program. "Now, with our WAGS program, SIRIUS can provide both."

Each of the three performing spaces is equipped with a Mackie D8B; Mackie HDR-24/96 and MDR-24/96 hard disk recorders; Tascam DA-98/DA-78 digital multitrack recorders; Pro Tools 24 MIXPlus system; Genelec monitoring; microphones from Neumann, AKG, Sennheiser, Shure, Schoeps and Coles; and a full complement of outboard gear and musical instruments.

CORRECTIONS

In "New York Metro" (February 2003), *Mix* inadvertently named Erick Sermon a fledgling hip hop artist, when, in fact, he is extremely successful.

In "Sessions and Studio News" in the January 2003 issue, Paul Ebersold was the producer for the Presence project at Ardent Studios; Mike Barbiero, listed as engineer/producer, was the mixer for the project at Sterling in Manhattan.

Mix regrets the errors.

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INNOVA SON'S DIGITAL LIVE CONSOLES DELIVER

VERY Impressive Performance(s)

Show: **E.T. the Extra-Terrestrial 20th Anniversary Re-Premier**
Company: **Delicate Productions, Camarillo, CA**
Venue: **The Shrine Auditorium, Los Angeles, CA**
Console: **Innova SON**

"The Innova SON provides isolation, linkability, ease of installation and overall product integrity."
—**Lyle Dick**, Engineer/System Designer

Show: **44th Annual Grammy Awards**
Company: **ATK/Audiotek, Burbank, CA**
Venue: **Staples Center, Los Angeles, CA**
Console: **Innova SON**

"Having equalization and delays on every output coupled with dynamics and equalization on every input channel complemented the Grand Live's already small footprint by reducing the need for outboard gear."
—**Andrew "Fletch" Fletcher**, Assistant FOH Engineer

Show: **KSBJ Radio 20th Anniversary**
Company: **LD Systems, Houston, TX**
Venue: **Houston Astrodome**
Console: **Innova SON**

"The Innova SON is an extremely intuitive and visual console. Having the three separate input, master and output views makes it very easy to navigate."
—**Robert Ausmus**, Director of Operations

Show: **Unlimited Sunshine Tour**
Company: **Shaped Music**
Venue: **Multiple**
Console: **Innova SON**

"There's no question that this is the way to go."
—**Peter George**, FOH Engineer

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World Radio History

The Village, Studio D

By Maureen Droney

Hot times at The Village, with recent Studio D sessions including, at right, No Doubt with producer Glen Ballard, and above, film and album work for the long-awaited folk-umentary A Mighty Wind, *featuring Spinal Tap alumni, now "The Folksman." L to R: Michael McKean, executive producer T-Bone Burnett, Christopher Guest, Harry Shearer, producer CJ Vanston and engineer Ed Cherney.*

The Village has always had a great West L.A. location and a great history; these days it also has a great buzz going. Celebrating 35 years in business, the Santa Monica facility is one of the very few studios that has successfully combined high-profile rock and pop projects like Nine Inch Nails, The Wallflowers, 'N Sync and Aerosmith, with new artists such as Hoobastank and Sixpence None the Richer, as well as work for film and television scores including *Almost Famous*, *Moulin Rouge*, *Ali* and HBO's *Six Feet Under*.

The ability to reinvent itself is one of the main reasons that The Village has been vital for so long. Established in 1968 in a multistory former Masonic Temple, it was the creative vision of musician, technical innovator and television music composer Geordie Hormel. By 1972, it had already become one of the top Los Angeles studios, hosting the likes of Steely Dan, the Allman Brothers, Joni Mitchell, and Sly and the Family Stone. By the late '70s, The Village had established its reputation, and the walls became lined with Gold and Platinum records—from the Rolling Stones' *Goat's Head Soup* to Supertramp's *Breakfast In America*.

Long known for its homey, artist-friendly atmosphere, the facility recently underwent numerous cosmetic and technical renovations, including the acquisition of a vintage Neve 72-input 8048 desk for Studio A, Pro Tools HD systems linked with a Fibre channel SAN, and, in 2002, the installation into Studio D of one of the first Neve 88R consoles.

Studio D, on this month's cover, was redesigned by Vincent Van Haaff in 1978 for Fleetwood Mac, who camped out there to record *Tusk*. It boasts a large control room, a capacious recording space with five iso rooms, and audio and video tielines to the building's second floor and its 4,000-square-foot performance space, complete with stage, drapes and chandeliers. Over the years, D has welcomed long-term projects for such artists as Eurythmics, Tom Petty and Brian Setzer, as well as numerous movie soundtracks. And although Village CEO Jeff Greenberg won't disclose it, it's an open secret that for much of the past two years Guns 'N Roses has been ensconced in D working on the mysterious *Chinese Democracy*.

Greenberg consulted with many of his clients before committing to the 88R, at the time an unproven entity. "I chose the 88R because I had clients, like Rick Rubin, who work in Studio A and love the sound of our vintage Neve 8048," he explains. "I found out that Neve was working on a new analog desk with Robin Porter, who, with Rupert [Neve], was involved in the original 8048s. They sent us some preliminary modules, and I had clients, like Steve Kempster, Nathaniel Kunkel and Al Schmitt, do listening tests. The reports were that it was going to be an extraordinary-sounding console." The 88R's remote 1081 and Air Montserrat mic preamps were also a factor in the choice, as was its surround capability.

With Studio B's Neve VSRP, a favorite for scoring work, The Village's main studios are all Neve. The upper floors of the 26,000-square-foot facility have their own bustle, with artists-in-residence at various times including Jeff "Skunk" Baxter, Robbie Robertson, Keb Mo' and Nancy Wilson. In addition, the Van Haaff-designed Studio F, outfitted for surround with Pro Tools HD, has hosted, among others, Melissa Etheridge, Master P, Missy Elliott and Mya.

Past projects have contributed to its glory, but The Village remains vibrant today. In the past year alone, clients have included No Doubt, Korn, Red Hot Chili Peppers, Foo Fighters, Bon Jovi, Ry Cooder and Rickie Lee Jones, as well as soundtracks for *White Oleander*, *Gods and Generals*, *Road to Perdition* and *A Mighty Wind*, featuring members of Spinal Tap.

"Lately it feels like The Village has become a community," Greenberg comments proudly, "sort of like the Brill Building in New York in the '50s. We really do strive every day to completely satisfy every client. We know we're here to help artists capture those golden moments, and we never forget how lucky we are to be in this business." ■

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BY STEPHEN ST.CROIX

Oh, Nooooo...

I *Knew* This Would Happen!

Damn! I was a little uncomfortable when I wrote last month's column—more than a little uncomfortable. I knew that publicly revealing that Dark Time in my past (the windows *were* tinted full limo black) would be difficult for me and possibly painful for those of you who had been there yourselves. And, of course, I knew intellectually that it was dangerous for me to relive the sickening thrill of it all by telling you. I knew it. And I took the chance.

And now I am paying the price. As I wrote about this DynaMat stuff, I got to thinking that it had been a few years since I had used any and that maybe I had some left around the house. I had bought new things that could use it, and I had been sort of complacent about the noise—until now.

And once more, I thought I could control it and resist temptation. I looked through the garage, the studio and the lab to see if I could find a couple of sheets. What I discovered should have scared me enough to send me running; but alas, it did not. Of course, there was no DynaMat. None. Okay, why? Well, one short examination of the Vette revealed the horrible truth: Along the seams of the rear wheel wells and rear decking over its whining fuel pump were hundreds of little odd-shaped slivers of the stuff, pieced together like exotic Roman tile work. It seems that after I used all that I had, I salvaged the scraps (every single tiny piece) and methodically arranged them to dampen every last square inch of remaining surface. I don't really know if I was staring at a terrifying example of obsessive acoustic tile work, or if the reason was a bit less pathological; like maybe it was late Saturday night when I was finishing the car and I could not get any more DynaMat, so I had to salvage the scraps and cover as much remaining surface area as I could. Yeah, that must have been it. After all, it *was* years ago.

Anyway, I went back to Audio Connection (ah, now you know the place that got me started) to get more and discovered that even in the world of sticky tar-paper-like products, evolution continues. There is now DynaMat Xtreme. It has four times the acoustic absorption at half the weight. Uh-oh.

It's pretty trick—in fact, so much so that I felt it worth bringing up again this month. First, it is no longer foamy tar paper. It is now a permanently viscous sheet of black goo bonded to a beautiful aluminum facing. Very sticky and malleable enough to distort to your heart's content.

I know I can use just a little and walk away. I have grown so much since my last exposure to DynaMat. I brought home three small boxes.

Within a week, I ended up with *three industrial bulk rolls* of the Xtreme.

This stuff must be my lifelong addiction. I cannot stop. I will be stripping three cars to their skin. First, that same C5 Vette needs a layer of this new stuff to further reduce its insane road and tranny noise.

And the Prowler. This is a weird looking, all aluminum, open-wheel ragtop that has the distinction of being inexplicably fun to drive, in spite of being slower than a lawnmower. Well, I have done a bit of work on this one. Severe suspension and engine mods along with rear-end gearing changes have transformed this into a serious tire-burner. But with its new intake plumbing, aggressive 21-inch rears and straight pipes, it is a bit loud. You can't listen to music in it.

Even in the world of sticky tar-paper-like products, evolution continues. There is now DynaMat Xtreme.

And last, but far from least, and certainly most important acoustically, is a three-week-old—are you ready?—*Subaru WRX wagon!* Yup. Every year until now, I would simply leave town or stay at home when it got too cold and salty to play with silly cars and bikes; but this year, I have to get some work done. This meant that I had to *get* to work, and so I had to buy a vehicle that could get me there.

This is a very important car as far as audio is concerned; in fact, almost perfect for testing the DynaMat Xtreme. The WRX is an insane little four-wheel drive 227 HP turbo rally car, well known by males between the ages of 14 and 24. As mine is a few weeks old, it is now a nice little 309 HP screamer that will eat a stock Vette for lunch while remaining totally unnoticed by anyone over the age of 25. I mean, *it's a silver wagon!*

It is fast because it is light. And low weight means thin sheet metal and very little noise-reducing trim. Actually, most modern cars have superthin sheet metal these days, so what I learn here should be applicable to most of you in same way.

And (here it comes), I figured I might as well put

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audio in the Subaru after I do the Dyna-Mat. And so it begins, again. I tell myself I am exercising control and restraint, capping out at merely 1 kW of power total and removing no seats or other creature comforts. Just a nice audio source, some good speakers and a little vented sub behind the rear seats. Some entertainment for the 1,000 miles a week that I seem to be racking up this winter.

As it came, the WRX door panels ring like bells if you rap them below the belt line with your knuckle. Don't yours? This means that road noise is happily invading my mobile living environment, and that any energy generated by my door speakers is setting up nightmarish resonances that I can't even begin to imagine but can unfortunately hear. Clearly.

I know all hell is breaking loose, because when I set a music volume level that works sitting at a light, I can't hear the words to the songs above 30 mph. This is not right. It means that when I adjust the level to be above the road noise at 60, it is pretty damned loud by the time I can hear it well enough. No, this is not right. I am listening to music way too loud. I feel fatigue after an hour, and I am not doing my only set of carefully trained ears any good at all.

The Vette, like many other cars (and even big bikes), has a system that automatically turns up the volume as you accelerate. At first, this seems quite clever, but it isn't really solving anything and is actually adding to the problem.

I look like I have fought with 400 cats (and lost). You may want to get some 16-year-old kid at your local car audio place to put this stuff inside your doors.

The answer is clearly not more SPL, but less background noise.

So I leave now to build the three cars and will return when they are done.

Okay, they're done now.

I look like I have fought with 400 cats (and lost), but the doctor says most of the metal cuts will heal later this year. You may want to get some 16-year-old kid at your local car audio place to put this stuff inside your doors.

The difference is startling, to say the least.

1. Prowler. I was having trouble with road noise interfering with the straight-pipe exhaust sound. That is now fixed, and I can hear the straight pipes clearly. I will be putting mufflers on. I hadn't thought the hardened aluminum skin on this car was ringing much, but it must have been. There was a cockpit drone that I assumed was the acoustic space of the cabin itself, but it was the doors. That is now gone, and I am considering listening to music in this car for the first time ever. I can actually hear the nitrous solenoids now; I guess they were masked by the incessant resonances.

2. C5 Vette. Plastic. Well, fiberglass. How bad can that be? I never thought of damping the doors on this car, but the

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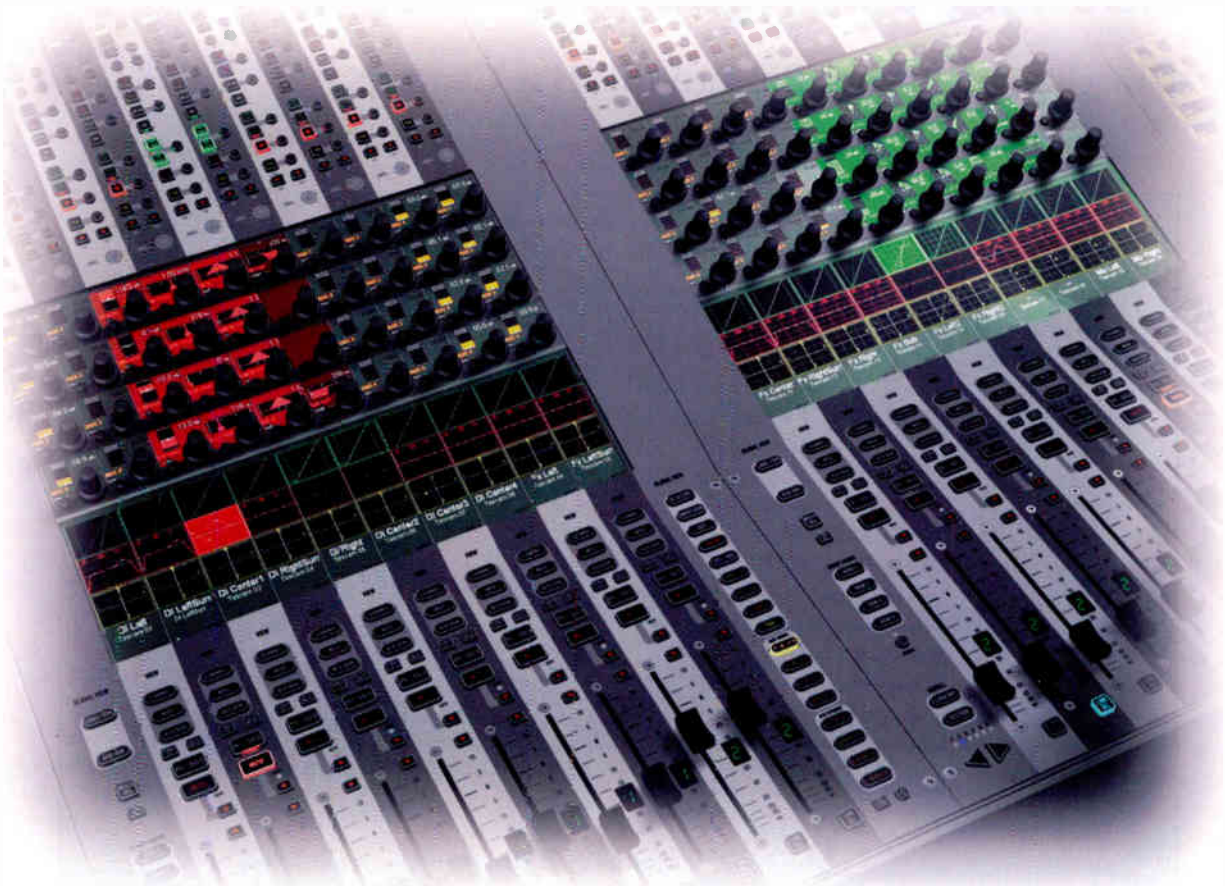

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BY PAUL D. LEHRMAN

Hacking and Hijacking

Dragging the Record Biz Into the 21st Century

ILLUSTRATION: TIM HUSSEY

The most dangerous man in the music business is on his third, or maybe his fourth, company. He's been selling audio software on the Internet since he was a sophomore in high school, and his latest product looks like it's going to make at least one of his partners a functional millionaire. It's a little 2-megabyte Macintosh program that neatly circumvents any copy-protection scheme on any audio program, file or stream and lets you make a digital copy of it. It costs all of $16.

Last month, the most dangerous man in the music business turned 20. And he works for me.

Say what? Okay, I'll back up a little. First of all, he's not *really* the most dangerous man in the music business, although since Napster collapsed, that title has certainly been up for grabs. But he and two youthful cohorts—hackers, in the original, positive sense of the term, who, by the way, have never actually all met in person—are working on stuff that the record industry really, really hates. And if nothing else forces the dinosaurs of the RIAA into the new millennium, their product will do the trick.

It has an admittedly provocative name: Audio Hijack. Running under Macintosh OS X, Audio Hijack takes advantage of Apple's flexible sound architecture, Core Audio (which I wrote about last month), to intercept—at the digital level—any audio signal that passes through the Mac, process it and store it as a high-resolution .AIFF file. It's like the old QuickTime Audio Extraction function on steroids; instead of just working with audio CDs, it can also handle Internet streams. DVDs, MiniDiscs and external MP3 players. Whatever "protection" anyone tries to build into an audio file, Audio Hijack simply sidesteps it; if you can play it through the Mac speaker, Audio Hijack can record it.

So, where is this guy? Somewhere in a cellar in Eastern Europe, in one of the copyright-averse areas of the Far East, on a well-defended mountaintop in Idaho or sunning in a tiny Caribbean tax haven? No, he lives about a mile from me, in a dorm room at the college where I teach. He's a second-year under-

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graduate majoring in computer engineering. And he happens to be the systems administrator and chief technician in my music and multimedia laboratory.

His name is Paul Kafasis, and he comes from New Jersey—"Exit 8A," he told me when we met last year, before I could even ask. (And if you don't understand that reference, then you need to spend more time on the East Coast.) Although he loves music and played the drums for a while in grade school, he doesn't think of himself as a musician. His tastes are eclectic: When I walk in on him working in my lab, he might be listening on his laptop to Soul Coughing, Eminem or acoustic blues.

Unlike many of his contemporaries, he's well-aware that there was a world before there was a Web. During the last semester break, he read Tom Wolfe's *The Electric Kool-Aid Acid Test*, and he wrote in his "blog" that he is intrigued by Neal Cassady's constant striving (through drugs, unfortunately) to overcome the 1/30th-second delay between reality and humans' perceptions of it.

He's a big help in the lab, and I'm seriously considering asking some of my colleagues to flunk him so that I can keep him around another year or two. I have to admit, he reminds me of myself a couple decades ago, in that he's willing to put insane amounts of time to keep up with the latest programs, prices, utilities and system patches. And, he's pretty enthusiastic about all of it. (Remember when we all felt that way?)

He did mention to me some time ago that he was working on music applications, but I didn't realize how serious he was until after I spoke with Dan Brown at Apple—the conversation I reported on last month. At Dan's urging, I visited the "osxaudio.com" site, and there on the front page was an interview with my lab tech. So I did some hunting around the Net for more on the lad (I discovered that he graduated from one of the top high schools in New Jersey, with near-perfect SAT scores), and then sat him down and grilled him about his company and his product.

Paul was 16 when he first got involved with music software. He wrote a review for a Web magazine on StripAmp, a control-strip module for MacAmp, then the leading Macintosh MP3 player. StripAmp was written by Alex Lagutin, then a 25-year-old engineer who was indeed behind the former Iron Curtain; in Siberia, in fact. It was freeware, but Paul thought people would pay for it. Being in Russia, however, Alex couldn't set up an account that would accept credit card payments, so Paul convinced Alex ("I told him I was a college student, since I didn't think he'd take me seriously if he knew my real age.") to let him create a paper company, called "PK Industries," register it with e-commerce provider kagi.com and start taking orders at $5 a pop. Users could download a time-limited version of the program for free, and when they decided that they wanted the full version, they'd send a payment to Paul and then Alex would e-mail them a registration code. Every few weeks, Paul would arrange to wire-transfer the funds to Alex.

The team took in a couple thousand dollars, and their work caught the attention of @soft Software, the Swedish company that distributed MacAmp. They both went to work for the company: Alex writing an equalizer plug-in for the program, and Paul taking care of "anything a native

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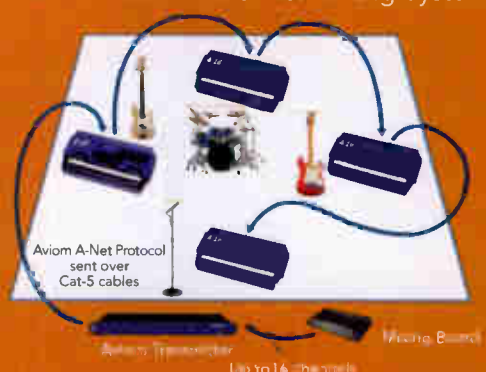

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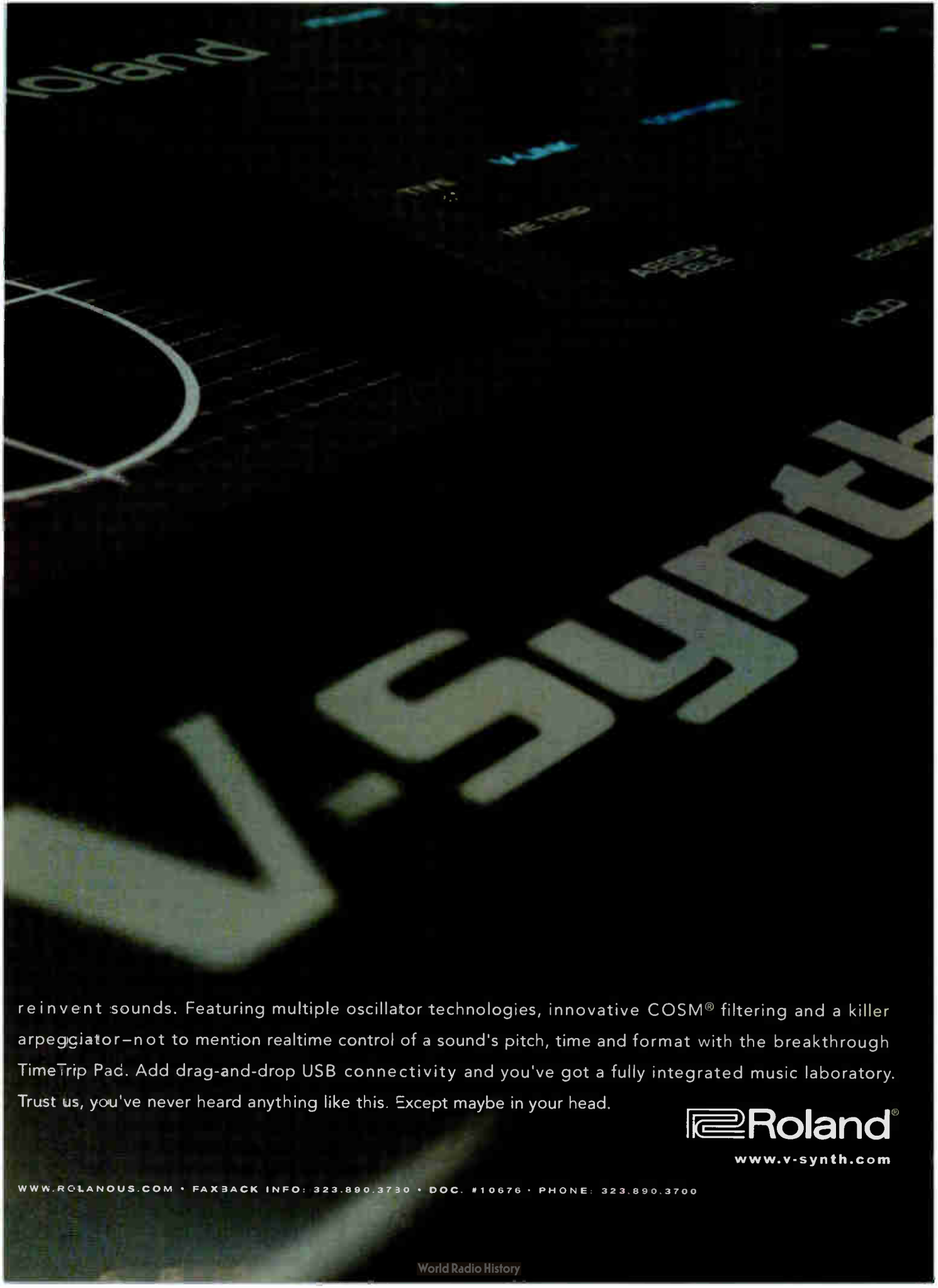

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Signal Processing and Methods in

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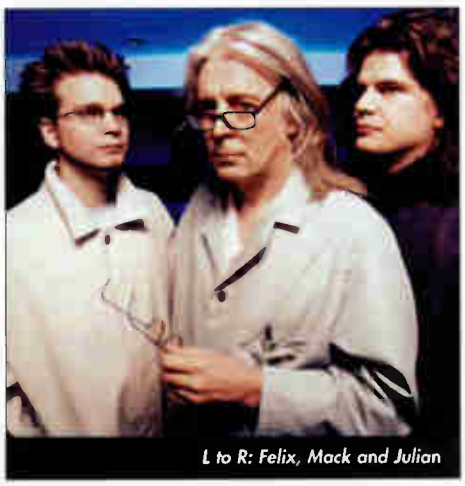

L to R: Felix, Mack and Julian

Claus Trelby, left, and Ken Caillat

BY BARRY RUDOLPH

It has been said that "there are no rules" when it comes to mixing music in surround. Opinions still vary as to how much (if at all) the sub and center channels are utilized. There are no standards on delivery formats (audio files on hard drives, CD-Rs or DVD-Rs; Genex MO; DA-88 or 98HR tapes; or 8-track 1- or 2-inch analog) or even how the monitor speakers should be set up in the control room (ITU standard or quad equidistant). Surround signal processing and methods differ significantly from stereo with a general consensus emerging: For surround sound mixing, with higher resolution and six channels to play music over, there is less need to process individual tracks or the mix buses like stereo, so everything fits down a 2-channel pipe. As liberating as this might seem, this quantum leap in sonics and mixing options is not without caveats: Each individual track's sound quality; the cohesiveness and detail of the overall mix; reverb and delay setup and use, and the quality assurance of the final encoding process are critical for the best surround sound. *Mix* talked to eight professional surround engineer/producers about signal processing in surround. Here's what they had to say.

Michael Wagener, based at his own WireWorld Studios in Nashville, is well-known as a rock producer who has worked with Ozzy Osbourne, Metallica, Dokken, Skid Row, Mötley Crüe and Alice Cooper. His latest surround project is with the band LeRoi.

Rogers Masson has worked with Reeves Gabrels, the upcoming Crickets album (with Eric Clapton and others) and on *Ken Burns Jazz*, and he recently finished mixing the documentary-style "The Death Parade" section of Marilyn Manson's self-produced *Guns, God and Government* DVD.

Rich Tozzoli has more than 20 home-theater DVD titles to his mixing/production credit, including David Bowie,

Guy Charbonneau

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SURROUND MIXING

Average White Band and Blue Öyster Cult. He is one of three partners at 333 Entertainment, a media creation and production company based in New York City.

Jimmy Douglass is a New York-based producer/engineer who has worked with Aaliyah, Ginuwine, Jay-Z, Justin Timberlake, N.E.R.D., Missy Elliott, Foreigner and Slave. Recent 5.1 mixing projects include Missy Elliott and Marvin Gaye's *Sexual Healing*.

With his Le Mobile remote recording truck, **Guy Charbonneau** has recorded Tom Petty, Aerosmith, Faith Hill and Herbie Hancock—and that's just in 2002!

Ken Caillat and partner Claus Trelby produced Christine McVie's new solo album in both stereo and 5.1 for Warner Records. Caillat produced *Rumours* and four other albums for McVie and Fleetwood Mac. In 1997, Caillat founded 5.1 Entertainment and has mixed more than 200 songs in surround for artists such as Billy Idol, Frank Sinatra, Pat Benatar, the Beach Boys and Fleetwood Mac. He and Trelby are now partners in a new company.

Mack has worked with Queen, Led Zeppelin, Deep Purple, the Rolling Stones and Black Sabbath. With his Nightjar LLC and from his unique private studio in California, he, along with his sons Julian and Felix, have completed 5.1 mixes for Billy Squier, Sparks, Freddie Mercury and for a whole series of animation features for Pioneer Entertainment.

Steve Parr and partner Sharon Rose specialize in music-to-picture from their Hear No Evil studio in London. Parr is vice-chairman of the Music Producers' Guild and has long been a pioneer of surround in the UK. Recent projects include the movie *The Lost World* and the popular TV drama *CSI*, as well as 6.1 club remixes for Studio Voodoo and LTJ Bukem. He recently completed recording and mixing *The Lost Prince*.

Jimmy Douglass

Hear No Evil partners Sharon Rose and Steve Parr

Producer Michael Wagener, far right, with members of LeRoi

World Radio History

Good-sounding reverbs are such an important part of surround mixing because they shine through so well.

—Rich Tozzoli

Which multitrack formats do you prefer, what do you mix on, and what is your delivery format?

Wagener: I use a Euphonix R-1 and two Sony DMX-R100 consoles. I mix to a Tascam DA-98HR at 24-bit/48 kHz. If we go SACD, then I'll use a Genex.

Masson: Pro Tools|HD 24-bit/48 kHz—96 kHz and mix using a Pro Control. I like to deliver PT stems via hard drive or DA-98HR.

Douglass: For tracking on Missy's album, I used 30 ips +9 dB, 24-track analog with 90 percent of the vocals on Pro Tools. I mixed on a Neve VR with Flying Faders and used a Tascam DA-88 for delivery. For Marvin Gaye's record, Sony also had me mix to a Genex, and, at the same time, I also mixed back into Pro Tools, DA-88 and a 1-inch analog 8-track.

Tozzoli: BÖC was a 32-channel 24-bit/48kHz digital DTRS mobile truck recording that we transferred to Pro Tools|HD and locked to a down-converted copy of the high-definition video. I mix using a Pro Control while watching picture, and we prefer to deliver encoded masters to authoring.

Charbonneau: Studer DASH 48-track for tracking, Pro Tools for the 6-channel mixes and editing, and a DA-98HR backup—all at 24-bit/48 kHz. Bob Ludwig ended up using the DA-98HR tape in mastering.

Caillat: I use Steinberg's Nuendo and mix on a Yamaha DM2000 console. We deliver our mixes as files on DVDs using Minnetonka's software. Warners does the MLP encoding and adds their watermark.

Mack: I'd prefer analog multitracks as source, but I get everything and move it all to my DAW. I use Logic as a front end to Pro Tools|HD hardware and mix using the Logic Control controller. I mix on Tannoy System 1000A speakers and like to deliver audio files to authoring on hard drives, but I have a DA-98HR if required.

Parr: On *The Lost Prince,* I used Pro Tools|HD at 24-bit/44.1 kHz using Digital Performer 3.1 as a front end for the recordings at The Forum in Rome, and Pro Tools MIXPlus at Radio Slovak in Bratislava. I mix here at home on an analog Euphonix CS2000 into another DP system with a MOTU 24/96 interface. This was so that there would be no sam-

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ple rate conversion for DVD-A.

Were there any special technical problems that you had to overcome? What equipment or software did you use?

Wagener: I do hard rock and heavy metal, and this is my first production in surround from the ground up. In this music genre, frequency-wise, there is a lot of "bunching up" in the upper midrange from guitars, vocals, even the attack of the bass. With surround, there is much more room to spread everything out, and I'm very proud to say that I used *no* EQ in the recording.

Masson: For parts of the section I mixed for Marilyn's DVD, some of the audio came in from the mics of the five DV cameras he gave out. The sound quality from those mics was horrible, but sometimes Marilyn wanted to use it to disorient the listener. I used the Waves Renaissance parametrics and Restoration X bundle to filter and EQ when the noise and rumble were not acceptable. The other main task was to match the main concert footage that Jimbo Barton mixed—brilliantly, I might add.

Douglass: Since I recorded and mixed the original Missy album bottom to top, I didn't have to walk in the footsteps of somebody else—figure out what another mixer did. I recalled my original stereo mix and broke it out to surround and took it from there.

Caillat: Well, I've had every experience imaginable with regard to problematic source audio! With my surround mixes of the *Fleetwood Mac* album [the one before *Rumours*], there wasn't much to do except finding the right 24-track Dolby A masters. With surround reissues, I transfer the multitracks to digital and also lay down the original stereo mix in sync for comparison. My intention is to create a 5.1 mix that is faithful to the original feeling of the stereo mix by copying the reverbs and other effects.

Can you talk about your approach to signal processing of individual tracks or special tricks when mixing in surround?

Wagener: I started with the recording and used a binaural head for acoustic instruments and guitar recording along with my main mics. I plan to try putting these tracks in the rear channels or opposite the main mic's panned position. I also used the Soundfield MKV microphone for the drums.

Douglass: You don't have to squash everything into the same small area as in stereo. There is no fighting for space in surround, so I end up using less EQ and compression on individual tracks.

Tozzoli: I use a lot less compression and EQ, but reverb takes on a whole new life. We have found that for home-theater mixing, we print the surround channels 3 dB louder, as consumers seem to want to hear those surrounds. We also find that people tend to sit closer to the front speakers or that the surrounds are mounted far and out of the way.

Charbonneau: I mixed the entire Clint Holmes album in stereo first, by recording stereo stems—drums, guitars, vocals, keys, etc.—on my second 48-track Studer DASH machine. For Disturbed, I mixed the stereo stems to my Studer analog 15 ips Dolby SR instead. All of my mix moves and processing were done at that time and combined into a stereo mix. The surround mix was created from those stems, but the mixdown machine was locked to the multitrack master so I could use room tracks and spotlight instruments around the speakers for the surround version.

Caillat: I use less processing in surround. You don't have a choice in stereo: You force everything into that left/right soundfield by selectively boosting or at-

World Radio History

tenuating certain frequencies to enhance those instruments. It is almost the opposite when working within the surround sound field. For example, acoustic guitars in stereo usually require rolling off bottom end, adding high end then compressing; in effect, making the guitar smaller. But in surround, I'll make it bigger to cover the huge space I have now.

Parr: *The Lost Prince* was all orchestral recording with no added electronics, and I didn't go overboard with outboard. I did place omnis in each corner of the room and made good use of them in the surround mix.

What type of 6-bus processing do you like to use?

Wagener: Since there is no EQ yet on this record, I'll be using the TC System 6000 for 6-channel EQ and also a little brick-wall limiting to avoid excessive peaks. Other than that, I'll try to keep it very open with very little processing.

Masson: Since I had to match already-mixed concert sound, source material from Marilyn's stereo album and live stage sound with Eminem, I used Waves Renaissance for EQ and compression and the TC 6000's Unwrap program to repurpose the album cuts. I know there is some controversy, but I am a big fan of Unwrap in certain situations. The 6000 is one of my "go-to" pieces for reverb, EQ and bus limiting.

Tozzoli: Most multichannel home-theater projects that we mix do not undergo the mastering step, so we get around this by using the TC 6000 or the Waves L360 bundle across the buses. That'll jump the level up and control peaks.

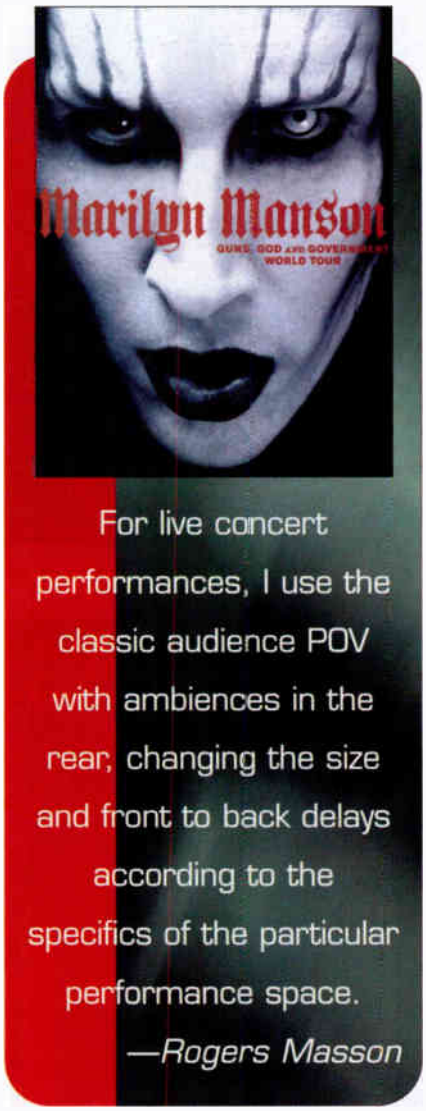
Caillat: The TC 6000 is a great box, but I'm not convinced; too easy: Push a button and it's louder. With *Rumours*, I didn't compress it at all. There were so many transients on the instruments, I didn't want to sit on them. At mastering, Bob Ludwig tried peak limiting, but I felt it messed with the arrangement, feeling and impact of some of the songs.

Mack: Here I am a purist person, I hardly ever use anything across the output buses. That is best left to a good mastering engineer who has the highest-quality tools. I keep it as clear and punchy as possible.

Parr: The Euphonix had the ability to gang dynamics and EQs together before anything else, and when I first started mixing in 5.1, I made good use of this capability. However, lately I find myself using less and less. I'm currently working on club tracks for DTS in 6.1, and I gang three Euphonix CS108 compressors across the front and three across the back.

Please talk about using reverb and delays when mixing surround.

Wagener: Reverb and artificial rooms are most important in surround, and I'll use the TC 6000 and the Kurzweil KSP8—both have 5.1 reverbs—and I am going to try an Elliot Scheiner trick of using a mono plate in each speaker so each instrument in that channel has a reverb available right on top of it with the ability to send to other channel reverbs at the same time. *(For more on the LeRoi project with Wagener, check out "Nashville Skyline" on page 159.—Eds.)*



Masson: For most stuff, I use plates and short delays: Waves, Kind of Loud and Lexicon plug-ins. For live concert performances, I use the classic audience POV with ambiences in the rear, changing the size and front to back delays according to the specifics of the particular performance space.

Tozzoli: My main reverb is the Sony DRES777, the "Concertgebouw" preset that's a quad setup that sends your mix into

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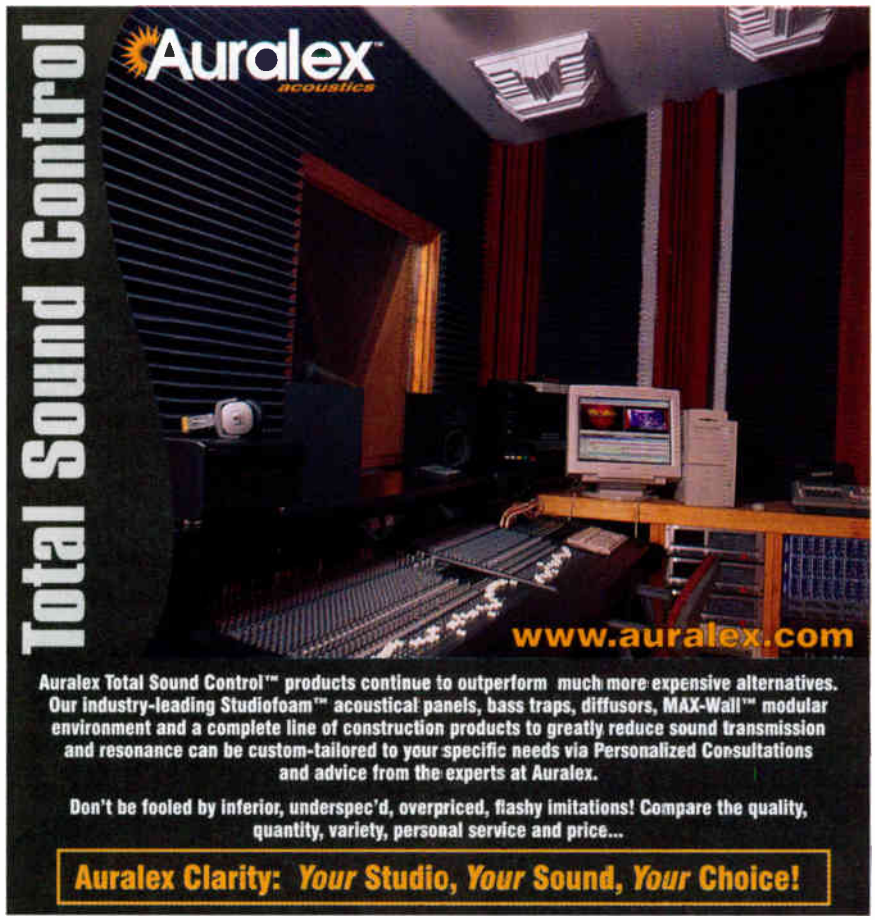

a concert hall. I like plates from the TC 6000, Eventide Orville's "Church" settings and the rooms in the Lexicon 960L. Kind of Loud's RealVerb 5.1 and Waves 360 reverb are great. Good-sounding reverbs are such an important part of surround mixing because they shine through so well.

Charbonneau: I use mostly the four to six room tracks I always record for ambience. I put two AKG 460s pointed at the singer placed eight to 10 feet high behind the backline and pointed at the singer onstage. And then I put a pair of Sennheiser 416s out front, outside of the P.A. columns, and then another pair of AKG C 451 Es (CK-2 omni capsules) back at the FOH mixer position.

Caillat: I use two stereo chambers from the TC 3000: one for front L/R and one for rear L/R with sends for each. A center-panned vocal track would get some of both of these reverbs. As far as effects, it is whatever the music calls for: I'll pre-delay reverbs to impart motion to the reverb; an instrument could hit in front of you; and the delay/reverb could come from behind you.

Mack: My reverb and delay usage is very song-specific, but generally what seems to work well most of the time are very short delays in the 10 to 30ms range. You can crisscross them to pull something into a certain corner or make them appear to come from behind a speaker. I have a huge setup of outboard gear and effects all ready to use that is double the size I'll need. That way, I can try this or that quickly and avoid having to stop in the middle of mixing to have something patched in!

Parr: I actually like my old Lexicon 224X and PCM80. Certain algorithms have four outputs, with the extra pair having more of an early-reflection characteristic. I use these for the rear channels and bleed a little of the 224's A and C outputs to the center. This, then, becomes my basic soundfield into which I can feed individual sources. If I have something toward the rear, I'll probably have a short plate toward the front and vice versa—same with the sides. On *Lost Prince*, I really let the acoustics of the recording rooms do the work for me and used no delays at all.

MIX ONLINE EXTRAS

Barry Rudolph is an L.A.-based recording engineer. Visit his Website at www.barryrudolph.com.

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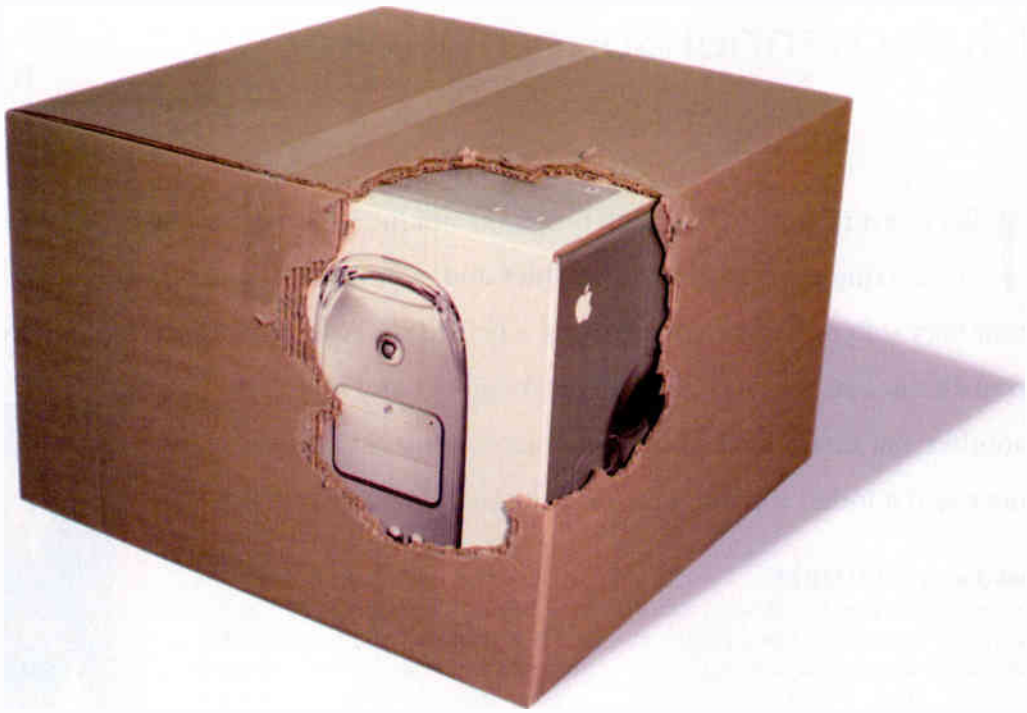

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SURROUND

Recent Projects Highlight a Range of Multichannel Sound Work

By Blair Jackson

Just as every stereo recording project is unique in some way, surround recording and mixing present certain variables and peculiarities. Recently, we looked at four very different surround projects: a hybrid stereo/surround classical recording; a pop album that was recorded by one engineer and mixed by another; the first 5.1 effort by a prominent artist and his engineer; and a tough surround remix of a classic rock 'n' roll film.

MAGNIFICENT MAHLER

It's no secret that the classical music world has traditionally been a leader in embracing innovations in sound reproduction. "That makes sense," says Telarc's Jack Renner, one of the most respected engineers in his field. "Classical music has the widest dynamic range and greatest tone colors of any style of music. And it has a discriminating audience that wants to hear every nuance of the music."

Not surprisingly, many classical music listeners and engineers seem to embrace surround with fewer reservations than some of their pop music counterparts. Telarc, a label known for its audiophile-quality recordings, has jumped into surround with both feet, releasing a number of excellent hybrid multichannel SACD/stereo recordings of classical music, jazz and blues. And the label is sufficiently committed to the format: Every CD booklet includes 10 pages *about* SACD and surround, including technical details, optimum listening environments, etc.

Renner says, "SACD is a wonderful way to give the listener an experience that's much closer to a concert hall experience than we've ever been able to do in stereo because it's so enveloping. Still," he cautions, "understand that our approach is not one of circle-surround, where you put the listener right in the middle of the orchestra. In the good-old, bad-old days, I saw sessions—not Telarc's—where the conductor was literally in the middle of the orchestra, and it was not a very good way to present classical music. So, we stay away from that. I'm still responsible to get the very best-sounding stereo product I can, because, at least initially, that's the product most people are going to hear."

Discussing last year's magnificent SACD recording of Mahler's big dark *Symphony No. 6 in A Minor*—the so-called "Tragic" symphony—Renner notes that whether he's working on a stereo recording or in surround, his approach is similar, and it's mostly about mic choices and placement. "In this case, at the Watford Coliseum, which is one of the best places to record classical music in London, I had [engineer] Tony Faulkner help me out. He provided the equipment, and we had five mics across the front of the orchestra, mostly tube Neumanns, eight or 10 feet in the air, the British standard is three meters, which is about nine-and-a-half feet. Then I had spot mics on winds, spot mics on timpanis, on the four harps, celeste, horns, percussion and on all these different things that have to come through in that piece. When things get heavy, the sound becomes rather thick and you've got to have help [from the spot mics]."

Aiding the surround image were two other sets of Schoeps mics: "The mids were about 12 feet from the orchestra; the rears about 15 feet," Renner says. "On this particular recording, my mids were set as though you were going into the place and you put two mics up to try to make a believable stereo recording; it would not have quite the detail and the presence and the impact [of the mics across the front plus spot mics], but if you listened to it on its own, it would sound pretty good. It gives a nice over-

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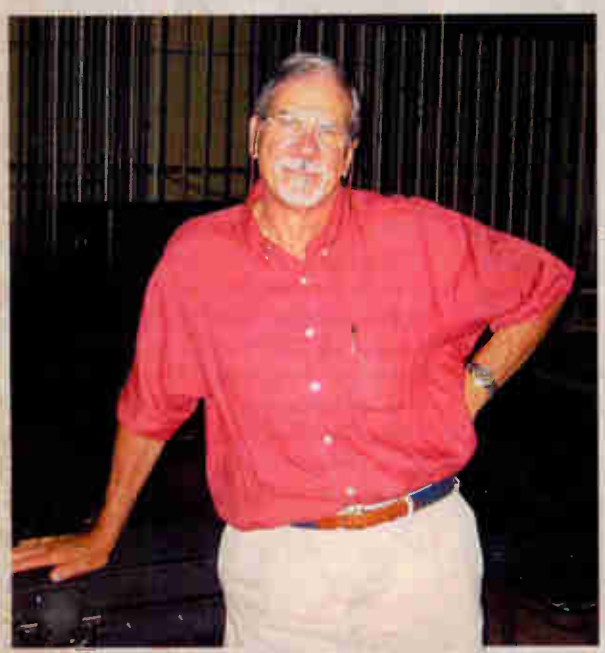
VARIATIONS

all spread, and it gives us the ability to pull the outer edges of the orchestra slightly around the listener. Then with the rear, you've got a seamless transition from the direct main mics to the mids to the rears. I had the rear mics pointing into the back corners to pick up the reflections for the surround [rears], but when we record in Cincinnati [where Telarc does a lot of work], I'll point those rear mics directly at the ceiling. Other places I'll point them are straight at the back wall; it depends on the venue."

The recording chain consisted of the mics to various preamps (Millennia Media and Creation Audio) to DSD converters to a Genex 8500 DSD recorder. A DDA console was used as an interface only. No additional signal processing was used; purity was the watchword. Digital editing was done on a Sony Sonoma system.

"The stereo mix is mostly the main mics, plus some spot or helper mics, with a little bit of the room mics mixed in to add space," Renner says. "The rear mics come in on the surround. We don't try to come out of the session with the perfect finished surround mix. It's one thing to try to mix stereo in control rooms that aren't the greatest, but to have a surround mix, that's tough. I'll have a 5.1 system with us, but we don't listen to surround all of the time. What I'm concerned with is getting good signal on all of the surround channels so that once we get back here [to Telarc], we've got plenty of options."

Renner likes to keep his options open and still likes to experiment with different mics and techniques; recently, he cut a version of Handel's "Water Music" with the Boston Baroque Orchestra using his regular setup, plus a Neumann stereo head set up right over the conductor's head. "It turned out beautifully in surround," he says. "But that wouldn't have worked with the larger Mahler orchestra [117 pieces]. Every work is different."



Jack Renner, engineer at Telarc

FAITHFUL TO BECK

One of the more sonically intriguing discs to come out during the past year was Beck's *Sea Change*, which found the versatile singer-songwriter moving away from the big, brassy arrangements of his funky *Midnite Vultures* album toward a moodier, more stripped-down sound that is dominated by acoustic guitar, the occasional string section, and tasteful electric instruments and electronic sound treatments. The album was produced and engineered by Nigel

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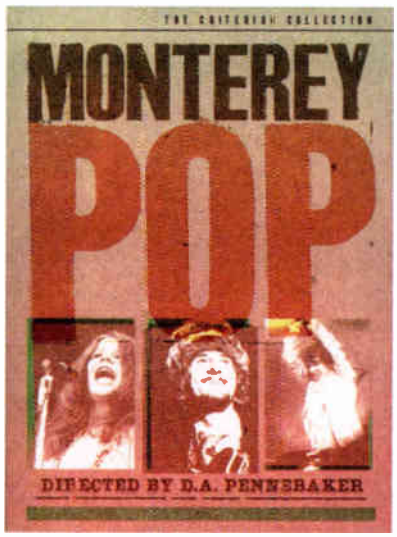
Godrich; when it came time to create a surround version, Godrich was back in England working with Radiohead. At the recommendation of both Godrich and mastering engineer Bob Ludwig, Elliot Scheiner was brought in to mix.

"I was very flattered because I'm a huge fan of Nigel's; I don't think there's a bigger fan," Scheiner says from Presence Studios, the Connecticut facility where he does most of his surround work. "It's such a beautiful record. Nigel is a real purist. The whole thing was done analog. And 95 percent of the record was live, done at Ocean Way, including strings. Even vocals were live. Nigel printed effects to tape. He made life so easy for me [as a mixer]. I think there were only one or two cases where I had to re-create effects. But really, with this album, I didn't want to mess with Nigel's or Beck's vision in any way because it's so great the way it is. My goal was to maintain the same sonic integrity that Nigel had when he mixed it originally.

"It's funny; when I talked to Nigel, he said, 'I didn't put that much time into the mixes. They're sort of like rough mixes off of the board.' And I remember 25 years ago how we used to do that: You do a rough mix, you're inspired for whatever

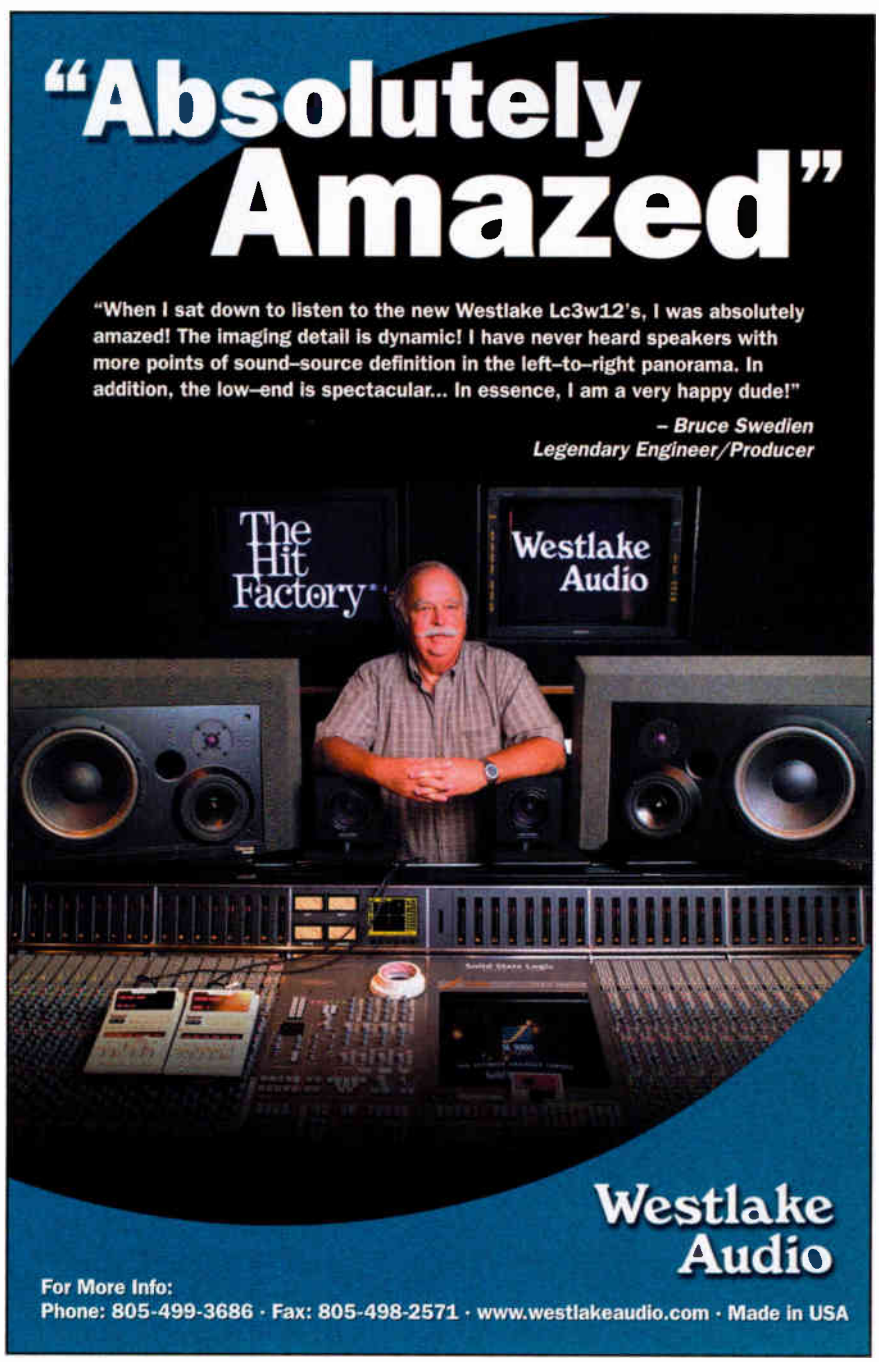


reason at the moment, and an artist would say when you're actually mixing, 'Beat this!' and you couldn't. You don't know what you did; it was just one of those things. These mixes were really outstanding. They were organic, recorded old-style—nothing digital about it. There are not many guys who are willing to make a record that way.

"In this case, with the surround, I just tried to convey that it was all live. So you don't hear punches; you don't get that feeling. There are no dead dropouts anywhere. There's a constant *flow* on the record; you can hear that it's live. And that's not from me—[Nigel] did it in his mixes. There's no muting going on. There's no crap in between. It sounds like they went in the room and played the song, and then they were quiet at the end of the take."

For the surround, Scheiner often put the orchestra in the rear speakers. "and I sometimes put some guitars in the rear; it depends on the track. The only thing that was dedicated to the front was the bass drum, Beck's guitar and Beck's voice. Then I'd try to envelop it by putting some of the drums—like the overheads—to the rear. Same thing with his guitar and vocal; the vocal was pretty much everywhere."

He also spread effects around where possible. "A plate might be in mono," he says, "but I opened it up a little bit and sent it to different speakers to make it



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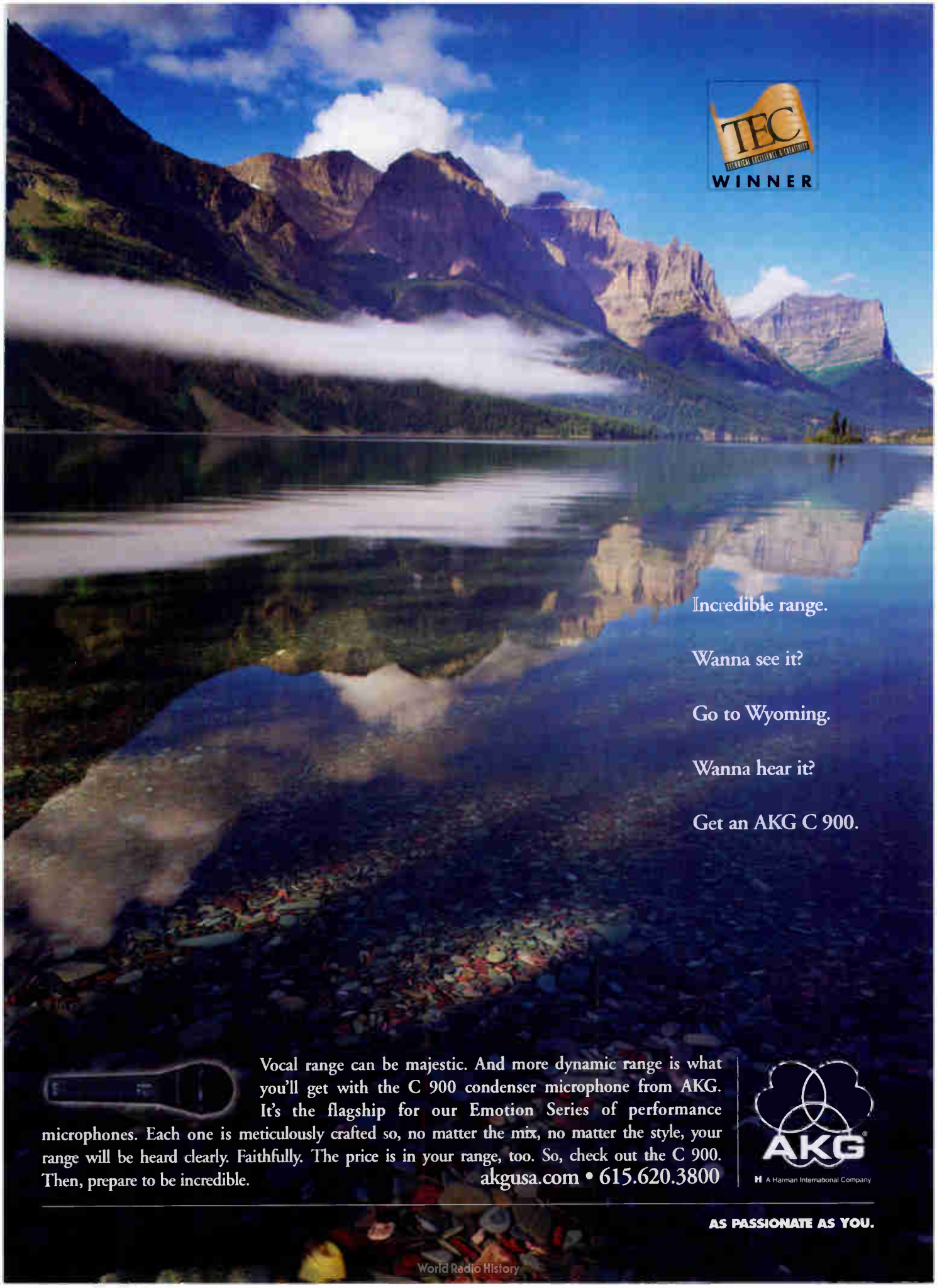

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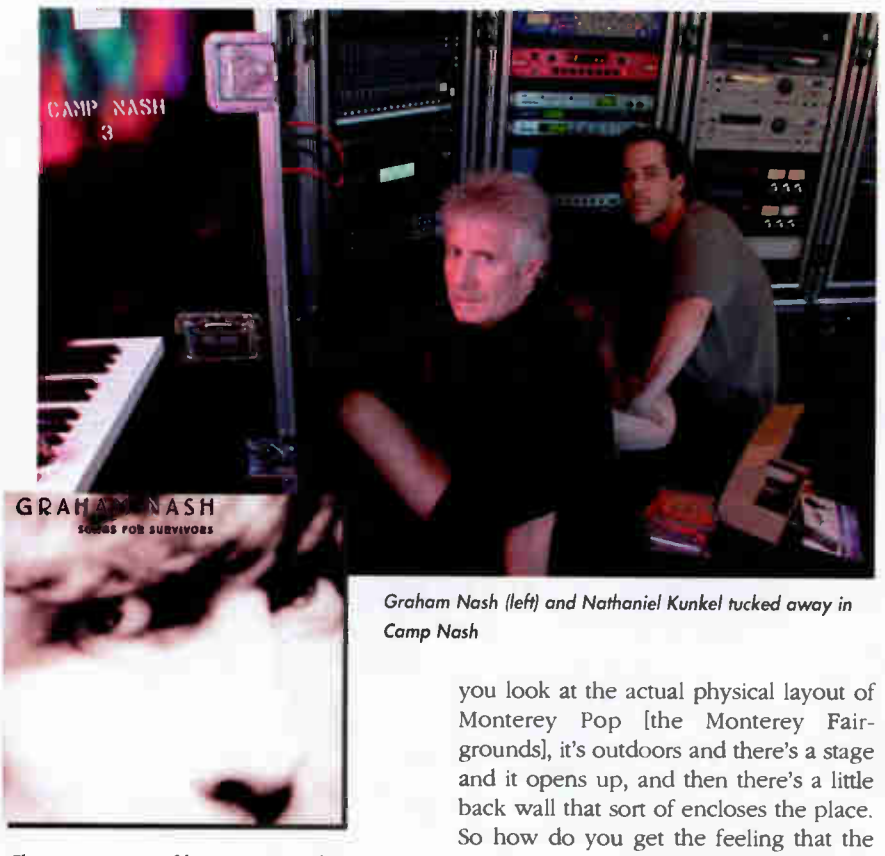
SURROUND VARIATIONS

bigger-sounding. Of course, you can't make mono stereo. It is what it is. But you can play with the dimension of a sound by how and where you place it."

Scheiner does not claim to have a format preference when it comes to mixing surround: "I don't even consider what the formats are. I print to analog, so you can use whatever format you want when I'm done." Nor does he have any set techniques: "Every record has its own set of rules, and you can't necessarily go by what you did the last time out, except not to make certain kinds of mistakes. Obviously, it's a little different if you engineered the record you're mixing; you have more latitude."

Still, he views his surround mix of *Sea Change* as one of his most satisfying projects in the medium thus far. "It's just a wonderful record, and I must say, I've gotten more responses about this than any other surround project I've done. It seems to be having an enormous impact."



Graham Nash (left) and Nathaniel Kunkel tucked away in Camp Nash

MONTEREY POP REVISITED

Legendary engineer Eddie Kramer wasn't at the Monterey Pop Festival back in June of '67, but who better to work on the audio restoration and 5.1 mix of the classic D.A. Pennebaker documentary film for the recently released three-DVD *Monterey Pop* box set, which includes the movie, complete sets by Jimi Hendrix (Kramer was his principal studio engineer) and Otis Redding, and an entire disc of outtakes featuring everyone from Simon and Garfunkel to Quicksilver Messenger Service.

Kramer was limited with what he could do for the film's surround mix because he had only seven audio tracks to work with (track 8 was a sync track), but he notes that his own aspirations for the project were not overly ambitious. "Basically, I just wanted people who watch the film to feel like they were there in the audience," he says by phone from Metalworks Studios in Toronto, where he's been toiling over another concert film, *The Festival Express*, featuring 1970 performances by Traffic, The Band, the Grateful Dead, Janis Joplin and others. "If you look at the actual physical layout of Monterey Pop [the Monterey Fairgrounds], it's outdoors and there's a stage and it opens up, and then there's a little back wall that sort of encloses the place. So how do you get the feeling that the music is bouncing off of the back wall? What I did was, I created an artificial electronic reverb wall using the TC 6000 and the [Lexicon] 960, which is one of my favorite tools. I've come up with this method of utilizing both boxes and hav-

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ing them crisscross on the back wall.

"As for the audience track, well, you only have one mono track to work with, so you have to use leakage and delays and whatever you can to spread out that track and make it sound like it's coming from the sides and the back. Also, the other effect I was going for was to make the music sound like it's coming off of the P.A., that it's actually traveling a distance. Again, that's something you can simulate with reverbs and delays."

Kramer did his work on *Monterey Pop* at NRG in Los Angeles while working on a vintage Neve console in several media. "I started by making a one-to-one 15 ips Dolby SR copy with SMPTE code and then recorded on Pro Tools and also on [Tascam] MX-2424. I try to use analog EQ and analog compression; analog everything until the point where it actually has to leave the analog and get into the digital world. I use Mytek converters—I love those—and we used the Rosendahl wordclock to keep everything perfectly aligned. It can be a little bit of a nightmare getting it all lined up."

The original tracks were recorded by Wally Heider, and although the tapes were well-preserved, Kramer says that using a Cedar system on certain noisy tracks proved to be invaluable: "Without it, there were some tracks that would have been unusable. The decrackling program in Cedar was amazing, and we managed to salvage a lot of stuff, particularly in the Otis Redding material, where there was a bad cable that affected some of the drum tracks."

Kramer also did a surround mix for the recent DVD of Jimi Hendrix's final performance at the Isle of Wight in 1970, which begs the question: Would he like to go in and remix Hendrix's studio albums in 5.1? "Well, the first two albums were 4-track, so I'm not sure about those, but I'd love to go in and do *Electric Ladyland*. That would be something. I think that will happen."

AN OLD DOG'S NEW TRICK

This past December, Graham Nash was the unlikely recipient of the Surround Music Awards' Artist of the Year trophy for his fine 2002 solo album, *Songs for*

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Survivors. We say "unlikely" only because it was the first surround outing for both Nash and for engineer and co-producer Nathaniel Kunkel. "It was really a thrill to win that award," Kunkel says. "And Graham deserves it because, more than anyone else I've worked with, he really threw away all of his preconceived ideas about surround. He didn't compare it to stereo albums. He embraced it fully for what it is."

Songs for Survivors was unusual in that it was released in surround (by DTS) *before* it came out in stereo (on the Artemis label). However, Kunkel originally mixed the record in stereo (at Conway in L.A.); later, after DTS showed interest in the project, they went back and did the 5.1 at Nash's Kazoo Studio in Kauai, Hawaii, and at Kunkel's own Studio Without Walls in Santa Monica, Calif. Both facilities are equipped with Sony DMX-R100 consoles and identical Pro Tools setups. "What was cool," Kunkel says, "is we could take an AIT tape back and forth from Hawaii to my place; the other great thing is I have a hunk of hard drive space at apple.com, and since he has a full 5.1 playback system with DTS decoders, I could do a mix for him, encode it onto a DTS audio disc, rip it and put it on my hard drive. He has high-speed Internet access in Hawaii, and in two hours, he could be listening to a DTS disc.

"My only real rule for the 5.1 mix was to make it feel good," Kunkel continues. "If something felt good in the back, I'd put it into the back. If it felt like it should be kind of spread out over four speakers, I did that. If the bass sounded better in every speaker, I did that.

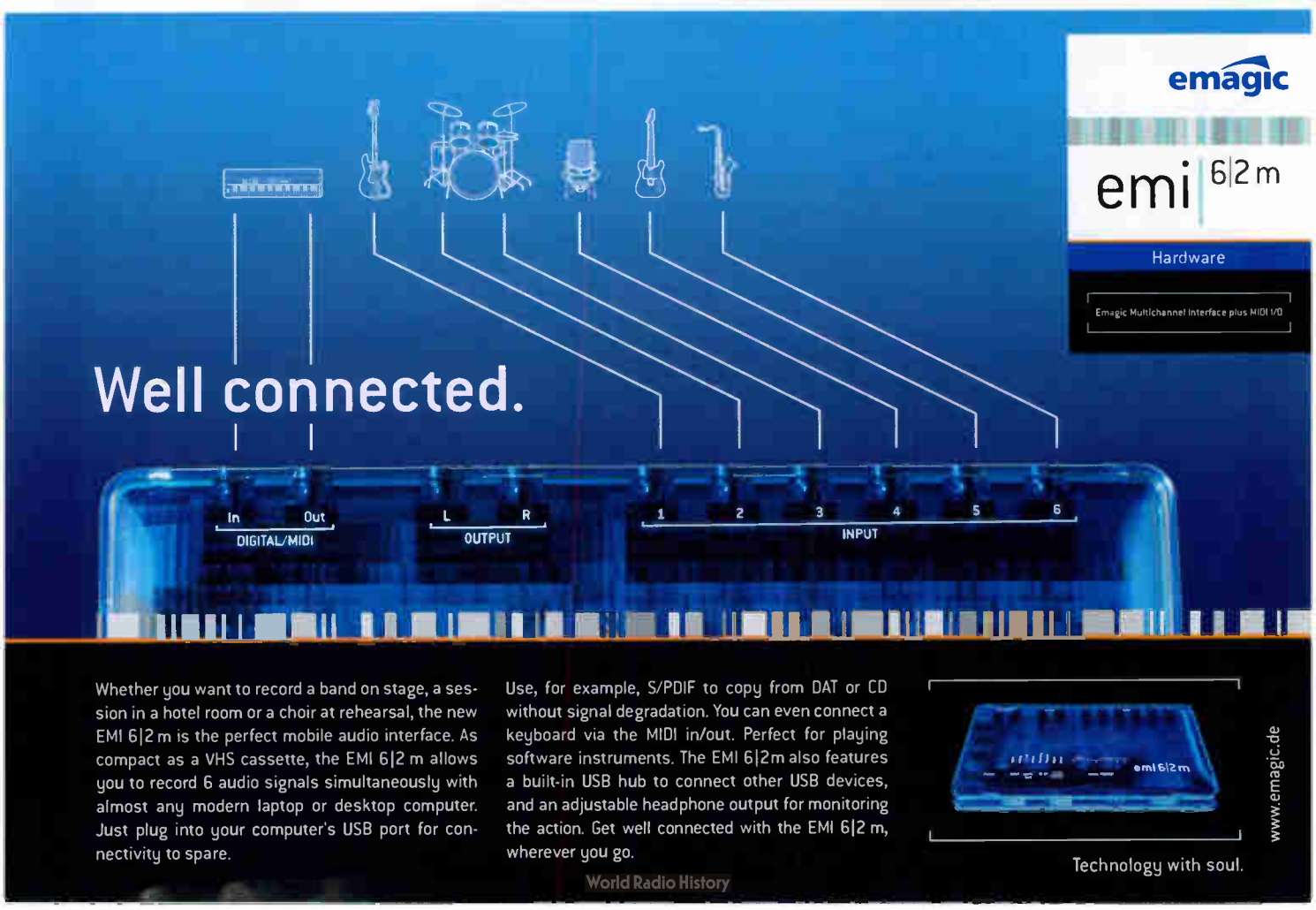
"The first song we mixed was 'The Chelsea Hotel,' and we did it very quickly. We just sort of threw it up and spread everything around to see how it sounded. We did it in about two hours, and we printed it, and I was never able to beat it. That actually made it onto the record, but that turned out to be the easiest. Other songs took much more time, of course."

The album was cut mostly live in the studio, and Kunkel found that when he went in to make the 5.1 mix, he became even more conscious than usual of the relationships between the instruments in the songs' arrangements and how the band balanced itself from moment to moment. "The musicians were really playing *together*, and the nuances of how they respond to each other as the track is going down became much more apparent as you spread the track out in 5.1," he comments. "So as I spread it out, things started to blossom: I became aware of little moments that happened and movements that the musicians themselves were making happen, where they would naturally transition in a way that made a cool left-to-right sound and that suggested certain things for the 5.1.

"But every track was different. On 'Come With Me,' Graham is in the front with this harmonica in the middle and this guitar in stereo. But in the surround, the melodica is in the left rear, the banjo is in the right rear, and the drums are dead-center in the middle of the room. On other tracks, I put the drum ambiences in the rear, or I'll pull the overheads more like 3 o'clock and 9 o'clock. I'll even put a vocal there on occasion.

"I just mixed an Insane Clown Posse record for DTS, and I broke every rule there is for 5.1," Kunkel adds with a laugh. "Everything that could move, I made move; every gimmick I could pull out of my bag of tricks, I did. In fact, you're dying for more! We were a little more conservative with Graham's record, but it's still really interesting." ■

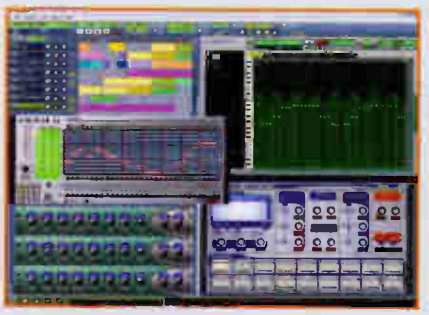
Blair Jackson is the senior editor of Mix.



Days of Future NAMM

By George Petersen and Sarah Jones

Elton John performed for 13,000 of his NAMM friends.



Cakewalk Project5

Hot Product Hits From Anaheim

Yamaha 01V96

From January 16 to 19, 2003, a record-setting 65,000-plus music and audio pros made the pilgrimage to Anaheim, Calif., for the semi-annual expo of the International Music Products Association (NAMM). If the economy is slow, you wouldn't know it from this show, and NAMM attendees came to p-a-r-t-y! The main attraction was the NAMM Yamaha Elton John concert with 13,000 showgoers dropping by the Arrowhead Pond arena for a private performance by Sir Elton and a host of others, including Ray Charles, Norah Jones, Brian Wilson and Diana Krall. Other hot NAMM nightlife included Shure's evening with Cheap Trick, Sennheiser's Goo Goo Dolls show and the Telex/E-V party with the English Beat. Fun!

Back to work: Inside NAMM's six cavernous exhibit halls—where 1,309 companies showed the latest audio and music instrument technologies—the mood was upbeat, with aisles packed by eager buyers. And, as with past shows, there was no shortage of cool, futuristic (and retro-istic) gear to check out. Here are some of our favorites.

SHOWSTOPPERS!

Every show has a few "gotta-see-it" hits. This time, the focus was on synths and consoles. The stars at Roland (www.rolandus.com) were VariOS and V-Synth. VariOS is an open-ended hardware/software processing system (in a 1U module) that lets users independently tweak pitch, time and formant; add effects; and build audio-based arrangements—in real time and without CPU drain—via Roland's bundled V-Producer software. V-Synth is like getting all of Roland's gear in one box. This 61-note instrument features Variphrase pitch/time/formant manipulation, COSM processing and multi-effects, and the ability to sample custom waveforms and exchange .WAV/.AIFF files via USB. The coolest part? V-Synth's expressive real-time control via twin infrared D Beams and Roland's new TimeTrip pad (a touch pad for changing a waveform's time aspects, such as speed up, slow down, reverse and freeze).

Roland V-Synth

Austin, Texas-based Open Labs (www.openlabs.com) announced eKo, the world's first open-platform musical keyboard instrument/workstation, based on the OpenSynth™ hardware/software platform. Combining powerful synthesis/sampling/sequencing/multitrack digital recording/editing in a single product with full VST plug-in and VSTi virtual instrument support, eKo defines a new class of superinstruments with a chameleonlike power to become whatever its user requires. And customers can spec the exact product they desire—priced from $1,995 to $5,200—with the ability to upgrade anytime. Deliveries begin Q2 '03.

Korg kicked off its 40th anniversary at NAMM with a display of treasured vintage products. Go to www.korg.com to check out an interactive timeline of the company's accomplishments.

The Yamaha (www.yamaha.com/proaudio) 01V96 low-cost/high-performance digital mixer has 24-bit/96kHz capacity, 40 channels on remix, 100mm moving faders and automation of all console parameters. Also standard are 32-input compressor/gates, 4-band parametric EQ, delay, up to four onboard 32-bit effect processors (two at 96 kHz) and built-in ADAT Lightpipe I/O. A single I/O expansion slot accepts existing or new Mini-YGDAI cards, providing up to 16 I/Os at 48 kHz—or eight at 96 kHz—as well as the Waves Y56K expansion card. The 01V96 integrates with Pro Tools, Nuendo and other DAWs. It ships in April, retail is $2,499.

Neve guitars? Dissatisfied with the performance of acoustic guitar electronics, pickup designer David Hosler, of Taylor Guitars (www.taylorguitars.com), teamed with legendary audio guru Rupert Neve to create the Expression System. Exclusive to select Taylor guitars, ES combines two vibrational Dynamic Body Sensors™ and a subfretboard Dynamic String Sensor™, the three of which are precisely blended via high-end electronics. Users can select from EQ voiced especially for acoustic guitar or Pure Path™ (flat) signals; both onboard and external preamp versions are available.

WORKSTATIONS AND MORE

Cakewalk's (www.cakewalk.com) Project5 is an open-platform workstation combining soft synths, instruments and samplers with pattern-based sequencing, mixing and editing tools; automatable effects; and looping. In addition to supporting DXi and VSTi instruments, the app works with WDM, MME or ASIO-compatible Windows hardware and can be integrated with a ReWire-compatible

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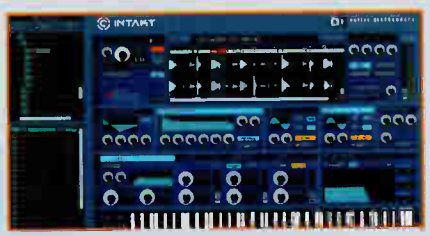
host (such as Cakewalk's Sonar) for recording, editing and mixing. Project5 lists at $429. Cakewalk has also added ASIO support to Sonar, available as a free upgrade.

MOTU's (www.motu.com) MachFive universal sampler plug-in handles up to 24-bit/192kHz audio and can import and play multichannel samples in surround; it supports all major formats and imports all major audio-file, sample and sound-bank formats. Users can move from one workstation platform to another or collaborate across platforms; the software is both Mac and PC-compatible. Each multitimbral part can have up to four unique effects; a multichannel waveform editor is built-in.

Native Instruments (www.native-instruments.com) showed several new software packages. The coolest was Intakt, a software sampler designed for loop playback and editing in a single-screen interface. Intakt can divide imported audio into individual hits, with individual settings for pitch, playback direction, pitch envelope and other characteristics; sound can be time-stretched or compressed in real time and shaped via multimode filter, an envelope follower, two LFOs and effects. A library of loops from Zero-G and East West is included. NI also showed the Kompakt sampler, Version 4 of Reaktor, the Vokator vocoder and Reaktor Session.



Native Instruments Intakt virtual sampler

At first, it seemed the biggest news at **Steinberg** (www.steinberg.net) was its acquisition by video company Pinnacle. But the real buzz was virtual instruments. New are D'cota, an eight-way multitimbral VST synth combining analog, spectrum and wave-impulse synthesis; V-stack, a virtual 32-bit instrument rack for up to 16 VST instruments; HALion String Edition; the "electric" version of Virtual Guitarist; and VSL 2020, an ultra-low-latency ASIO soundcard to play VST instruments live. Also, Nuendo 2.0 was about to ship at press time.

Ableton (www.ableton.com) introduced LIVE Version 2. The upgrade adds multitrack recording and editing with Elastic Audio, a feature that lets users set

NAMM'S LIVE SOUND HIGHLIGHTS

Once populated only by P.A. heads and column speakers, NAMM has become a major venue for hot launches of professional live sound products. Here are some that caught our attention.

The Xone:V6 from **Allen & Heath** (www.allen-heath.com) is a no-compromise (all-discrete design) rackmount mixer for club and DJ applications. The Xone:V6 has six dual-stereo channels, with RIAA/line ins and two channels with tube preamps. A separate XLR mic input, master section with balanced main outs, RCA record outs and balanced booth monitor out with level control and active-tone and mix/cue preview controls complete the package.

Allen & Heath Xone: V6

Audio-Technica (www.audiotechnica.com) debuted its top-of-the-line 5000 and 4000 Series Artist Elite Wireless UHV systems, offering true-diversity, frequency-agile operation with IntelliScan™ frequency selection and dual compensation. The 5000 Series also includes Mac/PC-compatible control software. A variety of options, transmitters and configurations are available.

Cerwin-Vega (www.cerwin-vega.com) is back, big time, with an expanded product line, including three hot next-generation, folded-horn 18-inch subs with names like Afterburner and Earthquake. With 1,000-watt peak handling and high 106dB (1w/1m) sensitivity, these are serious ground shakers.

Community Professional (www.loudspeakers.net) launched T-Class, a world-class touring system based on five arrayable mid/high cabinets with various dispersions and throws, matched to any number of trapeziodal sub boxes. A full line of optional fly bars, rigging and alignment fittings combine to create versatile systems suited to any venue. Also new is a matching, high-power compact wedge in a molded, low-profile cabinet with a unique "invisible" connection panel. Slick!

Having sold more than 40,000 units in Europe, the Telex-owned German manufacturer **Dynacord** (www.dynacord.com) is bringing its PowerMate powered analog mixers to U.S. shores. Available from 8/10 mic/line inputs to 22/26 mic/line inputs, with 300 or 1,400 watts, PowerMates also feature dual 32-bit effects processors. Dynacord's new COBRA compact line array is designed to handle 100 to 2,500-person events with 137dB max SPLs and wide horizontal dispersion. Designed for a one-person setup, COBRA is a complete turnkey package including mid/high cabinets, subs, amps and all system processing.

A newcomer with a proven pedigree, **KV2 Audio** (www.KV2audio.com) was founded by former designers from EAW, RCF, Yorkville, Mackie and Fussion. Focusing on advanced active-speaker technology, KV2 debuted its five-component ES Modular Active Sound Reinforcement System for venues of up to 2,000. Various combinations of three-way mid/high modules and three subwoofers are used with an outboard 2,500W Multi-Amplifier/Controller with electronic crossovers, delay, phase alignment, parametric EQ, speaker protection and bass-management features.

Yamaha MG12

Soundcraft's (www.soundcraft.com) MH3 is a dual-mode (monitor/house) console based on the company's successful MH4 but at a lower price point. Available in 24, 32, 40, 48 and 56 mono-channel frames (plus four stereo channels), the MH3 has eight groups, 12 aux buses, eight VCA and eight mute groups, snapshot automation, LCR panning and an integral 12x4 matrix. Retail: $15,495 to $28,995.

Yamaha (www.yamaha.com/proaudio) showed its cost-effective ($139 to $1,250!) MG Series of analog consoles, with six models from four to 24 channels (10 to 32 mix inputs), with 3- or 4-band EQ, two or four group buses, and up to eight aux sends. The 16/24/32-channel models have onboard digital effects; we liked the luxury feel of the illuminated Channel On buttons. Shipments range from February through May. ■

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tempo any time during recording, performance or playback, as well as drop in recordings, loops and complete songs that play in sync. In addition, time stretching can now be applied to any audio material. Also included in LIVE 2 are real-time effects, dynamic parameter automation and unlimited undo.

Akai (www.akaipro.com) demoed a software version of the Z8 rackmount sampler: The VZ8 is a 24-bit/96kHz VSTi/Audio Unit sampler that offers more than 64-voice polyphony per instance, with each instance allowing up to 19 layers assignable to 16 MIDI channels; multiple instances can be opened (depending on CPU power); a variety of effects and editing features are included.

Emagic (www.emagic.de) announced Version 6 of the Logic Series, boasting improved processor efficiency (users can now "freeze" CPU-demanding tracks to reduce load), interface enhancements (such as an Arrange Channel Strip function that allows the user to perform on-the-spot changes to the mix while editing in the Arrange window), and an intelligent

HITS YOU MAY HAVE MISSED

Denon DNS5000

Aphex's (www.aphex.com) $199 Xciter pedals bring studio processing onstage for bass, acoustic and electric guitars. All offer Aural Exciter and Optical Big Bottom processing with a balanced mic-level DI output in a stompbox-size enclosure.

Denon's (www.denon.com) DNS5000 Active CDtable brings a vinyl-scratching feel to a CD player with bonuses like 35 seconds of memory and the ability to independently play back two tracks from the same disc simultaneously. Slammin'!

Evans' (www.evansdrumheads.com) Min-EMAD adjustable, externally mounted dampeners remove drumhead ringing and unwanted overtones for a tight sound. A real time-saver in the studio or onstage.

G-Wiz Electronics' (770/554-8865) Footloose wireless guitar amp footswitch uses controllers that "talk" to a receiver at your amp up to 150 feet away. The three-switch system uses a floor controller at your stage position (a stick-on controller for acoustic guitars is also offered) to remotely change amp channels.

Littlite's (www.littlite.com) LED Gooseneck Lamps are cool-running, shockproof lights that put even illumination where you need it, with switchable white/red operation.

Planet Waves' (www.planet-waves.com) Circuit Breaker® guitar cable has a built-in shorting switch on the ¼-inch connector to eliminate those loud, nasty thumps when changing guitars onstage. Yeah!

Zaolla Silverline's (www.zaolla.com) silver conductor D25sub-to-TRS breakout snakes have a heavy, machined aluminum shell protecting the D25 connector that's beautiful and practical.

Z.Vex Nano Head

Z.Vex's (www.zvex.com) Nano Head is a deck of cards-size, all-tube amp that runs on 12 VDC from a wall wart, battery or auto-lighter socket. (And you thought driving with a cell phone was a bad idea.) It has a 1-inch speaker, volume/tone controls, a ¼-inch out to drive your favorite big cabinet, and an internal DC-to-DC converter provides 230 volts to its four mini triodes. ■

Hear What The Hype Is All About

"The C-3 is THE HIP new guitar mic. It gives your Marshalls that phat-gut-punch we all crave. I'll never cut another record without one."
Scott Rouse -Producer, Grammy Nominee, Nashville, Tennessee

I have a microphone "wish list". You have allowed me to check off both the U87 with the C1 and the C12 with the T3.
Ted Perlman - Producer/Arranger/Composer
Bob Dylan, Chicago, Kaci, 2gether, Young MC

One of the best vocal mics in the world is the $300 Studio Projects C1. You can spend way more for "one of those" mics from Germany if your ego demands it, but the C1 is certainly the sonic equivalent.
Pete Leoni -Producer Engineer, Tech writer and reviewer

C1 Single-pattern Cardiod **List $299**

C3 Multi-pattern Cardiod, Pad, Filter **List $599**

T3 Variable-pattern Tube **List $1099**

All models include shockmount and case.

StudioProjects™ SP

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VT-1
Tube Mic Pre, Discreet Class A/B switching, with variable Tube Drive. **List $299**

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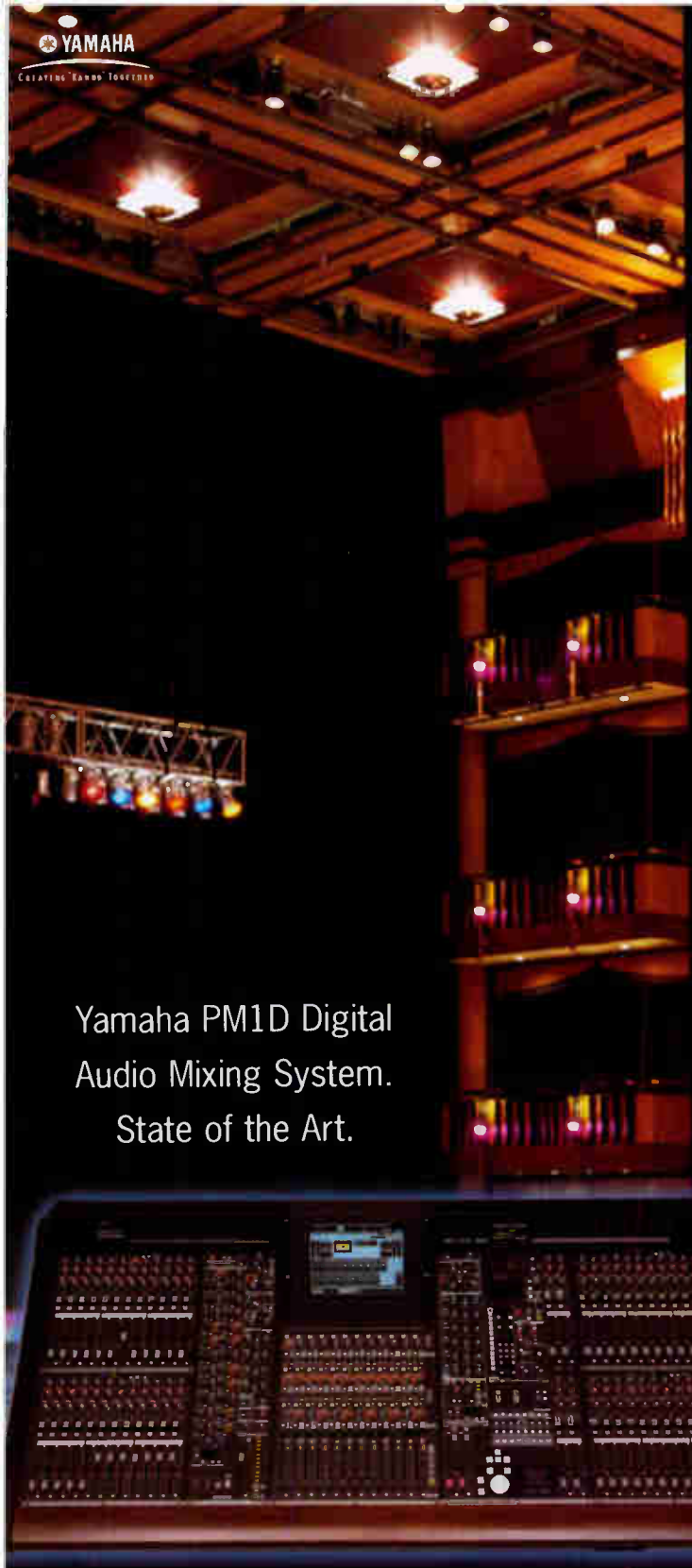

Yamaha PM1D Digital
Audio Mixing System.
State of the Art.

USER/DEALER*

Champion Forest Baptist Church/ASC Technical Services Corp.
The Woodlands United Methodist Church/Ford Audio-Video Systems
Audio Techniques, Inc. *(own use)*
Audio West *(own use)*
Hi-Tech Audio *(own use)*
Pro Media (Serb Systems) *(own use)*
Carnegie Hall/Andrews Audio
Redondo Beach Performing Arts Center/Thomas Gregor Associates
Dominican Republic Broadcast Station/Broadcast International Group
First Baptist Church of Dallas/Capitol Design Group
Pensacola Christian College/Couture Pro Audio (All Pro Sound)
Georgia World Congress Center/OAP, Inc.
Disney Cruise Line/Professional Sound Service Inc.
Blackhawk Audio/Professional Sound Service Inc.
8th Day Sound *(own use)*
CSP Mobile Productions/Parson's Audio
Diamond Rio/MD Clair Brothers
MD Clair Brothers *(own use)*
Riverbend Community Church/MD Clair Brothers
Special Event Services *(own use)*
Fellowship Church/Spectrum Sound
First Baptist Church of Naples/Spectrum Sound
Seventh Row Productions/Spectrum Sound
Spectrum Sound *(own use)*
Belmonte University/MD Clair Brothers
ProMix (Production Resources Group) *(own use)*
NHK Enterprises America, Inc./Dale Electronics
Sound Associates/Dale Electronics
Masque Sound & Recording *(own use)*
Alpha Communication Tech *(own use)*
Bruce Springsteen/Audio Analysts
Celine Dion (Caesar's Palace Las Vegas)/Audio Analysts
Church of Jesus Christ of Latter Day Saints/Guys Inc. (Poll Sound)
Marion Oliver McCaw Hall/Morgan Sound
Richter Scale Productions *(own use)*
Hubert H. Humphrey Metrodome/American Pro Audio
Speak the Word Church/American Pro Audio
Willow Creek Community Church/American Pro Audio
Clair Brothers *(own use)*
One Dream Sound/Clair Brothers
Crossroads Church/ICB Audio Company
Grace Church/Signal Perfection Ltd.
The Potter's House/Signal Perfection Ltd.
Willow Creek Church/T.C. Furlong, Inc.

**This is just a partial list of our many satisfied PM1D users.*

Don't Be Left Behind

Yamaha Corporation of America • P.O. Box 6600, Buena Park, CA 90622-6600
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YAMAHA Commercial AUDIO

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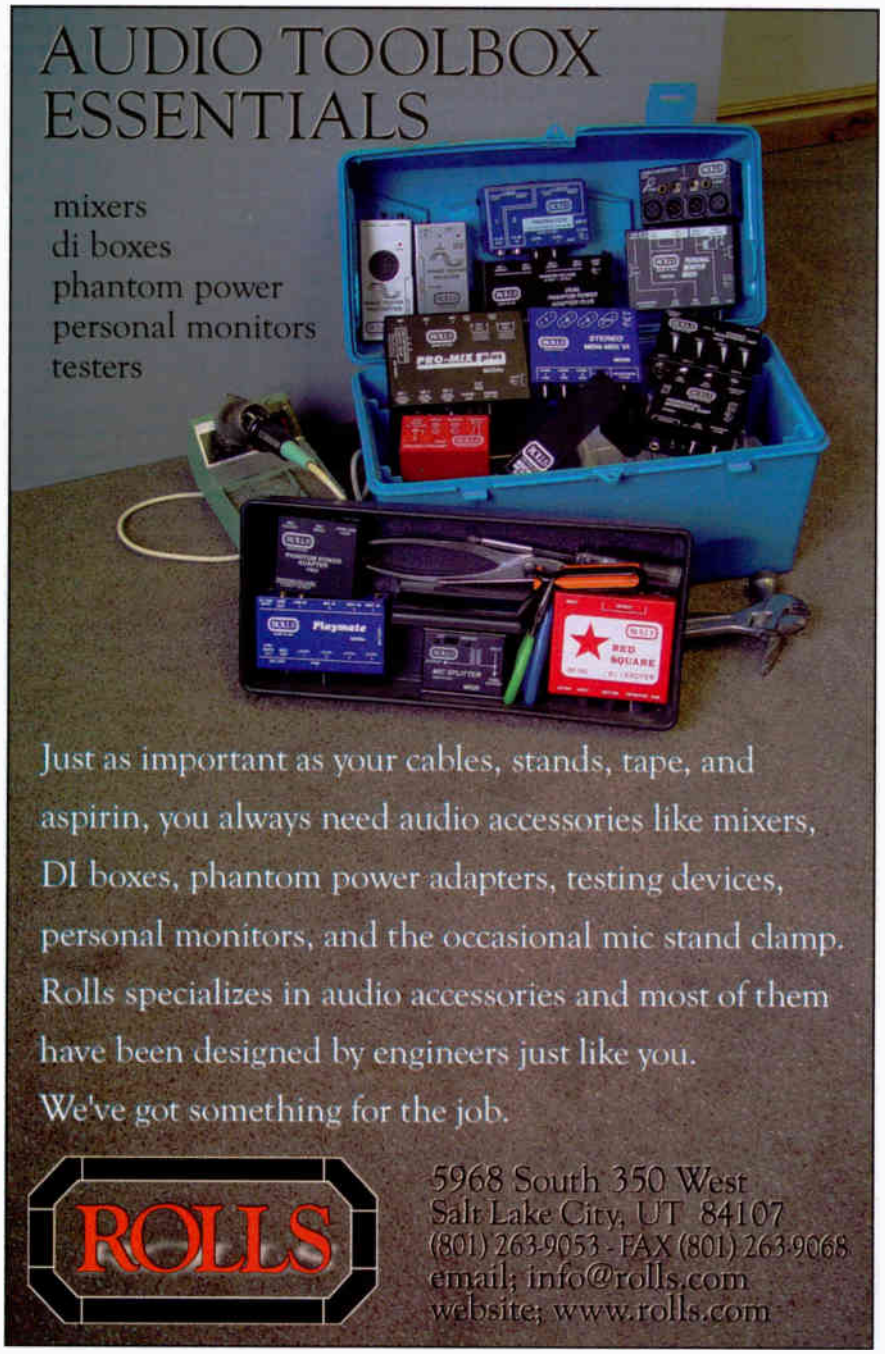
Project Manager, plus film-scoring enhancements, new track EQ, MP3 import/export and automation enhancements. Logic 6, available for Mac OS 9.x and Mac OS X, was slated to ship in February.

In other software news, Propellerhead Software (www.propellerheads.de) announced plans with Digidesign (www.digidesign.com) to develop ReWire 2 support for Pro Tools. It also showed Reload, which lets Reason and ReCycle users load Akai S1000 and S3000 sounds.

We got a backroom peak at Quantegy's (www.quantegy.com) secret new project: The FHD DrivePak combines an ultrareliable (two-year warranty) 80 or 120GB FireWire external hard drive, with IEEE-1394 and power cables, in a foam-lined case with space for everything, including AIT/DLT/LTO backup media. With all those goes-intas and goes-outtas in DAW-based studios, analog patching can be a problem. One solution from MotorMix manufacturer CM Labs (www.cmlabs.net) is the SixtyFour, a 32x32 studio router with programmable level control. The two-rackspace unit's 32 ins and 32 outs (all on D25-sub connectors) offer 1,024 instantly recallable crosspoints for fast, patchcord-free production.

Continuing on NAMM's "all-in-one" gear vibe, M-Audio's (www.m-audio.com) Ozone is a laptop-size unit with 25-note keyboard, MIDI control surface, mic pre and USB audio/MIDI interface. Combined with a computer running apps like Reason or Live, Ozone forms a full mobile studio. Audio I/Os include XLR mic in (with preamp and phantom power), a ¼-inch TRS input and unbalanced ¼-inch stereo aux inputs—all can be routed to the computer or directly to Ozone's audio outs.

DAWs: Expensive? Not any more. The DigiTech (www.digitech.com) RPx400 is a full-featured, multi-effects guitar pedalboard with a few extras, such as guitar, XLR mic and stereo line inputs, and balanced outs for simultaneous USB interfacing to computers using included Cakewalk multitrack recording software. With its onboard rhythm programmer and digital tuner, it's everything you need—almost. MSRP is $374.95.



SIGNAL PROCESSING

Kurzweil (www.kurzweilmusicsystems.com) showed two 1U processors featuring stereo effects adapted from its flagship KSP8: The Rumour has reverbs and reverb variations, including gated, reverse, reverb/compression combos and Kurzweil's LaserVerb. The Mangler offers a variety of effects, including reverb, chorus, flanger, phaser, tremolo, rotary-speaker emulation, panner, delay, filters and more.

Exciting news at Presonus (www.presonus.com): The company announced that it's joining forces with Anthony Demaria Labs (www.adl-tube.com) to develop a new line of tube-based audio products, known as the ADL Series. The first product, a stereo tube preamp, will launch at AES Europe.

Plug-ins were as hot as ever at the show. Eventide (www.eventide.com) wowed us with its new Clockworks Legacy plug-ins for Pro Tools|HD, featuring plug-in versions of Eventide's classic boxes, including the H910, Omnipressor, Instant Phaser, Instant Flanger and H949. We also saw major upgrades for Orville, Eclipse and DSP700/DSP7500 processors and got news that the much-

Eventide H910 plug-in for PT|HD

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TC Electronic's Reverb 4000

anticipated Plugzilla should be shipping in April!

There was a lot happening at the TC Electronic (www.tcelectronic.com) booth: The company showed Reverb 4000, a stereo version of the System 6000; TC Helicon (www.tc-helicon.tc) has two new vocal-harmony processors, the TC-Helicon VoiceWorks and the TC-Helicon Quintet; and TC Works (www.tcworks.de) showed Spark XL 2.7, with OS X support and direct CD-burning capability. In PowerCore news, the Assimilator plug-in is shipping, and an OS X driver is available.

Sony's (www.sony.com) latest Oxford plug-in, The Inflator, warms up audio material with an increase in apparent loudness, without loss in quality or audible reduction of dynamic range, so users can add presence without increases in peak signal level. The plug-in will be available this spring for PowerCore and Pro Tools systems.

Mackie (www.mackie.com) announced it would receive about $6.3 million dollars from an investment by Sun Capital. In plug-in land, there were two new Universal Audio Powered Plug-ins for the Mackie UAD-1 DSP card, the Cambridge EQ (a 5-band parametric EQ) and DreamVerb, a stereo reverb built on RealVerb Pro's acoustic-morphing capabilities and featuring a 5-band EQ and level ramping for early and late reflections. Mackie also showed Saturated Fat, a new mono tube-distortion/cabinet-modeling plug-in for Soundscape 32, developed by Acuma Labs. Another hit was Version 5 software for the Digital 8•Bus, which adds a revamped graphical interface, HUI emulation and surround monitoring control.

Apogee (www.apogeedigital.com) unveiled its Mini-DAC, a compact, 192kHz D/A converter with AES, optical (ADAT, S/MUX and S/PDIF) and S/PDIF co-ax ins; XLR, ⅛- and ¼-inch analog outs and USB I/O. Apogee's Big Ben 192kHz Master Word Clock is a souped-up studio timepiece that handles AES, S/PDIF, optical I/O and wordclock/video in, with six wordclock outs. A FireWire card option keeps it current.

UA's DreamVerb plug-in for Mackie's UAD-1

THE LISTENING POST

Alesis (www.alesis.com) floored us with its ProActive 5.1 system—a complete, powered 5.1 surround monitoring system with analog and digital I/O, onboard DVD surround decoding, five satellite speakers, a compact subwoofer (housing 450 watts of system amplification) and wireless remote. Beyond its obvious applications (gaming production/edit suite playbacks), the ProActive 5.1 could be the Auratone for the new millennium: a real-world surround reference system in larger studios. Retail? $399!

AKG (www.akg.com) followed up on its successful K141 Studio and K240 Studio units with the closed-back, supra-aural K171 Studio and circumaural K271 Studio models. All share 1.2-inch drivers with patented Varimotion technology that creates diaphragms of varying thickness: thinner around the outside for improved LF tracking and a thicker center for accurate MF/HF response. Other improvements include a detachable cable with a

Introducing the Z Sub

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secure mini-XLR connection.

When **Wharfedale Pro** (dist. by www.iagamerica.com) hit U.S. shores last year, we loved the low-cost Diamond Series monitors taken from its consumer catalog. Now, Wharfedale has a similar—but beefed-up—line of pro monitors featuring black finishes and built-in mag shielding, ranging to a high-performance top-end model in a gorgeous, high-gloss piano-black finish. Keep your eyes—and ears—on these.

We checked out **Event Electronics'** (www.event1.com) new monitors and especially liked the Studio Precision 8, the top of Event's new flagship Studio Precision Series (powered or unpowered). These sleek new monitors, built on all-new technology from Event, are available in active (280W) or passive versions, in 8-inch or 6.5-inch models. All models use the 1-inch, soft-dome, high-frequency radiator with neodymium magnet, and Event's exclusive dual large-diameter linear-flow bass ports for deeper, more accurate bass. Also new is the Tuned Reference 8XL, the latest in Event's Tuned Reference Biamplified Direct Field Monitors Series, having the same drivers as the original TR8 but pumped up with new amps delivering 150 watts (100 woofer/50 tweeter) to each speaker.

KRK (www.krksys.com) unveiled the newest incarnation of the E8, the great-sounding E8T. This two-way, 260-watt, bi-amped (Class-A and A/B) design features KRK's new titanium-oxide dome tweeter, 24dB/octave filters and HF attenuation control. **Bag End's** (www.bagend.com) compact new two-way M6 near-field monitors measure 4x9x9 inches, weigh 15 pounds and are priced below $600. The S21E-C is a high-output, 21-inch subwoofer that boasts a response down to 8 Hz when controlled with the Bag End ELF.

And now for something completely different: French manufacturer **Focal Professional** (www.focal-fr.com) showed off its SM11 Utopias, tri-amped monitors featuring Beryllium tweeters, 24-bit/96kHz converters and built-in DSP algorithms for EQing options. The units can be controlled remotely via a PDA. And you thought your Palm Pilot was just for phone numbers and restaurant reviews.

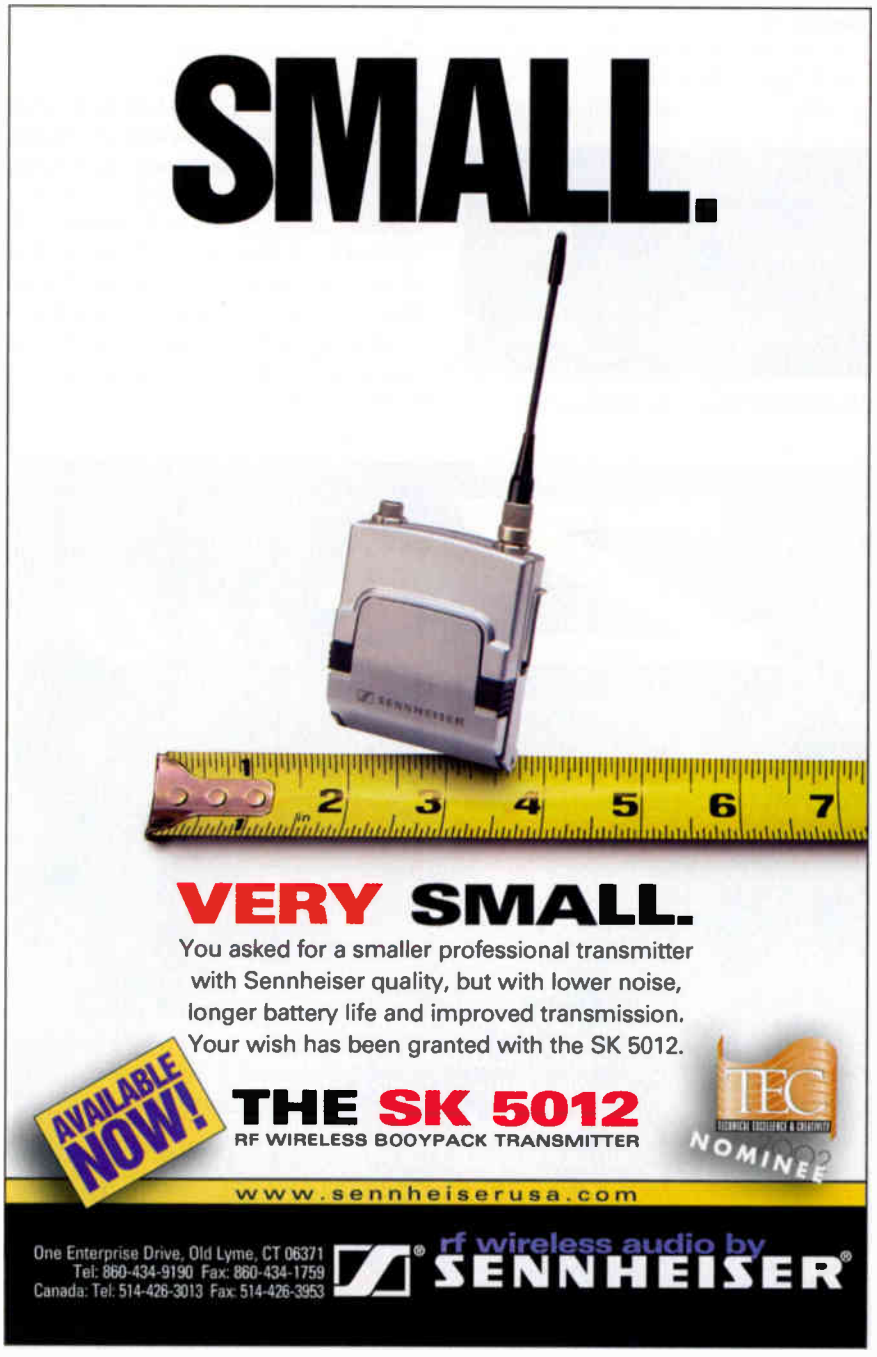
GOTTA HAVE MICS!

NAMM's coolest-mic-design award has to go to **Blue Microphones'** (www.bluemic.com) Ball. This *phantom-powered dynamic* mic (yes, you read that correctly) is unique-looking even among BLUE mics, especially with its spherical design resembling a blue baseball. The Ball is a cardioid pattern, and stated specs are impressive, listing a 35 to 16k Hz response and 146dB max SPL.

The AT3060 tube microphone from **Audio-Technica** (www.audiotechnica.com) operates on standard 48V phantom power—and doesn't need a separate power supply—for fast, easy setups. The mic features a new large-diameter diaphragm, cardioid-condenser element, a hand-selected tube and a large coupling transformer. It's available in spring 2003; MSRP: $599.

MXL Microphones (www.mxlmics.com) V69 Mogami Edition is a large 25mm diaphragm, cardioid-condenser mic with 12AT7 tube electronics and all-Mogami

—CONTINUED ON PAGE 74



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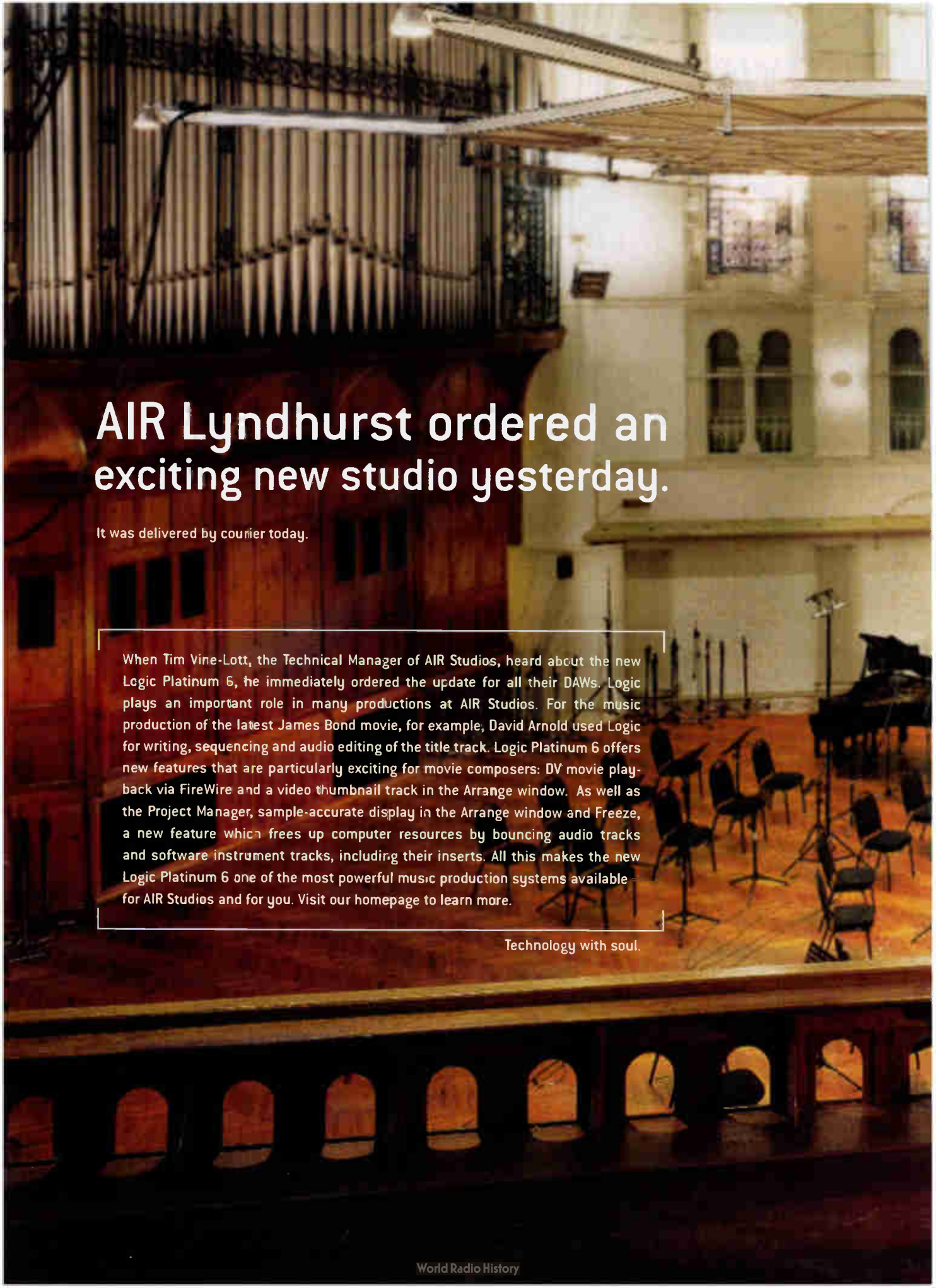

AIR Lyndhurst ordered an exciting new studio yesterday.

It was delivered by courier today.

When Tim Vine-Lott, the Technical Manager of AIR Studios, heard about the new Logic Platinum 6, he immediately ordered the update for all their DAWs. Logic plays an important role in many productions at AIR Studios. For the music production of the latest James Bond movie, for example, David Arnold used Logic for writing, sequencing and audio editing of the title track. Logic Platinum 6 offers new features that are particularly exciting for movie composers: DV movie playback via FireWire and a video thumbnail track in the Arrange window. As well as the Project Manager, sample-accurate display in the Arrange window and Freeze, a new feature which frees up computer resources by bouncing audio tracks and software instrument tracks, including their inserts. All this makes the new Logic Platinum 6 one of the most powerful music production systems available for AIR Studios and for you. Visit our homepage to learn more.

Technology with soul.

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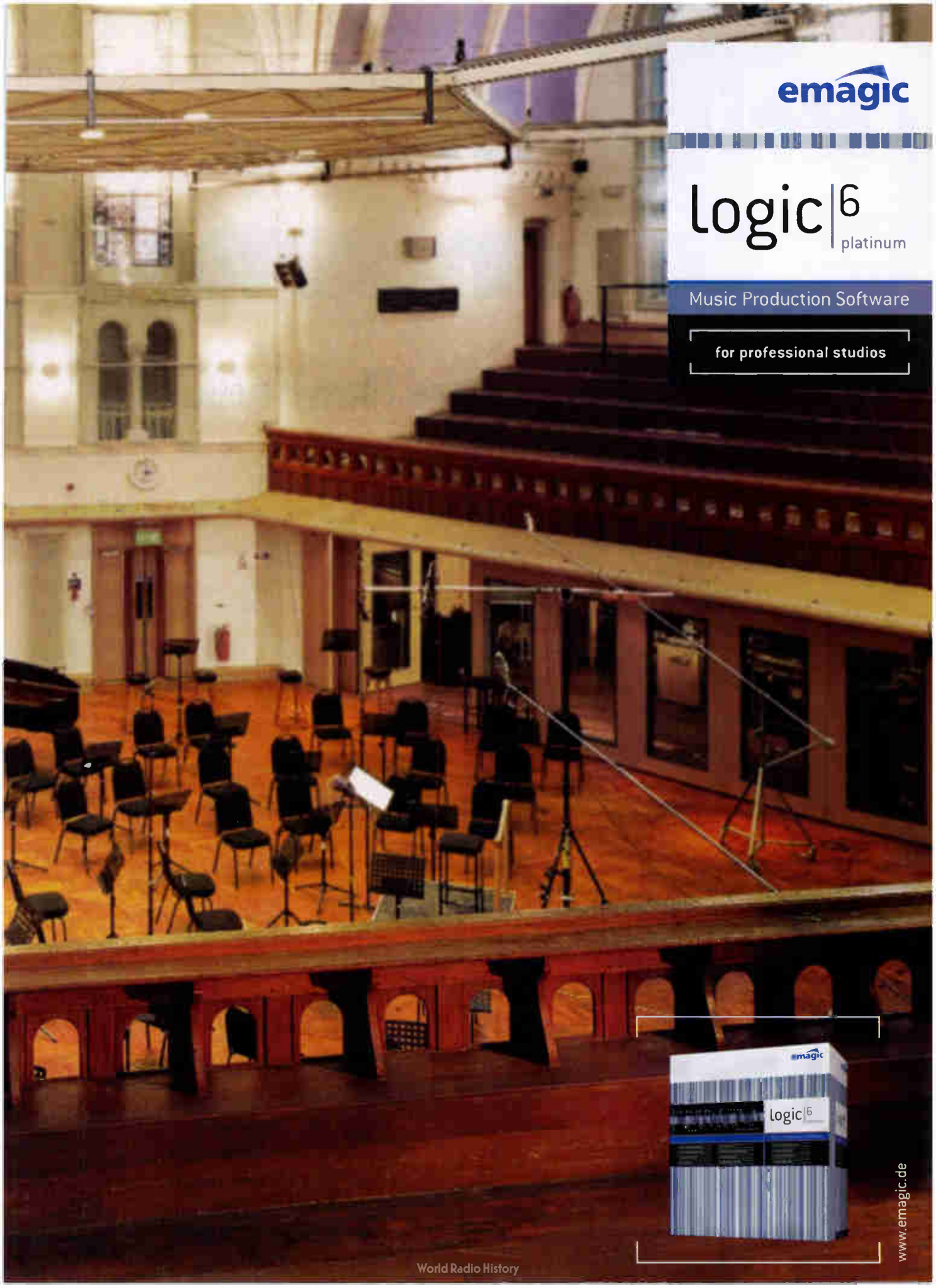

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Bring Me Surround!

Hardware/Software Multichannel Effects Processors

by Randy Alberts

A mild hypnotic suggestion: The next time a ringwraith, explosion, tidal wave, symphony or laser beam leaps off of the screen and takes a lap around your home theater, think about which of the following multichannel effects the production team used; rest assured, at least one processor will have been employed per scene. This guide represents the maturation of a new subcategory of surround audio products that are very much in demand these days. Who knows, by next year, the term "stereo plug-in" may actually start showing up in articles—oh, how retro!

Mix queried software and hardware developers to put the following surround processor descriptions together. Press day being a week before this year's Winter NAMM, and current trends considered, this grouping of surround processors is likely to grow considerably by the time *Mix*'s 2004 surround effects guide goes to press. Multichannel effects, dynamics, reverb and mastering units are included this time around, but surround encoding, panning, routing, joystick, speaker control, bass management or 3-D audio-processing offerings are not; similarly, new surround plug-ins added to some DAW programs are mentioned, but similar surround features built into many professional digital consoles and workstations are not.

Audio Ease's (www.audioease.com) Altiverb for Mac G4 is a native sampled-acoustics plug-in for MAS, HTDM, RTAS and VST systems. Altiverb offers 1, 2 and 4-channel sampled acoustics of spaces such as concert halls, cathedrals, even bathrooms and closets; dozens of acoustic samples are included, and users can also sample their own environments. The interface displays a photo of the actual room a preset is based on, and comes with software to create JPEG pictures of user-sampled acoustic spaces. Taking full advantage of the G4 Altivec Velocity En-

Eventide Orville

World Radio History

gine co-processor, Altiverb works in real time, producing up to 40 seconds of reverb decay.

New from Cube-Tec (www.cube-tec.com) is a slew of surround mastering and restoration Virtual Precision Instrument (VPI) options for the company's AudioCube 5 DAW platform. The SurroundCube suite includes seven surround-specific VPIs ($3,750/each), five of which are effects processors, and all moving audio at up to 24-bit and *384kHz* resolution. Magneto Eight is an 8-channel surround version of the company's stereo Magneto processor, which emulates tape compression and saturation effects in 15 and 30 ips modes, and can be linked and grouped on all eight channels, as well as to the other surround VPIs. Loudness Maximizer Eight allows users to build separate linkable groups to control front and surround speakers, while maintaining separate LFE control with other speakers. Its unique unity gain structure through the VPI promises to facilitate parameter settings for increased transparency.

Drawmer Six-Pack

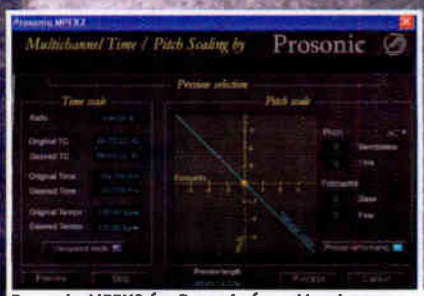
Another 8-channel version of an existing Cube-Tec stereo processor is EQ Eight, a new surround version of its Analog EQ. Four fully parametric bands plus variable high and low shelving, selectable slope and high- and low-cut options per channel provide plenty to play with, but users may opt instead to start with EQ Eight's presets, modeled on the characteristics of the world's top mastering equalizers. Rounding out the company's new surround plug-in offerings is Compression Eight, a new 8-channel VPI and plug-in that allows the compressor's response to be frequency-sensitive and to apply identical settings to linked channels. The latter feature ensures that when the gain of one or more channels exceeds threshold, the signal of all linked channels will be identically compressed.

Drawmer (www.drawmer.com; www.transaudiogroup.com) was the first in 2002 to release a dedicated hardware multidynamics surround six-pack, named, coincidentally, Six-Pack ($2,575). Each of the six independent modules in this three-rack-space, brushed-aluminum gem is clearly indicated and metered for the expander/gate, compressor and peak/limiter functions provided by each module. Six-Pack's six independent expander/gates, auto and manual compressors, "zero overshoot" limiters and the ability to link channels individually make it ideal for surround and live outboard applications, such as drum processing. Six-Pack can be reconfigured to provide dynamic control and surround-speaker protection without image shift during live surround applications. Each Six-Pack module is based on the company's popular Drawmer DL241 Compressor.

Eventide (www.eventide.com) expects its two new 8-channel surround I/O expansion cards for the flagship Orville effects processing platform (ADAT I/O $395, $695 AES/EBU I/O; $995 both, includes factory installation) to ship by the time this article prints. In addition to adding several new surround effects processing algorithms to Orville, Eventide now provides these new hardware upgrades for Orville and the Orville/R "blank-panel" version that utilizes the EVE/NET remote control. Users can now process all eight channels of digital I/O or select inputs and outputs in pairs and route those to and from any desired Orville DSP engine. The AES/EBU expansion option replaces Orville's analog I/O to provide eight channels of balanced digital audio with up to 24-bit/96kHz resolution and the ability to high-sample-rate convert without having to convert to analog and back again. Orville's Version 3.0 software debuted at Winter NAMM, as well. Stay tuned.

Kurzweil (www.kurzweilmusicsystems.com) offers the KSP8 mega multi-effects processor ($2,995) and its companion RSP8 remote controller ($595). Billed as a high-end 8-channel multibus signal processor with great real-time control, the KSP8 doubles the K2600 KDFX's processing power and adds a number of new algorithms, including surround reverbs and additional stereo and mono algorithms. Up to eight channels of audio can be processed simultaneously in mono, stereo and surround combos, each sharing one of 16

Cube-Tec Magneto Eight



Prosoniq MPEX2 for Pyramix from Merging Technologies

Universal Audio RealVerb 5.1

TC Works Surround Verb

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available processing units on up to eight effects buses. Users can customize effect presets and signal chains for up to 999 object locations and store them to SmartMedia cards, each holding a "studio" snapshot of physical connections, analog and digital I/O routing and levels, effects chains, bus assignments and more per program. Also impressive is the fact that the KSP8 offers 249 DSP algorithms including reverbs, choruses, delays, distortions, EQs, cabinet simulators and compressors, as well as 5.1 surround audio algorithms with multichannel compression. I/O options include analog, AES/EBU, S/PDIF, Lightpipe, TDIF and wordclock connections.

Kurzweil KSP8

Lexicon (www.lexicon.com) has added both exterior and interior improvements to its surround sound powerhouse, the 960L Multi-Channel Digital Effects Processor (starting at $11,500). The LARC2, the 960L's remote user interface, has been totally redesigned and now includes eight touch-sensitive, motorized, auto-nulling faders, along with the company's new Automation Package and the LOGIC7 Upmix Algorithm Package, which are now standard equipment with the 960L. The Automation Package enables multichannel functions such as surround algorithms (based on Lexicon's DPM Algorithms: 3-Dimensional Perceptual Modeling), parameter adjustments, wordclock settings, DSP configuration and I/O settings to be fully recallable.

Lexicon 960L

Built-in now to the Pyramix software DAW platform is the new MPEX2 Surround Sound Time Compression/Expansion and Pitch Scaling plug-in from **Merging Technologies** (www.merging.com). Developed by German-based Prosoniq for Merging, MPEX2 offers multichannel time compression and expansion control in percentage ratios, bpm and timecode-in/out positions. Full pitch and formant control can be processed in parallel while maintaining time and phase alignment over all tracks for 5.1 and 7.1 surround formats. A 24 fps-to-25 fps function (and vice versa) has also been included with MPEX2 to provide straightforward resynchronization of surround master mixes for film.

MOTU (www.motu.com) last year added some more surround tools to Digital Performer's list of built-in MAS plug-ins, including MasterWorks Limiter Surround Edition, Parametric EQ Surround Edition and Feedback Delay Surround Edition. The latter is a surround delay plug-in that provides detailed control over every channel in a mix by graphically constructing the "flight paths" of up to 100 discrete delay feedback signals. Don't worry: A panic button mutes delays if and when an audio experiment gets out of hand. Parametric EQ Surround Edition, as its name implies, provides *n* channels of parametric EQ for surround mastering; specifically designed for mastering surround mixes is the MasterWorks Limiter Surround Edition plug-in. Completely independent LFE limiting and assignable detector paths allow users to feed any combination of *n*-speaker channels to the limiter-detector path; for example, feeding a center channel to the detector path to duck an entire surround mix during a dialog passage.

Sony's (www.sonyproaudio.com) DRE-S777 is a 4-channel "sampling" reverb, meaning that it can sample and re-create the natural reverberation characteristics of any acoustic space (or processing unit). This reverb "signature" can then be added to any audio, with control over reverb time and pre-delay. The DRE-S777 supports a range of sampling frequencies up to 24-bit/96 kHz, and has full surround sound capabilities; in addition, several units can be linked to provide a realistic 3-D surround field. A built-in 4-band EQ and simple mixer allow full control of direct and effect signals. The DRE-S777 comes with samples of halls, churches, studios and effects; CD-ROM library sets featuring acoustic spaces from around the world are available. Users can also sample their own spaces with optional software.

On the software side, Sony's new Oxford Dynamics plug-in is a compressor/dynamics processor for Pro Tools, modeled on the processor used in the OXF-R3 console. Applications include separate compress, limit, expand, gate and sidechain EQ, with full independent control of all parameters; a full surround, multiformat-compatible bus compressor/limiter is included. The Oxford Dynamics plug-in is slated to for a spring release, at a suggested list price of $850.

Initially announced in 2001, **Steinberg**'s (www.steinberg.net) Nuendo Surround Edition plug-in suite ($1,299) began shipping toward the beginning of last year with four surround plug-in offerings built by the folks at Spectral Designs. OctoVerb is a "true-surround" 8-channel room-simulation tool with improved surround-specific reverb algorithms and an intuitive graphic predelay and reverb-shaping interface. The 8-channel, single-band OctoComp can continuously blend RMS and peak characteristics. The Nuendo Surround Edition suite, which now supports full automation recall of every parameter, also includes OctoQ (an easy-to-use, high-quality, 7-band surround equalizer that creates digital EQ models as IIR filters) and OctoMaxx, a multichannel version of Steinberg's popular Loudness Maximizer stereo plug-in.

The System 6000 is **TC Electronic**'s (www.system6000.com) flagship signal processor, offering a variety of effects such as multichannel reverb and multiband dynamics processing. Multichannel pitch change processing is available, as well as classic TC reverb, chorus, delay, phaser and EQ algorithms; sample rates up to 96 kHz are supported. More than 600 presets are available, including the new Halls of Fame bank, offering settings contributed

Sony DRE-S777

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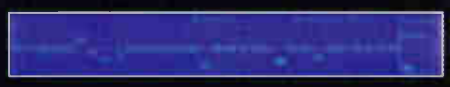

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by top engineers like Chris Boyes, George Massenburg, Al Schmitt and more. The Halls of Fame bank also includes the first part of The Skywalker Sound Collection of first Reverb and Room Simulation presets. The System 6000's Icon remote, featuring a touchscreen and touch-sensitive faders, integrates with the a single-rackspace device called the CPU 6000, which acts as a communication device, running in tandem with the Mainframe 6000s that power the system.

Also available from TC is the Reverb 6000, offering multi-format delay and boundary effects; 300 presets, including settings from film and music pros; a 6-channel room simulator; and more, including a back catalog of TC classics at their highest resolution, from M5000 and M3000 to the System 6000. The Reverb 6000 can accommodate two 6.1 reverbs or 16 mono, and any format can be used simultaneously. System 6000 algorithms can be added to the Reverb 6000 toolset.

The TC Surround Verb ($699, Mac/PC; dist. by Steinberg) from TC Works (www.tcworks.de) provides Nuendo users with a native, "TC-quality" 5.1 surround reverb. TC Surround Verb's easy-to-use interface includes graphic displays of reverb components and control over all key components required for reverb design, including room shape, size, diffusion, early reflections and reverb tails. The reverb tail supplies three independent bands for low, mid and high-frequency control with sweepable-band crossovers and an additional EQ stage with low- and high-shelf filters.

Universal Audio (www.uadio.com) announced full Pro Tools|HD support for its previously released RealVerb 5.1 plug-in (and SmartCode Surround Pro and SmartPan Surround Pro plug-ins, as well). The first multichannel reverb plug-in for Pro Tools when it first shipped, RealVerb offers sophisticated algorithms to model physical spaces and extensive shapes and materials to affect environments; preset morphing and the ability to independently place the direct path, early reflections and late-field reverb in the soundfield further add to this surround toolbelt. Features include source distance-perception adjustment and control over individual output channels to simplify the process of creating alternative mixes (4.0, L-C-R, etc.). Also from UA was news that the company began releasing TDM versions of its Powered Plug-Ins, including the 1176LN, LA-2A and Pultec EQ; upgrades to versions of the plug-ins sold previously under the Kind of Loud name now support TDM under the Universal Audio brand name. All UA TDM plug-ins will support Pro Tools|HD and Mac OS.

Next up from **Waves** (www.waves.com) is the 360° Surround Tools TDM ($2,400), a complete surround mixing, reverb, dynamics and management tools bundle released exclusively on DSP for Pro Tools|HD and MIX Macintosh systems at AES in October. Supporting 96k and 192k for all Digidesign MIX and Pro Tools|HD users, the Surround Toolkit comes with seven surround plug-ins, including: Surround Imager to add distance panning, early reflections and shuffling for improved low-frequency spatialization; Surround Reverb to control over six channels of de-correlated reverberation and special front and rear-channel surround signals; and Surround Compressor, with channel coupling and link for all surround channels or as three separate groups. ■

Waves C360 Surround compressor

TC Electronic System 6000

Randy Alberts is a Bay Area freelance writer.

World Radio History

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BY GARY ESKOW

Chris O'Brien

At Home at Ilio Entertainment

Chris O'Brien

In the highly competitive sample-library market, no company has a better reputation than Ilio Entertainment. Led by the wife/husband team of Shelly Williams and Mark Hiskey, Ilio's catalog is pristine and highly creative. The close relationships the partners share with many of the artists whose work they represent, and often produce, are big factors in the duo's success. Case in point: Chris O'Brien. A drummer, programmer and composer, O'Brien has handled synth chores for the likes of Michael Jackson, Amy Grant and Lionel Richie. He also keeps busy writing cues for *Entertainment Tonight* and *General Hospital*, and banging the kit for numerous sessions. After working as an independent contractor for several years, O'Brien folded his project studio into the Ilio camp in 1999. Ilio recently released a two-CD sample library of O'Brien's drum/percussion loops, *Stark Raving Beats*.

"My studio was a converted garage in a small, cozy rental house in Burbank [Calif.]," says O'Brien. "I had my acoustic drums and electronics set up in the same space as my Spirit 328 Digital Console, Mackie HR824 speakers, and, at the time, a Digidesign 882 hooked to a d24 and DSP Farm card in a Beige G3 Macintosh with Opcode Studio 4 MIDI/SMPTE interface, all powered by Logic Audio. Ilio offered me a space that previously was a recording and mastering studio. It was a great opportunity to have a much more professional working space, and a way to give my wife some peace and quiet! I brought along my home setup, which now consists of the Spirit 328, Neutrik Balanced ¼-inch patchbays, Mackie monitors, MOTU 2408mkII, G4 800MHZ CPU and Panasonic SV3700 DAT machine. My main synths have always been my trusty Roland JD800 and JV1080 with various expansion boards, and Korg Wavestation SR. My main sampler of choice these days is the Emagic EXS-24, but we also have Kontakt and a GigaStudio PC setup, as well as a vast array of hardware samplers.

"*Stark Raving Beats* was an idea I was discussing for some time with Mark Hiskey. It was truly a challenge to conceive of a drum-loop CD that hadn't been done before, what with so many dance/R&B titles crowding the market. One thing we noticed, though, was the majority of the titles' tempos were mainly in the low- to midrange and were mainly programmed. So, we came up with the concept of fast and aggressive grooves performed live on acoustic drums and percussion and then remixed for a unique organic/electronic hybrid."

SRB features Groove Control, a post-ACID method of splitting all of a loop's elements into individual slices and triggering them from a sequencer. Tempo, quantization and pitch can all be changed independently. Although the concept is simple, many owners of Groove Controlled libraries fail to dig into the possibilities. "It's easy to achieve half-time/double-time versions with your sequencer, and even remix the drum kit elements of the groove. For instance, you can use only a pattern's broken-down kick and hi-hat, then bring in the snare, add the separate stereo-delay FX loop in, or try blending the room loop level in hotter in the song's chorus. Where it really becomes wild is when you mix different acoustic snare, hi-hats, room and FX loops from grooves originally performed at different tempos and feels, instantly locking them together with your sequencer's Quantize function. Working with the MIDI files, you can easily alter the performance by adding or deleting notes within the groove, shortening the note's duration for a tighter sound or randomizing the order of the notes for a totally off-the-wall twist. You can also mix and match any other Groove Control-activated libraries from Ilio and Spectrasonics with *Stark Raving Beats*."

Hiskey says that O'Brien's many talents were too strong to pass up: "We initially contracted Chris to do some SampleCell programming, knowing that he was an excellent drummer and a programmer. Over time, we began leaning on him more and more.

"Chris did a lot of post-production work on another Groove Control title in our catalog, *Ethno Techno*, which features percussionist Bashiri Johnson. We spend a lot of time in post-production, making sure that all of the samples sound as clean as possible, experimenting with processing and organizing the discs as logically as we possibly can. Chris has done the heavy loading on a number of our releases."

Hiskey and O'Brien are currently writing and producing cues for Sonic Desktop's Sonic-Fire Pro and Movie Maestro software libraries.

MIX ONLINE EXTRAS

Gary Eskow is one of Mix*'s contributing editors.*

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THE QUEST FOR POWER

by Ned Mann

We all want more power. Admit it. When it comes to the gear we all lust after—whether it's a Massenburg EQ or the hottest new plug-in—it never seems to be enough. The same can be said for raw DSP power: As soon as we finish installing the latest, greatest CPU, software developers figure out something to overwhelm it.

The Benefits of a Multiple-CPU Setup

The concept that a single computer will eventually run everything in your entire studio is slowly evolving into a growing awareness that the tasks will need to be divided up between several CPUs dedicated to specific tasks. Before you reach for the Advil, consider that most studios today are already dependent on multiple CPUs. From console automation to hardware synths to reverbs, studios are actually running dozens of CPUs—we just don't think of it that way.

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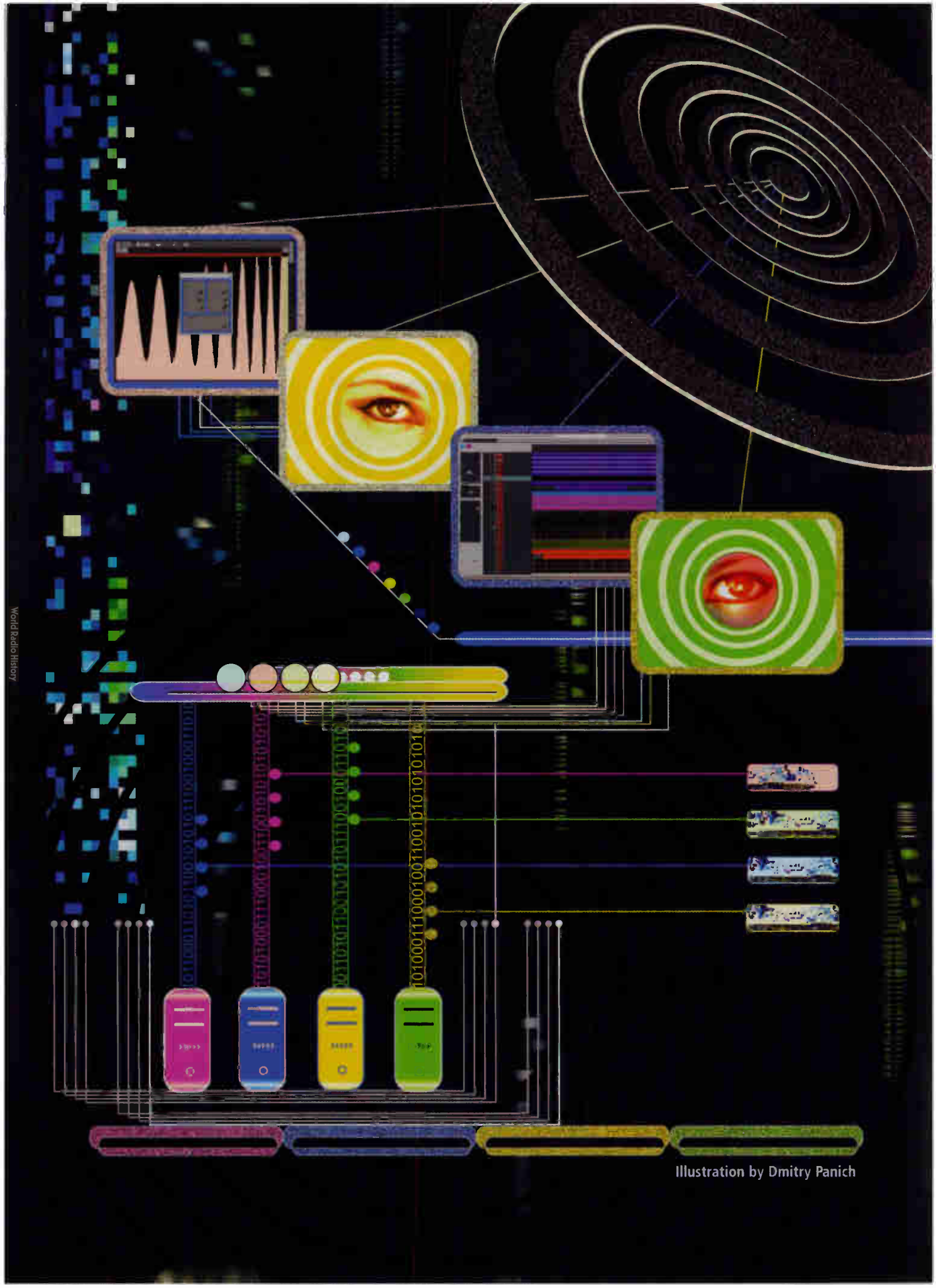


Illustration by Dmitry Panich

World Radio History

THE QUEST FOR POWER

In my previous article (October 2002), I detailed some ins and outs of setting up a high-end DAW and the awesome power that can be harnessed on a single CPU. Correctly configured, the single CPU can handle most users' needs. However, I also touched on some limitations (conflicts between different programs and the eventual taxing of even the fastest CPU) that users run into when trying to expand systems to illogical extremes.

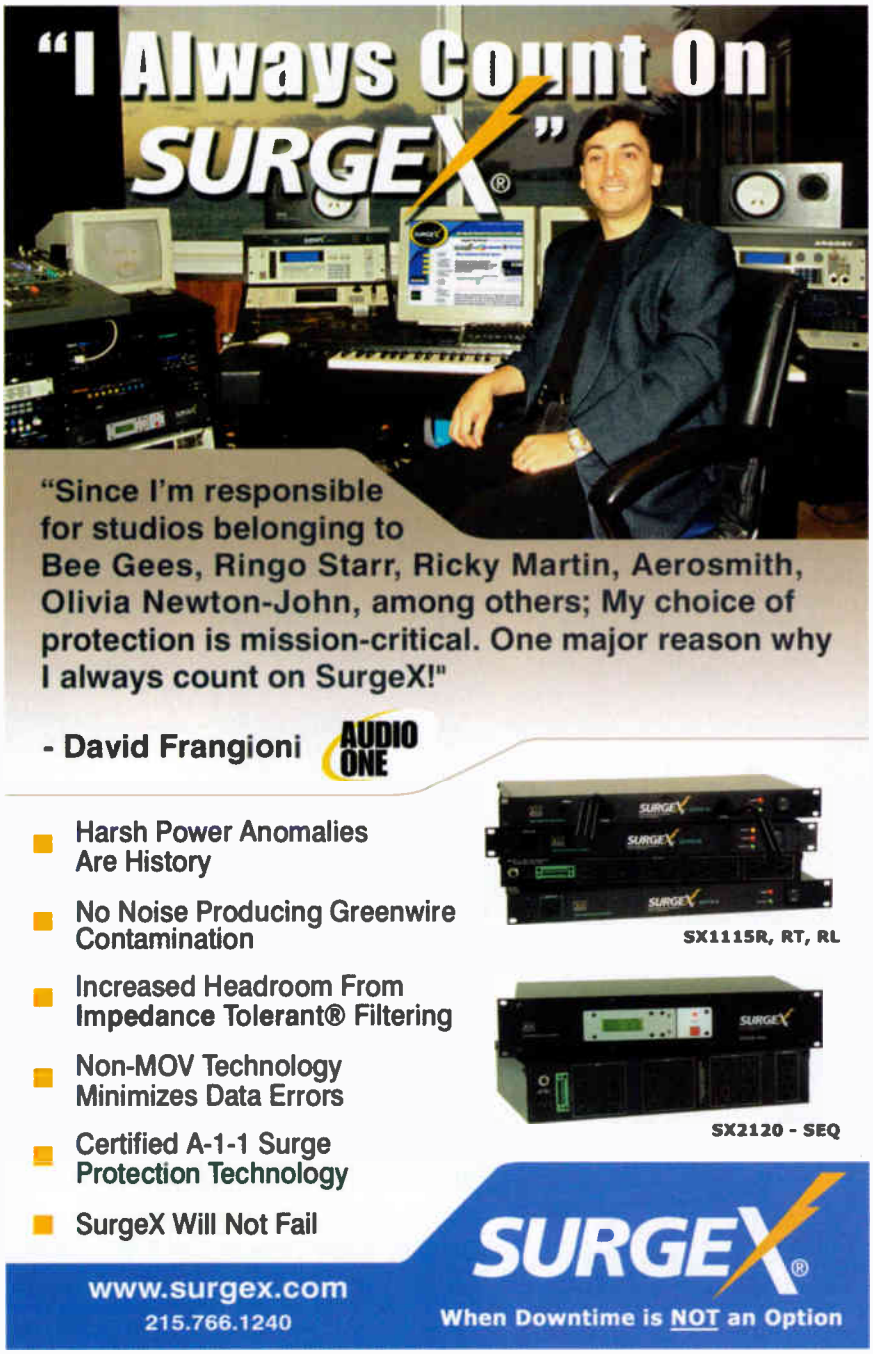
For users who want unlimited power, native sound sources and instant recall, the multiple-CPU scenario is the current state of the art. Multi-CPU setups take many forms, but, in general, break down into two basic groups: users who want to isolate sampler responsibilities and those who want to integrate additional sequencer environments.

The first scenario (an additional CPU to handle virtual synths), though uncommon even a few years ago, is now becoming a *de facto* standard. GigaStudio has ushered in a world where 1-gig piano samples and libraries that stretch into the teraflops are now commonplace. Having vast libraries and hundreds of voices available in real time all but requires a dedicated CPU, as most serious composers have found out. While GigaStudio was the first to be able to stream samples directly from the hard drive, it is now being joined in the act by Steinberg's Halion, Emagic's ESX 24 and Native Instruments' Kontakt. These soft samplers allow users to access the sought-after Giga libraries directly from within the sequencing environment, which begs the question: Why do I need to dedicate an entire computer to run GigaStudio? If you are running a small number of tracks and want to play a few Giga sounds, then the answer is: You don't. However, consider for a moment what many large productions actually entail. Can we expect one CPU to play back 100-plus audio tracks—each with EQ, compression and effects—and stream 160 voices in real time? I think not.

Many companies are now filling this niche market with custom-built PCs preconfigured to run GigaStudio. Although slightly more expensive than doing it yourself, it takes all of the guesswork out of setting up and configuring a system and provides a true source of tech support. In fact, many film composers who were initially resistant to adding a GigaStudio PC now find that they can't live without the concept of dedicated computer/dedicated task; some even broke down and installed three or four of them! With the advent of VST Shells (such as Steinberg's new V-Stack), PCs can access 16 VST and DirectX plug-ins directly without a host-sequencer application. This will allow CPUs set up to run GigaStudio to double as dedicated soft-synth players, as well. Amazing!

On a simpler level, many users who are upgrading their existing G3 or Pentium III find that the computer that they are replacing can serve many uses. The most obvious would be setting it up as a dedicated Internet portal, FTP server or using it to digitize QuickTime videos. These older computers can also be used to run virtual synths and samplers. If the old CPU can be set up to get even a few instances of these and save yet another CPU from going to the junkyard (or better yet, recycling center!), it's well worth it.

When I suggest that clients set up a



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-Jeff Balding

"The people at SNS care about their product, and they care about what we are doing with it. From sales to support, service is exceptional and the reliability of the system speaks for itself."

-Rick Austin
Technicolor

"All I have to say is that the A/V SAN system has been bulletproof. Tracking...Editing... Mixing....our SCSI drives could not deliver what this system delivers. For every album. Every session. Every time. It's one less thing to worry about, and lets me concentrate on making great music."

-Bob Rock

"Installed in one day, recording in three rooms the next...it's been flawless. A/V SAN PRO finally let me get my assistant engineer back in the studio and out of hard drive hell."

-Pat McMakin
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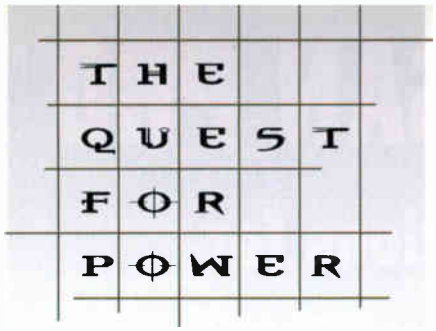


second CPU, the response I usually get is, "Great! But where am I going to put yet another monitor?" This is easily solved by the addition of a monitor\USB switcher. The more important question is, "How do I connect them?" If the upgrade includes a new audio card, the answer is obvious: Run the audio output of your old computer into your new one. If the new computer will be receiving the old audio and MIDI interfaces, then there are numerous inexpensive options for the old computer. For the ever-growing Lightpipe connections, I use a patchbay (Apache by Frontier) to connect 24 channels of audio from each of my three computers and my ADATs, saving me major amounts of repatching time.

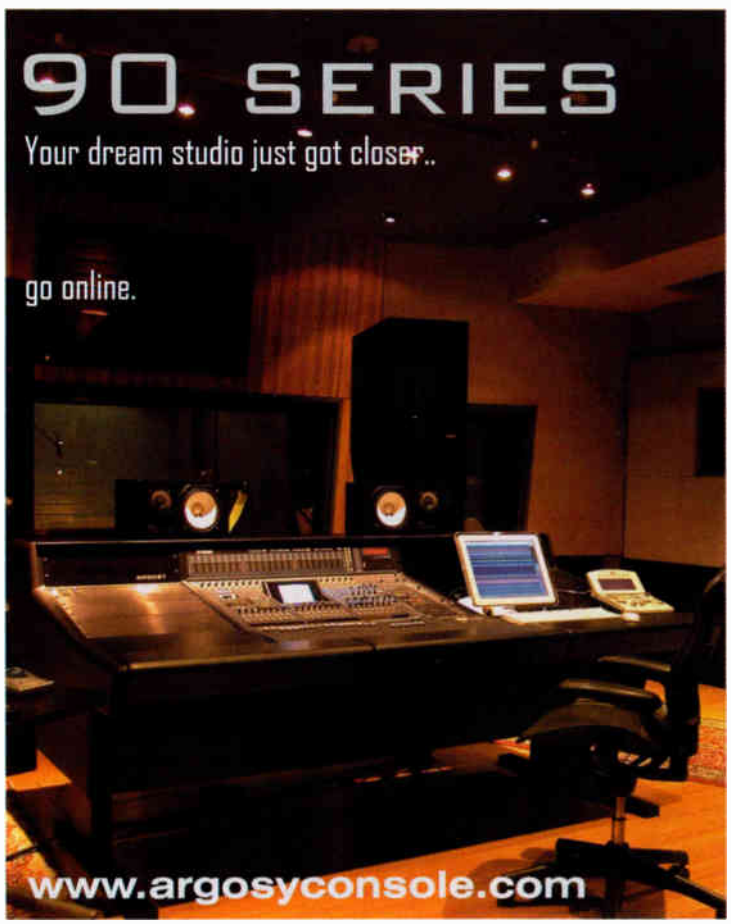
Synchronization is handled by a DTP (MOTU) or a Sync I/O (Digidesign), which is clocked from the master CPU. An additional benefit of this setup is that it allows transfers between any two sequencers on either Mac or PC platforms. You simply set the sample rate and the start time of the file and roll it over. This resolves a major headache for clients who need to get their mix—intact—into another sequencer. While the OMF-transfer protocol is much improved (and great for transferring raw audio), it still ignores such niceties as EQ, compression and effects busing. If you want to transfer a complete mix between sequencers, the best way to do it is still in real time. (See the sidebar "Case Study 1: The Pro Tools Connection.")

> Imagine the kind of power and flexibility you achieve when you allow yourself to consider two or three CPUs as free-floating resources.

"That's all fine and good," you say. "I know how to set up computers so they can talk to each other. What I really want to know is how a multi-CPU setup will help get clients in the door?"

Fair enough, here's how I see it: There are tens of thousands of users running DAWs today. Granted, some setups are very basic, but many producers/engineers have been doing their homework and diligently studying their workflow. And a few are the very clients who used to work exclusively in larger studios but have now set up shop in their basements.

While they may love the freedom and power to work at home, most are top-level producers/engineers determined to take their projects to the next level, in particular by tracking and mixing in high-end studios. However, unlike five years ago, they expect to do more than just dump their tracks and start their mix over. They want the ability to interface with big rooms, but they also demand the flexibility to take their files home and continue producing them. These users represent a large untapped market for



PHOTOS: O'HENRY SOUND STUDIOS, BURBANK, CA

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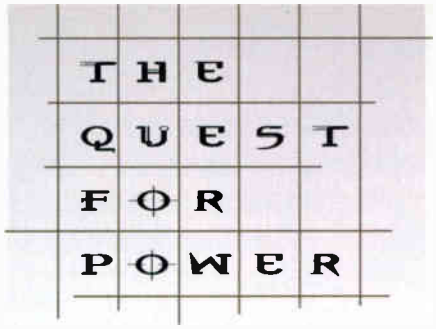

pro studios—if the pro studio is ready! (See the sidebar "Case Study 2: The Big-Studio Connection" on page 74.)

When I discuss adding a sidecar CPU running Logic, DP3 or Cubase to facilitate this demand, some high-end, digital-based studio owners look at me sideways. Maybe, it's the fear of yet another CPU to deal with, or they worry about the need to train someone in the basics of these different programs. However, in a very real sense, software-based DAWS are the sequel to ADATs and Tascams, both of which required some basic knowledge to synchronize and maintain. I find it ironic that the same studios that added two digital 32-tracks, six DA-88s and five E4s 10 years ago now balk at adding a second CPU.

My basic advice—to become compatible with today's software/hardware formats—is predicated on the same logic as was their original investment in Tascams. It was partly to be productive and stay competitive, of course. But most important, it was to bring in clients.

Production houses can specify which formats their composers work in. But major studios are in the business of catering to *all* of their clients' needs. Can they be certain that the next project won't have composers working on disparate software formats, sending mix files over the Rocket Network? Or dance producers wondering where Acid and ReCycle are? Or what about tomorrow's jingle date when the composer will need to bring up his Logic file to make some last-minute tweaks, add strings and submit a final mix in Pro Tools? It seems to me that studios need to spend a little more time helping clients get in and out of their doors—on all possible formats.

No doubt, multi-CPU setups require thought and care to operate. But imagine the kind of power and flexibility you achieve when you allow yourself to consider two or three CPUs as free-floating resources that can emulate entire orchestras, build synths, create reverbs and burn CDs. In reality, you probably end up with fewer "computers" in the room than you had two years ago.

Occasionally, as I wait 45 seconds for my CPUs to boot, I wonder if I've gone over the edge. But then, I remember (without much fondness) spending 15 minutes before each session aligning my 24-track and replacing caps on my analog console and loading samples. Was the old way ever really as easy as some people remember it, or are we all suffering from intentional amnesia? Maybe punching bass parts for two hours was in some ways inherently more musical than comping together a part in less than 20 minutes. While studio mavens debate this on the Web boards, I can guarantee which option the bass players would pick: The one that lets them sit in the lounge eating donuts!

[Eds.' note: To learn more, read our Case Studies, below and on page 74.]

MIX ONLINE EXTRAS

Ned Mann goes by the nom de plume *of The Digital Doctor. Visit www.nedmann.com.*

CASE STUDY 1: THE PRO TOOLS CONNECTION

Saxophonist/producer David Mann (yes, he's my brother) has been constantly reinventing his studio as his production needs change. Here's where he stands now:

During the past 17 years, my personal studio has morphed many times—from a Portastudio to an 8-track to 2-inch 16-track, and finally to 24-track. I then joined the digital revolution with ADATs and various consoles, ranging from a Mackie 24x8 to a Yamaha 02R, with Logic Audio handling the sequencing. When I bought my Pro Tools Mix system in 1998, so many things came easy to me for the first time. As a composer, I favor Logic, where I can assemble songs quickly, use loops, create REX files, print out scores, etc. As a producer, I rely more on Pro Tools, with its stability; 64 tracks; great plug-in; and, most important, its compatibility with other musicians, engineers and studios.

I started off running both Logic and Pro Tools on the same computer, with Logic handling MIDI, software synths and loops and Pro Tools handling the audio and mixing. I had both programs work together as one by locking them up over the IAC bus. However, this was not a perfect solution for me, as I could not use audio loops in Logic (this was pre-ESB system bridge), not to mention that a crash in one program would take the other one down with it.

When I upgraded my computer (yet again!), it dawned on me that I could separate Logic and Pro Tools onto their own CPUs, moving Logic to the new computer, keeping Pro Tools on the older machine. We clocked them together, and they can be started and stopped via MMC from either transport. It's seamless. It allows me to accept and deliver work in almost any format—a huge time-saver. It also provides unlimited amounts of power: I can use all the DSP power in my new G4 to run the virtual synths (such as ESX24s, Absynth, Stylus, etc.) and still have all the plug-ins and mixing power in Pro Tools! It's truly amazing. I have added a third computer, a PC running GigaStudio and Acid.

David Mann

Some people assume that it must be complicated using three computers to produce music. Actually, it's much simpler and more elegant than my old setup used to be, when each of my old samplers used to require a hard drive, CD player, etc., and were almost impossible to back up. Now I load one file (albeit, on three separate computers) and I have my entire production recalled, complete with synths, samplers, EQs and automation. I can only wonder what my studio will look and feel like 17 years from now. ■

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Pictured: HHB CDR830 BurnIT PLUS CD Recorder
Also available: HHB CDR830 BurnIT standard model

Why compromise when you can afford to burn with the best? The wallet-friendly HHB CDR830 BurnIT is packed with pro features like 24-bit AD/DA converters, an advanced laser assembly, SCMS-free digital inputs and both analog and digital synchro recording modes. And if you need even more connectivity, a little extra money buys the new BurnIT PLUS, adding professional mic/line switchable balanced analog I/O, balanced digital I/O, a word clock input and parallel remote control to the already impressive BurnIT spec.

Of course the best hardware deserves the best media. HHB CD-R discs are designed specifically for professional audio recording, using an advanced Phthalocyanine recording layer for maximum performance and long term archival security.

So don't take chances with your valuable recordings. Visit the HHB web site or contact your HHB dealer for more information on the HHB CDR830 BurnIT and BurnIT PLUS CD recorders, and HHB CD recording media.

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THE QUEST FOR POWER

CASE STUDY 2: THE BIG-STUDIO CONNECTION

Producer/percussionist Randy Crafton is building Kaleidoscope Sound, a 2,000-square-foot commercial facility located near midtown Manhattan. Randy says:

After nearly completing Richie Haven's last production, we wanted to do final mix tweaks in a larger room. Calling around to find a facility where we could bring the near-final mixes as Digital Performer files was educational at best. The conversations generally went something like this: "I am interested in bringing my Digital Performer files into your room to listen in a different environment and make final-mix adjustments." Long pause, followed by a few *hmmms* and *errrs*, as they quickly realized that they could also charge me to transfer our tracks into their Pro Tools system, and it would work fine (for them). I then had to remind them that Ray Dillard and I had mixed to the point where we just needed a day of final tweaks in a new environment. I was aware that with their plan A, I would lose all of our mixing automation, be forced to commit to all of our edits and comps through merging sound bites and lose all of our plug-ins—i.e., remix the recording.

Their plan B was, "Why not take it to a transfer house and just dump it onto ADAT or Tascam and bring that?" I would have to transfer everything back to a 10-year-old digital system in order to work in a "state-of-the-art" studio!

We did eventually find a studio (World Beat in Manhattan) willing to let us bring our entire DP rig into their room and "tweak away." We are determined to learn from our negative experience when we build our commercial studio. We believe a commercial facility that provides flexibility of formats (combined with a pro monitoring environment and an arsenal of vintage gear) will be competitive in the New York City market.

Randy Crafton

Studio A will be based around a Pro Tools|HD3 system and a custom API analog console. A sidecar computer will always be ready to run DP, Logic, Cubase, Nuendo or Reason with a PC to run GigaStudio, Acid and VST Instruments.

In our experience, DP is a very stable platform until you run it under DAE or until you introduce a ReWire scenario with a VST wrapper.

If a client comes in with any of these formats and plugs in a drive, he or she will have access to a room large enough to track a small orchestra and still be able to go home with his or her files—intact and without paying to transfer them. ■

Days of Future NAMM

—FROM PAGE 54

internal wiring. The $399 (!) package ships with flight case, shockmount, power supply, windscreen and Mogami multipin mic-to-PS and XLR audio-output cabling.

The Evolution 609 and legendary MD409 dynamic mics have long been favorites on electric guitar, amps and vocals. Now, **Sennheiser** (www.sennheiserusa.com) offers the E609 Silver, a side-address supercardioid mic with a punchy tonal character that's tailored like the original MD409. Retail: $199.95.

Audix (www.audixusa.com) premiered The Micros, the world's smallest condenser mics with integrated preamp and detachable cable. The 0.6-ounce M1245 is less than two inches long with an 80 to 20k Hz response; the 1-ounce, 3.5-inch M1290 has a 40 to 20k Hz bandwidth. The mics require standard 48VDC phantom and handle 150-foot cable runs without signal loss. A variety of polar patterns are available, from cardioid, hypercardioid and omni to shotguns. Retail ranges from $379 to $429.

ADK's (www.adkmic.com) A-48 Vintage Valve is a 9-polar-pattern remotely variable tube mic with a transverse-mounted 12AX7 tube and a new 1.07-inch diameter, 5-micron diaphragm. The $1,295 price includes power supply, multipin cable, shockmount and a flight case.

Electro-Voice's (www.electrovoice.com) N/D967 supercardioid vocal mic has an ultratight pickup and exclusive, low-profile grille to put the performer's voice as close as possible to the mic element for up to 6 dB more vocal, lower feedback and greater rejection of unwanted sounds. Due to popular demand, E-V reintroduces the N/D367s, a cardioid handheld with a response tailored especially for the female voice. Both mics feature high-output N/DYM dynamic elements.

Samson's (www.samsontech.com) new low-cost ($59 and up) drum mics include models voiced for snare, toms, kick and overheads. We liked the secure, shock-absorbing drum-mounting clips provided free with the snare and tom models. Break the (weight and hassle) bonds of mic stands!

Speaking of stands, **SE Electronics** (www.semics.com) debuted the Ghost line of affordable ($299 to $399), supertall, long-reach studio booms. Features include nonslip, ratcheted height adjustment; a removable dolly with locking wheels; and a center hook to hang sandbags/waterweights for extra stability.

Audix Micros

Studio Projects (www.studioprojectsusa.com) is now shipping its LSD2, a stereo condenser with 270° rotatable, large-diaphragm (1.06-inch) capsules and low-noise FET electronics. Retail: $999.

More? There were lots of other cool products at NAMM, and we'll present these in our monthly new-products columns in future issues. Meanwhile, NAMM returns to Nashville from July 18 to 20, 2003. Start shining your cowboy boots now!

Mix ONLINE EXTRAS

World Radio History

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BROADCAST | PRO AUDIO | LIVE PERFORMANCE

Equipment Spotlights!

Winter 2003
Issue #2

Tannoy ELLIPSE PG.3

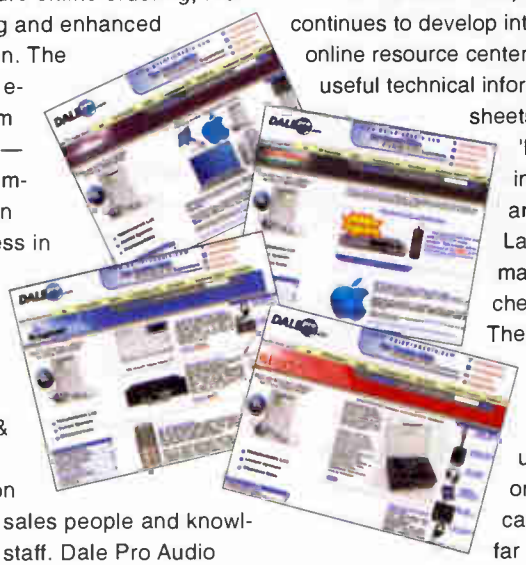
Fostex DV 40 PG.2

Sennheiser MKE PLATINUM PG.1

Dale Pro Audio Launches New Web Site

Onsite, and now online, Dale offers 45 years of experience

Responding to the needs of its customers, Dale Pro Audio has redesigned and rebranded its Web site, www.DaleProAudio.com to offer many advanced e-features such as secure online ordering, real time order tracking and enhanced product information. The foundation for the e-commerce platform is Dale Pro Audio — a family owned company that has been conducting business in New York City since 1957 — conveniently located at 7 East 20th Street, between 5th Ave & Broadway. The company is built on the strength of its sales people and knowledgeable support staff. Dale Pro Audio recently celebrated the launch of its new site with a series of special offers and give-aways.



"DaleProAudio.com represents a unique blend of cutting edge e-technology and a traditional customer service oriented approach to sales and support," says Dale Pro Audio president Michael Lager. The goal is to provide clients with top quality equipment, competitive prices and impeccable, personalized customer service - all bundled together in a convenient, secure Web site that is both easy and fun to use.

"At the same time, DaleProAudio.com continues to develop into an indispensable online resource center — packed full of useful technical information, spec sheets, product reviews, 'How To' guides and industry pertinent articles," continues Lager. "Please bookmark the URL and check back often. There are new features being added on a daily basis."

Dale Pro Audio understands that online investigation can only take you so far when you are shopping for professional audio equipment - it's often very helpful to sit with a piece of gear and put it to use in a real studio environment. Customers are encouraged to stop by Dale Electronics and visit their stocked and fully functional demo room on the 4th floor of their facility. Experience the difference that a skilled, friendly and knowledge-

Continued on pg. 2

Size Does Matter

Sennheiser MKE Lav Goes Platinum

Size really does matter in live performance and broadcast sound, where clip-on microphones should be heard and not seen. Destined to become a standard for all professional theater and broadcast applications, the new MKE Platinum is a very unobtrusive, yet extremely rugged sub-miniature microphone with a clean, clear sound that is unmistakably "Sennheiser."

The successor to the much-lauded MKE 2 high-quality, sub-miniature clip-on lavalier microphone family, the MKE Platinum has been designed to meet the exacting requirements of live sound engineers, theater and broadcast. Insensitive to handling noise and moisture, it features outstanding electrical and acoustical properties. The MKE Platinum utilizes low-capacitance, ultra-thin, flexible, and damage-resistant cable to ensure easy, unobtrusive attachment of the microphone and years of trouble-free service.

The MKE Platinum, practically invisible in use, is built to exacting tolerances and features an optimized treble response for improved headroom at the wireless body-pack transmitter. Bass response is optimized through precise capsule ventilation design, and with a very smooth THD

Continued on pg. 2

Plus In Every Issue

THE DALE THINK TANK

Expert Analysis, News & Opinion

World Radio History

Transducers Are Forever

What can you do to make your studio stand out? Recording formats come and recording formats go, but transducers are forever. Regardless of the recording format, live recording will typically require mics, mic preamps, and speakers. Synths are great, but until we have chips installed on our vocal cords, we'll still be singing into microphones.

While there have been incredible advances in recording devices, the mic manufacturers haven't stood still. There have been a flood of large-diaphragm condenser mics from both Europe and Asia. You can buy a mic with excellent performance for under $500. At least one manufacturer makes a mic with usable frequency response to over 40 kHz that would be ideal to use with 24/96 recorders. At the other end of the spectrum, we're seeing a trickle of mics with on-board AD converters. It's only a matter of time before we'll be using optical mics with laser elements to convert sound into digital signals.

Mic preamps have also come a long way. At least 20 manufacturers produce 1- or 2-channel preamps with either dynamics, EQ or both. Preamps look to the past with re-creations of famous designs from the 50s and 60s. Others embrace the future with digital outputs.

Now that we're recording at 96 kHz, extended frequency response in studio monitors becomes even more important. Super tweeters are sprouting atop speakers from quite a few manufacturers. Near field monitoring from either passive or active speakers has become the norm, and new companies join the ranks every day.

An intelligent investment in mics, preamps, and speakers can give your studio a distinctive sound, polish, and identity.

Fostex's DV40 DVD-RAM Master Recorder

Working hand-in-hand with post-production facilities, sound mixers, broadcast professionals and recording houses, Fostex developed the DV40 DVD-RAM Master Recorder, designed to address a variety of challenges in today's ever-changing audio environment.

After extensive research, Fostex chose DVD-RAM as the most suitable successor to Digital Audio Tape (DAT) due to its excellent reliability, built-in error correction and longevity, and its already established reputation as the film industry's preferred media format.

Since the DV40 employs a UDF (Universal Disc Format) file layout, its DVD-RAM media can be removed, (or accessed via the house media network), and instantly read by Mac and PC workstations running a variety of operating systems. This can be a huge time saver as it alleviates the resource-consuming and costly process of having to convert audio data through third-party programs first.

Once files have been recorded or imported, (again ensuring compatibility with third-party systems), they can be processed with extensive in-built non-destructive editing functions such as Copy, Paste, Insert, Cut and Erase with a virtually unlimited number of Undos. Functions are made easy with the combination of a high-precision, jog/shuttle wheel and a clear and concise FL display. File backup and duplication functions are also provided, either to the same DVD-RAM disc, or via an optional internal hard-disk drive.

Available at DALE pro audio
Call 800-345-DALE
or visit www.DaleProAudio.com

Sennheiser MKE LAV

continued from page 1

curve, the MKE Platinum will handle sound pressure levels up to 142 dB. The hermetically sealed capsule and improved embossed "umbrella" diaphragm protects the microphone against moisture and ensures a longer working life than competing products.

"Although we have been the market leader in miniature microphones for decades, the performance and size requirements for an improved lavalier mic became evident to us over the past few years," states Karl Winkler, director of marketing communications at Sennheiser.

"Our goal to produce a smaller, more rugged product, but with even better sound than the MKE 2, has been fulfilled with the new Platinum version."

Available at DALE pro audio
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Dale Pro Audio

continued from page 1

able staff can make when you are researching a piece of equipment. Dale's team of onsite specialists is always happy to help. They have a wide range of expertise in pro audio, computer-based recording, microphone technology, contractor installations, broadcast engineering and much more.

"With www.DaleProAudio.com we hope customers will shop online with confidence knowing that they are doing so with one of the largest and most respected pro audio retailers in the country," says Lager. "They can take full advantage of the DaleProAudio.com buying power: guaranteed low prices, enormous in-house stock and drop shipments available to expedite special orders. Most importantly, they can shop with the understanding that they have a talented support team behind them, ready to assist with any questions or concerns that may arise before, during and after the purchase."

World Radio History

Ellipse Offers Dual Concentric Technology

Tannoy's latest studio monitor — the Ellipse 8 — is a three-way, active speaker in a unique elliptical cabinet. The Ellipse 8 employs dual concentric high- and low-frequency drivers, plus a SuperTweeter, which extends high-frequency response out to 50 kHz. The Ellipse 8 is designed for nearfield reproduction in music, post-production, and broadcast applications.

Ninety-degree horizontal dispersion provides a wide sweet spot for practical working across the console, while analog signal processing achieves an exceptionally flat frequency response in use. Discrete MOSFET power amplifiers, with generous power supplies, provide more than ample power with extremely low noise and distortion. The unique cabinet shape not only has a striking appearance but is inherently stiff. Constructed of laminated birch with a massive MDF baffle and rear panel, the enclosure is non-resonant acoustically and mechanically.

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Field Recording Life After DAT

If the days of the DAT recorder — which revolutionized the art of field recording in late '80s — are numbered, as many believe, what will take its place?

Popular alternatives include flash cards, hard-disk recorders and laptops. Marantz, a company with an excellent track record in portable recorders, introduced the PMD690 — a stereo recorder with a Type III PC Card slot, compatible with both compact flash and ATA-size PC Cards and IBM MicroDrives. The Denon DN-F20R compact flash card field recorder is another exciting new product on the market. First-generation PC card recorders such as these serve as excellent options for the radio, TV broadcast and film markets, where the majority of individual recordings are relatively short in length.

Recently, new laptop computer-based products have been developed to satisfy the growing needs of field recording engineers. Two-channel solutions like the Sound Devices USBPre1.5 and the Grace Design Lunatec V3 are both proven, high-quality audio interfaces. For more advanced applications, there is the Metric Halo Mobile I/O 2882+DSP — an 8-channel, FireWire®-based multi-format audio I/O which is fully modular and interoperable, and when chained together, the overall system will run up to 128 total channels of 96k audio. Designed to provide on-board low-latency signal processing for seamless foldback mixing in tracking, the Mobile I/O provides engineers with unsurpassed flexibility and real time control in the field.

Another viable alternative is the Zaxcom Deva II — a beefier version of the world's first portable 4-channel 24-bit uncompressed hard disk recorder. The Deva II is loaded with upgraded software, a triple redundant directory structure and an improved mic preamp. Clearly, removable hard-drive recorders and laptop computers represent the future for audio engineers interested in utilizing high-resolution formats for extended recording sessions in the field. Look for more articles on laptop recording in upcoming issues of Dale eNews.

Console Comeback?

Over the past few years, small to medium format consoles have been overshadowed by the all-encompassing DAWs available today. Recently, however, we have seen a resurgence of interest in consoles. This is due in part to advances in technology and users discovering the limitations of a DAW as a standalone solution. Consider a desk like Yamaha's DM2000, Sony's DMX R100 or perhaps the Tascam DM24. With digital dynamics and EQ on every channel, a user can save a ton of DSP power in their DAW for other processes, virtual instruments, or sheer track count. In addition, these desks provide a tactile work surface, whether for use as a console or controller. And thanks to their inserts and flexible routing matrix, you can now easily insert all of your old (or new) outboard gear on your mixes again. Analog consoles need not be left out in the cold. Although they may lack the processing power of digital desks, they are free of latency constraints and can offer signal routing flexibility that may offset the price of larger I/O for your DAW. Nothing says, "This is a legit studio" like a console. Just about everyone has a computer, but many feel a console differentiates the pros from the enthusiasts (or something like that). If you have been missing that large, impressive piece of gear in your room, the interaction of signals as they sum in an analog or high-quality digital board, or just the look of lots of buttons, knobs, and faders, start thinking about a console. Of course, this very brief overview just scratches the surface regarding your choices and trade-offs. Give us a call, and we'll be happy to help you sort things out.

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The Chieftains and Friends

Irish Folk Meets Appalachia in DVD/PBS Tribute

By Heather Johnson

PHOTO: RANAV SEGEV

Members of The Chieftains (left to right): Matt Molloy, flute; Kevin Conneff, bodhran; Paddy Moloney, tin whistle; Seán Keane, fiddle; and John Pilztzke, fiddle and dancer.

According to The Chieftains frontman Paddy Moloney, the musical lineage of Appalachia's bluegrass and Ireland's "green grass" sprouts from the same fertile soil. Last fall, Moloney proved his theory at the historic Ryman Auditorium, where a stellar cast of country and bluegrass artists joined the Grammy Award-winning Celtic group to perform songs from *Down the Old Plank Road: The Nashville Sessions*, a two-volume collaborative on RCA Victor.

A two-hour DVD release and one-hour PBS television special—both featuring concert footage, interview clips and video from the recording sessions—will reach the public this month, in conjunction with The Chieftains' 40th anniversary and 41st career album. The Ryman concert prepped the band for their 41st world tour, which began in January.

Sadly, the live event also marked the final performance of Chieftains harpist Derek Bell, who died from unknown causes just two weeks later. "His passing will leave a silence that will never be filled," The Chieftains said collectively in a recent statement.

TEC Award-winning broadcast engineer Marc Repp recorded the sold-out concert from the MTV Networks Digital Audio Truck, an impressive mobile unit that houses a 96-input AMS Neve Capricorn digital audio console. As the sound producer, Repp supervised all aspects of recording, mixing and post-production for an event that included The Chieftains, a nine-piece house band (packed with A-list session players such as keyboardist Matt Rollings, dobro whiz Jerry Douglas, drummer Shannon Forrest, banjo player Jim Mills, fiddler Stuart Duncan and guitarist Bryan Sutton, among others), three sets of dancers and 15 guest artists.

To avoid a potential miking nightmare, Repp planned ahead. "Basically, we set up the show with enough mics so that people could walk on and off anytime," he says. "As we got further into rehearsal, the director wanted to take mics off of the stage as needed, just to keep their shots clear. So, we started setting and resetting those, but we could have done it without moving a single microphone."

The "forest of mics" included an assortment of Neumann KM140s, Shure KSM 32s and KSM 44s, Sennheiser 416s, and AKG 535s, 419s and 409s. Repp used Audio-Technica 35s for fiddles and snare, Shure SM 57s on the banjo and a set of SM 58s for the vocalists. "I find that they sound good on a wide range of voices," Repp says. "There are some great-sounding vocal mics out there, but since we had such a wide range of people coming and going, and because The Chieftains were already using them in their band, I chose the SM 58."

Repp reserved one brand-new SM 58 for lead vocalist and narrator Moloney, and placed four more across the front of the stage for guests such as Emmylou Harris, Alison Krauss, Patty Griffin, Martina McBride, John Hiatt, Gillian Welch and David Rawlings, Buddy and Julie Miller, and bluegrass wizards Del McCoury, Tim O'Brien, Jerry Douglas, Earl Scruggs, Jeff White and Ricky Skaggs. Chieftains bodhrán player Kevin Conneff and acoustic guitarist Jeff White also sang through SM 58s.

"It was the weirdest conglomeration of microphones for a live TV show that I've used in a while," says monitoring engineer Chuck Davis, adding that it was mostly due to the addition of Uilleann pipes, harp, tiompán, accordion, tin whistle and other atypical instruments. "There's only a couple of ways you can mike them. Also, The Chieftains have been doing this for 40 years, and they're used to having their mics a certain way."

Moloney confirms: "For 40 years, we've been doing our normal show. Technically, I always thought the best sound for the band for TV or radio was these two microphones hanging above the theater like in the old days."

The individual miking strategy presented an odd challenge for the engineers. "We had a rundown of who played on what songs, but many times, I'd look up and Stuart Duncan, for example, wouldn't be listed for a certain song, but there he'd be," Repp says. "So, to avoid getting into a problem, I just left everything up all of the time, so if they came or went, the mics were always there."

Davis experienced similar challenges in the monitor mix. Erick Jaskowiak, who

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N*Sync on DVD

A Pop Odyssey in 5.1

By David John Farinella

As if the N*Sync calendar wasn't full enough—four albums in five years, a run of stadium tours and appearances at the Olympics, the Super Bowl and World Cup—the band recently hit movie and television screens across the world. *Pop Odyssey*, a DVD that evolved into a European television broadcast, was recently released in a new chain of digital movie theaters. The project kept bandmember JC Chasez and live sound mixer Tim Miller busy for nearly five months.

"I felt like we were doing the Fleetwood Mac thing without the drugs, when it took them four years to do a record," Miller jokes. "But it was always something that needed to be done, and we couldn't do it half-assed. One of the big reasons N*Sync is successful is because whenever they've had a chance to make the right decision or not make the right decision, they always make the right decision. They always do the right thing."

*From left: Glenn Kiser, Joey Fotone of N*Sync, Leslie Ann Jones and JC Chasez.*

For the *Pop Odyssey* DVD, television broadcast and digital theater release, that meant doing a lot of right things in a row. After recording the band's show at the Superdome in New Orleans (which was part of the biggest tour in history with 91 trucks, 320 crew members and 65 stadium shows), Miller and crew hopped over to Ideas Studios in Florida to perform a handful of vocal overdubs and then sent all of the tapes (that included the original tracks on 1-inch and Tascam DA-88s, as well as the overdubs and a reference mix on Pro Tools) to Skywalker Sound. Once the material arrived at Skywalker, it was dumped into Pro Tools, which served as the playback source.

According to Leslie Ann Jones, Skywalker's director of scoring, playback and mixing to Pro Tools seemed to make the most sense. "They really undertook an amazing amount of work," she says. "They had many different mixes to do, because these particular projects that they were on were going to be released on so many different formats. They ended up mixing mostly to Pro Tools; that way, they could overlay audience and things like that. As their time on the scoring stage went on, their needs became clear for all of these different formats."

Miller and Chasez start the video-mixing sessions by getting a rough layout of how the tracks come together. "We'll start mixing something together, maybe the first two songs, to get a vibe. Then I'll say, 'All right, you sit with this for an hour, and then I'll come in and get you and we'll talk about it at that point,'" Chasez explains. "Then we start tag-teaming it after the first two songs. That way, our ears stay fresh."

The first mix that Miller and Chasez tackled in Skywalker's scoring room was the stereo mix for the European television broadcast, which they completed on a Neve VXS console. "After mixing live sound for 20 years, it was really cool to have the feel of the Neve and do a true stereo mix," Miller recalls. "At the same time, you kind of forget—what with all of the keyboards and the sequencers—how fast the show moves. There's a lot of moves, and the desk was built in the '70s without automation, so it was a lot of work."

Yet the stereo mix laid the groundwork for the 5.1 DVD and digital theater mix, the part of the project that really excited the team. "It was a whole different thought in mixing, because when you're mixing in stereo, you're doing more EQ, more effects, and [there's] a much different thought in layering your sound and how you're spotting your things into your mix and making it all fit," Miller says. "It's easier with N*Sync, because you hear it night after night. But then there are all of the little nuances of the music that you have to make sure they sound out. That's where JC becomes a huge part of this because JC is a real talent."

The 5.1 mixes were performed at Skywalker's Mix E room, which boasts a Euphonix System 5 console. To be sure, Chasez had fun with the extra channels of audio. "You can do so many cool things," he says. "You can move effects—a lot of the explosions start running around your head. But the toughest part about it is the placement in the 5.1 mix, because you want to take advantage of how wide it is; you don't want to put everything in the front and just the crowd noise in the back. So, we'll keep the kick and snare in the front stereo and then we'll have the percussion coming from behind you. It's wild, yet it all blends.

"We mix it as if you are sitting in the crowd, so [there's] a bit of it all around

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Reading Film Sound

The Best Books on History, Technology and Practice

By Larry Blake

The reasons that I write about film sound and that I work in film sound are pretty much one and the same. In fact, I can trace both back to one fateful trip to the magazine rack back in 1972, my senior year in high school.

I had just gotten off of work at the A&P grocery store on Robert E. Lee Boulevard in New Orleans on a fall Friday night, and I started reading an article in *Esquire* on the making of *Citizen Kane*, written by director Peter Bogdanovich. His first-hand knowledge of *Kane* and director Orson Welles, and of the filmmaking process in general, made me want to see movies, read about movies, write about movies and, yes, make them.

It's an old story, and I won't bore faithful readers with the dance mix version again, but my career in film sound began (22 years ago) by writing about it for the late, lamented *Recording Engineer/Producer* magazine. The primary reason I parked myself in front of my Royal manual typewriter in those days was because I was eager to learn about the art and craft of film sound. I really wasn't thinking of having a career in the field; that sort of just...happened.

Of course, my education still continues, although these days, it's primarily sourced from my work in post-production sound. I still buy every book remotely concerned with film sound, because there's something to be learned from each one. (Well, there are exceptions; read on.) Internet and DVDs be damned, I believe that books remain the best value to learn about any field.

If you're looking for the best source of knowledge and inspiration between two covers, you have only one choice: David Lewis Yewdall's *Practical Art of Motion Picture Sound*. Yewdall goes back and forth between step-by-step explanation of every part of the craft and reminisces on his career, all the while never forgetting the end product—the art. His thoroughness comes from his decades of work in the trenches as a sound editor.

One of the many charms of Yewdall's book is its detailed coverage on many aspects of film sound that will soon become arcane, such as how to label and leader mag tracks. My stating this is somewhat ironic, because I am a noted magphobe: I am trying my best to make mag film extinct except for extracting 24-bit files from yesterday's fullcoats. Nevertheless, I feel sorry for the next generation of sound and picture editors who might never have the chance to understand what preceded hard drives and computers.

It's too simplistic just to praise Yewdall's documentation of the techniques and tricks that have evolved over the past few decades of making stereo movies. He gets to the heart of the lore, the feel—the *reality*—of the film sound community that I know and love.

There is primary and proper attention to the use of digital audio workstations in sound editorial, and he has a very good section on drive management and folder organization. The recording and organizing of sound effects, one of Yewdall's specialties, is covered in loving detail. (I'll have to cop to a minor

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"conflict of emotional interest" here: On page 139, you can see the handiwork of yours truly from his days in the sound library at Weddington Productions.)

My only complaint is the inexcusable omission of an index. I could go on and on about this book, so I'll just shut up and order you to buy and read it, whether you've got a few Oscars on your mantel or you are new to the field and think that R2-D2 is recorded live on the set.

The best overall *technical* introduction to film sound is Tomlinson Holman's *Sound for Film and Television (Second Edition)*. As one would expect from the developer of the THX Sound System, among many other achievements, this book has a comprehensive approach and features one of the best introductions to psychoacoustics that you'll read anywhere. The book in general (and there are many good examples of the creative side, too) would be well-suited as part of college courses on filmmaking. Again, this makes sense given Holman's recent employment at the University of Southern California film school. (By the way, both Yewdall and Holman's books make use of a supplemental CD that contains test material and demonstrations.)

Holman has also written *5.1 Surround Sound Up and Running*, which covers all aspects of surround sound: microphone position, speaker selection and calibration, recording and delivery. While the multichannel aspects of film sound are touched upon, I think its primary help is to music engineers exploring the world beyond two speakers.

This column doesn't deal with books on related topics, such as digital recording, film and video-picture editing, and filmmaking in general. The books covering those subjects merit a column each. I will make one exception, though, because the best book on the soul of film sound is not directly about film sound: Walter Murch's *In the Blink of an Eye*. While the book is putatively a meditation on the connective tissue between theory and reality in picture editing, almost all of the points that Murch makes can be related to the soundtrack, with very little lost in translation. Last year, Murch further explored picture editing in a collaboration with the author of *The English Patient*, Michael Ondaatje, in *The Conversations: Walter Murch and the Art of Editing Film*.

One of the most confusing and frustrating parts of sound post-production is timecode and synchronization. It's only getting worse with the oxymoronic proliferation of semi-professional *video* equipment in A-feature *film*making. Frame and sample rates are fluctuating seemingly in two directions at once. Thankfully, there are a few tomes out there that help make sense of the confusion and reduce the frustration.

The most comprehensive book on the subject is *Timecode: A User's Guide* by John Ratcliff. Every aspect and form of timecode is covered in detail: from how it's recorded on professional video machines to byzantine film footage/video timecode interface. This book is a must for any video post-production facility.

While Ratcliff's work contains as much data as can possibly be written, it falls a bit short in the practical-practical realm, a gap that is filled nicely by two books. *Using Timecode in the Reel World III* by Jim Tanenbaum and Manfred Klemme, with its emphasis on the Nagra, somewhat dates itself, although it indeed lives up to its "timecode applications manual" subtitle. The book is especially good in the all-important subjects of playback and film production. Again, while the Nagra may have fallen out of favor, the fundamentals never will.

> *Internet and DVDs be damned, I believe that books remain the best value to learn any field.*

Sync Sound With the New Media by Wolf Seeberg is an eccentric book, to say the least, but it is a treasure trove of information for those willing to wade through it. The book is part collection of useful tips on synchronization techniques and part sourcebook of manufacturer's information and posts on Internet newsgroups. Much of the data is dated (literally and figuratively), but nonetheless, I wouldn't want to tackle a sync problem on location without this book nearby. Seeberg has just written *24P for Sound and Video Assist*, diving into this brave new world of shooting film-style double-system in the video world.

Two slim volumes function as good, quick overviews to synchronization: *Time Code Primer*, written and edited by Steve Davis and published by SPARS, is a straightforward, practical introduction to timecode; and *Synchronization From Reel to Reel*, by Jeffrey Rona, pays special attention to the needs of MIDI and film music.

The subject of production recording is still woefully underwritten. My favorite, in spite of its being both out of date and out of print, is *Sound Recording for Motion Pictures* by Charles B. Frater. Come to think of it, the best writings on the art of production recording are in Yewdall's tome. Don't bother with the multitude of similar books on video sound published by Focal Press.

Some of you might perceive a glaring omission in this list: There are no academic treatises, nothing that tries to comb over the concept of theory onto the reality that is film sound. No anthologies of dissertations on the use of doors in early German sound films. My reason for this is quite simple: These books make me puke.

They are useless to both the viewer and the filmmaker; in fact, they are useless to all Homo sapiens save the few dozen academics worldwide who participate in the unique circle jerk that is academic study of film sound.

It has always mystified me how many of these papers are indeed devoted to the early days of film sound, when the mere act of getting sound in sync and onscreen was an achievement. While a certain part of their interest in that era is understandable—very few art forms have so clear a beginning—I never cease to be amazed by the degree to which they try to graft meaning where there is none to be had. What makes my blood boil is the language that this community has come up with to define (read: Suck the life out of) what I do for a living.

I'll spare you from any more of my bile on this subject. Read any of these books at your own risk.

There *are* a few collections of writings and interviews that will give you useful information. One of them, of course, is the anthology of *Mix* articles from the '90s titled *Sound for Picture* by my long-suffering editor, Tom Kenny. The recording, sound editing and re-recording of films such as *Titanic*, *The Doors* and *The Thin Red Line* (plus 15 others) are dealt with in great detail.

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The Chieftains

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also served as second engineer on The Chieftains' CD, assisted Davis during the concert. "I said, 'Your job tonight is to look at the house band, and whoever's not playing, mute them. If they're still muted when they walk back onstage, you're in trouble!'" he says jokingly. "That way, I could concentrate on the artists and The Chieftains and make sure that they were happy."

Davis worked from the Ryman's 48-input Soundcraft SM 16 monitor console, paired with six BSS FCS 920 Varicurve Stereo-Programmable EQs, a Yamaha SPX990 effects processor, two dbx 160A compressors and other effects. The 2,300-capacity venue also features 12 Clair Bros. 12 AM monitor wedges and an amp rack stocked with 13 Carver/Clair Bros. CBA-1000s.

"Kudos to Clair Brothers," Davis says of the 12 AM. "I don't think that there's a better wedge out there. In almost any instance, I can go up to an EQ, do what I need to do, and know it's going to be safe and loud. I don't think anybody said, 'Turn me up' all night." He did communicate with Chieftains engineer Mark Howard, who transmitted Moloney's requests.

From the top of the balcony, Howard manned the Ryman's 40-input Soundcraft Europa and an effects rack equipped with Yamaha and Lexicon processors and an assortment of dbx compressors, among other items.

Howard squeezed The Chieftains and house band onto 32 channels, leaving eight for guest vocalists and musicians. "Normally, we'll have a few extra players, but not a whole extra band," Howard says. "The mix is a lot denser with so many players onstage."

Howard generally mixes to please the live audience, but for this performance, the television and DVD mix became top priority. "I had to try to keep the volume down and have a consistent show," Howard says. "The Ryman's an interesting venue because everyone onstage hears so much of the house playing back. If it gets too loud in the house, it can really hurt the performers onstage."

Loud volumes didn't keep the artists from delivering virtually flawless performances across the board. Earl Scruggs received the first standing ovation for his rendition of "Sally Goodin"; Martina McBride nearly rattled the stained glass windows on "I'll Be All Smiles Tonight"; and Ricky Skaggs' exuberant performance of "Cindy," joined by the Opry Clog Dancers and the limber tap dancing Pilatzke brothers, had the house clapping their hands, stomping their feet and singing along to the traditional bluegrass tune.

The Chieftains appeared equally comfortable onstage, although Moloney admits to pre-show jitters. "TV can throw his rhythm off because people are changing mics in front of him, and he has to keep talking where he normally wouldn't," Howard says of the vocalist and tin whistle virtuoso. "It was a different vibe for them onstage, but in The Chieftains camp, we just treated it like a regular show."

PHOTO: RAHAV SEGEV

Gillian Welch and David Rawlings sing "Katie Dear."

The band also adjusted easily to the Ryman's acoustics. "The Ryman system was originally designed to enhance the acoustics of what's going on onstage," Ryman audio engineer Les Banks says. "But the band has to be sensitive to the room and not play like they do every day in a club or an arena. For those who get it, it works wonderfully."

The audience also helped enhance the sound quality. "Audio-wise, our biggest advantage was a full house," Banks says. "It's an audio person's dream to have a full house at the Ryman because it helps the acoustics. The Ryman was designed in the late 1800s for Reverend Sam Jones to be heard preachin' the gospel with no amplification."

The home of Jones' revivals became the "Mother Church of Country Music" in 1943 with the coming of the legendary Grand Ole Opry, which broadcast from the Ryman until 1974. After sitting vacant for 20 years, the Ryman was restored and became a nationally renowned, historically significant venue, hosting artists such as Sheryl Crow, Lyle Lovett, Wilco and Elvis Costello, along with country legends and seasonal Opry performances.

Artists of all genres revere the Ryman for both historic and sonic reasons. "Acoustically, it's the curved walls," Banks says of the venue's superior sound. "If you're facing the audience, all of the curved walls are bouncing your voice right back to you, which is great for acoustics, but it gets in the way when you over-amplify with electric instruments. The lower you play, the better you sound, because if you over-excite the room with too much amplification, it just starts bouncing all over the place. And the ghosts of the Ryman don't like that."

GATHERING FOR POST

The spirit-friendly Chieftains performance was captured by MTV Networks' AMS Neve Capricorn and an array of effects processors, including the TC Electronic M5000. "I used it to do more ambient settings, and got a real nice, intimate room sound," Repp says. He recorded to the Studer D827 digital 48-track, as well as a set of Tascam DA-88s. One DA-88 included nothing but six tracks of audience stems for the forthcoming 5.1 mix.

To properly record the audience, Repp placed four mics at the front of the stage, a stereo mic in the middle of the main floor and two widespread mics at the back of the main floor. Audience tracks were then mixed in stereo for the TV broadcast. "For the 5.1 mix, we'll separate them out for front, center and back to give the depth of the room, and we'll wrap some of the extreme stereo-left and right stuff around the sides," he says.

Repp mixed the concert to broadcast standards on the truck's Capricorn, utilizing the mobile studio's Genelec monitoring system, AMS Neve 33609 stereo limiter/compressors, Empirical Labs EL8 limiter/compressors and TC Electronic effects processors and delays. After mixing down to Tascam DA-88, Repp brought material to Digital Audio Post, where he supervised the final DVD mix and post-production process.

Located in Emerald Entertainment's "Building 2" (formerly Masterfonics),

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Digital Audio Post features the Pro Tools 24 MIXPlus, the accompanying Pro Control and two Yamaha 02R digital consoles with full dynamic automation and recall. The facility, expanded and remodeled in 1999, is also equipped for 5.1 AC-3 and playback formats that include AES, TDIF, ADAT and analog.

D.A.P. owner Michael Davis served as audio sweetening and post-production mixer on The Chieftains project. Davis "batch-digitized" the DA-88s in Pro Tools with Digidesign's Postconform program. "Postconform looks at the edit-decision list that video house generates, and finds all of the appropriate pieces of the mix and ambiences on the DA-88. It loads those in and pastes them into place, so that my timeline looks exactly like the video edit," Davis explains.

Postconform then created eight tracks that sync to the video footage. Additional documentary audio and voice-over parts, sent via OMF files, were added in prior to the sweetening process—a fairly basic procedure for this concert. "We added additional applause as a way to smooth across the edits," Davis days. "We made sure that the tracks are consistent and have good beginnings and endings."

The process was modified slightly in anticipation of a DVD mix. "We have to be sure that we do sweetening across all six channels so that the applause is proportionate when we pull all of those channels into surround."

Broadcast engineer Marc Repp

Davis made slight EQ adjustments to the stereo mix during the re-recording process. The veteran engineer also mixed the project for DVD, aided by the Martinsound Multimax Surround Monitoring System. "We don't usually try to do anything really racy as far as panning individual instruments," Davis says of the 5.1 mix, designed to mimic sitting in the middle of the live audience. "We left the stereo mix in the front speakers, then took the ambient speakers and spread them across the front to the rear. Then we took the mics from the back of the room and sent them to the back speakers; the same for the center and the front."

Surround stems were routed through the 02R, dubbed off to six channels of DA-88 and sent to a local DVD authoring house. Mixes for the television special were recorded onto CD and sent to Music City Digital for the last round of video editing.

Whether they know it or not, the engineering and production crew recorded more than just a concert and television special to promote *Down the Old Plank Road*. They helped provide a glimpse into the rich history of Celtic and roots music, both of which grew out of back-porch pickin' parties and spirited family celebrations. Through their final performance with Bell, The Chieftains and their über-talented guest list show us that the only thing that really separates the music and traditions of Ireland and America is one large body of water.

MIX ONLINE EXTRAS

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N*SYNC

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you," he continues. "That's the one part that gets tough to mix, and that's what makes you take the extra time. But we feel like it's worth it, because we want you to feel like you're actually in the crowd, not just watching a DVD at home. We want you to feel like there's three or four people standing in front of you making noise, as well." There are certain pitfalls to that approach, Chasez allows, such as how to blend a screaming fan in the same channel as a guitar. "You have to bring the guitar up a little bit more, because the crowd noise will disguise and camouflage some of the sounds," he answers. "You have to mix around that, as well. Usually the people that listen to the stuff that we mix feel like they're not just watching a concert, they feel like they're sitting in the concert; it's more of a live experience."

Once they left Skywalker, both Chasez and Miller believed that the sessions were done. Yet, there was a major problem with the digital theater release that Chasez didn't realize until he heard it in a theater. "When we heard it in that room, I called up Tim on the way out and I said, 'Dude, I don't know what happened, but that's not how it sounded when it left there,'" Chasez recalls. "'It's scaring the crap out of me. I know we didn't do this.'"

It turns out that the digital theaters had pulled the standard crossovers and added their own audio systems. As Miller explains it, the bottom end was "mushy. They had taken the processing and the crossovers out of the amp racks, so everything was just going full bandwidth." The easy solution was to go back to the stem mixes, cross over the subs and then clean up some of the aural clutter. "I had the audience too far forward in the 5.1 spectrum, so what I did was move the audience stems more to the rear of the mix," Miller says. "The combination of those two things just made it click."

The perfectionist in Chasez was relieved. "I was freaking out, because I know that there was no way in creation that I would have left it sounding like that," he says. "We came to find out it was a technical problem, and when I heard the mix put back together that fast, it sounded great."

Even as the band are taking a bit of a sabbatical, the Miller-Chasez team are heading back into the studio to mix the DVD based on N*Sync's latest *Celebrity* tour.

MIX ONLINE EXTRAS

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Get a clue.

Scoring mixer/producer Tim Boyle's credits include Terminator II, Scream I, Ace Ventura Pet Detective, I Spy, The Addams Family, South Park (the feature) and The Touch (first English language Chinese film.

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MACKIE.

BY OLIVER MASCIAROTTE

Double Your Bits, Double Your Fun

Better Arithmetic for Improved Digital Audio Gain Staging

ILLUSTRATION: MAE LAROBIS

If you own a digital desk, either in hardware or software, then you routinely throw away from two to eight bits of your hard-earned 24. As I asked last month, should you care? Not really, because you can't do anything about it. But you can work smarter within the constraints imposed by necessity. This time around, we're gonna take a look at one of the most basic questions a budding audio novice asks: "Mommy, why do we need 24 bits when our hearing's only 20?"

Let's start with young Elizabeth's question. Her mom has told her time and again that her hearing has a range of about 120 decibels from the quietest perceptible sound to the "threshold of pain," the loudest sound pressure tolerable before instantaneous hearing damage occurs. Even though—when considering our hearing's dynamic range—we are talking about sound-pressure level, we can still use the same ratio measuring system—the decibel or dB—to measure the dynamic range represented by AES data. Twenty bits' worth of dynamic range is about 120 dB, as each PCM bit represents about 6 dB of amplitude. So, young Liz has nailed the number, and to answer her question, we need to look at gain staging: juggling

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- Additional user selectable high frequency filter (+2dB boost @ 10kHz to 20kHz) has been added to allow further tweaking of the monitor to individual tastes.
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- **PETER HAMILTON**, Producer, engineer.

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gain through a complex system to maximize resulting dynamic range and minimize accumulated noise.

Okay, think about this: Take two signals—acoustic, analog or digital—and add them together. The resulting mix is usually louder, though there are exceptions. Take that concept and apply it not only to mixing, but EQ'ing and processing, and you can see that, without a bit of forethought on the part of a system designer or engineer, the final gain will either not take advantage of the dynamic range available in the system or will quickly overload some bus. Too little or too much, neither is good, and usually the problem leans toward too much signal and not enough dynamic range in which to fit it.

So, how does a designer deal with this dilemma? Well, remember earlier when I said that a PCM bit encodes about 6 dB of dynamic range? Looking at that from another angle, you can think of dynamic range as being expressed as word length: A word length of 16 bits encodes roughly 16 times 6 dB, or 96 dB of dynamic range; and a 20-bit word encodes about 120 dB. The AES/EBU protocol can carry a 24-bit essence, enough for a solid 20 bits of signal (thank you, young Elizabeth), plus four additional low-level bits generated by processing.

Now that we're past the basics, let's look at one of the most overlooked features of better-quality digital audio geegaws and the whole point of this month's column. A bonus for the discriminating buyer and a boon to those who value retention of low-amplitude detail, double-precision calculations are one of the keys to better bits. Double-precision is akin to the American Way: If some is good, more is better. Most products use single-precision arithmetic, though, if you dig a bit (yuk yuk), you find a few pearls in among the swine. Double-precision fixed-point would employ two times 24, or a 48-bit word length; double-precision floating-point would use a two times 32, or 64-bit mantissa. Twice as many bits allows low-amplitude details to be retained rather than lost to rounding or truncation. Low-amplitude signal retention is one area where a DSP programmer distinguishes him or herself, as I feel this is a key differentiation between truly professional products.

So, how do twice as many bits help retain subtle details in your material? Here's an example: Take two numbers, representing the instantaneous amplitude of signal and some amount of gain change being applied to that signal:

0.92 [original signal amplitude] x 0.707 [negative gain] = 0.65044 [resultant signal amplitude after gain change].

Notice that the result of multiplying those numbers produces a new number with many more digits than what we started with. Think of how many gain changes—which includes panning, EQ and mixing—occur during the course of a typical project, and you'll get some idea of how 24-fixed or 32-floating bits can get "filled up" rather quickly. Those low-order bits, say the 22nd through 24th, carry low-amplitude detail in the data.

Another example—basic gain staging in a digital mixer—should drive the point home. When two or more signals are summed or mixed, the result is usually louder than either source. The table below shows a chart of the amount of "padding," as it was called in the analog days, or negative gain needed vs. the number of channels being mixed in order to prevent overload in the downstream mix bus.

Looking at those numbers, it's plain to see that with 144 channels to mix, a whopping 8 bits of gain reduction must be applied to each input channel prior to mixing. Those eight lower-order bits, the quietest stuff, must be handled in one of four ways: truncated or tossed away, the cheese-ball approach; rounded up or down to the nearest integer, a better method; re-dithered and wordlength-reduced, better still; or stored as double-precision.

Storing the data as double-precision retains most of the low-amplitude detail and postpones the inevitable wordlength reduction until the end of the production cycle. However, understand that there isn't a standard for double-precision data interchange between products, so files and AES/EBU output both end up as single-precision between processing islands in the production chain. Still, a few host-based DAWs, such as AudioCube and Sonar XL, have double-precision modes, while SonicStudio HD, a hardware-based DAW, is fully double-precision throughout. The Cakewalk folks at Twelve Tone Systems advertise Sonar XL as having "all of the capabilities of Sonar, plus two 64-bit, fully automatable DirectX 8 mastering effects." Notice the mention of "64-bit," which indicates that the plug-ins are double-precision floating-point. My guess is that more gear will join this elite list as vendors attempt to differentiate their offerings based on quality rather than price.

I hope that this month's rant hasn't caused your head to rotate at too high a speed and has helped you to understand why some gear sounds like crap at any setting except 11. Hopefully, it will also aid you in making more informed decisions when you need to choose or expand your technology base in days to come.

MIX ONLINE EXTRAS

This column was written while under the influence of the original quadraphonic version of Mike Oldfield's Tubular Bells. *For a downloadable spreadsheet of the table, along with lots of hand-tooled links and useful information, head on over to www.seneschal.net.*

GAIN STAGING FOR DIGITAL MIXERS

NUMBER OF CHANNELS TO MIX	GAIN REDUCTION IN DB PER CHANNEL	Δ
4	2	–
8	3	4
16	4	8
24	5	8
32	5	8
48	6	16
64	6	16
80	7	16
112	7	32
144	8	32
176	8	32
240	8	64
304	9	64

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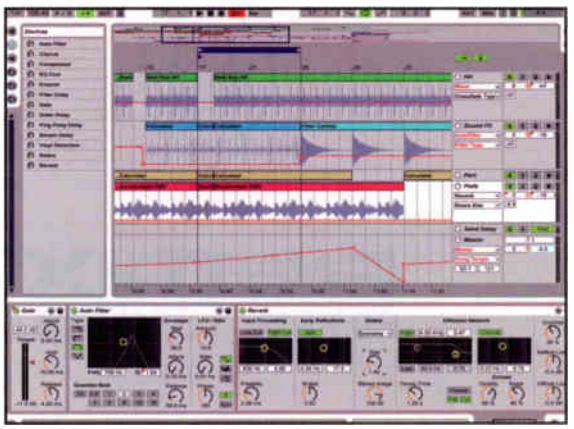
Tools of the Trade

M-AUDIO RADIUM

M-Audio's (www.m-audio.com) Radium USB MIDI controller combines USB/MIDI interfacing, a 61-note keyboard with eight MIDI-assignable knobs and eight MIDI-assignable sliders (for real-time control of any 16 MIDI parameters within software programs). Five user-preset banks extend this control to 80 MIDI parameters. Two MIDI Outs send data to external gear: one from the keyboard and one from the computer. Also standard are pitch and mod wheels and octave-up/down keys that extend the 5-octave keyboard's range. The unit is powered via the USB port or via a 9-volt DC power supply for stand-alone operation. MSRP: $299.

PRESONUS TUBEPRE

PreSonus' (www.presonus.com) TubePRE single-channel mic/instrument preamp has a transformerless 12AX7 tube circuit and can be used as a preamp/front end, direct box or in a side effects chain. The dual-servo gain stage is capacitor-free for low-noise performance and wider dynamics. Specs include a 10-80k Hz response, 94dBu noise floor and >90dB signal-to-noise. In addition to a +40dB rotary gain control and +20dB overdrive circuit, the TubePRE has a backlit VU meter, and switches for pad, polarity reverse, -20dB pad, 80Hz low-cut filter and 48VDC phantom power. I/Os are balanced XLR and unbalanced ¼-inch.



ABLETON LIVE 2.0

A major upgrade to Ableton's (www.ableton.com) sequencing instrument for Mac OS 9/OS X and Windows, LIVE 2.0 introduces Elastic Audio. This feature allows tempos to be set anytime during recording, performance or playback, and users can drop-in recordings, loops and complete songs, which will play in sync, direct from disc. In addition, time-stretching can be applied to any audio material, not just loops; time-stretching algorithms have been optimized for rhythmic and melodic material. LIVE 2.0's new Arranger view is a full-blown multitrack recording/editing suite with real-time effects, dynamic parameter automation and unlimited undo. Also new are advanced automation handling, DJ-style crossfading and more. List is $399.

TC ELECTRONIC POWERCORE UPDATE

TC Electronic (www.tcelectronic.com) is giving away the 24/7-C, a plug-in designed to provide vintage compression and limiting for its PowerCore card. Available as a free download to all registered PowerCore users, this remodeled classic dynamics processor was inspired by a vintage processor and is designed to re-create the details of the sound. At least four (maximum of six mono) instances of 24/7-C can run on one of PowerCore's DSPs—up to a minimum of 16 on one card—without taxing the CPU. TC also added the new Classic Verb to the list of plug-ins already included with PowerCore, adding to the list that already features the virtual Finalizer Master X3 and the mono-synth PowerCore 01.

TLA DUAL-TUBE PROCESSOR

The 5052 Dual-Tube Processor from TL Audio (dist. by HHB, www.hhbusa.com), the latest Ivory 2 Series of processor, provides two channel strips, each with a tube preamp stage, tube compressor, 4-band EQ and a peak optical output limiter. The preamp accepts mic, line and DI inputs with variable input gain, 90Hz filter, 30dB pad and phase reverse. The tube compressor is hard/soft-knee switchable, and all parameters are variable. The pre/post-compressor-switchable EQ section has full parametric mid bands, and the LF/HF bands are selectable to shelv-

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ing. Balanced and unbalanced I/O, balanced inserts and compressor sidechain inserts are standard. A 24-bit, 44.1/48kHz digital output is optional.

SM 8-CHANNEL MIC PRE

SM Pro Audio's (www.smproaudio.com) PR8MKII multichannel microphone preamp is a two-rackspace unit with eight discrete mic pre's and an optional ADAT Lightpipe output. Other features include 20dB pad, 48V phantom power and phase reverse on every channel, and eight analog XLR balanced inputs and outputs. List: $399.

SPL HEADAMP 4

Originally designed and built for selected dealers in Germany, the HeadAmp 4 from SPL (www.spl-usa.com) is a high-quality, Class-A headphone amp/distribution system for studio and live use. The 4-channel, single-rackspace unit features four independent headphone outputs with stereo/mono and left (or right) channel-only modes, daisy-chaining connector to link multiple HeadAmp 4s, an internal power supply and a $249 MSRP.

ADK A-48 VINTAGE VALVE

ADK Microphones' (www.adkmic.com) A-48 Vintage Valve is a studio condenser mic with a transverse-mounted 12AX7 tube and 1.07-inch diameter, 5-micron, gold-sputtered diaphragm. Nine polar patterns are remotely variable from the outboard power supply. The $1,295 price includes PS, multipin cable, shockmount and flight case.

SUMMIT MIC/LINE MODULE

Summit Audio (www.summitaudio.com) is now shipping the 2BA-221 tube mic and line preamplifier. The 2BA-221 features swept highpass filter, multiple simultaneous tube and solid-state outs, insert jack and internal power supply, plus continuously variable microphone impedance from 100 ohms to 10k ohms and separately controlled hi-Z/line and microphone inputs. The unit also offers XLR and ¼-inch ins/outs and three variable, independent gain stages. In addition, users can stack inputs linking multiple 2BA-221s to perform as a mixing device. Retail: $695, with three-year warranty.

PSP 84 PLUG-IN

PSP (www.PSPaudioware.com) introduces the big brother of its Lexicon PSP 42 software emulation of the legendary Lexicon PCM42. Available for VST and DirectX for PC and VST for Mac, the new PSP 84 plug-in can produce a wide variety of delay-based effects, with two independent delays operating with variable sampling rate and a tape-saturation algorithm with adjustable gain; a filtration section with three second-order, switchable resonant filter types, five LFO waveforms synchronized to the sequencer tempo or envelope PSP follower; and a vintage Reverb mode to simulate spring and plate reverb characteristics. The PSP 84 offers support for sampling rates of up to 192 kHz, MIDI and VST automation of all parameters, and Logic Control.

SONIC PLANTDIRECT DVD MODULE

Sonic Solutions (www.sonic.com) is shipping PlantDirect technology to deliver DVD-title masters to replication facilities over the Internet. PlantDirect is an add-on software module for the Sonic ROM Formatter DVD-formatting application. Previously, professional DVD authors were required to use expensive Digital Linear Tape (DLT) storage drives and media to deliver DVD masters through standard shipping methods to the plant. By eliminating the DLT step, PlantDirect speeds the process by allowing finished masters to be delivered electronically.

BEHRINGER B-2 PRO CONDENSER

The Behringer (www.behringer.com) B-2 PRO condenser mic has a 1-inch, gold-sputtered dual-diaphragm capsule, with selectable cardioid/omni/figure-8 patterns, low-cut filter and -10dB pad. The mic boasts low-noise transformerless FET circuitry, a 20-20k Hz response and 149dB max SPL. The $189.99 retail includes case, suspension mount and windscreen.

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DISC MAKERS MICROELITE PRO

The 48x EliteMicro automated CD/DVD duplication system from Disc Makers (www.discmakers.com) copies at least 20 CD-Rs or two DVD-Rs per hour. The stand-alone unit has a compact 8.5x11-inch footprint, can be easily connected to any PC (Windows XP or 2000 required) via a FireWire card and cable. The EliteMicro includes Padus DiscJuggler software, and I/O bins can hold up to 50 discs for greater unattended duplication capacity. The CD-R version retails for $1,590, and the DVD-R version is $1,990. Units are also available with an onboard Autograph IV 1200 dpi inkjet printer, but connects to any Primera inkjet printer.

COOL BREEZE CUBASE SX TUTORIAL

New from Cool Breeze Systems (www.coolbreezesys.com) is the *CSi Vol. 7* tutorial CD-ROM. *CSi Vol. 7* covers key operational techniques and new features in Steinberg's Cubase SX workstation. The CD-ROM features the new Movie Tutorial interface, with more than four hours of movie tutorials; a 1,200 term glossary is also included. Mac and Windows shortcuts and key commands are covered, and built-in quizzing tests your progress. Online lessons and movies are also available at www.CoolSchoolOnline.com.

SILENCE CASES FOR QUIET PCS

Designed to lower computer noise, enclosures from Silence Cases (www.elias-audio.net) are available in four standard models that accommodate one or two CPUs, with or without a 5-inch external drive bay. All feature sound-sealed front/rear doors and cable pass, an active sound-attenuating ventilation system with adjustable fan speed, internal acoustic foam, casters, natural wood finishes and a stated broadband attenuation spec of -24 dB. Pricing ranges from $429 to $559.

SAMSON S MINI PROCESSORS

Samson (www.samsontech.com) expands its S Mini line of portable audio processors. With an estimated $59 street price, S•Combine is a 2-to-1 mic combiner with two balanced XLR mic inputs, one balanced XLR mic output and an AC adapter included. S•Split (also $59) is a 1-in x 3-out transformer-isolated mic splitter, with one balanced XLR mic in and three balanced XLR mic outs. The $59 S•Phantom is a 2-channel 48 phantom power supply with AC adapter. For live/installed sound applications, the $149 S•2-Way is a two-way stereo/three-way mono signal-distribution unit offering 2 ms of delay for time alignment, mute and phase switches for each output and XLR balanced outs.

CELESTION HF DRIVERS

Celestion's (www.celestion.com) CDX1-1415 and CDX1-1425 are 1-inch compression drivers featuring Neodymium magnet structures and are light weight. The CDX1-1415 has a stated power rating of 20 watts, a 2-20 kHz response, 104dB sensitivity, 8-ohm impedance and weighs 8.81 ounces. The larger CDX1 has a 25-watt power rating, frequency range of 2-20 kHz, 108dB sensitivity, nominal impedance of 8 ohms and weighs 13.76 ounces.

STEINBERG VSL 2020 AUDIO CARD

Steinberg (www.steinberg.net) presents the VSL 2020, a digital audio card for transmission of multichannel 24-bit/96kHz audio and MIDI data with Cubase SX/SL and Nuendo systems within a VST network. Steinberg's new V-Stack software (see "Upgrades and Updates") is also included. Other features: 32 ADAT channels, two optical ADAT I/O with S/MUX support; S/PDIF I/O; unbalanced (-10dBV) stereo RCA I/O; SuperClock (FS 256) and Word-Clock I/O with BNC connector; and MIDI I/O. List price is $399.

DENON MP3/CD PLAYER

Denon (www.denon.com) introduces the DN-C615, its first professional MP3 player, a two-rackspace unit with CD-R/RW playback, ±12% pitch control and MP3 playback with intuitive folder/title search. Other features include Repeat and Random modes, 10 seconds of shockproof memory, and a preset, selectable Auto Cue. Playback mode is also preset, as well as selectable for single track or continuous play. User preset functions are available via an IR remote sensor or a wired remote-control terminal.

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If We Had To Pick One Word To Describe KRK's New E8T Monitor, It Would Be...

"More"

You're looking at a monitor that takes your mixes as seriously as you do. With its impeccable accuracy, technical superiority and remarkable imaging, the new E8T has all of the heart and soul of the legendary E8, only now, there's even more to get excited about. Like KRK's new Titanium Oxide dome tweeter for extraordinary high frequency detail and clarity. The high temperature voice coil and optimized venting alignment of the woofer gives you incredible bass extension and dynamics without compression. And, as far as power goes, the E8T has a 260 watt Class A A/B discreet bi-amp design with separate 24dB/octave filters and a delay for seamless driver integration and dispersion.

More you say? Okay, the E8T's high frequency attenuation control allows for perfect integration into a wide array of listening environments. An inert MDF enclosure with optimized geometry virtually eliminates diffraction and resonances. We even matched the driver and systems to within 1dB for imaging that is simply unparalleled.

More performance, more power, more of what you're looking for in a monitor. So, if you're serious about your mix, the E8T is seriously worth your investigation.

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PRIMERA BRAVO DISC PUBLISHER The Bravo duplicator from Primera (www.primera.com) is designed for automated production of up to 25 CDs or DVDs per job, with 48x CD-R recorder or optional Pioneer combo DVD-R/CD-R recorder. After recording, discs are printed at up to 2,400 dpi resolution in the integrated color printer. Bravo attaches to any PC running Windows 2000/XP through its built-in FireWire and USB interfaces; the unit also comes equipped with Prassi PrimoDVD 2.0 duplication software. Also included is SureThing CD Labeler Primera Edition software for graphic design. For Mac OS X users, Bravo comes equipped with Charismac Engineering's Discribe V. 5.0 duplication software, and users can design labels in graphic design programs such as Adobe's Illustrator and Photoshop, etc. and import them into the software. Two Bravo models are available: The Bravo CD Publisher with a 48x CD-R recorder is priced at $1,995; the Bravo DVD Publisher with a Pioneer DVD-R/CD-R recorder is priced at $2,495. (The DVD-R unit records DVD-Rs at 4x and CD-Rs at 16x.) An optional business card adapter kit copies and prints 80mm mini-discs, rounded "hockey rink" mini-discs and business card-shaped CDs.

UPGRADES AND UPDATES

Universal Audio (www.uaudio.com) released **three new versions of the SmartCode Pro** TDM plug-ins, all compatible with Digidesign Pro Tools|HD. The Surround Encoders for DTS and Dolby DVD have been upgraded along with the DTS CD version. Existing users can upgrade for $99...**FirstCom Music** (www.firstcom.com) announced an agreement with **Noise Pump Music** (NPM) to provide material for the FirstCom Music Library. The Noise Pump debuted in January with an initial 10 volumes, including New Jazz Incantation, Dramascore, Orchestral Phantasia, Jazz Misery in Twelve Bars and more...**Native Instruments** now offers **Absynth Sounds Vol. 1**—Sonic Expansion, featuring 256 new sounds. Go to www.ni-soundline.com for details...**Digidesign** announces the availability of **Mbox** on **Windows XP**, with Pro Tools LE 5.3.3. Pro Tools LE 5.3.3 also includes the Digidesign ASIO Driver for Mbox; visit www.digidesign.com for upgrade and purchase information...**Access Music** released a **130-page synth-programming tutorial**. Written by Howard Scarr, the book contains hundreds of tips and tricks to program a virtual analog synthesizer. Download your *free* copy at www.access-music.de...**Steinberg's V-Stack is a virtual 32-bit mixer and rack for up to 16 VST Instruments**, usable in stand-alone mode or in conjunction with other computers via VST System Link. V-Stack supports VST, VST 2.0 and DirectX. The software is available for $59 or as a download for $49 at www.steinberg.net. In other news, Steinberg and Wizoo introduce the **HALion String Edition** library. Visit www.steinberg.net to find out more... **Line 6's Amp Farm** now supports sample rates up to 96 kHz, and its sounds are now **available for the Pro Tools|HD platform**. Visit www.digidesign.com...**Neutrik's** (www.neutrik.com) **Speakon™ SPX Series amp/speaker connectors** are based on the NL4FC, and offer increased power handling, connection security and flexibility...**Elemental Audio's Firium, Eqium and Inspector plug-ins support Mac OS X**; demo versions of Firium and Eqium are available now, and the full version of Inspector is available *free* for a limited time. Check out www.elementalaudio.com for more information...**Belden Electronics Division** introduces a new addition to its Brilliance line: **Multimedia Touch Panel Control cable** for either analog or digital system controllers and all aspects of building-management applications such as PC, A/V and Internet integration. Visit www.belden.com...**Lynx Studio Technology** is now shipping two **LStream expansion cards** that increase the I/O capacity of the LynxTWO and L22 digital audio cards: The LS-AES and LS-ADAT provide multichannel AES/EBU and ADAT connectivity at sample rates up to 192 kHz; visit www.lynxstudio.com for specs...**Anwida released the L1V limiter/maximizer plug-in** for VST. Visit www.anwida.com...Mobility Electronics, developer of the **Magma** (www.magma.com) Series of PCI Expansion Systems, announced that the newest version of Apple Computer's **Mac OS X Operating System (Mac OS X Version 10.2.2 Jaguar) supports** MAGMA CardBus-to-PCI Expansion Systems...The third edition of ***In the Right Direction—A Beginner's Guide to Starting a Record Label*** is now available; visit www.FutureMix.biz...**Digigram** (www.digigram.com) is making available the **source code for its VX line** of professional sound cards under Open-Source licensing. ■

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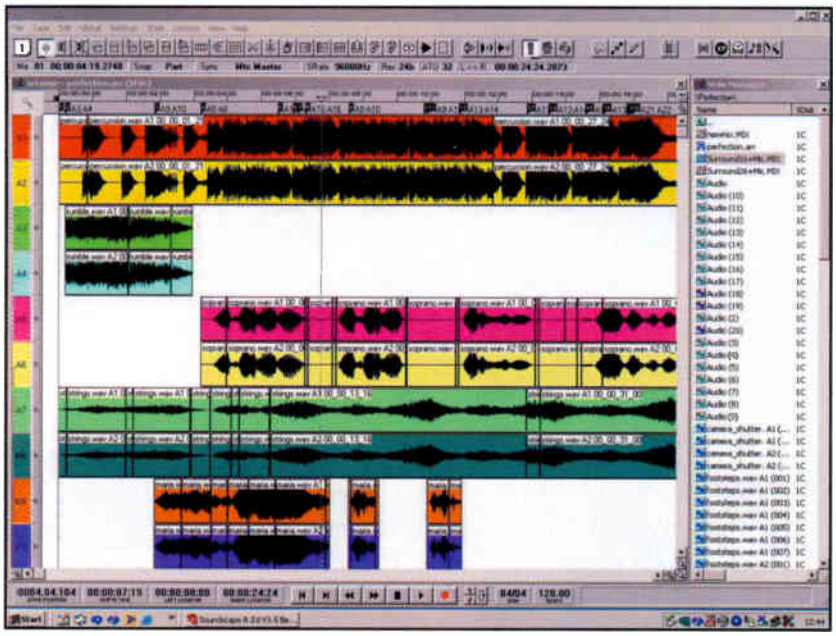
Soundscape-32 With Mixpander

Workstation and DSP Card



Soundscape is a 2U hardware-dedicated workstation that supports resolution up to 24-bit/96 kHz.

Soundscape has been in existence since 1993. Two years ago, Mackie purchased Sydec, Soundscape's Belgian parent, which meant higher visibility and more users on this side of the Atlantic. As a result, original Soundscape and Paris owners have, for a limited time, a $2,500 trade-in credit that can be applied to a new Soundscape-32 system.

I first reviewed Soundscape in 1994, and I purchased two systems (eight tracks each) and then upgraded both to 12 channels plus real-time effects. The fact that the system is still running on a *Pentium* and only last summer did software development—which had been running concurrently with Soundscape-32—reach the limit of the hardware is testimony to the system's foundation. Compared to that old hardware, Soundscape-32 adds eight tracks and higher resolution, *in half the rackspace,* with the familiar interface.

Soundscape-32 ($6,500 list) is a 2U hardware-dedicated workstation that supports resolution up to 96 kHz/24-bit. You might be fooled by its intuitive and uncluttered design, but Soundscape has an underlying power and flexibility that make even a modestly endowed PC rock 'n' roll. I've been mixing 24 tracks to 5.1 on original Soundscape hardware since 1998 on a system that is still a reliable performer. My focus for this review is the Mixpander DSP Card; it raises the bar on processing headroom, kinda like dropping a hydrogen-powered V-8 into a Volkswagen. So pop open the sunroof and transport yourself to the AutoStrada 'cause we're headed for Tuscany with the hammer down. (That's my fantasy; substitute as necessary.)

DOWN ON THE FARM

The ability to add DSP is not exclusive to Soundscape: Pro Tools has Farm cards, and companies like Mackie and Universal Audio (UAD-1) and TC Works (PowerCore) manufacture cards for native-based systems. Mixpander not only increases Soundscape's power, but it also opens 16 bidirectional portals into native programs like Cubase, Cool Edit Pro and GigaSampler. Unlike host-based software, Soundscape doesn't care about computer power; it can tolerate a computer crash and continue to play through it.

Within the system, latency is extremely low. Even with lots of processing, it's only up about a dozen samples at 44.1 kHz, translating to 0.27 milliseconds. When interfacing with host-based programs, Mixpander's driver contributes about 1.5 ms, going and coming.

Though I have experience with this product, not every new feature could be tested, so I tried something unusual: posting a message and a request for feedback on the Soundscape message board. Because a workstation can be many things to many people, I wanted to learn how the system is used and what features are important to users. One user mentioned that Spindelay's ASIO FX processor allows users to access a whole range of VST plug-ins; another reminded me of the integrated video player, which I tested.

MOVE THIS: IMPORT

Soundscape-32 can also import and export Pro Tools projects; while my testing was not comprehensive in this area, I learned that the PT session need to be saved on the Mac side with PC compatibility. The emphasis here is on the word "session," which includes the file that will restore all of the audio tracks to their proper location with whatever accompanying tweaks. The Import feature cannot read individual audio files unless they have been saved in a PC-compatible format like ".WAV"; although with some experimentation, I was able to do this with Cool Edit Pro. My request would be for Soundscape to make the Import feature more transparent, capable of opening both session and sound files from other programs, regardless of platform.

TESTING, 1, 2, 3

Software installation was fast and mostly easy. The program itself fits on two floppy discs, as do most of the plug-ins, although no floppies were actually used—everything was downloaded from the Net. The newly updated and released operations manual is the largest file; compiled from plenty of real-world experience, it's extremely detailed and comprehensive.

While it was unnecessary to run Soundscape on a dual-Celeron system, the pair of 21-inch monitors was the deciding factor: I find dual monitors a necessity for all workstations. (This is especially true for Soundscape, which has two primary windows: an Arrange window

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Soundscape-32 ships with a variety of plug-ins.

displaying audio tracks and automation, and a Mixer window with two modes, wide and narrow. A multitrack session mixer can easily fill a 16:9 monitor in either mode, a future upgrade for sure.)

Once the hardware was installed and happy, I formatted a new 60-gig drive the slow way. There is a quick-format mode, but I just wanted to see how long it would take. Let's just say that the process started before the sun went down and didn't finish before midnight. Meanwhile, I already had plenty of sessions on the old system, and *all* were within 3% of exhausting the available resources. Because the goal was to test Soundscape-32 with Mixpander, it seemed a practical place to start.

My old system consisted of two 12-channel boxes linked together. My habit of using only one drive per unit turned out to be quite serendipitous: The two drives slid into Soundscape-32 and mounted transparently. All of the project folders, sound files, arrangements (session files) and mixer files appeared in the File Manager window. Two clicks, and the tracks and mixer appeared; only the second set of 12 tracks needed to be reassigned at the mixer. I was quickly up and running.

IN SESSION

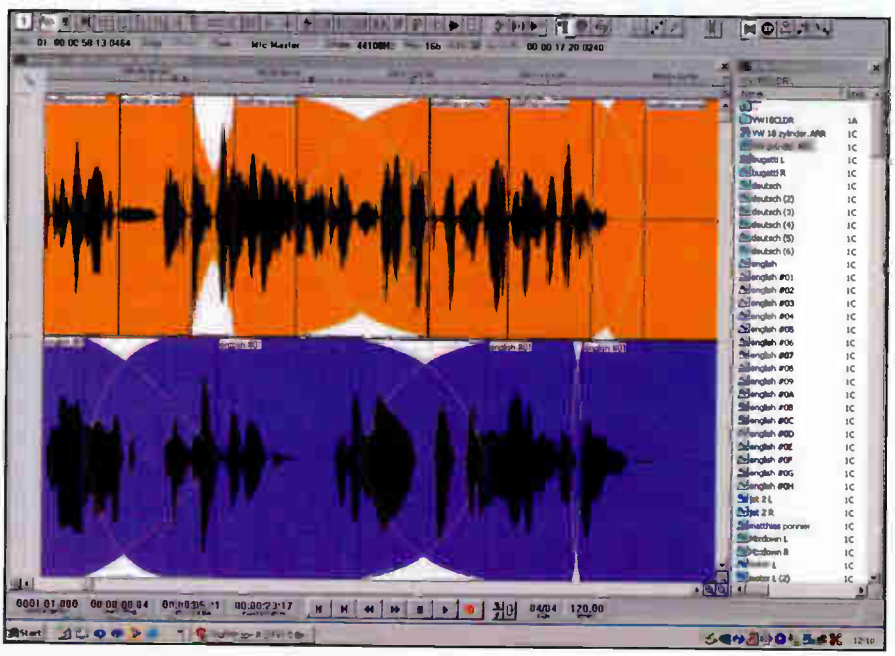
My recording project started life as a 24-track ADAT session. Out of necessity, I have become quite adept at conserving resources, sculpting wonderful 24-track to 5.1 and stereo mixes, albeit to outside recorders. Before, there was not enough "extra" DSP to add a single TC Dynamizer or a reverb during a 24-track mixdown. (I often "captured" reverb and saved multiband processing for the mastering stage.) With Soundscape-32 and Mixpander, I had a Dynamizer on the main mix, as well as a submix of the snare and room tracks. Two kick tracks and a bass were subgrouped and mildly peak-limited using the Soundscape dynamics processor, which I love for its visual translation of the work being done. The 4-band equalizer is not new, but is such an improvement over its 2-band predecessor in terms of sonics and features. The mix-in-progress was nowhere near tapping out the system, so reverbs, Dynamizers and EQs were randomly added everywhere. The system never ran out of gas, and I noticed resource optimization balanced the load on each DSP chip each time a new plug-in was added. I could become very spoiled.

With the exception of the initial hardware installation—which included tweaking the location of the various PCI cards along with a beta version of the software—the system did not crash during three weeks of testing. I used Version 3.6 exclusively. No sound files were ever lost, and there are 99 levels of undo, although the latter consumes memory and, used to excess, can slow the system down although I never experienced this. To demonstrate how robust the system is, I opened Adobe Premiere and simultaneously played a video project *while* Soundscape played a 24-track automated mix. There were no glitches, no hiccups and no complaints from either program.

HARDWARE CONTROL

Automation and control-surface options deserve mention because Mackie has probably done more to push development in this area than any other company has since its aquisition of Soundscape. Randomly mating controllers and workstations yields mixed results and often minimal functionality. You expect the faders, mutes and transport controls to work. But plug-ins vary greatly and present a challenge to developers. That's why Mackie's claim that its control interfaces seamlessly with Soundscape-32 is so encouraging.

I think it would be great if a little DIY software package was included with



The Arrange window displays audio tracks and automation.

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every controller and workstation so that users with lots of time on their hands can bring all of the pieces together. As with LINUX, people should be able to contribute their work toward the common good. Meanwhile, back in reality land, I tested Soundscape-32 with CM Labs' MotorMix, focusing on faders, balance, mute and transport controls because those were the required tasks at that project's stage. My only request is to be able to access Console Manager from more than just the mystery icon at the bottom-right corner of Window's System Tray.

WISH LIST

My requests are, er, simple. Soundscape has great potential as a mastering tool. Quite often, I put each "item" on its own pair of tracks and stereo fader. Placing ID flags from 101 upward translate into track-start IDs via the burning package. The only trouble is, the package does not recognize a multitrack session, which adds several extra steps to the process and extra reverse steps if changes need to be made.

I'd also like to be able to burn CDs in real time from the Arrange window to either a stand-alone CD burner or the computer's burner. My other request is for a stereo mixer module with a width control, from mono to hard-panned. Stereo modules require less desktop space, simplifying level, EQ, effects and dynamics linking for track pairs.

FINALE

I have always loved the power of workstations. Soundscape-32 just happens to be perhaps *the most reliable* workstation that behaves like a piece of dedicated hardware. (Because it is.)

For the amount of potential time that can be spent on a session, especially considering musicians' fees and their priceless performances, stability becomes one of the best features and the biggest selling points for any product, specifically Soundscape-32. And, while I generally shy away from user groups, I must say that the Soundscape crew is a responsive and helpful bunch. Go to the "Support" section of www.soundscape-digital.com and ask them yourself. People who have this system swear by it, not at it.

MIX ONLINE EXTRAS

THE HARDWARE RUNDOWN

INS AND OUTS

Unlike many systems that provide only a digital interface (which may also be proprietary), Soundscape-32 includes basic analog I/O—stereo-in and 4-channel-out—perfectly suited for basic audio production and sound-for-picture applications. Digital I/O comes in two flavors: AES and TDIF. The AES I/O replicates the analog connections (plus Word Clock I/O); in addition, these portals can be independently routed. The three TDIF connectors can directly interface with Tascam's DTRS products (DA-X8 Series of tape machines), Soundscape's 8-channel I/O boxes or your own preference of digital conversion. (That's 24 channels plus the analog and AES inputs.) MIDI I/O for timecode is part of the package; options include SMPTE timecode I/O and RS-422/9-pin support.

FOUR-CAR GARAGE

A flip-down front panel reveals two hard drive caddies that accept standard IDE drives. (There are two internal IDE hard drive bays, as well.) Each bay supports up to 137 GB, providing over half-a-Terabyte (548 GB) of storage capacity. Soundscape-32 is capable of 32 tracks of 24-bit recording at 44.1 kHz/48 kHz, half as many tracks at 88.2 kHz/96 kHz.

CONTROL AND EXPANSION

For processor-intensive applications such as multitrack music production, an Expansion port links Soundscape-32 to Mixpander. There are two PCI card options with an additional five or nine DSP chips. Of course, I chose the 9-chip card! Two systems can be controlled from a single PCI interface card—up to four hardware units max—totaling 128 simultaneous audio tracks at standard resolution. The system can also be controlled via a printer port and a special "EPP" cable that is handy for portable applications via laptop. ■

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BY K.K. PROFFITT

Kurzweil KSP8 Multibus Signal Processor

Add One to the Effects Rack

Kurzweil's KSP8 is more than just the sum of its 249 DSP algorithms and over 600 effects presets. This multibus signal processor offers flexible signal routing, configurable I/O, SmartMedia™ data storage, multistage metering and real-time control. More importantly, for those of us who work with surround audio formats, the KSP8 includes algorithms for 5.1 ambience, reverb and multiband compression. If you want to take full advantage of the level-controlled, multichannel panners and real-time Quick control parameters, then you'll need to acquire the companion RSP8 remote with its joystick and eight Quick control knobs. Add to these the HUB7 multiport hub repeater, and you can fly seven KSP8s at once.

The two-rackspace KSP8 comes with four analog TRS balanced inputs, four TRS balanced outputs, a stereo AES/EBU I/O pair, a remote jack for the RSP8 or HUB7 and MIDI In/Out/Thru. It supports 44.1- and 48kHz sample rates with 24-bit precision, and it can slave to an external clock via the onboard AES/EBU pair or BNC connector for wordclock sync on additional hardware cards.

Via optional hardware cards, users can have as many as 22 "hard" inputs and outputs, though KSP8's 8-bus architecture requires that you select eight or fewer inputs to process. The KANA4 card adds four more analog I/O channels. If you choose the KADT8 instead, you can add eight channels of Lightpipe and eight channels of TDIF. Although only eight channels may be chosen for processing at a time, outputs are always active, so this card doubles as a format converter. Digital I/O cards have BNC connectors for wordclock sync.

The KAES8 adds eight channels of AES/EBU I/O. It's important to connect *all* of the input ports, and *all* inputs must be synchronous for outputs to work correctly. If you're only processing signal from inputs one and two to 5.1 outputs, you must still have all inputs patched, but you can turn off the inputs internally using input select on the Config page.

The KSP8 is not just a 5.1 processor. Thanks to its bus architecture, it could also be used to provide eight mono (or four stereo effects) or 5.1 plus two mono programs, etc.

In the future, Kurzweil plans to offer an mLAN™ option for simultaneous audio and MIDI transmission over FireWire. It was not available at the time of this review.

THE BASICS

If you've ever played a Kurzweil K2000/K2500/K2600, then you'll feel right at home with the KSP8's 240x64 CCFL backlit display, soft buttons, scroll knob and data-entry keyboard.

The KSP8 boots into the Studio page the first time it's used. Later, it remembers whether you were on the Studio page, FXBus or Quick mode page when you powered-down the unit.

The Studio is the highest-level object in the KSP8. It's a snapshot of physical-connection settings, signal routing and levels (including analog and digital I/O selections). The Studio object also contains the assigned effects presets, effects chains, effect bus assignments, all MIDI channel and controller settings and multiband equalizer settings. With 999 locations for user-created objects, you can recall studio setups for many different projects.

The Master page includes the few parameters that are not included in Studio objects: Studio Channel (MIDI channel for MIDI control of Studio MODs, program changes and controller messages); I/O Config (studio or master); Clock Source; DigWordLen (16, 20 or 24-bit on the digital output options); Dither (flat/triangular, or minimum, medium or maximum noise-shaping); DigFormat (AES/EBU or S/PDIF); and SysEx ID. These settings are saved separately from the Studio in the Master table. In order to completely recall a project, you'll need to save both a Studio object and a Master table, and load both for the project.

To the left of the Studio list in the display panel for the Studio page is the SID, or Studio Information Display, a graphic representation of the amount of processing power being used on each bus. Processing power is also calculated in Processor Allocation Units (Us). Simple algorithms may use only one U; more complex and powerful algorithms for surround processing may use 12 or more. There are 16 Us available for each KSP8, so keep that in mind when you want to chain effects. The *KSP8 Algorithm Reference Guide* documents each algorithm, including its usage of Us. It's available for download at www.kurzweilmusicsystems.com.

Other objects in the KSP8 architecture include chains, presets and algorithms. Studios, chains and presets may all be edited. An effect algorithm is a specific type of DSP processing (e.g., flange, reverb or

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distortion), which resides in ROM and may not be edited. You may, however, change the values of an algorithm's parameters and store those in a preset. Presets may be used alone on a bus in a studio or in series in a chain. A chain includes presets, quick parameters and MODs, with up to eight presets per bus.

REAL-TIME CONTROLLERS

MODs and Quicks allow for real-time MIDI control over the values of selected KPS8 parameters. MODs are modulators used to change parameter values in real time. Available in the Chain editor, Chain

MODS (or C MODs) modulate effects parameters in a chain, allowing the most extensive real-time control of KSP8 effects; their parameters and settings are saved as part of a chain object. Studio MODs (S MODs) control the gain, frequency and level values of sends, EQs and outputs, but they do not control effect parameters. Parameters and settings for S MODs are saved as part of a Studio object.

Quick parameters, or Quicks, allow you to change up to eight of a preset's parameter values without changing the preset itself. Each algorithm has Quick parameters that have been chosen to be the most useful within each algorithm. The user can change these parameters and save them. If you have an RPS8 remote control, then these eight parameters are controlled by eight knobs on the remote. Like MODs, Quicks may be either Studio or Chain, and the parameters and their settings are saved with Studio or Chain objects. We noticed that when using Quicks, the granularity of the Quick knobs caused some changes to be far too rapid to be useful. In such cases, using the alpha wheel or the "jump" (nudge) buttons under the alpha wheel was more precise.

LFOs (low-frequency oscillators) are control sources that can be programmed on the Studio or Chain LFO pages. You can set upper and lower limits of each LFO's rate, rate-control source, LFO shape and LFO start phase. There are 26 different LFO shapes that range from sine to positive 12-step.

ASRs (attack, sustain, release) are three-section unipolar envelopes that can be triggered by programmable control sources and can be delayed. You can use them to ramp the pitch or amplitude in a vibrato or tremolo, while enabling delays in those effects.

If you have ever played with a K2000 or later keyboard or sound module, then you'll remember FUNs (the abbreviation for "Function"). If you set up a FUN as a control source, then you can mix the signals of two control sources and perform one of 50 functions on the combined signals, thereby generating a new control source value.

Fortunately, with over 600 effects presets, you won't have to delve deeply into programming the KSP8 unless you want to. For those who need ultimate control, however, the infrastructure is there just beneath the surface.

SIGNAL PATH

Signal travels from hard inputs on the back panel to input select, EQ section, FX sends, FX buses, mix sends and buses, output select and finally back to the hard outputs on the back panel. There are three patch points: Pre-FX patch points between FX sends and FX buses; Post-FX patch points between FX buses and mix sends and buses; and Mix patch points between mix sends and buses, and output select.

Up to two types of EQ functions can be configured in series on each EQ bus. The FX send page has special 5.1-panning options. You can specify two different ways of panning in the front: LCR, which pans through the center channel, and L-R, which pans from left to right, leaving the center channel unchanged. Angle can be specified relative to the front-center speaker. You can also choose the radius (distance from the center of the room). With mix sends, you can route signals coming out of the FX section and use the mix buses to create a submix of the various FX buses before outputting them from the KSP8.

Using FX sends and mix sends, you can set up a "faderless" mixer. Add a set of MIDI faders and a SmartMedia™ card, and the KSP8 becomes an 8-channel digital mixer with a massive repertoire of effects setups.

AND IT SOUNDS GREAT, TOO

We loved the various reverbs and delays for 5.1 effects. Our favorite crazy effect for horror films was setting up scary noises and putting them through preset 798, Relay Delay. Setting up the panner was painless, too. Punch-up EQ/sends, then FX send. Select the Panner button next to the joystick on the RSP8 and crank the FX to FX1-6 R-Theta. You can set the front so that the panner skips the center channel, leaving the screams of the terrified teenager piercing and pure.

We were also pleased with the sound of the 24-bit, 128x oversampling A/Ds and D/A. For 96kHz and 192kHz sessions, we wouldn't hesitate to pull the AES/EBU card out and go with the analog I/O card.

One invaluable feature is the multistage metering: input, pre-FX, post-FX and output. We could track down the source of distortion much more quickly than with typical FX boxes.

Another feature worthy of praise is the choice in Mix mode of insert (where mix control is set to a good starting point for a wet/dry mix), or send/return if you are using the device on a console send/return (100% wet). The Insert mode makes it easy to audition effects without worrying too much about resulting levels.

Storing data on a SmartMedia card seemed a scary proposition at first: We were afraid that we'd break the little wafer. However, when we realized how inexpensive the cards and outboard card readers were, we warmed right up to the little dears. Updating OS versions and making backups of KSP8 data was lightning-fast.

Carrying a base price of $2,995 (the optional RSP8 remote is $595; the KANA4, KADT8 and KAES8 I/O expansion cards are extra), Kurzweil's KSP8 is an amazing box, immediately accessible with a vast network of controls and effects. It's a tweaker's dream, with real-time controls that are robust enough for any live show. The more we played with the KSP8, the more we felt that it belonged in our mix room, so we opened up a couple of spaces in the Lexicon/Eventide rack and added our fourth remote to the mixing desk. This one's a keeper.

Kurzweil Music Systems/AND Music, 9501 Lakewood Drive S.W., Suite D, Lakewood, WA 99995; 253/589-3200; www.kurzweilmusicsystems.com. ■

Composer/engineer/producer K.K. Proffitt is the co-owner of Jam Sync, a surround production/mixing facility on Nashville's famed Music Row.

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BY GEORGE PETERSEN

Lexicon 960L Digital Effects System, V. 4.0

The Flagship Gets Even Better

Once upon a time, all digital effects devices were rigid, fixed devices. However, flexible effects systems such as Lexicon's 960L allow existing customers to add new sounds or functions via simple software updates. Lexicon first implemented the software-based strategy back in the days of the first 224, and the tradition continues with its top-of-the-line 960L, now at software Version 4.0.

Reviewed in detail in the June 2001 *Mix*, the 960L consists of a 4u main I/O and DSP unit and LARC2™ remote, offering a 24-bit, 8-in/8-out architecture (with 16 I/O support) that handles stereo and surround production at up to 96 kHz for broadcast, film, audio post and music applications.

Until recently, the 960L's automation capability was limited to receiving MIDI program-change messages. However, with V. 3 software, the 960L began offering a full-blown automation option with control/recall of all effects parameters, including panning within the surround (and stereo) programs, mutes and moving faders. The joystick does not move, but any moves are tracked by the cursor within the Panning window on the 960L's large display.

As with all 960L presets and user data, automation moves are defined as SMPTE timecode events, translated via the unit's MIDI Time Code (MTC) input and stored (along with wordclock, global mix settings, DSP card configs and I/O routings) to internal hard drive and/or floppy disk. As session data is saved independently of the originally written timecode rate, existing sessions can run at any frame rate without affecting timing accuracy.

The recent V. 4 software provides an option for LOGIC7 UpMix capability. Developed by Lexicon's Dr. David Griesinger, LOGIC7 is a sophisticated DSP encode (and consumer playback) system that provides improved multichannel reproduction from matrix-encoded and 2-channel stereo recordings. As its name implies, the playback process can expand both 5.1- and 2-channel soundtracks for 7.1 and virtual 7.1-channel playback. Beyond the left/right and matrixed center channel, LOGIC7 can offer full-bandwidth, stereo rear channels from either surround-encoded or 2-channel sources.

Via the 960L's eight sliders, the LOGIC7 UpMix option offers a huge supply of variable parameters, all instantly (and easily!) accessible. Divergence sets the placement of center-channel information across the LCR channels. Rear dynamic roll-off adjusts the gentle (6dB/octave) roll-off filter applied to the L/R surrounds only. Lock "freezes" all parameters in the current setting, preventing changes in program-dependent parameters. Sensitivity sets a "threshold" that tailors the algorithm's response to specific program material. Sound Stage places the most predominant surround image to the front, rear or neutral position. Width sets the range of internal panning to normal (more toward center) or a slightly wider image. Controls such as rear delay (up to 80 ms) and bypass are more obvious in function.

LOGIC7's diverse collection of algorithms are arranged in six banks with 10 programs in each. The bank names (Upmix Classical, Upmix Jazz, Upmix Pop I & II, Upmix Post and Upmix Mix Tools) give a good indication of where to begin looking, while program names (such as Jazz, Flower Power, Balladeer, Detroit Soul, FM, Orchestral, Chorale, Funky Chic, Plaid Flannel and Car Chase) send the user right to a good starting point. For example, The Beatles' "O-bla-di, O-bla-da" (an odd piece, with mostly center instruments and wide stereo vocals) responded perfectly on Flower Power, with a bonus: After the piano intro, I could hear Ringo's voice muttering something about "drums" coming out of the right rear speaker! "Dear Prudence" yielded a rich, full surround, while the surround effect on "Back in the USSR" was more aggressively surround—tossing Harrison's opening guitar note (after the plane landing) into the rear speakers. Cool!

Using the FM program on lush tracks such as George Benson's "Breezin'" and Whitney Houston's "Saving All My Love for You," was spot-on: A high divergence setting kept vocals and solos focused center, while a high, rear dynamic roll-off brought other elements around the listener. On China Crisis' "Sweet Charity in Adoration," the piano and rhythm guitar pulled to rear for an excellent "sitting-in-the-band" effect.

Results with other types of music—hard rock, classical, country and acoustic—were equally astounding. However, there are numerous pitfalls to avoid. In no case did I find a "set-and-forget" program that didn't need some tweaking, even between similar tracks on the same album; also, the system can produce audible pumping/breathing, particularlly in the surrounds. In most cases, kicking in the Lock mode, or a minor touch on the sensitivity or rear dynamic roll-off controls, took care of this.

My favorite use of the LOGIC7 UpMix was expanding stereo tracks (drum overheads, BG vocals, etc.) into 5-channel stems for surround mixing. Certainly, this functionality would be ideal for post applications, where stereo feeds often have to integrate into existing surround material, and in such cases, the UpMix option could be a life- or time-saver.

The Automation and LOGIC7 updates are now included free with all 960L and 960LD systems. Owners of earlier systems can upgrade for $995/each. Either way, these options add another dimension to an already-powerful tool for surround production.

Lexicon, 3 Oak Park, Bedford, MA 01730; 781/280-0300; fax 781/280-0490; www.lexicon.com. ■

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BY EDDIE CILETTI

Fostex DV40 DVD Master Recorder

Working Hand-in-Hand With Location Recordists

For years, Fostex has delivered portable timecode DAT decks designed for the nerve-wracking world of location recording, a gig that demands reliability, portability and minimal battery consumption. Fostex's next generation is the PD-6, a 6-track portable deck that records to removable 8CM DVD-RAM discs.

The companion to the PD-6 is the DV40 ($5,995 MSRP), a rackmount 4-track version. (A 6-track playback option for the DV40, called the 5050 option, is in the works for full compatibility with the PD-6.) With sampling rates up to 192 kHz and 24-bit resolution, the DV40 records audio either as a Broadcast Wave File (BWF) or as Sound Designer (SDII) file for compatibility with PC- or Mac-based DAWs.

A truly pro example of dedicated hardware, the DV40's front panel has familiar knobs and switches: frame rate, clock, timecode generator, sample rates, pull-up/down, record level, monitor switching and level. Also standard are keyboard and mouse ports (an optional VGA card allows video access), local/remote switching via an RS-422 or network port, Record mode (mono/stereo/multitrack selection) and analog/digital source switching.

Like the early CD drives for computers, the DVD-RAM drive requires a caddy or carrier with an integral disc. You can use a disc without the case for playback. Not all DVD drives accept DVD-RAM, although the DV40's drive accepts bare-naked CDs.

The DV40 offers two DVD-RAM formatting options: Tape mode is like pre-striping a tape (simultaneously recording silence while formatting). As such, the user must choose—and is locked into—the sample rate, bit depth and audio format (BWF or SDII). Tape mode adds an extra level of data insurance, allowing the DV40 to tolerate a power interruption while recording without losing the track (up to that point) or its neighbors. Normal mode allows multiple recording options on-the-fly.

The DV40 is a young, but expanding, product. Fostex plans to offer additional features such as a built-in hard drive, an optional file format (in addition to BWF and SDII) and two more tracks, substituting the optional VGA card for the extra audio playback capacity. DV40 software updates (currently at Version 1.3) are available online and must be burned to CD for transfer, a painless process.

The manual is thorough but not clear, and is in serious need of a rewrite. While the machine is fairly intuitive, you'll definitely want to learn on your own and take notes.

ON THE ROAD

I took the DV40 on location to an unfinished facility to record a jazz trio. Pro Tools|HD served as the multitrack; seven tracks for seven mics were either mixed live or during playback via a Yamaha DM2000 and sent as a stereo pair to the DV40—a completely digital signal path captured at 88.2 kHz/24 bit. The other pair of tracks were fed by one of two Audio-Technica stereo shotgun mics (from the balcony) through a Great River preamp directly into the DV40's analog inputs.

The session is described in more detail at www.tangible-technology.com, where you'll also find a respectable MP3 to check out for yourself. Sennheiser HD600 headphones were used to monitor the DV40 while on location. Speaking of which, the DV40 has three monitoring options: all four tracks summed to mono, or either pair of tracks in stereo. A Grace 901 headphone amp was also used, taking advantage of both its digital and analog inputs to monitor each pair of tracks.

MANHATTAN XFER

Once back at home base, the DV40 was interfaced to an Alesis MasterLink via the AES port for real-time transfer of the main stereo pair at full resolution. Because I didn't have a multichannel AES interface, I tried to download the four channels via the network port using TCP/IP protocol, a standard Cat-5 networking cable, a hub and Cute FTP (a simple file-transfer program). No dice. (Note: Fostex says it is now delivering an improved ethernet card for better data transfer.) For round two, I enlisted the help of my friend Dave Meyers at Overkill Audio. this time using the recommended shareware FTP software and a "crossover" cable, one designed for direct computer-to-computer connection *sans* hub. Once communications were established, we tried again to use a standard cable and hub, but no success. The manual includes a step-by-step guide to walk users through the complexity of the FTP interface.

Ultimately, the DV40 should effortlessly connect to any network, and perhaps it will by the time you read this. Meanwhile, the networking feature supports multiple users and passwords, plus all the typical TCP/IP tweaks (IP address, subnet mask and gateway). It would be cool if the DV40 also allowed dynamic IP address assignment from a gateway or address server to eliminate potential conflicts.

FILE TRANSFER

The four channels are embedded into a single file that will appear in the FTP window. Once transferred to computer, I used Syntrillium's Cool Edit Pro (CEP) to open them. My hardware did not support the higher resolution, so a CEP plug-in utility down-converted each of the four tracks to 44.1 kHz/32 bit to make them playable on a Soundscape Mixtreme card. At the moment, the transfer process is more like rush

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hour than the Indy 500, but the DV40 otherwise works reliably and sounds good.

While the network feature is cool, until the transfer rate is upgraded (to 7x faster than real time), I suspect most users will either transfer via AES or have a workstation outfitted with a DVD-RAM drive. The disc formatting is readable by both Windows and OS 9.1 or later Macs. For our test, a 6-minute, 600MB file transferred in just over an hour.

I connected a keyboard and mouse, hoping to be spared the "spin-shuttle-wheel-to-select-alphanumeric-characters" routine. So far, the keyboard is mostly used for hot keys. (An overlay would be nice.) F1 brings up the Track Rename feature using the arrow keys instead of the machine's shuttle knob. Future software revisions will include file naming via the keyboard's QWERTY section.

There were moments when I felt I needed more feedback from the DV40, such as a confirmation or warning beeper. The DV40 executes some commands instantaneously, but when skipping from track to track, it takes a moment. Pressing Play before it reaches its destination yields nothing; it doesn't "stack" the Play command.

Some things I would like to see on the DV40 are a hard drive (Fostex is working on this), the beeper and an Auto Play feature. The 4.7-gig DVD-RAM capacity is fine for traditional sample rate and bit depths, but a full-length classical or jazz recording (4-channel/88.2kHz/24-bit) consumes about 100 MB/minute for about 47 minutes of recording time. I have a feeling some audiophile recordists are going to jump on this box big time for its high resolution; a hard drive would eliminate the time obstacles imposed by a single DVD-RAM disc and its 2G + 2G + .7G default partitions. It's possible to use 9.4-gig discs to increase total recording time, and an upcoming software update will increase the partition size to 4G.

THE PAYOFF

While still young in its development, there were no failures or glitches in the DV40, just features I'd like to see implemented. The DV40 is professionally outfitted and generally intuitive after you spend time poking around the menus, with well-appointed front/rear panels. As "just" a high-resolution recorder, the DV40 is impressive. As a replacement for the timecode DAT format along with a compatible portable, the pair will be a knockout.

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– Joel Rosenblatt, Spyro Gyra Drummer

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– Dale Sticha
Piano Tech for Sir Elton John

"I've now used the A-51s on almost everything including vocals, guitars, and drums. They remind me of very expensive German mics I have tracked with before."

– Adam Kasper, Producer/Engineer, REM, Pearl Jam, Soundgarden, Foo Fighters

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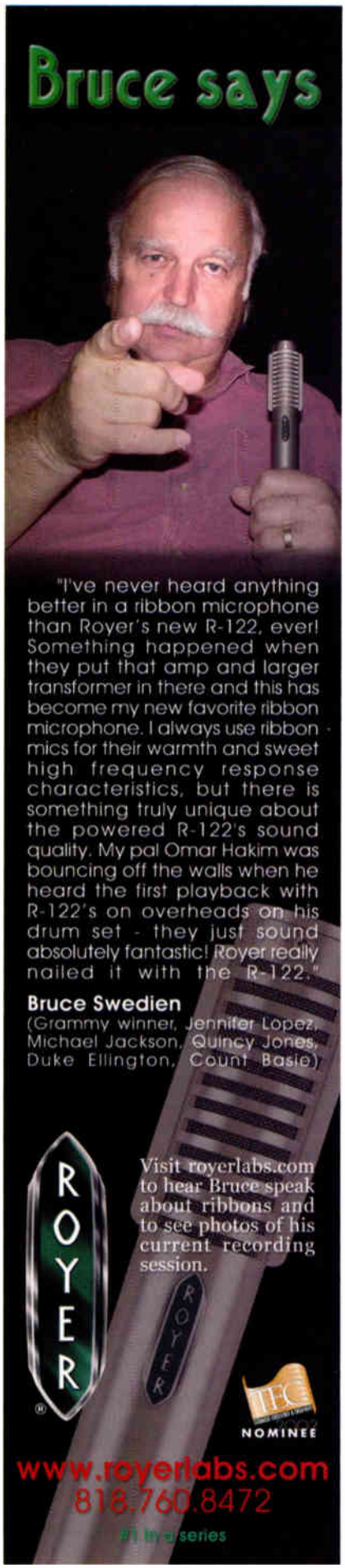

works asserts that the Sigma 6.2 presents a very easy load to a power amp, thus lessening the effect that suboptimal amplifier quality would have on the sound of the monitors. The company cites the Sigma 6.2's power-handling specs to be 150 watts continuous program and 400 watts peak. Nominal impedance is 8 ohms.

The Sigma 6.2 is reasonably efficient, with a sensitivity rating of 87 dB (1 watt/1 meter). The monitor's frequency response is specified to be "40 Hz to beyond 40 kHz, ±2 dB." An included chart shows the frequency response to be down 6 dB at 30 Hz.

The supplied cut sheet (there is currently no owner's manual) recommends placing the Sigma 6.2 three to six feet away from your listening position. You can put the monitors on a meter bridge without distorting a nearby CRT display's image, as the Sigma 6.2 is magnetically shielded. Of course, you'll get better results if the monitor is placed on a hefty stand.

A matched pair of Sigma 6.2s with standard black finish costs $3,500. Surround sound practitioners can buy a matched set of three monitors for $5,000. You can also be stylin' with a pair of solid cherry-wood Sigma 6.2s for $5,000.

TO THE TEST

I connected a stereo pair of Sigma 6.2s to my Hafler P3000 Trans•nova power amp and placed the monitors in my Acoustic Sciences Corporation's Attack Wall (a modular arrangement of cylindrical bass traps) in my control room.

Placed four feet away from my listening position, the Sigma 6.2s sounded extremely detailed, clear and revealing. Listening to some favorite reference mixes, I heard details that I'd never heard before. For example, background vocals that were tucked way back in the mix suddenly had more personality and nuance. Each instrument was more clearly defined, yet the monitors didn't sound sizzly or hyped in any way. The bottom end was tightly focused and coherent, and I could readily tell the pitch of subterranean notes played on a Chapman Stick in a dense mix. Depth and stereo imaging were both excellent, and the reproduction of transients was absolutely phenomenal.

On the downside, I wish the Sigma 6.2's bottom end sounded a little more prominent below 50 Hz, but that's a lot to ask of two-way near-field monitors. The monitors' upper-bass response also sounded a little lean, making the overall sound a bit thin. Performing some quick calculations, I estimated that the maximum amount of destructive interference between the Sigma 6.2's woofer and bass port would occur at roughly 188 Hz. The supplied frequency-response chart shows a half-octave-wide, 2dB dip in response in precisely this band, corroborating both what I heard and later calculated.

This upper-bass dip, along with the Sigma 6.2's superb coherency, no doubt contributes to the monitor's decidedly open quality. When I moved my listening position to approximately 5.3 feet away, the Sigma 6.2s sounded a bit less open and detailed, but the perceived spectral balance improved in the bottom end. My personal preference, however, was to sit closer in where I could most readily hear the Sigma 6.2's detail and clarity.

More so than with other monitors I've worked with, I much preferred listening to the Sigma 6.2s at low to moderate listening levels (below 85dB SPL). You can listen to the Sigmas at very low volume and still hear a surprising amount of high-frequency detail, which is a real benefit in long mix sessions. Also, the Sigma 6.2's clean sound makes them very nonfatiguing.

CONCLUSIONS

If you're looking for big-sounding monitors to revel in and impress your clients, the Sigma 6.2s will not be your cup of tea. The Sigma's unhyped sound will probably be a little too unadorned for some folk. If, on the other hand, linearity and transparency are your main concerns, you'll become positively addicted to the high-frequency detail, midrange clarity and tightly focused bass the Sigma 6.2s offer.

Complement them with a carefully chosen and tweaked subwoofer—hopefully one that offers adjustable gain and lowpass cut-off, as you really don't need much low end to fill in the Sigma's sound—and the Sigma 6.2s can serve as your main reference monitors. Alternatively, you can use them in the traditional role of near-fields to accurately assess all but your mixes' low end, and refer to some big guns to ensure that you haven't hyped the bass and kick too much.

The bottom line: The Sigma 6.2 is the tightest and most revealing near-field monitor I've had the pleasure to use.

Earthworks, 37 Wilton Rd., Milford, NH 03086; 603/654-6427; fax 603/654-6107; www.earthworksaudio.com. ■

Mix contributing editor Michael Cooper owns Michael Cooper Recording in beautiful Sisters, Ore.

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BY EDDIE CILETTI

Cardioid-Carrying Member

Understanding the Proximity Effect

In my January column, I touched on four variables of low-frequency perception: the Equal Loudness Curve for humans; loudness controls found on consumer gear; acoustics; and the proximity effect of directional microphones. This month, we'll explore the last topic.

The 1-2-3 combo of the loudness curve, inconsistent monitoring levels and unresolved acoustic issues can (and will!) conspire to reduce the perceived Low-Frequency Energy (LFE) in any environment. Even before the listener becomes aware of this deficiency, along comes the directional microphone. Used upclose and personal (to maximize isolation), mics with cardioid and figure-8 polar response exhibit a proximity effect, a noticeable rise in LFE as the mic is moved closer to the source—a bump that makes things sound "right" and "warm," at least for the moment.

Furthermore, multichannel recordings—where many directional mics have been used at close range—may suffer from a build-up of low-frequency "muck." In such cases, it's always preferable to remove the muck rather than compensate by boosting other frequencies, especially those in the 2 to 5kHz range, where the ear is most sensitive. Heightened awareness of these four variables—any one of which might be your Achilles' heel—should make them easier to tame, hence this month's continuing zoom-zoom-zoom on the boom-boom-boom.

MAPS AND CHARTS

More than any single piece of audio gear, mic and speaker (transducer) idiosyncrasies in the frequency response are the most easily identifiable by ear. You should be intimately familiar with at least one of the seven microphones represented in Fig. 1 through Fig. 6. Typically, these exhibit all sorts of bumps and lumps; by comparison, electronics are almost indistinguishably flat. The charts shown here were downloaded from the Web and resized for equal amplitude (vertical) and frequency (horizontal). If you'd like a closer look, they're also posted at www.tangible-technology.com; click on "recent articles."

To generate their published "flat" response curves, microphones are typically measured in the lab at a distance of 1 meter (39.37 inches) from the source. For directional mics, any distance closer to the source yields increasingly more "bottom" from the proximity effect. (Omnidirectional mics are not affected by proximity.) Knowing their products are used up close, directional microphone designers may incorporate a bass roll-off filter—either switched or incorporated into the mic itself—which can be parsed from the 1-meter response (although detailed proximity curves are preferred). Three of the mics investigated here have published proximity response, detailing that all the action is at 1 foot or less, reinforcing the oft-suggested advice of "moving the mic first" rather than using EQ to fix the situation.

Manufacturers are not consistent in their presentation of data, either in graphic or text form, although the Internet is much easier to update than reams of product literature. On the Net, I learned that the roll-off of the AKG C-12VR is -6 dB/octave at 100 Hz and -12 dB/octave at 130 Hz, while the Neumann TLM-170's roll-off circuit "attenuates the frequency response below 100 Hz to suppress undesired structure-borne noise." Another example is the Earthworks SR-77, which is "flat" at 15 cm (6 inches), so obviously the response at 1 meter shows a substantial roll-off. All are helpful bits of information, but the addition of proximity curves can help identify a problem and determine whether the best solution is the built-in filter or external EQ.

THE TOOLS

I originally planned to start in familiar territory with the Shure SM-57 but instead chose the Beta 57 because it provided proximity curves at 2 feet, 2 inches, 1 inch and ⅛-inch (Fig. 1). These most important curves reflect the typical response when used under "normal" conditions, the "eating" style favored by rock performers at 2 inches or less. (I love it when I see vocalists actually work the mic, but that doesn't happen often.) At 2 feet, the response is down almost -3 dB at 200 Hz, but at 2 inches, the response between 100 and 200 Hz increases 7 dB to 10 dB,

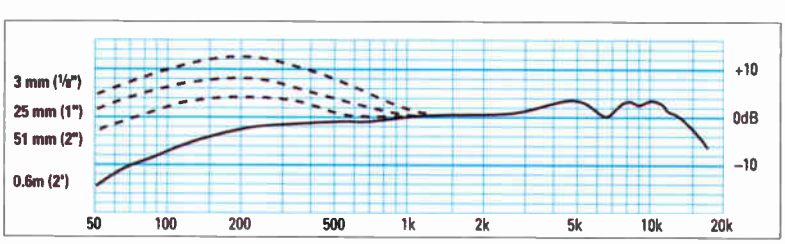

Figure 1: Response of a Shure Beta 57 at 2 feet, 2 inches, 1 inch and ¼ inch, showing proximity curves

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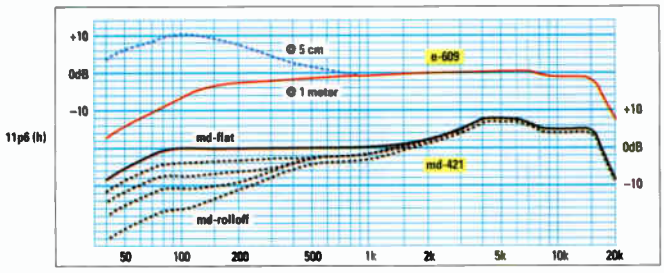

Figure 2: Response curves of Sennheiser's e-609 (proximity effect in blue) and MD-421 (all five settings)

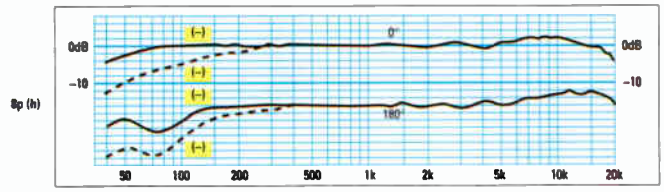

Figure 3: An EV RE-20, on (top) and off (bottom) axis

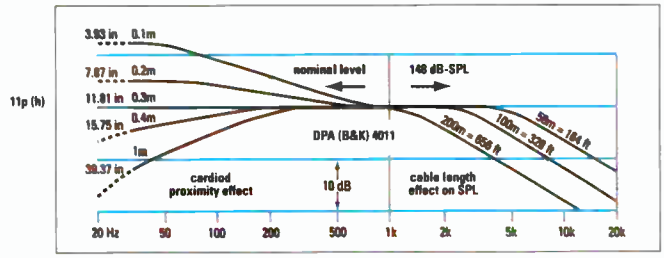

Figure 4: A DPA 4011; proximity effect on the left, effect of cable length shown on right

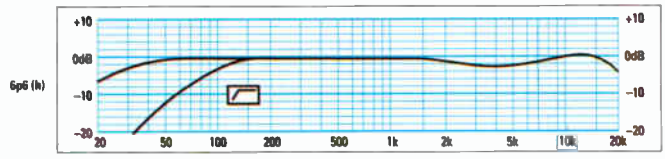

Figure 5: A Neumann TLM-170 starts rolling off around 160 Hz.

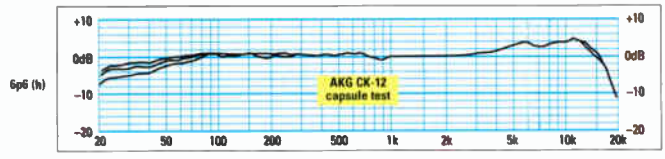

Figure 6: Variations in response of three AKG CK-12s

or about equal to the hyped response in the presence region (5 kHz). An inch closer adds almost 5 dB of warmth; that's the Inverse Square Law working—it's magic! If not already instinctively ingrained, this information should be helpful to recording and live sound engineers alike.

Sennheiser's e-609 and the venerable MD-421 do their chart dance together in Fig. 2. At the top left, the e-609's proximity effect at 5 cm (1.96 inches) yields a 10dB boost centered around 125 Hz. Below, the MD-421 shows the results of its five-position Music/Voice switch from "flat" to -16dB roll-off at 100 Hz. For myself and many others, the MD-421 is often a kick drum mic, based on its 10dB upper-midrange bump.

Figure 3 details the on- and off-axis response of an Electro-Voice RE-20 (top and bottom, respectively). The off-axis (leakage) response greatly affects the perceived sound of a mic. The RE-20's rejection response is particularly smooth. DPA (formerly B&K) provided the widest selection of graphs for its mics, including a highly detailed look at just the proximity response of the 4011 cardioid mic.

The 4011's response in Fig. 4 is two graphs in one: To the left are the effects of proximity from 1 meter to 0.1 meter in five steps; to the right of 1 kHz, I appended the graph with the effect of cable length on max output level (148dB SPL). This is not the response of the mic under normal use even with these cable lengths. The DPA 4001's low-frequency response seems optimized at a distance of 12 inches, where it's flat down to 20 Hz. Just under 4 inches from the source, the boost at 50 Hz (and below) is about 12 dB. Wow!

Next are the large-diaphragm condensers. Figure 5 shows the response for a Neumann TLM-170. The roll-off is about -6dB per octave starting at 160 Hz. Figure 6 shows the response of three AKG CK-12 capsules as re-skinned by Walker Microphones in Canada (519/654-0070), mounted on the vacuum tube electronics body of a C-12. The CK-12 chart is useful for several reasons. First, it is not a "publicity photo," but rather the raw output from a measurement system. All of the other response charts are smoothed either purposefully via system options or by a graphic artist. Smoothing is fine to depict the overall character of the mic. Figure 6 shows subtle variations in three capsules, barely obvious except in the bottom two octaves. In this case, the chart was used to determine the best match for a stereo pair. All microphones have production tolerances.

THE LOW DOWN

Studying these charts made each of these mics (which I have used and abused ad infinitum) more tangible. From this research, it's clear that many directional mics are designed to be "flat" not at 1 meter, but at unique distances, predetermined by their "typical" application. I hope this article sheds some light on the power of proximity—knowing where "flat" is and, from there, realizing the dramatic difference ±4 inches can make.

It was equally interesting—surprising in some cases—to discover each mic's unique characteristics at the opposite end of the spectrum. We all know how different models respond to similar applications; we all have favorites. Hopefully, the "why" is now a little more apparent. Like the proverbial squeaky wheel, it's the odd track that gets our scrutiny, and being familiar with microphone characteristics can go a long way toward reinforcing an engineer's intuition at the moment of capture.

In our business, there are more relatives than absolutes. Whether tracking, overdubbing or mixing, the primary job is to make each channel relate to the whole, regardless of the monitoring system being used. If the process of making the puzzle pieces fit becomes a struggle—particularly when the bass needs more room—then it's the monitoring system that gets the scrutiny. Then we want absolute confirmation of the truth, but in the end, it's all relative. Isn't that something Stephen St.Croix would say? I meant to say that the final judgment rests with how it plays in Peoria.

MIX ONLINE EXTRAS

Eddie researches, repairs and consults from the afternoon to well past midnight. From dawn till noon, he's often found attending to his toddlers' "input/output" details.

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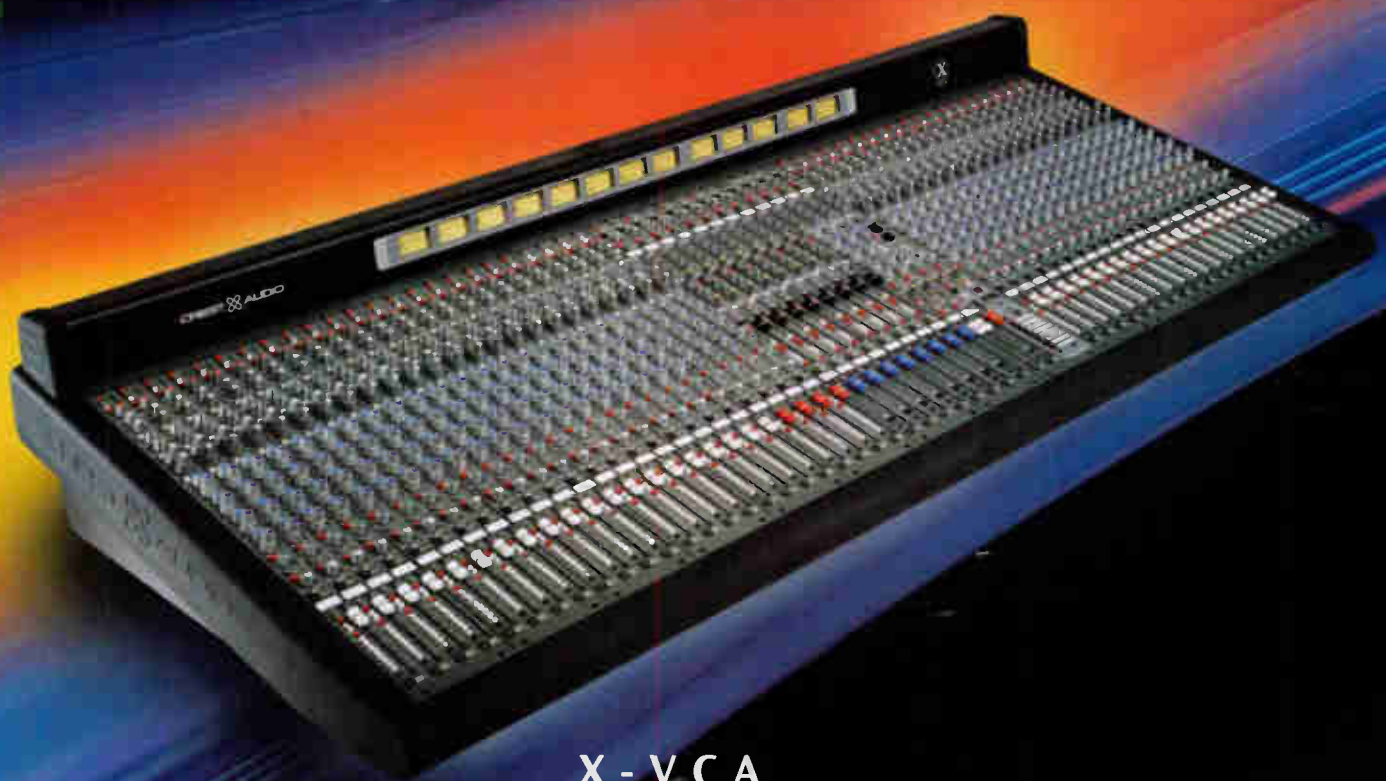

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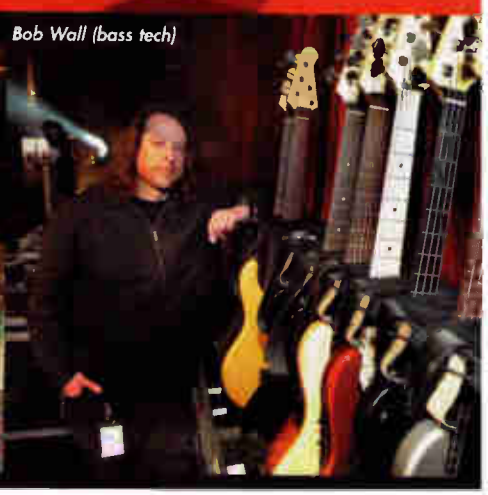
PAPA ROACH

Last fall, Papa Roach, a standout name on a short list of recent Northern California success stories, released their latest studio album, the highly anticipated *Lovehatetragedy*. Preparing for a long year of live commitments, both in the U.S. and abroad, the band played a number of one-off performances in select cities. Just hours from their hometown of Vacaville, Calif., the band booked an evening at San Francisco's Warfield Theater, where they played a number of their radio hits and showcased some fresh cuts to an eager and receptive audience.

For the San Francisco date, monitor engineer Javier Alcaraz kept things in check, handling both wedge and in-ear mixes. Alcaraz uses a Yamaha PM4000, running 28 inputs. Outboard gear of note includes a dbx 160, two Drawmer DS201 gates and seven Klark Teknik DN360 EQs. All of the wireless systems comprised Shure PSM Series beltpacks and receivers.



Bob Wall (bass tech)

World Radio History

PHOTOS AND TEXT BY STEVE JENNINGS

FOH engineer Brendon Brown (unavailable to be photographed) mixes from a Midas XL4. He keeps a number of the more dynamic elements under control with a complement of Drawmer gates and dbx 160 compressors. For delays, he employs several TC Electronic 2290s and D-TWOs. Multi-effect and reverb programs are accessed through a Yamaha SPX-990 and a Lexicon PCM 70, respectively. An Eventide H3000 is used for doubling, when needed.

Lead singer Jacoby Shaddix (right) uses a Shure SM58. The drum kit is miked with a Shure SM91 and Beta 52 on kick, SM57 on snare top and Beta 57 on bottom, SM81 on hi-hat, SM98s on rack and floor toms, and KSM 32s on ride cymbals and overheads. A Beta 52 on bass and a complement of Countryman DIs round out the stage inputs.

The entire tour was outfitted by Clair Bros., which provided all of the FOH, monitor and P.A. equipment.

Tobin Esperance (bass)

Jerry Horton (guitars)

Jacoby Shaddix (vocals)

Dave Buckner (drums)

Wade Khail (guitar tech)

Rocky Cazares (drum tech)

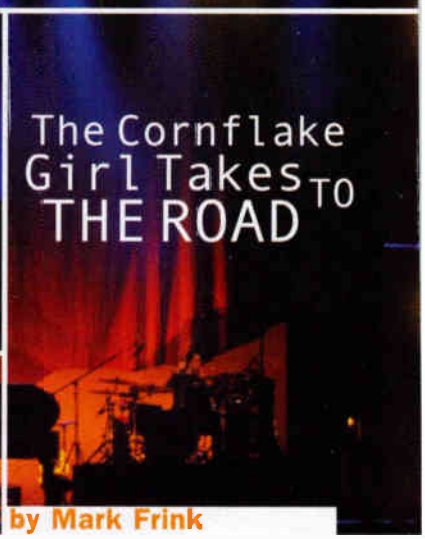
World Radio History

FOH engineer Mark Hawley

Benny Veenestra

PHOTOS BY STEVE JENNINGS

Tori Amos



The Cornflake Girl Takes TO THE ROAD

by Mark Frink

In support of her first album on Epic Records, *Scarlet's Walk*, Tori Amos completed a whirlwind tour of North America, playing 31 shows in only six weeks. All sound reinforcement was provided by SSE Hire Limited of Birmingham, England, including the main speaker system, a Nexo Geo line array. *Mix* had the opportunity to catch the show inside the 2,000-capacity Chiles Center on the University of Portland's campus, a multipurpose room used mainly for basketball with a wooden salad-bowl roof and predictably poor acoustics.

120 DEGREES

Nominated for a TEC Award last year, each Geo speaker module is a small 32-pound, 16-ohm enclosure, employing a 1.8kHz passive crossover for its 8-inch Neodymium woofer and a 1-inch driver on a unique bent horn whose geometry creates a common virtual point source.

Carrying four-dozen Nexo S805 Geo 5° modules on the tour, SSE system tech and crew chief Mike Rose deploys arrays that are 18 cabinets deep with a single 30° Geo S830 downfill beneath. Six CD12 subwoofers hang just behind the line array from a bumper-bar extension. The 80-pound subs house two slot-loaded 6-ohm 12-inch Neodymium woofers, each powered by separately processed channels of amplification to provide 120° hypercardioid coverage.

SSE's custom road cases allow Rose to leave the Geos connected in banks of four: They hold two sets in the 45-inch-long cases, with one set face-down in the tray, and the next set in a second tray that fits over the first. The CD-12 subs simply drop onto a 24x30-inch dolly to roll onto the truck in a stack. The system is powered by CAMCO "Vortex 4" switch-mode, Class-H amplifiers, with four 16-ohm Geos per channel. Each side of the P.A. is powered by only five amps: three for the Geos and two for the CD-12 subs.

Rose uses Nexo's proprietary line array-design software, GeoSoft, to calculate vertical angles for even coverage throughout the venue. The software accepts values for array height, number of cabinets, listening-area size and slope to provide optimal vertical-splay angles and predict SPL at octave intervals from 500 to 8k Hz. An Angle Star digital inclinometer's sensor is remotely mounted on the Geo's fly-bar so that Rose can precisely set the rake of the line array with the front and back motors.

FRONT AND CENTER

FOH engineer Mark Hawley has worked with Amos since 1994, with SSE providing equipment all along. Prior to that, he worked with Beautiful South, Big Country, and Wet, Wet, Wet. While many engineers have a close relationship with their artist, Hawley has not only engineered both Amos' recordings and live shows over the past eight years, but they've been husband and wife since 1998. He mixes on a Midas XL3 with a 16-channel sidecar, which he calls the best-sounding live console ever made, even preferring it to the XL4. "It's the nearest thing to a Neve in live consoles that I've heard," he adds. "It's a shame they don't make them anymore."

They use Neumann KMS 150 vocal mics at both singing positions, which Hawley prefers to the 105. He employs a substantial vocal-processing chain, which begins with a Focusrite ISA 430 "Producer Pack" used for EQ and light compression, and ends with a BSS 901 dynamic equalizer for frequency-specific compression. On this tour, he began using a Manley "Variable Mu" as a limiter in between those two. "I used the Manley on the vocal in the studio," he explains. "It certainly colors the vocal, warming it up considerably. And when she really goes for it, it takes the edge off."

For vocal effects, Hawley relies on his old standby, the Lexicon 480L, with one machine used as a vocal reverb set to a heavily modified Fat Plate preset, and the second side

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used sparingly with settings from its effects bank, like Illusion and Sudden Slap. He also has a 960 used as a vocal delay. All three of these effects are ducked by keying stereo compressors inserted on their returns with her dry vocal, an effective technique that keeps the vocal clear and distinct while emphasizing reverb tails. He uses a Yamaha SPX-990 on preset number 60, Bass Chorus, to fatten up the vocal, which he likes better than other types of doubling pitch-shifters.

PRESENTING A CLASSIC

Amos sits at the piano facing the monitor mix position on stage left, listening to a stereo mix for her vocal, with a second stereo pair of wedges for drums and bass. Directly behind her is a Fender Rhodes with an apple-red Wurlitzer on top—played by swinging around on her piano bench—and both have a Drawmer 1960 inserted on their direct channels. Offstage, behind monitor world, is a Leslie cabinet miked with a Beta 52 and a pair of 57s. On "Can't See New York," the Rhodes is bused from the monitor desk like an effect, a technique first employed with her piano on the song "Horses" from the *Boys for Pele* album and tour.

Classically trained Amos plays her personal 9-foot Bosendorfer concert grand with its lid open on the tall stick. Hawley mikes it with three AKG C414 mics—low strings and high strings, plus a third over the large sound hole in the harp—and inserts the Focusrite Red 2 and 3 for EQ and compression. He comments that there is so little isolation from neighboring sound sources and that he is forced to supplement these with a digital tone module driven from the Bosendorfer's MIDI system. They currently use a Roland RD-150 digital piano that sounds natural and also doubles as a portable instrument that can be carried to her daily promotional appearances at radio stations.

Drummer Matt Chamberlain's kick drum is miked with a Shure Beta 52 on an internal mount. A second lower-tuned kick drum, which also lacks a hole in its front head, is miked with an AKG C-414. Rack and floor toms are miked with Shure Beta 98s, and there's a 57 for the single conga to his left.

This year, Hawley is using a 414 on the snare, which he switched over to from the Neumann KM 140 used beneath it and also on high-hat. "Generally, when we finish an album, anything we really enjoyed we try to take on the road with us," he comments. The most remarkable approach on the kit is the AKG C-12 overheads. Hawley uses the time-honored method of spacing them equidistant from the snare drum, but in this case, one C-12 is directly over the snare, while the other is at a 45° angle, near the ride cymbal.

Hawley employs outboard processing on nearly every channel. Both kick drums use a Drawmer DS-201, while the snare uses a TL Audio EQ-2 parametric tube EQ plus a Focusrite Red 3 compressor, whose other channel is used on the main kick. Drawmer gates are also used on the toms and conga, as well as the send to the second 960 machine used for drum reverb with a plate setting.

Jon Evans plays bass through David Eden cabinets, and Hawley uses Avalon tube DIs to take the direct signal out of the back of the SWR head, supplemented with a direct feed from an effect pedal that is occasionally used.

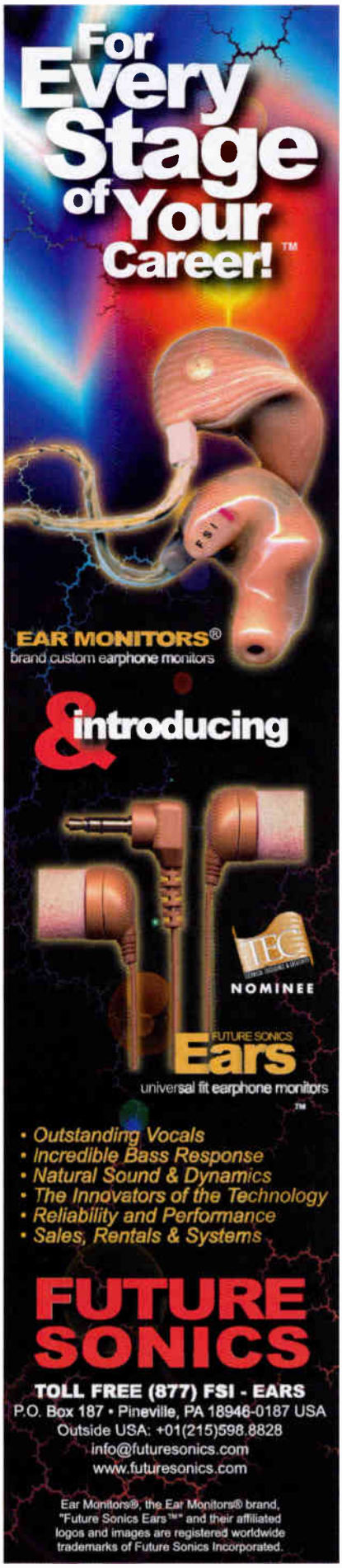
PRISTINE MONITORING

Dutchman Benny Veenestra is covering monitor chores for Hawley's longtime partner Marcel van Limbeek; he's assisted onstage by SSE's Andy Yates. Monitor world sports another Midas XL3 with a sidecar and uses at least as much outboard processing as FOH. Inserts include a Focusrite/Tube-Tech/BSS vocal chain, a GML/Manley piano chain and a Drawmer 1960 on overheads. Monitor effects include two more SPX-990s, a PCM-91, an Eventide Eclipse, a pair of TC M-3000s, plus another 480L for Amos' vocal reverbs.

SSE provides a 48-channel active BSS splitter rack with a dozen channels of Focusrite Red 1 preamps used on the "money" channels. Floor monitors are SSE's proprietary 12PM monitors using KT 9848 crossovers, EQ'd with TC 1128 graphics and again powered by CAMCO Vortex 4 amps. Next to the split is the Pro Tools recording rack, housing a half-dozen Apogee AD-8000 converters and an Apple G4 in a Marathon PowerRack. If the musicians are not available for soundcheck, then the previous night's tracks can be played back through the P.A.

MIX ONLINE EXTRAS

Mark Frink is Mix*'s sound reinforcement editor.*



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World Radio History

The Norman Brown Group

ALL PHOTOS BY STEVE JENNINGS

Bringing Jazz Noise to the Stage

by Maureen Droney

Time was when a jazz performance required little in the way of equipment: A couple of mics, a couple of wedges, a little combo mixer, and off you went. It's not so simple now, even for a classic jazz outfit like the Norman Brown Group. Brown, a multi-award-winning master guitarist who's been compared to George Benson and Wes Montgomery, obviously sounds great solo. Sometimes, he travels solo, but usually, he performs with his five-piece band. A prolific performer, Brown put in close to 90 dates in 2002. He was out supporting two Warner Bros. CDs: *Just Chillin'*, his latest chart-topping solo effort, which is nominated for a 2003 Grammy™ in the Best Pop Instrumental category, and *Groovin'*, from bwb, a jazz supergroup comprising Brown, saxophonist Kirk Whalum and trumpeter Rick Braun. As with many artists, the equipment Brown's group carries varies according to the gig, or group of gigs, scheduled on any given run. Often, except for guitars and a few other essentials, the band relies on the fulfillment of their tech rider for backline instruments, and house and monitor systems. Recently, Brown and his FOH mixer/production manager Stanley B (an accomplished pianist and composer, who released his own solo album *All for Love* in 2002) have also been taking a Digital Performer-based system on the road to record the shows.

"I've been fortunate to have the same core band since I started recording in '91," says Brown, who was born in Kansas City and now lives in L.A. "Alonzo 'Scooter' Powell on drums, James Manning on bass, Brian Simpson on keyboards [Kurzweil PC88 controller/Roland synthesizers], and Gail Johnson, my musical director, on keys [Yamaha Motif/Roland synthesizers] and background vocals. Sometimes, we take out other background vocalists and horns, and we've experimented with using recorded backgrounds on ADAT, DAT and MiniDisc; but, mostly, Gail and I cover all of the vocals."

PACK IT UP

Brown travels with two guitars: an Ibanez George Benson model in checked baggage and a smaller D'Angelico carried onboard. Interestingly, he notes that recent changes in security regulations have actually made it easier to stash his axe in an overhead compartment. "I have no problems," he says. "They're strict on weight, size and the number of pieces per person, but after that, they're pretty cool. There seemed to be a learning curve after 9/11, but airline personnel are actually much more helpful now than they were before."

When possible, Brown carries his own amps, a Polytone, "the one with modified 'mini brute,'" he comments. "It's an experimental model they tried, with two speakers angled in

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toward each other. I use that and also the Tophat, which is a custom tube amp that's much warmer."

When he can't bring his amplification, Brown requests either a Fender Blues DeVille Tweed or the more commonly available Fender Twin '65 reissue. "We tend to be able to get the '65 reissue everywhere," he says, "and most of them are in fairly good shape. I mean, they've been beat up, but they can take it! That's probably why they're so available."

Always with him is his rack that contains a Shure wireless system and a Line 6 POD Pro, which he calls the "brain for everything." The only discrete effect carried is an original Crybaby wah-wah pedal.

"I take the preamp stereo outs [of the POD], which are pretty clean, into the house," explains B. "And I use an SM57 on the Fenders, which really captures them well. Most of the time, it sounds great with good presence, so I don't have to equalize, which makes me very happy. Of course, it depends on the shape of the house and how many people are in it. There are situations where I have to roll off a little of the low frequencies, or where the reverb is too much or not enough. Also, usually on the mics, I have to do some hum eliminating using a Waves guitar hum eliminator. It works well, but, of course, it's better not to use it. It does affect the sound, and then you have to do other things to bring back what you lost—usually the crisp highs. You also have to be careful not to lose the part of the noise that sounds good.

FOH engineer Stanley B

"If it's not a little noisy, it's not my sound," adds Brown. "It's a jazz guitar, but it's got some edge. On my CDs, I record with a vintage [Gibson] L5 that has a really clean, jazzy tone, kind of like a George Benson sound. But live, my Jimi Hendrix influence comes out," he says with a laugh, "and it's added to that tone. It's still got that round fullness, but it's a little edgier. A little noise definitely sounds good."

POWERING THE HOUSE

In the rider, B specifies Yamaha as his first choice for consoles: a 40-channel M3000A for FOH and a 32X12 for monitors. "As a piano player myself, working with different pianos," he notes, "I've seen that Yamaha is always very consistent. The same is true of their mixers. They use very good components, very good electronics and the sound is always the same, unlike with some other manufacturers. We like to have 56 inputs, and we need at least 40; especially since we've started recording the shows, we're using a lot more inputs, like for top and bottom snare, direct and miked bass, etc., so that we have more options for blending. It's helpful for the sound of the show, and it's also helpful to the mixing process afterward."

Other gear requested for FOH includes either two 2-channel, ⅓-octave Ashly GQ231 EQs or Klark Teknik EQs, along with eight dbx 160 compressor/limiters and four BSS noise gates. Effects are either Lexicon PCM 81s, Yamaha SPX90s or Rev 5s.

Drummer Powell also favors Yamaha for his kit, with Remo drum heads, Emperor tops and Diplomat bottoms, and a Powerstroke on kick. B uses Shure SM57s on all of the drums, except for the kick, which gets a Shure PG52, and overheads, which usually get a pair of SM81s. "It's very important to capture the overhead sound and the overall vibe onstage properly," he notes. "It brings the entire sound another step up, and it becomes more alive. Sometimes for recording, I hang an AKG 414TLII in a figure-8 pattern to capture the overheads, which provides more volume to the overall sound. With proper blending, you can get amazing results in some venues."

The band listens on wedge monitors, but Brown uses a Shure PSM600 ear monitor in one ear. "Just the left," he says. "I love that the in-ears allow me to hear the same mix wherever I go on the stage, but I also need to feel the air moving."

Brown's own vocal mic, a Shure Beta 58 wireless, is one of the essential items that always travels with the band. "That's the mic I love," he says. "It's got the warmth, and you don't have to add a lot of EQ. If I try to use something else, I really notice the difference. I have to work a lot harder to get it to sound right. I'll say it for the record, I love Shure mics."

In anticipation of assembling a live album, B has started recording shows. He uses the same Digital Performer setup on the road that he helped Brown assemble for his home studio. "We use a laptop G4, with a gig of RAM," he says. "And we record via two or three MOTU 896s and one 828 to an external 120-gig LaCie FireWire drive. The laptop only has one output, so instead of using a FireWire hub, which causes you to lose some of the bandwidth on the FireWire interface, we just take one FireWire drive, go to that first and chain the other guys together to get 24 or 32 channels. The 828 is the only one that can't be chained, so we make that last. It works really well."

Next on B's list is to put together virtual synths and a unified database with all of the necessary sample libraries for the road. That would eliminate the need for rentals of the multiple keyboards the band requires, and also give him more control over individual program levels and DSP processing. "It's a small band, but there's a lot going on," he admits. "Norman likes to re-create live what he does on the CDs, so there are strings, horns, piano and other parts. There's a lot of keyboard layering, and the bass player adds a DX7 bass on some songs. When we get those parts in the computer, it will be a lot easier to balance."

With another album in the works and a lengthy roster of gigs in place for 2003, there'll be plenty of opportunity for further innovation. It doesn't look like there's any boredom scheduled in the near future for either Brown or Stanley B, which is the just the way they like it. Check www.NormanBrown.com for tour dates.

MIX ONLINE EXTRAS

World Radio History

DEF LEPPARD

PHOTOS: STEVE JENNINGS

Def Leppard are out in support of their new album *X*, their tenth in a long rock career, with them at FOH is mixer Brad Madix. For the U.S. portion of the tour, the band relies on Sound Image, but for three weeks of UK dates, they pick up Major Tom.

"We flew nine to 12-deep VerTec main arrays for the arena leg," Madix says. "On the side, we hung another array between six and nine deep. This was my first experience touring with the VerTec, and my feeling has been that this is plenty for a cut-down-arena-sized venue." Madix is using a Yamaha PM-1D for the American leg but will switch to a Digico D5 Live in the UK. "I flew down to San Diego and got a tour of the D5 Live from Taidus Vallandi and was very impressed. We have 32 lines from the stage and eight reverb returns, plus CD returns. Either console accommodates us with room to spare."

Outboard gear includes a Tube-Tech CL1B on the bass, Manley Elops on the four vocals and Empirical Labs Distressors (modified with a British mode and stereo link) across the guitars. Effects are a TC Electronic 2290 Delay and an Eventide H3000SE Harmonizer. Mic setup is pretty straightforward: Lead vocalist Joe Elliot sings through a Shure handheld wireless, while the rest of the band use A-T 4054s; bassist Rick Savage has a Shure headset. Drum mics are A-T, though most of the drum sounds are triggered samples (kick, snare, toms). —*Steve Jennings*

INSTALLATION NEWS

As part of October's weeklong China National Day celebration, Shanghai TV provided a JBL VerTec sound system for a large-scale music performance in a 35,000-seat stadium. The sound system, which included JBL VT4889 Line Array and HLA4895 three-way loudspeakers with Crown amplifiers and dbx signal processing, was purchased from Advanced Communication Equipment Int'l Co. LTD (ACE)...The first Meyer Sound M1D Compact Curvilinear Array system in South Africa was installed in Capetown's Baxter Theater for the revival of the celebrated musical *District Six*. The high-energy musical is projected throughout the three-level, 650-seat venue through just eight of the diminutive M1D cabinets, four on each side. Sound designer Aki Khan consulted with Mark Malherbe at ProSound (Pty) Ltd., who specified the system.

TOURING NOTES

London rental company John Henry's Ltd. supplied a Midas Legend 3000 as a monitor board for Avril Lavigne's recent live session on Radio One. JHL also furnished a Legend 3000 for the Foo Fighters' appearance on the *Later With Jools Holland* show. Monitor engineer Vish Wadi reports that Colombian-born singer Shakira is using the Neumann/Sennheiser KK 105-S wireless mic on her world tour to promote her latest album, *Laundry Service*. "I like it, it sounds good. It's nice and breathy. It's a studio-quality microphone," says Wadi of the hybrid...Ricky Skaggs returned to the Charleston Music Hall to record *Ricky Skaggs Live at the Charleston Music Hall*, due for release late in 2003. Skaggs, a lifelong Neumann fan, sings into a U47, as do the backing vocalists. The project also featured six Neumann KMS 105 microphones and an 8-channel True Precision mic pre. ■

SOUND ART CANADA PICKS NEXO GEO

Sound Art Canada has purchased a Nexo GEO Tangent Array System, consisting of 14 GEO S805 5° array elements and two S830 30° array elements, plus four CD12 Controlled-Directivity Sub-Bass units. The system is managed by two Nexo NX241 digital controllers and amplified by four Camco Vortex 6 digital amps. The new system is on a U.S. tour with the Shaolin Monks and the *Wheel of Life* production, a martial arts theater spectacular.

INNOVASON FOR *BOND* MOVIE PREMIERE

Delicate Productions of Camarillo, Calif., supplied an InnovaSon Grand Live digital mixing console for the charity premiere of *Die Another Day*, the latest *James Bond* movie. The soundtrack was presented in Dolby Digital Surround-EX format, and engineer/system designer Lyle Dick used the InnovaSon to set up primary and backup scenes to route the six audio channels from the booth, plus a feed from the red carpet, through a pair of coaxial cables to the FOH position.

DJ CLUB GOES MEYER

Malaysian club owner Jay Subramaniam has purchased a self-powered Meyer Sound system for The Disco in Kuala Lumpur, Malaysia. The system includes four MSL-4s and four M2D subwoofers to cover the 30x15 rectangular dance floor, plus two UPM-1P Ultra-Compact Wide-Coverage loudspeakers for the VIP area. "I needed a system that would provide clarity, tight bass and a high SPL, giving us the headroom we need because of the habits of visiting international DJs who have never failed to blow my systems in other clubs," says Subramaniam.

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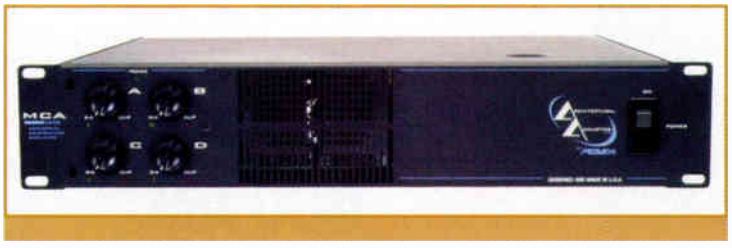
New Sound Reinforcement Products

SURGEX ICE

The ICE 20C and 20H Inrush Current Elimination (ICE) remote-control units from SurgeX (www.surgex.com) offer remote soft turn-on and fixed-time sequencing to prevent the tripping of circuit breakers by high-powered audio amps. When daisy-chained and controlled by SurgeX's SX2120-SEQ, ICE products will act as a sequencer for multiple amplifier applications. Both the cord-connected ICE 20C and the hardwired 20H feature advanced impedance-tolerant EMI/RFI filtering to help eliminate line noise.



ARCHITECTURAL ACOUSTICS MCA 4200 AMP

The MCA 4200 4-channel power amp from Peavey Electronics' (www.peavey.com) Architectural Acoustics division features four independent 200-watt channels in a compact, fan-cooled, two-rackspace package. The unit can supply full output power to low impedance (4/8-ohm) and high impedance (70-volt) loads simultaneously in 2-channel configurations; bridged operation is possible. Each output has short-circuit and Peavey SPS loudspeaker protection; all inputs are on removable Euro connectors, plus two modular bays with MMA Series input-module support.

BEHRINGER ULTRA-DRIVE PRO DCX2496

The Ultra-Drive Pro DCX2496 digital loudspeaker management system from Behringer (www.behringer.com) has 24-bit/96kHz converters and a 112dB dynamic range. With three analog inputs and six analog outputs, one DCX2496 can drive a three-way system or three bi-amp outputs for monitors; or one input can be used as a digital stereo AES/EBU feed to studio monitors. A link option via RS-485 network interface can cascade units for larger four/five/six-way systems. Individual filters offer characteristics from Butterworth and Bessel to Linkwitz-Riley, with 6 to 48dB/octave roll-off. DSP includes dynamic EQ, "zero-attack" protection limiters and adjustable delays on all inputs/outputs for manual or automatic correcting to room temperature, phase and arrival-time differences. An open architecture allows future remote Windows software updates; a PCMCIA memory card slot stores preferred user settings. Retail: $439.99.

WESTONE CUSTOM IN-EAR MONITORS

Westone Laboratories (www.westone.com/music) designed the Westone UM56 to replace the foam or soft-mushroom eartips of many of the "universal" in-ear monitors (IEMs). The canal-style custom sleeve offers improved fit, comfort and fidelity for musicians and technicians already using IEMs such as Westone's UM1 and dual-driver UM2, and Shure's E1 and E5 models. As the UM56 is a custom product, it requires ear impressions to be made by a hearing healthcare professional; Westone provides a searchable list of such professionals on the company's Website. Retail price for a pair of UM56 sleeves is around $100.

RANE AC 24 ANALOG/DSP CROSSOVER

The Rane (www.rane.com) AC 24 crossover combines analog controls with DSP circuitry, offering features and performance not possible with conventional analog designs. This stereo, four-way, 24dB/octave, Linkwitz-Riley processor features automatic phase-compensation filters, 10ms alignment delay on each output, independent limiter for each output, high-mid and high horn EQs, invert switching for each filter output, stereo or mono LF output and a summed output. Beyond basic crossover duties, the AC 24 can function as a split-band limiter, linked-control stereo unit, independent dual-mono crossover or in full three- or four-way operation. Retail: $999.

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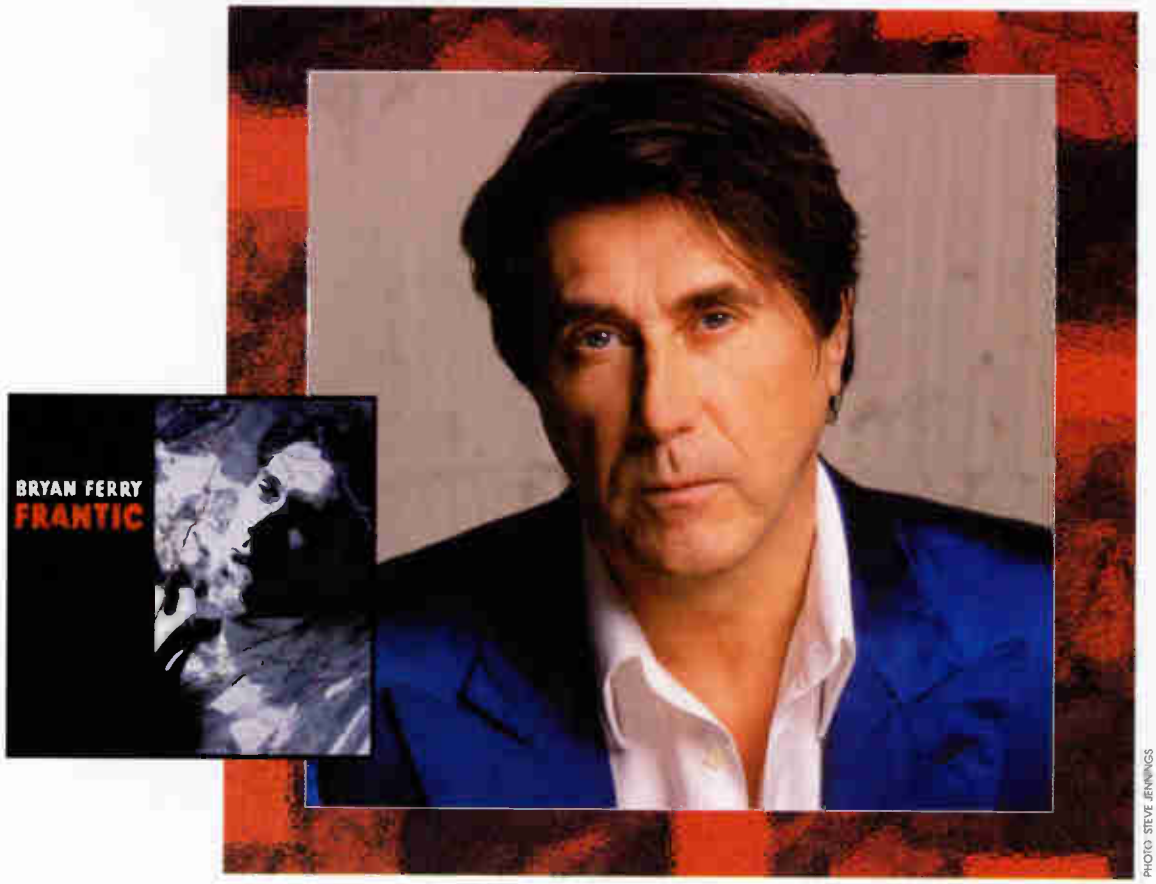

PHOTO: STEVE JENNINGS

BRYAN FERRY "FRANTIC"?

WELL, NOT EXACTLY

By Bryan Reesman

Throughout his three-decade recording career, elegant crooner Bryan Ferry has continually broken rules in search of his own musical nirvana. The debonair, sophisticated singer has tackled so many different styles that he transcends easy classification. What infuses all of his work, however, is a passion for singing, for music and for romance.

The evidence is in the nine albums he made with Roxy Music between 1972 and 1982 and the 11 solo records he has released since 1973. His influences are abundant: blues, jazz, soul, lounge, girl groups, classic rock, funk and more. And though his image as a balladeer is well-established, he has actually been something of a vocal chameleon: Compare his performance as a suave Satan on his inspired rendition of the Rolling Stones' "Sympathy for the Devil" to his quirky vocalizations on Roxy's rollicking "Virginia Plain" or the silky smoothness on the amorous "More Than This."

On his 1999 album *As Time Goes By*, Ferry explored the pop standards of the '30s—a natural for this gentleman who always looks like he's just stepped out of the drawing room of some old English estate. (That album was even in mono!) But his latest disc, *Frantic*, finds him in a more rocking mood as he ranges over possibly his most diverse collection of songs ever: Leadbelly's "Goodnight Irene"; a stirring version of Dylan's "It's All Over Now, Baby Blue"; shimmering pop/rock songs such as "Hiroshima" and "San Simeon," which hearken back to Avalon-era Roxy Music; and a collaboration with Brian Eno called "I Thought" that has a distinct lounge lizard vibe. There's even a brief Renaissance interlude in the middle of the album!

"I've been trying to stretch out in various directions," acknowledges Ferry, his speaking voice as gentle and distinguished as his singing voice. "It's been interesting the last couple of years, because I've been on tour so much. And I think that's had a big effect on everything."

Touring with a big band in 1999 in support of *As Time Goes By* and with Roxy Music on their well-received reunion tour last year inspired Ferry to want "to do something that was a bit more direct, because you do tend to do more direct things when you're playing live to an audience. I enjoyed the process of making [*As Time Goes By*] very much, because it was getting back to that organic way of working again. Working with real musicians in a studio, as opposed to laboring over computers and drum programs and so on. That

—CONTINUED ON PAGE 146

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THE FLAMING LIPS

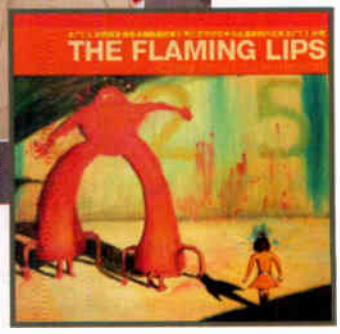
BATTLING CONVENTION AND EXPECTATION

By Gaby Alter

What do the Flaming Lips have in common with the Ozark Big-Eared Bat? Both are native to Oklahoma, and both are on endangered-species lists. In the Lips' case, it's the ever-shortening column of artistically credible rock bands left on major-labels' rosters. With the economy still on the way down, it would seem that the Lips' brand of ambitious, sprawling, creative psychedelic/progressive pop does not stand a chance in a world dominated by Christina Aguilera, N*Sync and slick, well-manicured "alternative" pinup boys. But so far, the trio has escaped downsizing and lives to fight another day, much like the heroine in the title of their latest album, *Yoshimi Battles the Pink Robots.*

From left: Steven Drozd, Wayne Coyne and Michael Ivins

PHOTO: J. MICHELLE MARTIN



These days, in fact, the Lips have been not only surviving but thriving. Critics have lauded the new CD, and college stations have put it into heavy rotation. Beck, a great admirer of the band, brought them on tour with him [see "All Access" in the February 2003 issue], where they're currently doing double-duty as his opening act and backup band. And they're busy: Besides releasing *Yoshimi*, they've

—CONTINUED ON PAGE 152

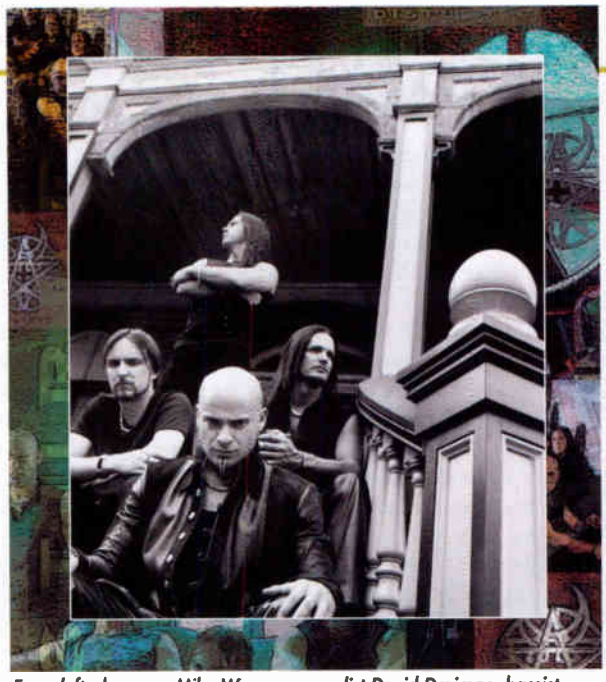
DISTURBED

HARD ROCK AT THE TOP OF THE CHARTS

By Elianne Halbersberg

Few could have predicted that Disturbed's debut album, *The Sickness*, would turn the Chicago band into a multi-Platinum international success. But by the time they put final touches on the project, they knew it was special.

"In a weird sort of way, we weren't surprised," says producer Johnny K. "I thought it was so good when it was done. We were definitely naive about the odds of that kind of success, but we all had a sense that it would do something."



From left: drummer Mike Wengren, vocalist David Draiman, bassist Fuzz and (standing) guitarist Dan Donegan

The Sickness elevated vocalist David Draiman, guitarist Dan Donegan, bassist Fuzz and drummer Mike Wengren to top contenders in the heavy-metal field. But while their peers sold themselves on attitude and lewdness, Disturbed concentrated on musicianship and making their message clear: fight racism, practice tolerance, wear your individuality with pride. The points were obviously well-taken, as the band developed a fiercely loyal following.

Loyalty ranks high among Disturbed's priorities: They wouldn't back down in their decision to have *The Sickness* produced by Johnny K, who was at the time relatively unknown and whose relationship with the group dated back to Donegan's club-band days. "That was my first album for a major label," he says. "[Reprise] had given them a sizable deal, and the band said, 'We want this guy with no track record as a major-label producer.' The label was nervous, but the band was insistent. It speaks of them as people, and their determination and work ethic define their career. They stood by me."

To record their latest album, the chart-topping *Believe*, Disturbed reassembled the team. They went back to Johnny K's Groovemaster Studios in Chicago, and again had Andy Wallace mix at Soundtrack Studios in New York. By this time, the group had logged thousands of miles and countless performances. According to both Wallace and Johnny K, however, Disturbed were

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THE MC5'S "KICK OUT THE JAMS"

©STEPHEN PALEY/MICHAEL OCHS ARCHIVES.COM

Pre-punk rockers, the MC5

By Rick Clark

Back in the mid-'60s, when regionalism was still something you could hear on a record and on the radio, Detroit and Southeastern Michigan were not only home to Motown, but became the breeding ground for some of the hardest-rocking bands to come out of America. Just like you could spot a Memphis, New Orleans or Philly record, Detroit-area rockers took the most visceral elements of blues-influenced British Invasion bands and gritty American soul and R&B music and turned the rockets up with an identifiable hard-edged immediacy that was absolutely regional. How could any lover of rock 'n' roll not dig bands like Mitch Ryder & The Detroit Wheels, Ted Nugent & The Amboy Dukes, The Frost (featuring guitarist/singer Dick Wagner), The Stooges, The Rationals, SRC, Brownsville Station and Bob Seger?

One band that distilled the brutal essence of rock's primal roar to its most fearless, floor-shaking manifestation was the Motor City Five, better known as The MC5. The MC5 comprised vocalist Rob Tyner, guitarists Fred "Sonic" Smith and Wayne Kramer, bassist Michael Davis and drummer Dennis Thompson. (Bassist Pat Burrows and drummer Bob Gaspar were in the first lineup formed in 1964.) Though The MC5 shared the British Invasion bands and American R&B influences of their peers, they soon began immersing themselves in jazz, feedback and experimental music. By the time they signed with Elektra, The MC5 became legendary throughout the Midwest for their incendiary live shows, notable not only for their explosive original material, but also for Tyner and the band's testifying stage banter that was a stew of radical politics and James Brown throw-down soul-revue incitement.

"Our whole thing was based on James Brown," says MC5 guitarist Kramer. "We listened to *Live at the Apollo* endlessly on acid. We would listen to that in the van in the early days of 8-tracks on the way to the gigs to get us up for the gig. If you played in a band in Detroit in the days before The MC5, everybody did 'Please, Please, Please' and 'I Go Crazy.' These were standards. We modeled The MC5's performance on those records. Everything we did was on a gut level about sweat and energy. It was anti-refinement. That's what we were consciously going for."

It was Elektra publicist Danny Fields who brought The MC5 to label head and producer Jac Holzman and producer/engineer Bruce Botnick's attention. "The MC5 were part of an extraordinary scene," explains Kramer. "When Danny Fields came out to Detroit, he saw what was the best-kept secret in the music business. There was this band without a hit record that could draw 3,000 people a night in the Detroit area. We could do that in Chicago, and we could do it in Cleveland. We played for years all over that part of the country and built up a grassroot following that couldn't be denied. The kids knew all of the songs and were passionate about this band. This band was theirs, and this band was talking about what they were talking about. There was this bond, and so from a business point of view, the clear idea was to translate this to a national level and then translate it to an international level. The MC5 burned very hot and very bright, but very fast and burned out."

Botnick recalls his first trip to see The MC5 prior to formally recording what would become *Kick Out the Jams*, a concert document that, 34 years after its release, is still one of the most powerful hard rock albums ever committed to tape. "Jac said to me that this band is supposed to be great, so we flew to the Grande Ballroom [in Detroit] to hear them," says Botnick. "Thank God I had the presence of mind to take a cassette machine with me that had a built-in microphone, because they were so loud I couldn't hear what was happening. It was the loudest thing I had ever heard in my life. Getting back to the hotel room, Jac and I were amazed. They were very good songs, so I was really excited, and then we planned to record."

It was this raw concert power that inspired Elektra and the band to make their major-label debut a concert recording. "The conventional wisdom was, you cut two or three studio albums and then you did your live album," Kramer says. "We thought it was a revolutionary move to do the first album live. We had worked so hard to perfect our live

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Cool Spins

The Mix *Staff Members Pick Their Current Favorites*

Tony Bennett and k.d. lang: *A Wonderful World* (Columbia)

Bennett and lang toured successfully together in 2001 and the chemistry between them was palpable, so it makes sense that a CD would eventually come from this union. *A Wonderful World* is a collection of 12 songs recorded by Louis Armstrong during his storied career, though several are numbers more associated with other singers. Most of what's here is easy-going romantic pop delivered with a jazz intonation; it's hard to think of two people who could do it better. Bennett and lang seem to really communicate on these tracks, whether they're trading lines or entire verses or harmonizing beautifully; they're always in character for each song, and you can hear the affection they have for each other and for the material. The arrangements go from a spare quartet (Bennett's regular touring band) to a lush 50-piece string section, but the voices are always kept out front. The CD's first half is relentlessly sunny, almost to a fault, but a little darkness and doubt creeps into some of the later tracks, significantly adding to the project's overall richness. Among my favorites are "What a Wonderful World," "You Can Depend on Me," "You Can't Lose a Broken Heart" and "That Lucky Old Sun" (which is the lone song that is not a duet; it's sung solo by lang). The album was cut live in the (empty) Harms Theater in Englewood, N.J., with Bennett's son Dae engineering from Tony's studio down the street.

Producer: T Bone Burnett. Engineer: Dae Bennett. Studio: Bennett Studios (Englewood, N.J.). Mastering: Greg Calbi (Sterling Sound). *—Blair Jackson*

Weather Report: *Live and Unreleased* (Columbia)

Considering how influential and popular Weather Report were during the group's 15-year history in the '70s and '80s, it's remarkable how *little* archival material has come out since their demise; indeed, this is billed as the first "new" Weather Report release in nearly 20 years. It's also the first live WR CD to incorporate several of the group's different, but top-notch lineups. Even though the different bassists (Alphonso Johnson, the incomparable Jaco Pastorius and Victor Bailey) and drummers (Chester Thompson, Alex Acuña, Peter Erskine and Omar Hakim) bring distinct personalities to the music, it is keyboardist Joe Zawinul and saxophonist Wayne Shorter—the founding members and leaders—who drive the music and provide the glue that holds it all together; they are truly among the giants of post-World War II music. Weather Report

was world fusion music at its absolute best, and this set shows them at full strength, moving easily between Latin-influenced numbers to more African textures to driving rock-ish jams, post-bop jazz explorations and big band flourishes that really swing. There are beautiful quiet passages (including a surprisingly restrained Jaco solo) and tracks that just build and build until they just explode cathartically. This group was one of a kind, and this set stands as a wonderful celebration of their brilliance.

Original recordings produced by Zawinul and Shorter. Compilation produced by Zawinul, Bob Belden and Ivan Zawinul. Mixers: Zawinul, Jim Anderson. Recorded live on the road; mixed at The Music Room, Sony Studios, Avatar Studios (all in New York City). Mastering: Mark Wilder and Seth Foster/Sony. *—Blair Jackson*

—CONTINUED ON PAGE 156

performance, and I think that the consensus was that The MC5 is all about the live performance, so let's see if we can capture this."

The recordings were done over the course of two nights—October 30th and Halloween—at the Grande Ballroom. They were also recorded the day of the 31st without an audience.

"Jac came up with that idea," says Botnick. "It worked fairly successfully, because sometimes you wouldn't get a really good performance live. I wouldn't consider it a cheat; we were trying to put the best foot forward. We only recorded, I think, one or two shows at the most one night, so we didn't have a lot of takes to choose from. And then we recorded the next day everything that they did in the show we did in the afternoon."

Botnick brought Wally Heider along to help with the mobile recording setup. "Wally flew all of the gear to Detroit and rented a truck with a lift gate," he says. "We loaded all of the gear in and put packing blankets on the walls and had, I think, three loud speakers—three L604s and a utility cabinet—and one of the Universal Audio tube consoles. We recorded on one 8-track machine."

During the morning of the gig, Heider and Botnick had a major scare: "We were putting the stuff in the truck and the machine had just come up on the lift gate," Botnick recalls. "Wally was in the truck with me and we were talking with our back to the machine, and all of a sudden, we felt the truck bounce and then we heard a crunch. The 8-track fell over backward, six feet down and hit the ground. It was the only machine we had. Wally and I got down from the truck, stood the machine up, turned it on and it worked perfectly. It was a 3M 8-track—one of the great M-79s. They don't make machines like that anymore."

Kramer recalls, "They had a little TV camera up on the stage and a small monitor in the truck, which I thought was the height of technology—that they could be in the truck and actually see the stage."

For the 8-tracks, Botnick had two mics out in the hall, two vocal mics, two guitar mics, a bass mic and a drum track. It was recorded non-Dolby on BASF tape at +10. "For the drums, I probably used two Sony C37s on the overhead, one on the snare, and probably a SM56 on the kick—four mics in all," Botnick says. "I seem to remember using AKG, not the C12, but the other one—the 12A, which was the forerunner of the AKG 414, but the tube ver-

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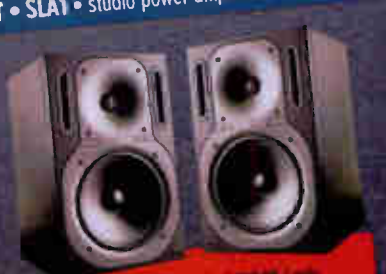

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sion—on the guitars. Everything had pads, and the bass was miked as well with the direct box. I used SM57s or 58s on the vocals. It was a pretty simple setup. I wasn't using any booms; just little short stands with sandbags in front of the guitar amps and the bass amp, so they weren't going anywhere. It was the same thing with the drums; they had sandbags on them, too.

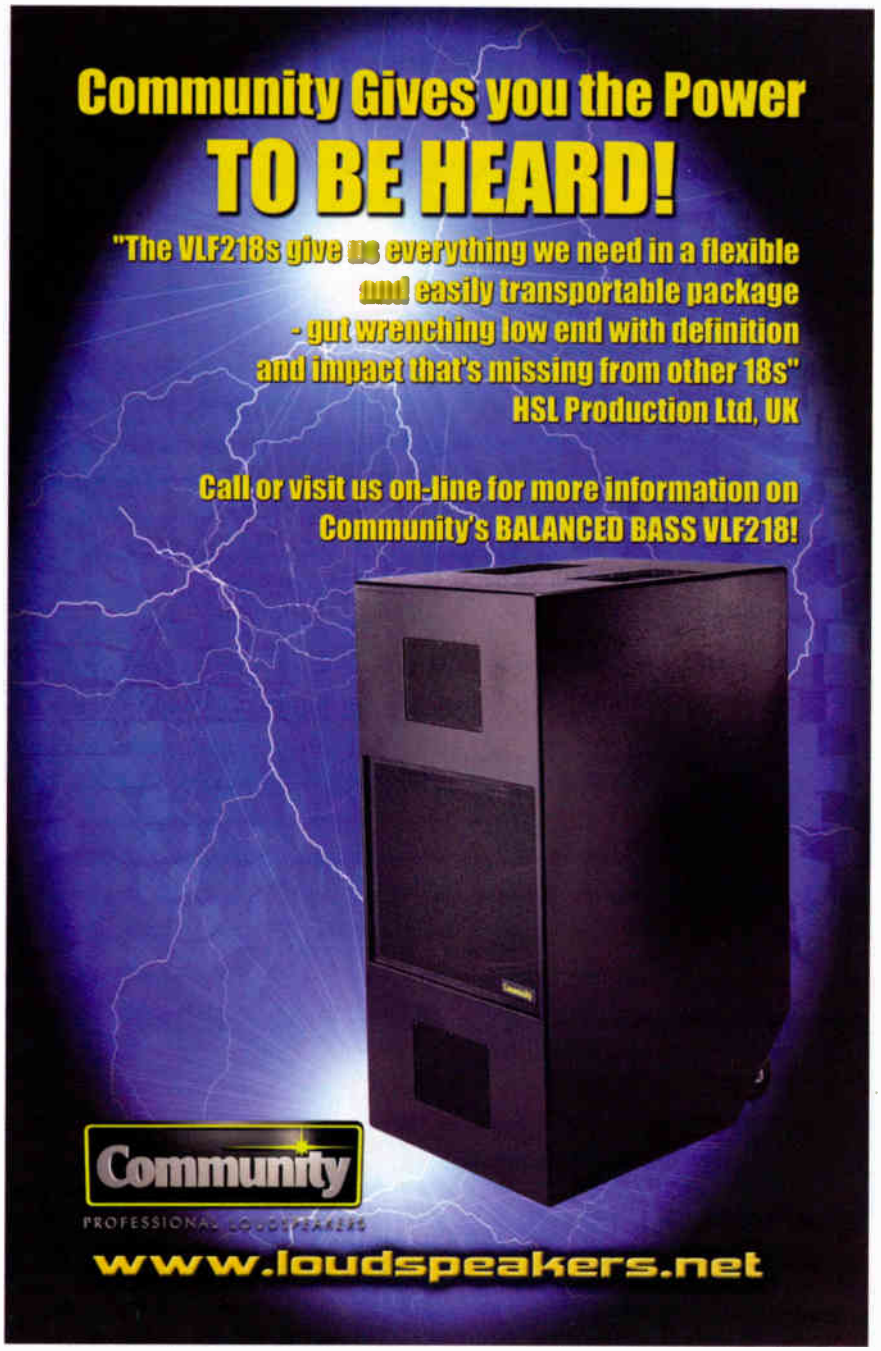
"They were so loud that there was incredible isolation," continues Botnick. "If you were standing in front of Fred 'Sonic' Smith's guitar, that's all you'd hear. I was astonished at how much separation there was on the drums. When I recently went in to do a surround remix, there was more than enough for me to go in and EQ everything the way I wanted to do it. If I wanted to compress anything, I could do it without bringing up the other instruments. Sometimes, too loud works in your favor. It's amazing. You don't really need a whole lot of baffling."

The most controversial cut on the album was the title track, which opened up with one of the most famous calls to action in all of rock history: Out of the gate, lead singer Tyner breathlessly says, "Right now. Right now. Right now, it's time to..." He pauses for a second and then screams out, "Kick out the jams, motherf******s!" At that moment, The MC5 unleashes a righteous metallic freight-train guitar riff roar that is astonishing in its pure energy.

According to MC5 bassist Davis, "When that song was written, we didn't even think much of it as being a major part of our set. It was almost like a filler song, because we were coming up with a lot of epic and very dramatic pieces that had high drama and mega-proportions at the time. So here comes 'Kick Out the Jams,' this three-minute thing that was just there for a little flash, because it didn't carry the weight of the other material that we were more interested in doing. It was almost an afterthought, a 'We need something here that breaks the action and is a little relief from the heaviness.' So we wrote that simple little riff and Rob [Tyner] was banished to the dressing room to come up with some lyrics. 'You go in there and don't come out until you have some f***ing words!' So about 20 minutes later, he reappeared with the lyrics to 'Kick Out the Jams.' It was just really a song about how we liked to play. Then it became a tool for us to slander other musicians, to shame other musicians into putting more of themselves into their stuff, to quit posing and fool everybody with bullshit. Be honest. So 'Kick Out the Jams' started off not being a big thing, and then turned into the thing that described The MC5 perfectly.

"Right before the first show," Davis continues, "when we got all our levels and everything set, we were asked, 'Can you do one where you don't say "motherf******"? Can you do one where you say something else, like "brothers and sisters"?'"

"We knew that 'Kick Out the Jams Motherf******s' would never be a hit single; we weren't stupid," adds Kramer. "So we had absolutely no trouble with recording another version of the intro with 'Kick Out the Jams, Brothers and Sisters.' We had to adjust that all of the time, because the police would be waiting for us at the gigs telling us that if we sang that song, they would arrest us. Or the promoter would say, 'If you sing that song, you won't get paid.' So we had a hundred different versions: We had 'Kick Out the Jams, Mother Superior,' 'Kick Out the Jams, Mammy Jammy,' 'Kick Out the Jams, Mustard and Ketchup,' and 'Kick Out the Jams Sap Suckers.' Tyner would just make them up on the spot and we



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had no problem with it, and that's why we recorded the alternative "Brothers and Sisters" version that afternoon at soundcheck. The prevailing attitude was, 'When is somebody going to do something about The MC5? We can't allow this rock band to do what they're doing and say what they're saying.'"

Botnick mixed the album at Elektra Sound Studios Los Angeles. "When I mixed this, I was not really happy with the perspective that I was getting through the big loudspeakers, so I wound up mixing it with some electrostatic headphones," he says. "I think they were Koss. They worked pretty good for this, and I was able to get the balances that I wanted. I couldn't seem to hear it on the loudspeakers for some dumb reason. Maybe it was because the music was so different than anything I had ever done. The perspectives just didn't seem to work on the speakers in the studio."

Even though much has been made of "Kick Out the Jams" in its uncensored form, the track and album are so much more than a word that now has been heard so many times that it is practically meaningless. The power of The MC5's music has always been in the band's uncompromising commitment to the liberating essence of real, unfettered rock 'n' roll. Check out the hyperdrive feedback anthem "Starship," or the lurching push-and-pull crush of "Borderline" or the testosterone-crazed heaviness of "I Want You Right Now." It's not for the faint of heart.

Truth be told, The MC5 never sold many records, and their history after "Kick Out the Jams" is short and spotty, producing just one more great album—*Back in the USA*, produced by Jon Landau. They broke up in the early '70s. But during their brief moment, when they were really "on," they seemed like the embodiment of some glorious rock revolution, tearing down the walls with brute musical force.

"There was this feeling of electricity in the air when we played," Davis remembers. "Especially on 'Kick Out the Jams,' I felt like I was floating above the ground. There was so much energy present and people picking up on it, and we were just laying it out there. I felt like I was tied to a white rope of electricity and just shaking on it, and everybody was just there, a part of the light. It was magic."

MIX ONLINE EXTRAS

BRYAN FERRY

FROM PAGE 138

had quite an effect on this new album, as well."

Some of the team that made *As Time Goes By* was back in place for *Frantic*, including Ferry's fellow co-producers Rhett Davies and Colin Good, who also arranged the strings and played piano on both CDs. Ferry readily acknowledges that he is barely involved in the technical aspects of recording: "I'm more into arrangements and directing the music, although I take a fleeting interest in what they're fiddling around with."

Frantic has been a long time coming. "There were a couple of tracks that are older recordings [from before the sessions]," says Good, "but the bulk of it was actually recorded with a rhythm section live at least. When we did *As Time Goes By*, particularly with the straight jazz tracks, there was no other way of recording those; you can't piece that together. You have to get seven or eight players in the studio and press Record. There was very little overdubbing on that project."

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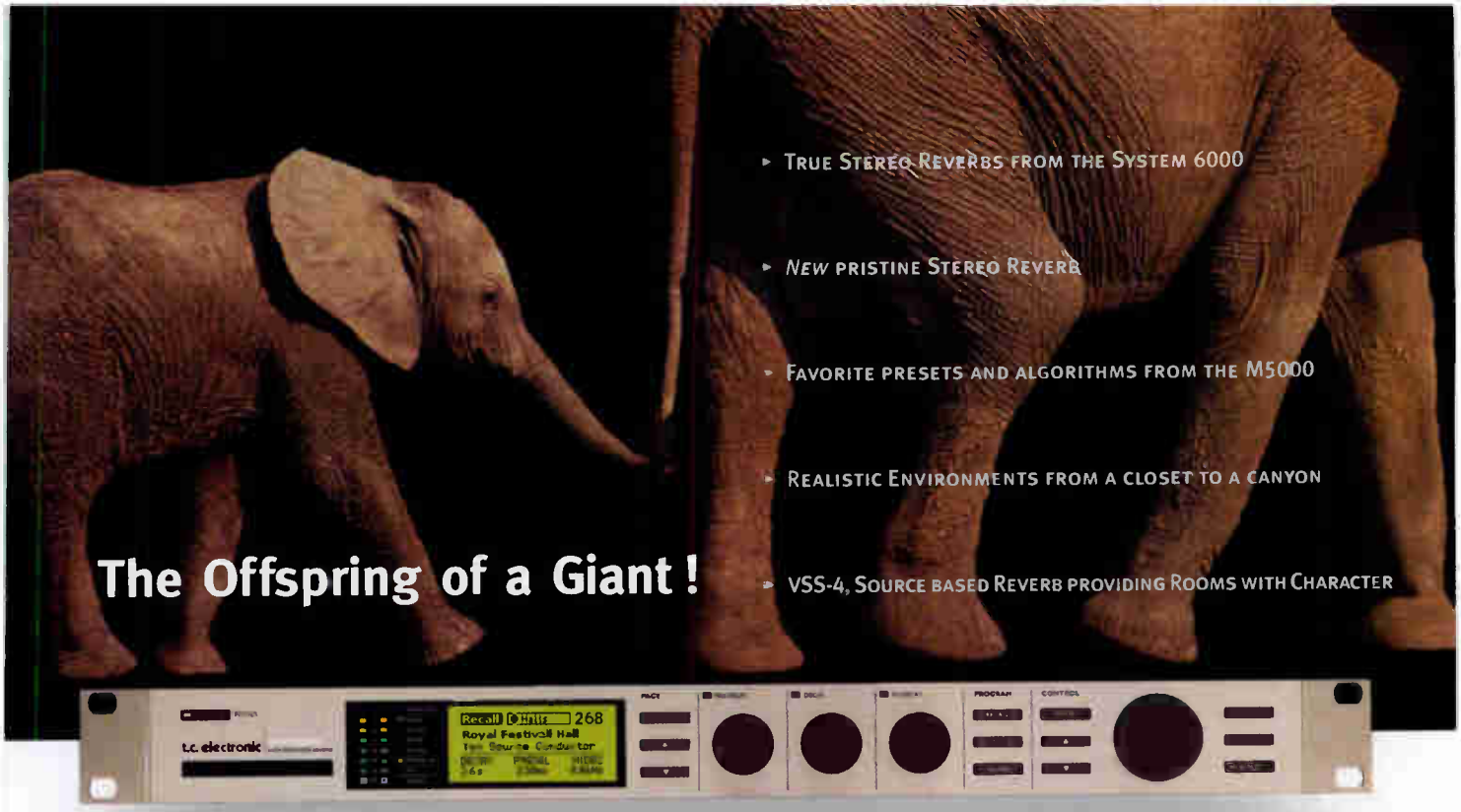

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Good observes that Ferry revisited that more organic-recording process for *Frantic*. "Some of that stuff was a bit rehearsed, and some of it was very spontaneous," he says. "I think the two Dylan tracks are first takes—not just the backing tracks, but also Bryan's vocal, as well."

Some songs went through a longer evolution. The album itself was recorded over three distinct periods: at the end of the *As Time Goes By* tour in the summer of 2000; just prior to the Roxy Music reunion tour in the spring of 2001; and then following that tour in late 2001. "There was a period where we were cutting live tracks, and there was a period where we were doing overdubs and putting [together] some old tracks," recalls Good. "I think Bryan recorded 'Goodnight Irene' 10 years ago, but we did a lot of work on it, adding various things. Then there was the last period, where we worked on things like 'Goddess of Love,' 'One Way Love' and 'Hiroshima,' which Bryan had recorded about five or six years ago but hadn't quite finished."

Good and Davies generally recorded songs from the rhythm section on up. "We didn't use a click," Good says, "so you'll hear that quite a lot of the tracks will speed up and slow down, as appropriate, which was another old-fashioned element that we really wanted to incorporate. So if you take a track like 'Cruel,' it gradually speeds up, which I think is a very good and effective thing." He says that such subtle variations in tempo made editing more problematic, "but then that's the price you pay for getting that organic feel."

The album was cut using up to 48 tracks on the RADAR hard disk recording system, which Ferry describes as "a very convenient way of working. It's digital, but we do use a very old desk. In fact, both studios we used had really ancient desks, which I think was a nice way to work." The bulk of the recording was done at RAK Studios in London, with pre-production and overdubs at Ferry's Studio One.

"The beauty of RADAR is that it feels as though you're recording onto tape, because what you're presented with on-screen, and the way in which it works, is very, very similar to what you would be doing with a piece of analog tape," Good says. The CD was later mixed on an SSL console (mostly by Bob Clearmountain) and then mastered by Bob Ludwig at Gateway Mastering.

Ferry says that he's happy to leave the technicalities to the various engineers on the project—including Nick Addison, Neil Brockbank, Richard Norris and Ash Howes—and to Davies, with whom he has a long history. "The first time I worked with him, he was just a tape operator on *Another Time, Another Place*, which was way back in '74," the singer recalls. "He went on and did quite a lot of things with Brian Eno and did something with Talking Heads at that time. He came back to work with me as an engineer on Roxy's *Manifesto* album, then

> I like to create pictures in music. That's why, in the past, I generally have used lots of different textures and different musical colors.
>
> —Bryan Ferry

[co-produced] *Flesh & Blood*, *Avalon* and *Boys & Girls*. Then he kind of retired for 10 years. I think I wore him out. It was a real treat for me to work with him again on *As Time Goes By*; I lured him out of retirement, and then he came on the road with me on the last two tours—the solo tour and the Roxy tour—mixing the sound." (He also was on Ferry's most recent American tour last fall.)

"When I came off the *As Time Goes By* tour two years ago, I was very fired up by the reception we received," Ferry continues. "People really liked those songs from the '30s, and they liked the Roxy Music material I did, as well. I just felt very inspired to do a record that was very different from the '30s thing—to get back to more guitars and drums; a kind of rock record, really.

"As the record developed, it became wider and wider in its scope. I did want to make a mixture of covers and self-written stuff, because I had quite a number of songs written that I had done with Dave Stewart and some on my own, and even one with Brian Eno. So I had quite a lot of things to choose from."

As with all of Ferry's albums, *Frantic* features a strong cast of supporting musicians: Robin Trower and Radiohead guitarist Jonny Greenwood bring their axe-work to "Hiroshima"; Brian Eno lends keyboards and backing vocals to "Goddess of Love" (an ode to Marilyn Monroe) and "I Thought"; and past Ferry associate Chris Spedding plays electric sitar on the airy "San Simeon." Ferry also sings the praises of lesser-known guitarists Mick Green and Martin Wheatley.

Ferry's songwriting collaborator for four original tunes on *Frantic* was guitarist and keyboardist Dave Stewart, best known for being half of the pop duo Eurythmics. "Dave is a very underrated guitarist," declares Ferry. "He's a very inspirational player, actually." The two musicians have a history that dates back to the late '70s, when Stewart and Annie Lennox were in a group called The Tourists, who opened up for Roxy Music on a tour of England. "He's a lively spirit who has a lot of positive energy," Ferry says of Stewart. "So has Brian Eno. He's a great character, Brian. It was nice to work with him again."

While Eno only played on the first two Roxy Music albums, he and Ferry have remained friends and collaborated as recently as Ferry's 1994 solo album, *Mamouna*, a record defined by its ambient funkiness. Eno chose not to be part of the Roxy Music reunion tour, although bassist Phil Manzanera and saxophonist Andy Mackay obliged.

Asked whether there will ever be another Roxy Music album, Ferry says, "I'm not sure. I don't think there will be another Roxy album. Funny, but Andy Mackay just rang me on the cell phone two minutes ago while I was talking to you. We enjoyed working together on last year's Roxy tour. It was great. It was very successful and a real pleasure to do."

Back in the mid-'70s, Ferry told a British magazine that, even though he fronted the arty glam-rock band Roxy Music, he still felt that he was a blues singer at heart. Given the wide range of music he has tackled since, does he still feel that way? "Well, yeah," he replies. "The blues was the first kind of music I heard. Leadbelly, in fact, was the first person I remember hearing when I was 10 years old, who really made me interested in music." Beguiled by the yearning and longing expressed in Leadbelly's voice, Ferry soon became enchanted by the blues and, later, jazz.

"It's interesting how all of the different strands of American music—or, at least, most of them—can be traced back to a guy in the South with a guitar in a field," muses Ferry. "It's amazing how many great pieces of music have developed

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from that very simple stuff." Three years ago, Ferry mentioned in an interview that he would like to record an entire album of early American folk songs. Inspired by an anthology of American folk music assembled by Harry Smith, Ferry chose some of those songs to perform at a live show in London.

Of course, Ferry also acknowledges "another branch of American music; the Broadway stuff, the Cole Porter stuff, all of these songs that I did on the '30s album. That's the other side of American music, which is more kind of Tin Pin Alley and comes from that European tradition."

As Time Goes By certainly confirmed the notion that the singer would have been at home in another era, but he has also modernized many classic numbers from that time and shown that his slick, literate sensibilities can play well today. His music has a sense of romanticism missing from millennial pop music.

"I like to create pictures in music," Ferry remarks. "I think I have quite a pictorial imagination. I like to paint pictures; that's why, in the past, I generally have used lots of different textures and different musical colors and so on. But on this album [*Frantic*], it was quite nice to be restrained some of the time, like the Dylan track, where it's just voice and piano. That's quite a change for me, and I quite enjoyed that. I think doing the '30s album and tour gave me the confidence to do that simple thing."

Asked about his penchant for covering songs, Ferry says, "It's quite interesting that of all the biggest singers of the 20th century, none of them were writers. Bing Crosby, Sinatra, Elvis—they all just did songs by other people. Even Billie Holiday, my favorite singer of all time, only did one or two original songs, if that; I think she did the lyrics on 'Strange Fruit.'"

With Roxy Music or solo, he has covered songs by the likes of the Rolling Stones, The Beatles, Cole Porter, Bob Dylan, Wilson Pickett, Willie Nelson and Kris Kristofferson. In fact, Roxy Music's lone Number One UK hit was a cover of John Lennon's "Jealous Guy." Some of his solo albums have been comprised entirely of covers, while others, like *Frantic*, have been half-and-half.

"I just enjoy doing some of those songs, you know," says Ferry. "I like interpreting things by other people. Perhaps some people feel it's a bit of a cheat to do Dylan songs while he's still alive. But I have the greatest respect for his work. I just like to do songs that I love." ■

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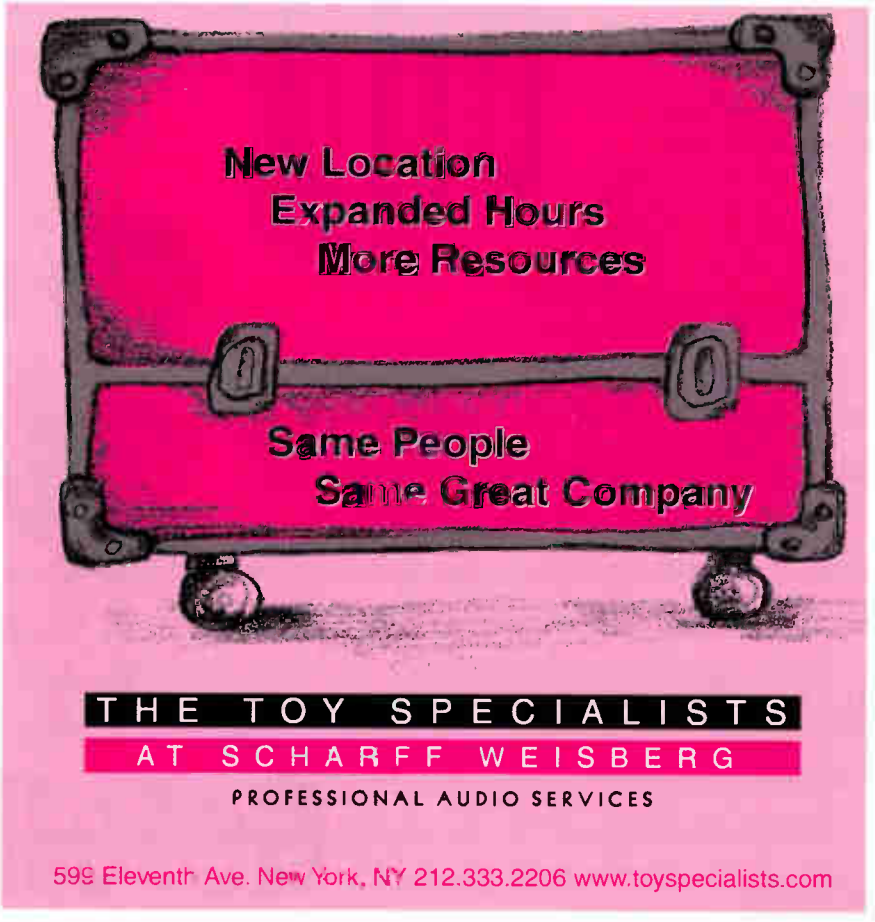

THE FLAMING LIPS

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been at work on two projects at far ends of the musical spectrum. The first, a soundtrack to the documentary *Okie Noodling*, is down-home country music; the second, *Christmas on Mars*, is a self-made sci-fi film set to be "really depressing, symphonic death marches," according to lead singer and songwriter Wayne Coyne.

Encompassing such extremes, however, is nothing new to the Lips. Coyne started the band in the early '80s, merging a punk aesthetic with a psychedelic one. (*Finally the Punk Rockers Are Taking Acid* is the title of their retrospective CD.) Over time, Coyne changed bandmates, and in the late '90s, the band began to move away from a traditional rock format and became something closer to an experimental studio band. Drummer Steven Drozd, bass player Michael Ivins and Coyne started creating more elaborate studio compositions, with the entire band playing different instruments on the recording rather than restricted to "his own" instrument.

The fruit of this new direction was the critically acclaimed 1999 release, *The Soft Bulletin*, which paved the way for *Yoshimi*'s success. The album was an ambitious one, both musically and thematically, tackling the subject of mortality in the wake of Coyne's father's death; on *Bulletin*, Coyne deals with this in a frank, real and sometimes comically absurd style—a kind of existential rock music. Musically, *Bulletin* was remarkable for its use of orchestral arrangements that lent many of the album's songs an epic, cinematic quality. Coyne's voice works perfect in this setting. He has a classic non-singer's voice that recalls Neil Young's in its high register, earnest enunciation and tendency to waver and break.

One of *Bulletin*'s surprises is that the orchestras themselves, which sound pretty convincing, came out of a Roland orchestra module. "The real key to that is how great of an orchestrator Steven is," explains Dave Fridmann, the Lips' engineer and co-producer. "He makes it so real. He knows what the instruments could do and should do." Drozd also created the massive choir sounds on *Bulletin* by overdubbing himself, a trick he repeated on the Lips' recent single, "Do You Realize??"

Yoshimi is also partly about death, though its title suggests something lighter. Not quite a concept album, it does contain a loosely sketched, three-song narra-

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tive about a protector of humanity seemingly modeled on Japanimation heroines. Her robotic nemesis, however, is not completely unsympathetic: One song gives the impression that it has an almost human consciousness, in the manner of the *Blade Runner* androids. This moral ambiguity, combined with a wistful musical coloring and Coyne's earnest singing, brings out deeper undertones in the campy sci-fi narrative.

"Any kind of fantastical setting, if it's done in the right way, can illuminate the inner humanity of people in a really entertaining and vibrant way," Coyne says. "That's why the Bible and *Star Wars* have the same appeal to people, because it's just fantastical shit. Fire comes from the sky, people have great costumes, and great, exciting things happen that you'll never be able to see in your own life. But if they're done right, they allow some perception or story to be told that lets the inner humanity really shine through."

While some of the orchestral rock from *Bulletin* carries over to *Yoshimi*, electronica emerges as a dominant influence on the new album. Drozd mentions the Aphex Twin and the Chemical Brothers as bands that contributed to this change. "We'd been listening to that stuff for quite a while, but then the technology got easier and quicker, and we just got more and more interested," he says. "Dave Fridmann and Michael are really good with that kind of stuff, so between the two of them, we could try more loops and samples."

For instance, while most of the drums were played live on *Bulletin*, a lot of *Yoshimi*'s beats are drum-machine sounds, or elaborate de- and reconstructions of Drozd's live drumming using Pro Tools' Beat Detective. In some instances, the band actually sampled drum tracks off of their last album. "We call it 'reprogramming' his drums, but it really doesn't bear any resemblance to what he actually played," explains Fridmann. "He'll play a beat, but then we'll just destroy it and rip it apart in the Beat Detective."

"We've got such a huge backlog of sounds of Steven playing the drums in different sorts of configurations that if we wanted to, he would never actually have to play the drums any more," bassist Ivins says dryly.

The resulting sound is a unique hybrid of live and programmed: Drozd's drums stop suddenly, in a machine-like fashion, or fills burst out in unexpected, slightly unnatural ways. It's an interesting effect, partly because of Drozd's recognizable drum playing, a big and exuberant style that recalls Jon Bonham's; in fact, some of the tracks on the album sound like Led Zeppelin making a trip-hop record.

The Lips recorded *Yoshimi* at Tarbox, Fridmann's studio in upstate New York. Over a year-and-a-half, the band periodically made the long commute from Oklahoma in their van for the recording sessions. "It's sort of a residential place," Fridmann says. "It's very low-key. All of the amenities are there: a Pro Tools|HD system, Otari RADAR, etc. But at the same time, you get the feeling like you're in your living room, recording on your 4-track. We've had a lot of people come in, and they end up spending a couple of weeks in their bathrobes."

The 4-track feel is important to the Lips, who do much of their arranging and writing in the studio itself. "Wayne will come in, and it's like, 'Well, here's how it goes on acoustic guitar with voice, but now, we're effectively starting from scratch,'" Fridmann says. "How the song's going to go, what tempo, what key, who's going to play what—nobody has a clue. We'll fill up one of the 24-tracks with ideas, and go, 'Alright, track 12, that's gonna stay, and everything else, get it out of here!' And then we'll start working off of track 12, and then we'll do it again. We're constantly piling on as many ideas as we can in a similar vein and then reducing it into art—the best part."

We call it "reprogramming" his drums, but it really doesn't bear any resemblance to what he actually played. He'll play a beat, but then we'll just destroy it and rip it apart.
—Dave Fridmann

Coyne corroborates Fridmann's description. "I never sit down with a direct plan or concepts. In some ways, I work like a painter who's doing a great big canvas. He just throws some junk up there, and stands back for a couple of days and says, 'That could be a tree,' or, 'That could be a face.' I think, in a way, it shapes itself, by you simply getting in there and doing stuff, as opposed to sitting and conceptualizing what it could be."

One of the reasons the Lips' music sounds so fresh is that they conceive it through lengthy trial-and-error rather than precalculation. "That's one of the best things about those guys," says Fridmann. "They will take whatever's best. They will quickly and earnestly throw away whatever they had in their minds to do if they find something better. The happy accident is the rule instead of the exception with them." ■

DISTURBED

FROM PAGE 139

100% professional and focused before they ever sold a single CD. Success hasn't changed their work ethic.

"They have the same down-to-earth attitude," says Wallace. "They're very intelligent and not on any crazy ego trips. When we did the first record, they were pleased to have me mix it, and were very respectful about my input and very appreciative of my welcoming theirs. They're not hard to get along with; they're dependable and punctual. No star trip had developed on the second album.

"They're almost at ease about the fact that they had success, so my experience working with them this time was not greatly different operationally. They just have more confidence in themselves and in me, and were even more trusting in what I did. On both records, they listened to the mixes and made suggestions."

Fans expecting *The Sickness* Part II were in for a surprise with *Believe*. Draiman's brutal vocals have taken a dynamic turn. The band still attacks fiercely, but rage has yielded to strength and lyrical anger to introspection.

"I knew things had to be together to follow up the first record," says Johnny K. "Lyrically, David wanted to offer something with more substance, which he did brilliantly. I know how thoughtful and hard-working they are, so I expected greatness. If it wasn't great, as a producer I was ready to send them back to the drawing board, which was absolutely unnecessary.

"Their confidence was a big thing. Their ability and performance as musicians dramatically improved after 500 to 600 shows. They were machines; it was instantly apparent. Mike was hitting the

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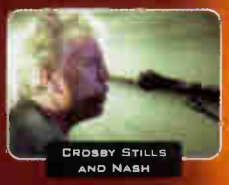

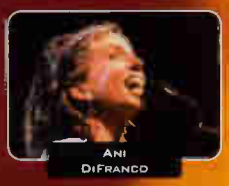

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drums with confidence. It made getting the drum tracks a breeze, which gave me the ability to spend time on sound. I like to think that this record is clearer and more separated because they were playing better, and it gave us more time to work on sound.

"Recording took six weeks. The arrangements were so well-done on their own that there wasn't a lot I could add. We tracked in three weeks, edited and fine-tuned overdubs. They were excited because they were recording new songs; there was energy and a challenging of themselves to keep up with their enthusiasm.

"The first record was done on tape; this one was digital. I felt that the heart of the music is more traditional metal, and a change in format would give it a modern edge. On the first album, the sequencers added a modern element and gave the songs their thickness and warmth. I used analog 2-inch on the first record. This time, we tracked to Pro Tools, but we used it as a digital recorder more than a workstation. We [used] digital Apogee converters, the AD8000. My studio has a Euphonix CS3000 and a 104-fader configuration; it was mainly intended to be a mixing desk, although we used it for a monitoring desk with mostly outboard mic pre's—a smorgasbord of outboard mic pre's, various vintage Neve mic pre's. The record was tracked through a Neve Melbourne [a sidecar board] and [Neve] 1095s and monitored through the Euphonix.

"I usually record live," Johnny K continues. "The studio has an iso room for everything—drums, amps; everything is isolated in separate rooms. The band is in the control room with me, the drums are in the main room, and we crank out the songs. All of the main rhythm tracks were done in a week. Setup for the album—the sound of the record—was achieved in about six hours on the first day of setup. We didn't do a lot of recutting. I like to get the energy, so I try not to run gazillions of takes. I'd rather move on. Once we get good live drum takes, it lays the foundation for everyone else and carries through the tracks.

"Most of the effects and overdubs on this record are guitar-based. We used an Eventide Harmonizer, ran the guitar through and got a great effect that sounded like drums playing under the chorus in 'Liberate.' That's something we just stumbled across; it's a subtlety in the mix.

"We changed mic pre and compression settings to bring out the depth of

David's vocals. We overdrove the compressor. We used a Distressor on the vocals occasionally when we tracked, but it was not always engaged. The vocal mic pre was an Avalon 737, and I used a Neumann tube as a vocal mic."

Andy Wallace says this of the tapes that came to him for mixing: "Johnny's stuff came in fine. He's a very meticulous guy, and he engineered and produced his stuff, as I had done in my life, as well. He's a good engineer. I like his style and the way he records live instruments.

"Mixing probably took three weeks. We moved along at a song a day. I like to mix on an SSL console. This one was done on a G-Plus mixing console in Soundtrack Studio G, a room I use quite a lot, and one of the other consoles I use quite a bit. Monitoring was on a Yamaha NS-10 and Genelec 1031A. That's generally the same monitor setup I use most of the time.

"I mixed from Pro Tools, their 24-bit HD system. I recorded the stereo mix on several media, the main one being Studer half-inch 2-track A80 analog at 30 ips, No Noise reduction; it was mastered from that medium, I think. Other media I go to are the Sony Digital DA-78 recorder; sometimes mastering engineers master from that. I back up on a Panasonic 3800 DAT for safety. I don't use a lot of outboard gear. I use a variety of reverb, mostly Lexicon, and stick mostly to compression on the console. Occasionally, I used external compression. Delay lines and reverb are my outboard gear."

Both Johnny K and Wallace agree that Disturbed's precision made everyone's job much easier. "More significantly," says Wallace, "it makes the record better because they really know the audience they're aiming at and the kind of music they want to make. In the market they're dealing with, you have to keep your sights very straight and clear, and they have. I give them a lot of credit for that. The cutout bins are full of nice records with no focus, no definition and, ultimately, no audience. These guys want to play live to large audiences, and they've contoured their records to address that audience. It makes for better records and a professional presentation of what the band is about." ■

Cool Spins, *FROM PAGE 142*

Mark O'Connor's Hot Swing Trio: *In Full Swing* (Odyssey/Sony)

Violinist Mark O'Connor has become Mr. Eclectic the past several years, making albums that fuse classical with Americana and playing with all sorts of interesting people, from Yo-Yo Ma to Wynton Marsalis. Of course, he's also done hundreds of Nashville sessions through the years, too. But deep down, you can tell he really wants to *swing* like his mentor and hero—the late Stephane Grappelli (with whom he toured nearly 20 years ago). This album gives O'Connor a chance to capture some of the improvisational fire and lyrical grace of the groundbreaking Quintette du Hot Club de Paris of the '30s, with O'Connor in the Grappelli role, guitarist Frank Vignola in the Django Reinhardt part and bassist Jon Burr rounding out the "hot" trio. Check out how they blaze through the title track (written by O'Connor)—

these guys have chops to spare! O'Connor's "Stephane and Django" is another fine tribute to the original masters of this idiom, as is Vignola's "One Beautiful Evening," which opens with a jaw-dropping solo by the virtuoso guitarist. Marsalis helps out on a few tracks—the best is a romp on "Tiger Rag"—and Jane Monheit adds some sultry vocals to four standards, including The Gershwins' "Fascinating Rhythm" and Herman Hupfeld's "As Time Goes By." However, I would be happy to never hear "Misty" again in any form.

Producers: Steven Epstein, O'Connor. Engineer: Richard King. Studio: Right Track (New York City). No mastering credit.

—Blair Jackson ■

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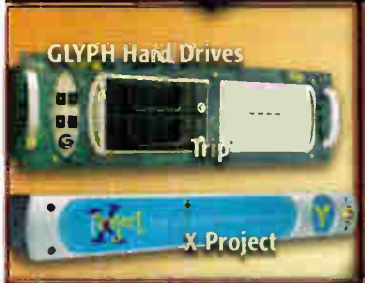

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COAST TO COAST

SESSIONS & STUDIO NEWS

SOUTHWEST

The Polyphonic Spree tracked their second album in Luminous Sound's (Dallas) Studio A. Eric Feldman produced the effort, with engineer Andy Baker and Chris Bell second engineering; Joel Pelphrey assisted...Regional country artist Donnie Vondra was in pre-production at SugarHill Recording Studios (Houston) with producer Dan Workman and Nashville-based player/producer Bobby Terry. Also in at SugarHill was the winner of Houston's version of *American Idol*, *Houston Idol*, Batrina Davis, who was putting together and producing her two-song gospel/contemporary Christian demo; vocals were recorded in Studios A and B, while mixing took place in Studio C. Engineers Steve Christensen and Workman helped Davis hit the high notes.

NORTHEAST

Zippah Studios' (Boston) founder and co-owner Pete Weiss has been behind the board producing/engineering Charlie Chesterman's fifth solo album and recording Torrez's sophomore album, *The Evening Drag* (Kimchee), with assistant engineer Matt Jugenheimer.

Sound on Sound Recording (New York City) just opened Studio D, a pre-production/overdub suite with a Digidesign Pro Tools|HD3 system at its core; designed by Larry Swist of Lawrence P. Swist Designs, Studio D was carved from raw space on the fourth floor and constructed in an acoustic shell to isolate the room from its surroundings. Get a complete gear list at www.soundonsoundstudios.com.

SOUTHEAST

Grammy Award-winning engineer/mixer/producer Bob Rosa's schedule has been filled up at Bogart Recording's (North Miami) Studio A: mixing tracks for Ricky Martin's upcoming Spanish-language LP (Sony International) with producers Tommy Torres and Estefano, and engineer/mixer Bob St. John; putting on the finishing mix touches for Alexander Pires' latest effort with producer Estefano, as well as on Becky Baeling's debut album (Universal) with producer Tony Moran; and tracking vocals for *American Idols* Kelly Clarkson and Justin Guarini with producer Anders Bag for their upcoming motion picture...A slew of activity at Stonehenge (Atlanta): Engineer Nick Didia mixed a Bruce Springsteen live show that was recorded in Barcelona for Sony International with Brendan O'Brien producing; he was assisted by Karl Egseiker and Eli Akins, and Billy Bowers worked Pro Tools. Working on an upcoming release for Jagged Edge (Columbia Records) were producer Brian Michael Cox, engineer Phil Tan and assistants Akins and Morgan Garcia.

CENTRAL

Martha Reeves stopped by Ramtrak Studios (Inkster, MI) to work on material for her live shows with studio owner/producer Jim Randolph.

SOUTHERN CALIFORNIA

Steakhouse Studio (North Hollywood) waved good-bye to Sarafan, who just finished overdubbing their new release for Elektra with producer Dave Sardie, engineer Greg Fiddleman and Pro Tools operator Greg Gordon. Taking over the space was Ziggy Marley, who was tracking his new record for RCA with producer/engineer Ross Hogarth...Dr. Dre and Redman stopped in at Track Records (Hollywood) North Studio to collaborate on a new track, "Flow Pedico"; swapping time with the duo was Dave Fortman, who produced/overdubbed "Bring Me to Life" for goth/rock group Evanescence. Also booking time in Studio North were production group The Matrix, who worked on new songs for North Carolina-based River City High; engineer Paul Lani tracked and mixed the effort...Disturbed producer Johnny K returned to NRG (North Hollywood) and is currently locked out in Studio C, where he is mixing the upcoming album for Wind-Up act Finger 11, which he also produced. Finger 11's song "Sad Exchange" will appear on the *Daredevil* soundtrack.

PHOTO: DAVID GOGGIN

Boz Scaggs (left) with mastering engineer Bernie Grundman during sessions for But Beautiful, *a collection of American standards performed with a jazz quartet. Slated for release last month, this is Scaggs' first independent release, in collaboration with Jimmy Buffett's Mailboat Records.*

STUDIO NEWS

At the behest of Andrew Mendelson, VP and chief engineer at Georgetown Masters (Nashville), the mastering studio has added a SADiE 24•96 DAW for SACD and stereo projects...Ordering its sixth SSL console within 30 years, French indie studio Davout has installed an SSL 9000 K in its Studio A; joining the board are Boxer T5 reference monitoring from Harris Grant Associates, Bryston amplifiers, Pro Tools|HD and a rack of Prism ADA-8 converters. ■

Submissions to Sessions & Studio News can be sent via e-mail to mixeditorial@primedia business.com. Photo submissions (JPEG at 300 dpi) are always encouraged, and please include the name(s) of the artists, producers and engineers on the project, and the location of the studio.

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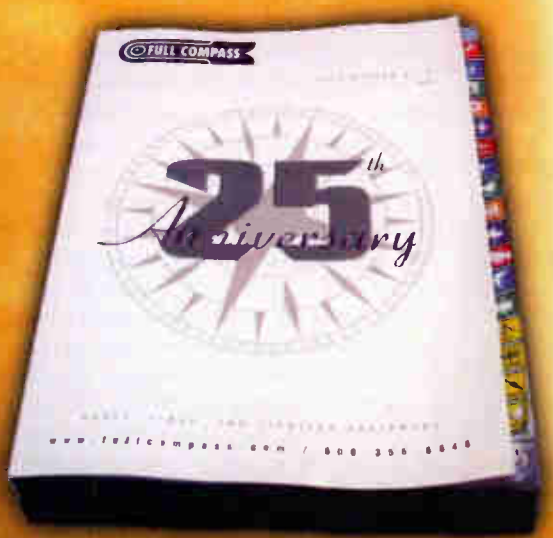

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L.A. GRAPEVINE FROM PAGE 158

for the session. "We're HD on the top end, with all of the latest drives. At the other end, we have all of this vintage stuff in racks at supercheap prices.

"This new FireWire drive—with the Oxford 911 chip set that Don is using for backup and editing—has just come out," he notes. "Basically, he's got a 48-channel HD system consisting of a G4 and four 192s with all of the option cards—48-in/48-out. If you think of it like a tape machine, you'll understand. You go into the Pro Tools allocation setup area and assign your tracks to a drive, which a lot of people forget to do. You wouldn't forget where to assign tracks if you had two Studers, and with Pro Tools, you need to do the same thing. With Pro Tools, you're not going to record over anything, but if you end up recording something on the wrong drive, you'll start pushing it. It's a physical thing. Based upon your sampling frequency, you should only be recording and playing back so many tracks from each specific drive. So you allocate.

"Don was using our internal 36-gig Seagate 10,000 rpm Cheetah drives, and he was allocating the maximum per drive that you can record at 96k: 16 tracks. So, he was getting his 48 tracks allocated across three drives. For backup and editing, they moved over to the two FireWire LaCie d2 drives that we also provided."

The 24-track analog tapes are kept until the Cheetah drives are backed up each night to the LaCie drives. "I think it's a good way to go," says Murray. "Once I have multiple digital backups, I feel confident, and we reuse the analog tape."

Also in the Track Racks were 36 pieces of desirable vintage and modern gear. "I'm bypassing the console on the way in," says Murray. "Everything is going through outboard preamps. In the rack are 12 Neves, a couple of APIs, Mastering Labs and Avalons. Some things sound great through the SSL, but for this project, I wanted the outboard stuff."

So which preamps got used on B.B. and his guitar "Lucille"? On B.B., a Neve 1073 mic pre with an AKG C 12 mic and a Teletronix LA-2A compressor. On Lucille, another Neve 1073 mic pre with a Shure SM57 mic and a Fairchild compressor.

"The Fender Rhodes and the other keyboards are very up-front, B.B.'s voice is very up-front and the drums are sort of set back," says Murray. "The B3 and the Leslie are set back, so the tracks have a real nice depth to them."

At Skip Saylor Recording on Larchmont, I found the Canadian connection: singer/songwriter Bruce Cockburn, co-producer Colin Linden and engineer John Whynot. Cockburn has worked with the same team on two previous albums: *The Charity of Night* and *Breakfast in New Orleans, Dinner in Timbuktu*. This time around, they did the project—scheduled for a May release and titled *You've Never Seen Everything*—a little differently.

PHOTO: MAUREEN DRONEY

The Canadian connection at Skip Saylor Recording (L-R): engineer John Whynot, Bruce Cockburn and producer Colin Linden.

"We went about it slightly inverted," admits Whynot, who is now based in L.A. "Bruce recorded his vocals and guitar at Studio Frisson in Montreal, with electronic violinist and programmer Hugh Marsh. Then drummer Gary Craig came out and added a little mini kit, with a rack tom for a kick drum, some bongos and an 'ocean' drum for a snare drum. We recorded those first performances to a Mackie SDR24/96 hard drive recorder, planning to slave the Mackie to an analog recorder as we built the rest of the tracks. At the same time, we recorded to a Studer A800 for comparison. To our surprise, the Mackie beat the 24-track. Once we realized that, what could we do? We had to go with it."

Going with 24-bit/96k was easier said than done, especially as recording went on in numerous boutique "tube-and-ribbon" studios in Montreal, Toronto and Nashville, where Linden resides. "You have to handle the enormous amount of data you've created," Whynot explains, "and you're limited in what you can use to edit; all of the Pro Tools systems have to be HD. We were definitely maxing out the SDR. It's only supposed to do 12 tracks of 96k, and we had 20 or 21. When we first started, they didn't have all the software written yet, so we were frequently on the phone with Mackie. But they gradually added what we needed."

World Radio History

The team also brought in the larger Mackie HDR digital recorder/editor, which, according to Whynot, "talks to its little brother quite nicely." Using the HDR's editing features and transferring the bulk of the material to Pro Tools|HD for the mix, they kept the whole project at 96k. Interfacing issues, however, were daunting. Files could be imported from the Mackie to Pro Tools, but direct digital copies weren't possible, as the two systems use incompatible Lightpipe formats. "Any time you want to go from Mackie to Pro Tools directly, you have to do it 'bootleg'-style," notes Whynot. "Analog wire to wire. We avoided that as much as possible because of generation loss. For mixing, we're playing back from both Pro Tools and the SDR.

"Also for mixing, we went back to some of the original files," he continues, "anything that hadn't been edited or punched in. We imported them into Pro Tools and lined them up, ending up with first-generation wherever possible. We now have the potential for an SACD or a combined release. It's a good candidate for it."

Cockburn, the recipient of numerous Juno Awards, is hugely successful in Canada and a critical fave with a substantial fan base in the U.S. He tours both solo and with a band, and is known for maintaining high quality in his recordings, releasing a CD only every three years or so. "I have a very eclectic style," he says. "I pull in elements from all sorts of music. Influences of every kind—from ethnic music and jazz to rock 'n' roll and American folk—get mixed into the composition and not always in a recognizable way. It's pretty hard to capsulize what I do. It's just an album of my songs."

As his loyal fans know, lyrics always come first for Cockburn. "It's like film writing," he comments, "in the sense that I want the music to support the imagery—and sometimes the character—of the words without dominating them. Sometimes, you go for contrast; sometimes, for the same kind of movement. It's like bringing color into drawings."

"For some of the songs," says Whynot, "we take more of a landscape approach to mixing, rather than just making it punchy. Of course, some of the songs were just meant to be punchy." ■

Got L.A. news? E-mail MsMDK@aol.com.

NASHVILLE SKYLINE *FROM PAGE 159*

the ceiling, and two Oktava MC012s, which are Russian condensers, about an inch above the floor, pointing at the drums. I also used an AKG C451/CK9 shotgun mic about seven feet above, pointing at the snare, and a pair of Groove Tubes AM40 tube mics in the middle of the room, one foot below the ceiling. A Soundelux E47 was used as the center mic and placed in the center speaker."

Wagener also created a mic out of an Infinity 8-inch speaker and mounted it into an aluminum stand to be used with a Shure SM91 for the bass drum: "The speaker has a lot of mass, so it moves really slow. Fast airwaves, like those created by cymbals, are not going to be picked up as much by the speaker as the low end of the kick drum. I place it right in front of the kick, and it picks up that fat low end without picking up all the high-end sounds around it; then, I mix it in with the Shure SM91 microphone, which is placed inside the drum. That microphone has a cable that is so small that you can run it through the air hole on top of the drum, which allows me to keep a full head on the front of the kick with no hole. That way, you get a great resonance inside the kick. The SM91 goes to a Little Labs IBP-1, where I can dial-in the phase relationship of those two microphones."

On electric guitar, Wagener has been very happy with the results he has been

—CONTINUED ON PAGE 186

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—FROM PAGE 24, OH, NOOOOO...

obnoxious Goodyear run-flats needed even more suppressing. I ended up doing the entire skin, doors and all decking, and one of the roofs (one roof is plexiglass, and I drew the line there), and it worked. I got about 7 dB overall—a much more comfortable ride, and a cooler one, as well. (The tunnel used to get real hot.)

3. Subaru WRX *Station Wagon*. From a tin can to the top-of-the-line Mercedes (but much faster) in one afternoon. Amazing. Dramatically less road noise, tire noise, wind noise and engine noise. It is so quiet that it actually feels like the suspension is smoother. That is a pretty slick illusion, and it tells a lot. There is no discernible metal ringing at all, and it is now one of my most peaceful rides.

I can already hear much more detail in the stock audio system than I could before—all of it very, very bad. This car is now getting a full-on high-end audio system with time-aligned, tri-amped drivers and digitally corrected cabin impulse mapping. I used two layers of DynaMat in the middle of the driver door skins to kill the most excellently persistent dominant resonance. The first layer damped it, the second killed it.

The car is almost freaky quiet now; in fact, I can hear the lame cassette capstan squeaking *while driving at 80 mph*. No long-term problem: I only own *one* cassette tape, and the entire unit will be donated for target practice later this week.

And nonautomotive applications?

Every desktop computer in my house has now been DynaMatted. That's six noisy towers brought down to an acceptable level. The AC ductwork to the studio, though fully baffled, is being DynaMatted as I write. Tests done on the ducts to my home office were very impressive. All metal cabinetry and facings in my new stainless steel kitchen have it or are getting it now. This made a huge difference in the *feel* of the kitchen—it is *much* less live; it feels "warmer" now. I did the stainless steel sink—water much softer.

Every rack in the studio has it now, and they are *wood*! They had resonances that I thought I would just live with, but they are damped out now, and I can hear the improvement in real-world listening. So, next I go after the shelves and cabinets in my living room and theater, as I tend to move a bit of air in these rooms, as well.

It works quite well on those lame Masonite hollow-core doors, but then one side is pretty ugly, so I only did it to folding closet doors.

And here is the real surprise: I opened up a few studio and theater monitors and stuck the stuff to the inside of the cabinets. I got noticeable improvements in three out of four boxes. The fourth was so heavily strutted that I expected no real change anyway. And if you open boxes to do this—tap on the speaker baskets to see if they are ringing—damp them with DynaMat as well. I did.

And any speakers sitting on my living room oak floor are now on two layers of the stuff. I am too embarrassed to detail what that cured.

Okay, get the picture? I know this is a hell of a lot of ink for black goo stuck to thick aluminum foil, but it is so damned cool and solves so many problems that I had to do it. Try this stuff. My rule is simple: If it's metal, it needs it; if it's wood, it might. ■

SSC is not available right now. He is out in the snow sticking some black goo to the underside of his diving board.

World Radio History

—FROM PAGE 28, HACKING AND HIJACKING

English speaker would do," like documentation, Web content and PR. After @soft dissolved, Paul and Alex formed a new company, Subband Software, joining forces with the original creator of MacAmp, Dmitry Boldyrev, and a student at the University of Maryland named Quentin Carnicelli. "Alex had the idea to record an .AIFF file from another application within MacAmp," says Paul, and he wrote a plug-in that could do that. This was the first incarnation of Audio Hijack.

"MacAmp has its own DSP architecture," explains Paul, "which allows incoming audio to be filtered, processed, played on the speaker and/or captured to disc. People mostly used our plug-in to capture streaming RealAudio files," which normally can't be recorded except as an analog signal from the Mac's output, "and to enhance playback of the audio on DVDs, adding EQ, reverb or whatever. And it can also be used to rip audio from DVDs by intercepting the output from DVD Player," the free application that Apple supplies with each new Mac. "There are underground DVD rippers out there. They have to find the audio on the disc, recognize the codec and do the conversion to MP3 or .AIFF. This is much easier, since you just use it with software that you have."

[With] Audio Hijack, you can record several different streams at the same time: a DVD movie, an audio CD, an MP3 file from an iPod, music and effects from a game, and a streaming RealAudio file.

But MacAmp was soon made obsolete by another free piece of Apple software, iTunes. iTunes, however, doesn't have the earlier program's DSP plug-in capabilities. Paul, Alex and Quentin realized that under OS X, Audio Hijack could be spun off as a stand-alone application, which could then accept plug-ins itself. So last fall, they formed yet another company. Around the same time, Alex moved a little closer to his partners—to St. Petersburg—but he has still never set foot outside of Russia.

"We didn't want to be known as an MP3 company, and didn't want to be judged by our old companies," says Paul. Rogue Amoeba (www.rogueamoeba.com) was the name they came up with for the company after some three weeks of deliberations. "No, there's no significance to it," he says.

How does Audio Hijack work? It's actually quite simple. First, you launch it and then the application you want to rip from. "It presents a spoof of Core Audio to the application you're using so that the audio is passed to Hijack," says Paul. In other words, it fakes out the operating system into thinking that the audio is going to someplace normal, like the Mac's audio-output circuit, when actually it's being sucked up by the Audio Hijack "shell," which can process it in dozens of ways and store it on disc as an .AIFF file. It's then passed back to the real Core Audio so that you can hear what you're doing.

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of Audio Hijack, which means that you can record several different streams at the same time: a DVD movie, an audio CD, an MP3 file from an iPod, music and effects from a game, and a streaming RealAudio file. "We're looking at how to combine multiple streams into a single pipe," says Paul. "A 'total jack.' We don't have the interface for it yet, but if we get a lot of requests, we'll add it."

Several DSP functions, written by Alex, are built into the software, like reverb, EQ, VU meters and an oscilloscope. Although the people at Waves don't have anything to worry about, the modules are respectable. More importantly, however, the current version of the software—1.6.5—includes "VST Hub," a wrapper for VST plug-ins from any source.

Another feature is a timer that works just like a VCR but for Webcast audio.

Another feature is a timer that works just like a VCR but for Webcast audio.

Another feature is a timer that works just like a VCR but for Webcast audio. "If you're interested in hearing streams from around the world, like the BBC, they often come at inconvenient times," says Paul. "With the timer, you save a 'config' file that contains the input you want, the time, the destination and any DSP you want to add. You can target it at a URL, a bookmark or a '.rm' [RealAudio] file. At the right time, it opens the appropriate application, loads the stream and records it."

Version 2.0, which may be out by the time you read this, will be able to rip audio from running applications, so you can launch Audio Hijack and other programs in any order you like. Although it is OS X-only (no Classic mode!), it can host many "noncarbonized" (that is, they haven't been updated for OS X) VST plug-ins. It will also support OS X's Audio Units, which will make it compatible with even more third-party plug-ins, as well as external audio cards and interfaces. "People have also asked for live input," says Paul, "and we're working on that."

They're also working on writing files at different sample rates, word lengths and formats—most notably, MP3s. Their MP3 encoder is based on the open-source LAME, which, in true open-source tradition, stands for "LAME Ain't an MP3 Encoder." But because Audio Hijack is a commercial product, the company will still have to pay Fraunhofer IIS, who holds the patent on MP3, $2.50 per unit, which raises the retail price a bit.

Paul, who lists his company title as "CEO/lackey," is still handling the finances for the company and designs a lot of the user interface using Apple's Interface Builder for OS X. Quentin builds the working front end, while Alex toils away on the back-end code. They split the revenue more or less equally. "We're projecting revenues in mid-six-figures for the fiscal year," says Paul. Do the arithmetic, and you've got a couple of young men who are doing a nice job of putting themselves through two top colleges, and a guy in Russia who is making—relative to that country's per-capita gross domestic product—the equivalent of about $20,000 a week.

And how about video? Is there a "Video Hijack" in Rogue Amoeba's future? "That's the single question we get most often," Paul says. "But it's completely different technology, and we're not planning to go there at all."

Naturally, considering the audience it's aimed at, a number of potential users will try to obtain Audio Hijack without paying for it. "We've had very good response from users and reviewers, and a lot of people have told us, 'I gotta have this,' and have tried to hack it," says Paul. "On the serial-number pirating sites, they love us. And there was a valid serial number being passed around for a while, but we found out about it and blocked it. Maybe 100 people all told will figure out how to pirate it, but the rest will pay for it. I mean, it's only $16!"

Apple's Dan Brown, as I reported last month, considers Audio Hijack to be a shining example of how OS X's music and audio architecture lends itself to creative third-party development. But other companies—and their favorite legislators—may not be so sanguine. Under the various radical changes in copyright law that have been proposed in—and sometimes passed through—Congress in recent years, merely possessing a copy of Audio Hijack could be considered a felony.

"We realize that some people may believe that this is violating some laws currently in existence," says Paul. "However, in terms of fair use, Audio Hijack really is in the clear. Time shifting was ruled legal by the Supreme Court in 1984. The idea was, 'Hey, you can watch this show

—CONTINUED ON PAGE 187

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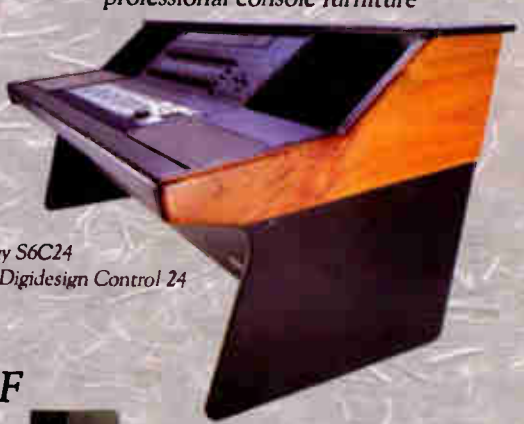

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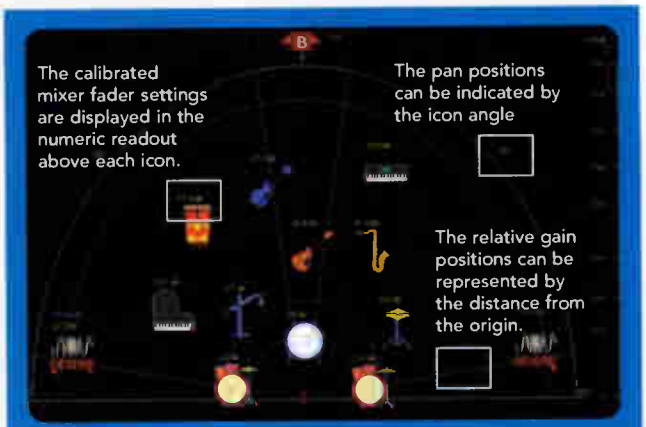

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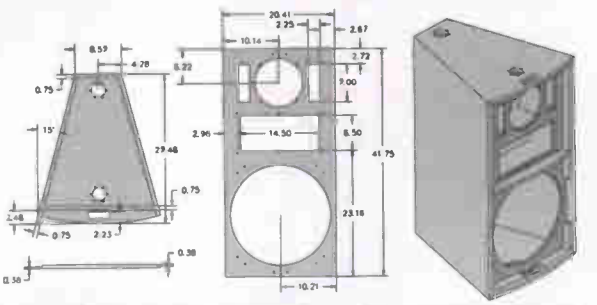

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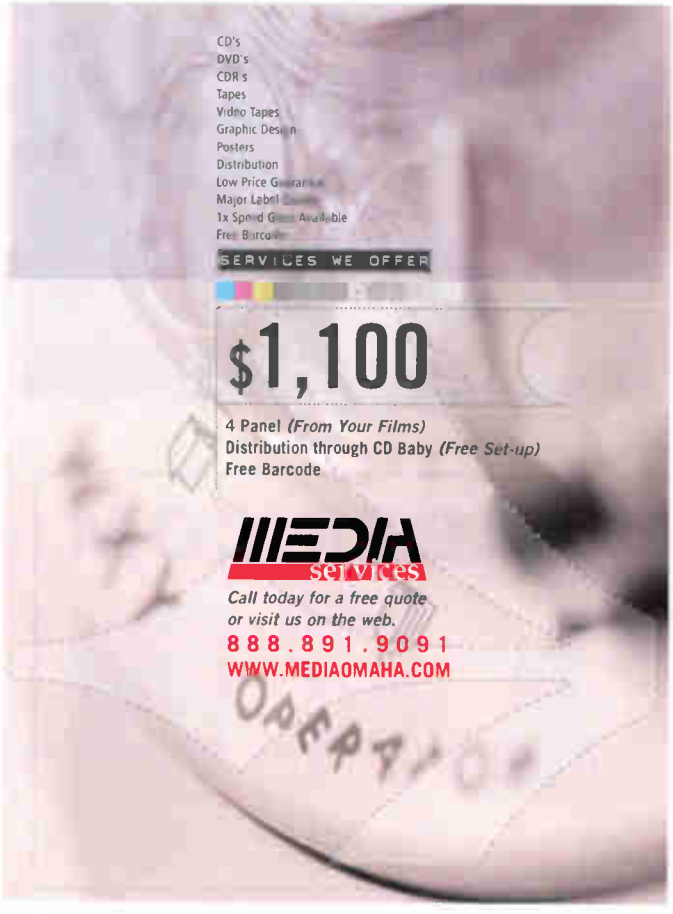

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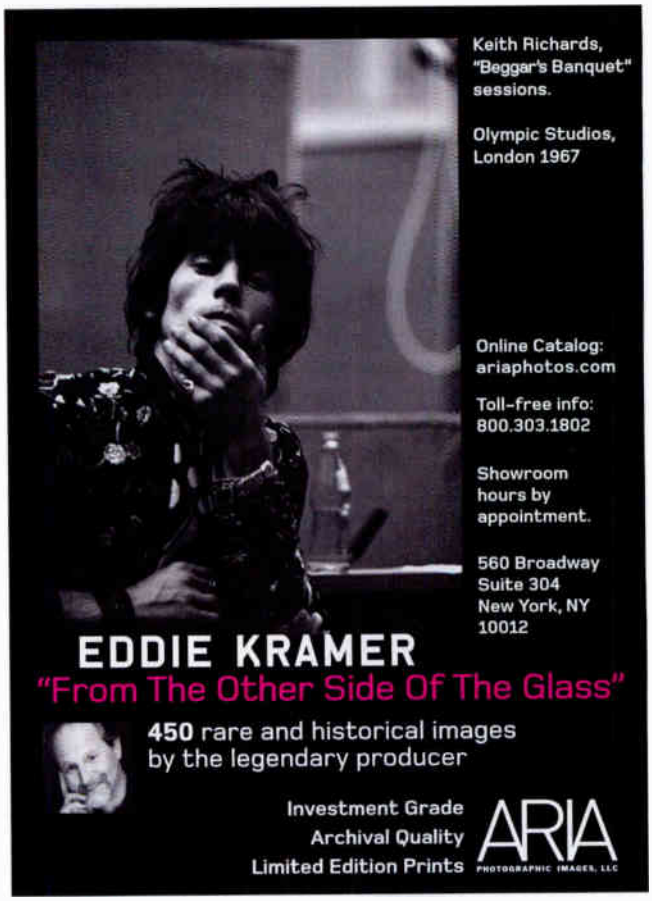

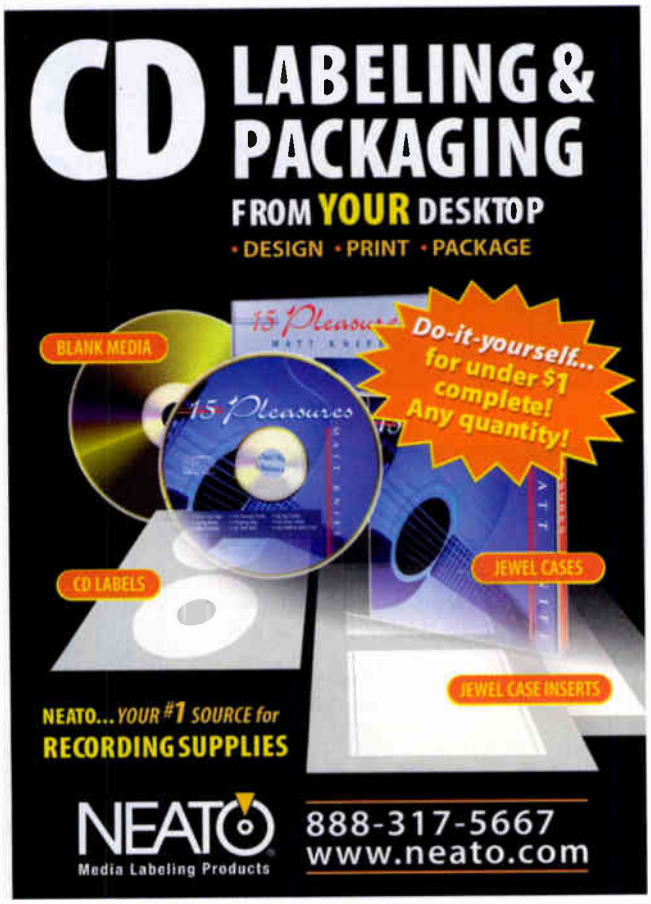

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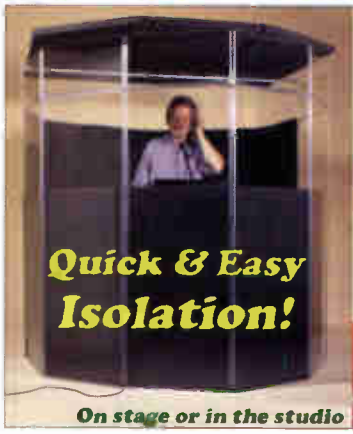

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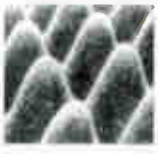

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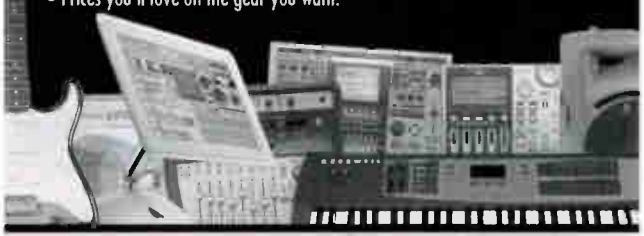
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NASHVILLE SKYLINE FROM PAGE 163

getting with the Royer R-121 ribbon mics. "It's an amazing mic," he says. "I've got it placed two inches from a cranked speaker, something you can't normally do with a ribbon, but the Royers can take it and they really sound great."

Wagener created extra space for the acoustic guitar by using a Schoeps CMC-5 with a MK4 capsule together with the Royer R-121 and Fritz (Neumann K100) in the back of the room, facing toward the guitar. "On some of the songs, the guys were playing two guitars together in the same room, and I recorded them with the SoundField MKV system, which instantly creates the surround sound via the SPS451 surround decoder. Surround sure takes up a lot of tracks. I had to extend my 48-track Euphonix R-1 with a Nuendo system to accommodate all the instruments recorded with six tracks each." For surround effect processors, Wagener's favorites include the TC Electronic System M6000 and his Kurzweil KSP-8.

At the time of my visit, the final release format had not yet been determined: Wagener and LeRoi were leaning toward DVD-A, but SACD was also a strong contender. "The stereo mix is going to be a separate mix, not a folddown mix," says Wagener, who has two Sony DMX-R100 consoles at WireWorld. "Since we recorded with surround in mind from the outset, there is a lot of information in the rear speakers that shouldn't just end up somewhere in the front; it would not sound right. For the stereo mix, we'll have to slim that down a little. When existing stereo records get remixed in surround, the remix engineers always have to chase the stereo mix somewhat. In our case, we have the luxury of doing the surround mix first.

For monitoring, Wagener uses the ADAM S3A ribbon tweeter-based monitors with an M&K 5410 subwoofer and an LFE-4 bass-management system, crossed over at 80 cycles. "The ADAMs completely changed the way I listen, and they make mixing really easy. These speakers are absolutely surgical. I never want to have to have another speaker again if I can help it."

Wagener is unflinchingly optimistic about the future of surround: "I think the deciding factor in getting surround to a wider audience will be the car. As soon as cars come out with surround systems installed, it will really start to happen." ■

Thanks to Erin Addotta from MTSU, who helped put together this month's Skyline.

NEW YORK METRO FROM PAGE 159

COWBOY TECHNICAL SERVICES

When Eric Ambel's production career skyrocketed in the mid-1990s, owning a full-scale recording studio became as much a practical necessity as a creative imperative. He was so busy in the studio that it made sense to own his own space. His first choice was the East Village, where he lived and owned a club, the Lakeside Lounge. However, finding an appropriate and affordable venue was impossible, so Ambel headed east. He rented three rooms from an Apple broker and set up Cowboy Technical Services, a spacious, comfortable and well-equipped studio that features as much vintage gear as any band might need. Ambel and engineer/partner Tim Hatfield work behind a Neotek Elan 32-input console, tracking to an Otari MX-80 2-inch recorder and mixing—with a healthy assortment of outboard gear—to a Studer B-67 ¼-inch mastering deck. CTS also offers digital editing via a MOTU Digital Performer workstation.

Coyote Recording Studio's control room boasts an API console, Studer multitrack and Pro Tools with Pro Control.

Excello Recording excels in its vintage, analog vibe.

Among the clients who have recorded at CTS are Steve Earle & The Dukes, Marshall Crenshaw, Mary Lee's Corvette, Greg Trooper, Steve Wynn, Ryan Adams and Dan Baird. Although Ambel and Hatfield run CTS as a commercial enterprise, most of the projects that come through the door have some personal significance to Ambel: he plays guitar in Earle's band, both in the studio and on the road; and his wife, Mary Lee Kortes, fronts Mary Lee's Corvette's band.

Although Brooklyn was Ambel's second choice, he has found a good groove in the neighborhood, which he frequented with his first major band, the Del Lords, who rehearsed at what became Coyote Studios (see profile below). "Williamsburg has a lot to offer," says Ambel. "There are a lot of restaurants, a lot of people live here and it's easy to get here from anywhere, including out of town."

COYOTE RECORDING STUDIOS

Before there was anything that could be called a "Williamsburg scene," there was Coyote Recording Studios. Opened by brothers Michael and Albert Caiati in 1987, the studio launched in a MIDI-intensive climate in which large tracking spaces were considered unnecessary and vintage analog equipment obsolete. A decade-and-a-half later, Coyote still swims against the mainstream, hosting such large and loyal clientele as Joan Jett, Dion, They Might Be Giants, Rancid, Mojo Nixon and The Smithereens.

"We're basically an analog, rock 'n' roll studio," says Michael Caiati, who is now the principal owner of Coyote following his brother's departure last year. "The underground bands and the ones who appreciate analog recording are keeping us alive."

Although Coyote—with its API 3288 console, Studer A827 multitrack and EMT plates—lives and breathes analog, the studio also offers clients a Pro Tools MIXPlus system with Pro Control. The idea behind the workstation was to stem the tide of clients who would use Coyote for its tracking capabilities and then take the tracks elsewhere to overdub and mix,

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thus capturing some sessions that would otherwise be lost to home and project rooms.

Caiati reckons that "the economy and Pro Tools" are the biggest challenges for Coyote, but he's seeing signs that the business is "coming back." He adds, "I don't know if it will ever come back 100 percent, but anybody who can stick it out will come out all right."

EXCELLO RECORDING

Quietly and with rock-solid determination, Excello Recording has served the New York rock community for 11 years. The studio has never advertised; through word of mouth, it has attracted the likes of David Byrne, Debbie Harry, Molly Ringwald, Michael Brecker, Richard Hell, Rufus Wainwright, Martha Wainwright, the Jesus Lizard, Steve Albini, Fred Schneider, Marc Ribot, John Zorn, Mark Eitzel and Don Fleming.

Producer/musician/partner Hugh Pool attributes the studio's success to its no-nonsense approach and its affordability. "We've been able to keep our overhead low," he says. "We are surviving through this really screwed-up time in the music business. People are closing right and left and ours is a large footprint, but we're hanging in."

Excello recently upgraded to a Calrec Series B 58-input console it purchased from the BBC. It also acquired an EMT 140, an Echo Plate and a Studer A800 analog recorder from former Platinum Island owner Richie Kessler, who originally got the gear from the old Hit Factory studios. Other gear highlights at Excello include a 12-channel, quad-bus Neve console with 1063 preamps; LA-2As and LA-3As, 1176 and Summit processors; an Ampex ATR-102 half-inch mastering deck; and a Studer A80 quarter-inch recorder.

Like many studios that are built on a vintage, analog vibe, Excello makes a nod to the workstation world via a dual-processor G4 loaded with Pro Tools. However, Pool admits that he's less interested in the computer than in "the moving parts."

Besides Pool, the other partners in Excello are Dann Baker, Bruce Hathaway, Chad Swanberg, Gil Shuster and studio manager Jane Pool (Hugh's wife). In between "commercial" sessions, the studio serves as a conduit for various in-house projects, including Pool's own activities and sessions by Love Camp 7, an acclaimed indie rock band that features Baker and Hathaway. ■

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—FROM PAGE 166, HACKING AND HIJACKING

at home, why shouldn't you be able to watch it on your own time?' We believe the same idea clearly applies to digital content. Why shouldn't you be able to record a Real stream that comes in the middle of the night, burn it to a CD and listen to it on the way to work?

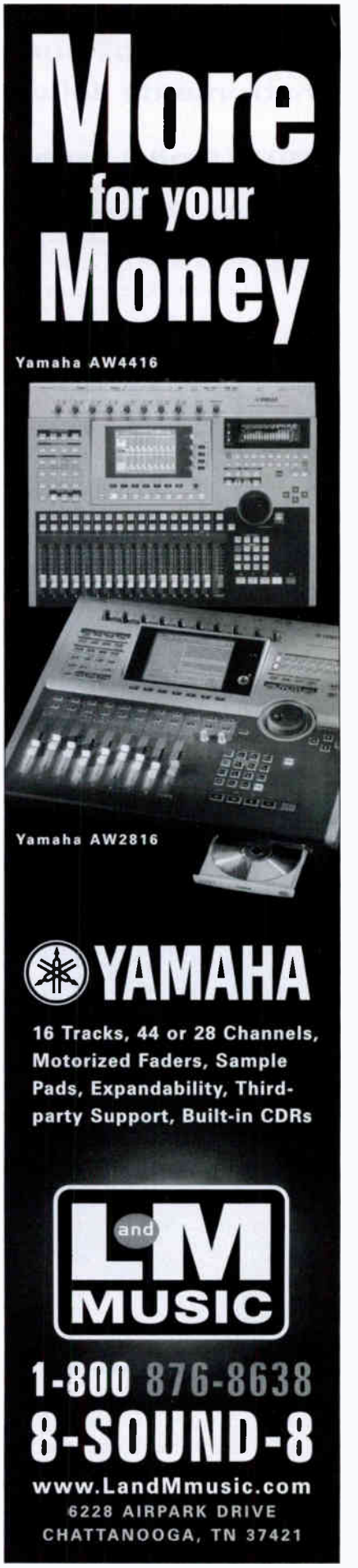
"Likewise, if you're allowed to have a Windows Media file on your local machine and play it whenever you like, why shouldn't you be able to convert that to MP3 and play it on your iPod? The RIAA fought the original Rio MP3 players, but the court ruled that they were legal. Audio Hijack simply aids this digital 'space shifting' by removing limitations set by file formats.

"However, these laws have not been well-applied to digital content, and the DMCA [Digital Millennium Copyright Act] and other restrictive laws are making it more confusing. We're hoping, if it ever comes to this, that the courts will agree with us on both of these points."

And they have allies besides Apple. A small Missouri company called 321 Studios last spring sued nine major film studios in a pre-emptive move to have its $100 software "DVD Copy Plus" declared legal and parts of the DMCA declared unconstitutional. The designers are not stupid: They designed the software so that (just like the RIAA-backed SCMS that so efficiently killed the domestic DAT market) a copied DVD can't be copied, which means that real pirates won't find it very useful.

The suit was filed in a San Francisco federal court—"a more friendly jurisdiction," according to Paul. "Hopefully, the case will force a fair-use provision into the DMCA and that will help us." The boys from Rogue Amoeba are not the only ones who are watching this very carefully. If the suit is successful, the media conglomerates will no longer be able to scream "piracy" at the appearance of every new format and tool. They may just have to come up with better reasons for people to buy their products than merely because they've put a permanent legal hammerlock on intellectual property. And they'll have to find better ways—more flexible and appropriate for a thriving, truly open market—to sell them, too. Imagine that. ■

Paul Lehrman would feel much safer in a world where more drivers were listening to last night's Webcast and fewer were yakking on their cell phones.



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Mackie UAD-1

UAD-1 is a PCI card that allows you to run dozens of sophisticated effects plug-ins inside Digital Performer without bringing your Mac to its knees. What's the secret? A custom-built, monster DSP. It's like adding an extra $20,000 worth of effects gear to the dozens of native plug-ins included with DP.

Mackie Control for DP3

Designed in direct collaboration between Mackie and MOTU, the new Mackie Control automated control surface puts 9 touch-sensitive Penny & Giles automated faders under your fingers (8 plus a master), 8 motion-sensitive rotary encoders, and dozens of custom-programmed switches. Want more faders? Add 8-channel Control XT expanders. You'll feel like you are putting your hands on Digital Performer itself.

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TC Works D-Coder

Produced by Waldorf, the legendary German synth company that brought you PPG Wave and Attack, D-Coder is a Vocoding synthesizer plug-in for TC PowerCore and Digital Performer. D-Coder goes way beyond classic vocoder concepts by providing 100 bands (instead of the usual 30 or so) and an integrated tone-generating synthesizer, allowing you to create vocoding effects with no external carrier signal. It's like having a Waldorf Q synth inside DP, but with no processor drain on your Mac, thanks to Powercore.

VoiceMaster Pro/Baby Bottle

The next generation Focusrite VoiceMaster Pro is the complete vocal channel featuring Class A mic pre, Vintage Harmonics processor, Voice-optimized EQ, Opto-compressor, Tube Sound circuit, 24 bit/96 kHz A-D option, revolutionary Latency Free Monitoring and much more. The award-winning Blue Baby Bottle is a handmade, Class A studio mic ideal for recording vocals, percussion, or any acoustic instruments. Add the Blue Pop/Shock kit and you have an oustanding bundle. $1548 retail value, now $999 for a limited time.

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Burn Redbook CD's. Read and write MP3, Dolby AAC™, 24 bit WAVE and more. Batch process hundreds or even thousands of files. Ultra-fast waveform editing. Run standalone or launch directly from DP3. Unlimited undo/redo with graphic edit histories. View multiple audio documents simultaneously. Unique DSP and looping tools like Convolve, Repair Clicks, Loop Tuner™, Loop Surfer™, Guess Tempo™, Duplicate, and more. Hot swap real-time effects in series, parallel, or hybrid using Peak's Vbox™ SE VST matrix. Native for Mac OS 8.6 thru Mac OS X - including version 10.2 Jaguar. Optimized for Apple's G4 Velocity Engine. The ultimate editing, processing and mastering companion for Digital Performer.

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Summit Audio 2BA-221

The better your audio sounds going into your MOTU workstation, the better it sounds period. Introducing the extraordinary new 2BA-221 continuously variable impedance microphone preamp. Mix mic, line, and Hi-Z instrument inputs through the 2BA-221's hybrid vacuum tube output and/or its solid state output. Modular, expandable input design, swept high pass filter, insert jack, and internal power supply make the 2BA-221 a powerful tracking and mixing tool.

Glyph Trip2

Glyph Technologies, the industry leader in high-performance audio storage, brings you the ultimate in FireWire disk storage: Trip2. Early-warning SMART technology alerts you to potential drive problems before they happen. Slide a Glyph-engineered, vibration-resistant (and therefore ultra-quiet) drive cartridge into one of six expansion bays and feel the bullet-proof reliability through your fingertips. Glyph FireWire is the perfect compliment to MOTU PCI on today's latest Power Macs because FireWire disk access and PCI audio streaming are handled on different busses, so you maximize the performance of your system.

Raxxess IsoRaxx

The only sound you should be hearing in your MOTU studio is the sound of your speakers. Simply install your computer, external hard drive or any other acoustically challenged equipment in your studio into the IsoRaxx. IsoRaxx has all of the features you need to keep your equipment safe and quiet, reducing fan and hard drive noise by an average of 21 dB. IsoRaxx's electrostatic filter intake helps keep dust bunnies out of your hard drives, and the lock-and-key front door keeps your gear from growing legs. With IsoRaxx, you won't miss what you've been hearing.

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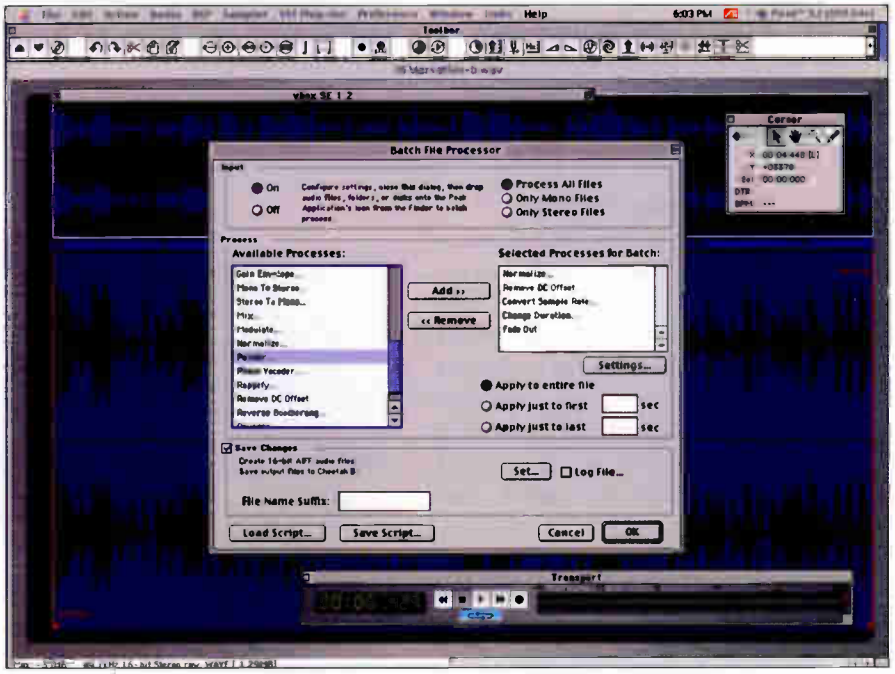
BIAS Peak 3.0

An Old Workhorse Still at Its Peak

With the economy fluctuating, software companies folding and products disappearing—this constant flux of life we're all caught up in—it's nice to feel like there is some stability in our lives. Peak from BIAS Inc. (short for Berkeley Integrated Audio Software) is a tool I have used regularly in the studio ever since I started producing music on a Mac. It might not be the most glamorous program in town, but like an old friend, its familiar and useful features have made it an application I return to day-in and day-out to get the job done. BIAS continues to push the program forward, adding support for OS X and cool new features like Vbox.



Peak's Batch File Processor lets you set processor order and modify effects individually.

CD-AUDIO CONVERSION

There are lots of software programs to convert audio CD tracks into audio files. Even QuickTime does it, albeit really slowly. The problem with many of these programs is that you can only convert one track at a time and you must take the entire track, even if you only want a short excerpt. Converting a five-minute track when you only need the first 10 seconds is a serious waste of time and hard drive space, especially when you have a ton of tracks to extract.

The Import CD Audio command is perfect for sound designers who need to pull in multiple tracks from a sound effects CD, or the music lover intent on archiving a CD collection to an iMac. With Peak's Import CD Audio command, you can convert several tracks from a single CD to audio files simultaneously. A Set Import Times button, found in the Import CD Audio dialog, lets you audition each track and set the exact section you want to import. Each track of the CD can have its own start/end import times. While you are importing tracks, you can also convert to a lower sampling rate or bit depth, or change to mono. Audio fidelity can be knocked all the way down to 8-bit/11.025 kHz for a really dirty sound.

BATCH PROCESSING

A good batch-processing application is one of those indispensable tools that every studio needs to keep handy. The last thing any engineer wants to do is sit there processing a file at a time, especially when a wash of several effects need to be applied to a stack of files.

Peak's Batch File Processor is a snap to operate. You can set the order and types of processing you want applied, and each effect can be individually tweaked. All of the standard processing is available: convert sample rate, normalize, stereo-to-mono, remove DC offset and the like. There are also lots of interesting options such as Add to merge the contents of your clipboard, and Rappify to mix in a filtered modulation effect. If you create a long and complex batch-processing script, it can be conveniently saved.

With Batch Processor enabled, you can drag-and-drop an entire folder of audio files on Peak's program icon to begin processing. This is sweet because, instead of arduously selecting one file at a time for processing, once Batch Processor is set up, there's no need to return to its window except to turn it off. And it is important to remember to disable Batch Processor when you're done; otherwise, Peak will want to batch-process every file it opens.

DESIGNING SOUNDS

Peak isn't only a utilitarian program—it has a glamorous side. It's long been an application well-suited to sound design, warping waveforms with its own set of unique file-based effects algorithms, and it also supports VST effects. In fact, it comes with a gaggle of stock VST plug-ins. Now with the inclusion of Vbox SE, the light version of BIAS' unique Vbox effects matrix software, Peak's sound-design capabilities have jumped up several notches.

Vbox SE allows a matrix of up to 99x99 VST plug-ins to be linked together in series or parallel to construct custom effects chains. The only limit to your processing power is what your computer can handle. Once you have cooked up a processing chain that you like, a Bounce command lets you write the effect to your sound file. Vbox SE patches can be saved for instant recall, making this app a wonderfully powerful addition to Peak's sound-design capabilities.

MIX ONLINE EXTRAS

Visit Erik Hawkins' indie co-op label at www.muzicali.com and check out his popular virtual studio recording book, Studio-in-a-Box *(Artist Pro/Hal Leonard).*

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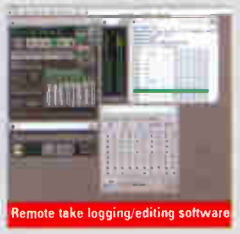
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