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NOVEMBER 1999, VOLUME 23, NUMBER 11

AUDIO

- 20 The Fast Lane:** Take Music Out of the Studio and Put It Where It Belongs...in the Computer
by Stephen St. Croix
- 24 Insider Audio:** It's a Large and Confusing World, After All—Thoughts on Dealing With a Global Industry
by Paul D. Lehrman
- 32 The Mix Interview:** Tom Dowd, Part 2—On Recording Otis, Aretha, Clapton, the Allmans and Rod Stewart
by Blair Jackson
- 50 Hip Hop on Top:** Getting the Inside Dope From the Hottest Mixers in Manhattan
by Jimmy Douglass
- 68 Monitoring in the Studio:** Four Views on 5.1—Engineers Compare Notes on Monitoring for Surround
by Philip De Lancie
- 80 The Wide-Dispersion Listening Space:** A New Approach to Control-Room Design
by Manny LaCarrubba
- 88 Multichannel Digital Audio Workstations:** The Latest and Greatest Contenders
by Sarah Jones
- 106 New Products From the 107th AES Convention**
by the Mix editors
- 114 The Project Studio:** Abyssinian Sons Studio: Filter Finds a Home—and Studio—in Chicago
by David John Farinella

PAGE 88



PAGE 164

- 116 Producer's Desk:** Marvin Etzioni—Lost in the Moment
by Bryan Reesman
- 147 15th Annual TEC Awards Winners**
- 178 Recording Notes**
- Recordin' "La Vida Loca"—The Making of a Hard Disk Hit *by Dan Daley*
 - Savage Garden Find "Affirmation" at Wally World *by David John Farinella*
 - Rocking in L.A. With 311 *by Robyn Flans*
 - Classic Tracks: Rickie Lee Jones' "Chuck E.'s in Love" *by Tim Morse*
 - Cool Spins: The *Mix* Staff Members Pick Their Favorite CDs

SOUND FOR PICTURE

- 148 Post Script**
- Sound For Film: I Have Seen the Future of Film Mixing...Part 2 *by Larry Blake*
 - Facility Spotlight: DAVE Does IMAX—Toronto Stage Points Toward a Big-Screen Tomorrow *by Dan Daley*
 - Scoring for the Biggest Screen: Steve Wood Climbs "Everest" and Swims to the Bottom of "The Living Sea" *by Robyn Flans*

PRODUCTS

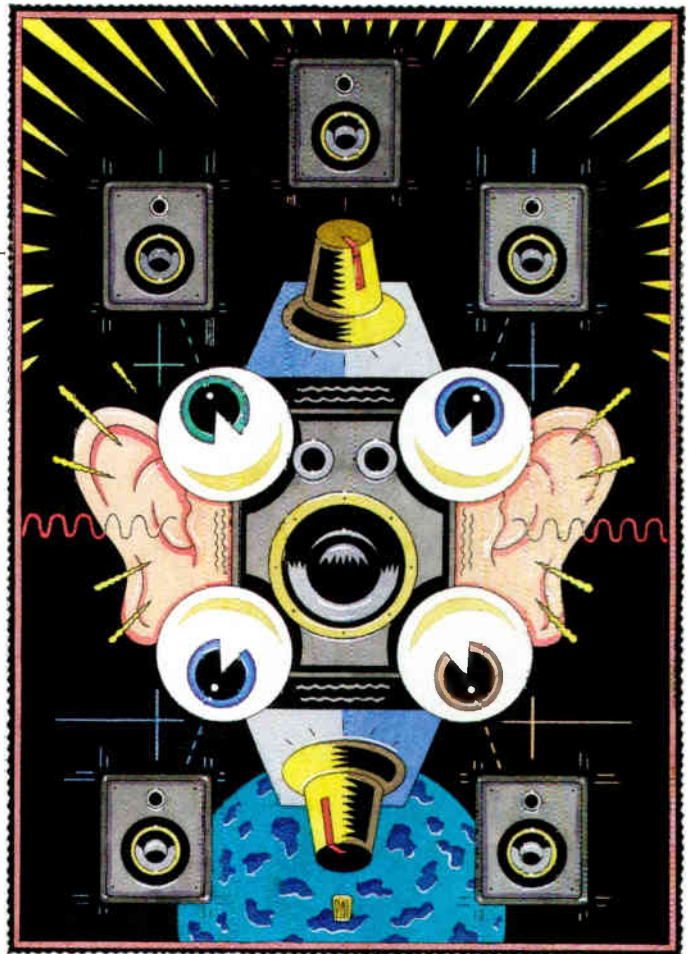
- 124 **Preview/Hot off the Shelf**
- 128 **Hardware and Software for Audio Production**
- 130 **Technology Spotlight:** Yamaha PM-1D Digital Live Sound Console *by Mark Frink*
- 132 **Field Test:** Apogee PSX-100 2-Channel 24-bit/96kHz Converter *by Roger Maycock*
- 136 **Field Test:** Crane Song Trakker Analog Class-A Compressor/Limiter *by Barry Rudolph*
- 140 **Field Test:** Pendulum Audio OCL-2 Optical Compressor *by Mark Frink*
- 142 **Field Test:** RØDE NTV True Condenser Valve Microphone *by Roger Maycock*
- 240 **Power Tools:** Panasonic DA7—Creating BIG Sounds With This Compact Digital Mixer *by Larry the O*

LIVE SOUND

- 162 **Mixing the Money Channel:** FOH Engineers Share Their Expertise on Vocal Processing *by Chris Michie*
- 163 **Tour Profile:** R.E.M. *by Kimberly Chun*
- 164 **All Access:** Cher *by Steve Jennings*
- 176 **New Sound Reinforcement Products**



PAGE 130



PAGE 68

DEPARTMENTS

- 8 **From the Editor**
- 10 **On the Cover:** Alien Soundscapes Incorporated (ASI)
- 12 **Current**
- 16 **Industry Notes**
- 192 **Coast to Coast** (Includes L.A. Grapevine; NY Metro Report; Nashville Skyline; Sessions & Studio News; Regional Studio Spotlight; Gravity Studios; New Studio Spotlight: 48 Windows)
- 202 **Studio Showcase**
- 208 **Ad Index**
- 214 **Marketplace**
- 219 **Classifieds**

On the Cover: Chris Greene founded Alien Soundscapes Inc. in Chicago and based it around a Digidesign Pro Tools/Pro Control combination, with Genelec surround monitoring. **Photo:** Rudy Arias. **Inset Photo:** Steve Jennings.



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CIRCLE #004 ON PRODUCT INFO CARD

FROM THE EDITOR

AES 1999: THE NEXT GENERATION

I just flew in from the 107th Audio Engineering Society convention in New York, and boy, are my arms tired...and my feet and my voice and my eyes and ears. With a record turnout of more than 400 exhibitors—and dozens of workshops, papers and technical events packed into a mere four days—there was plenty to take in at the Jacob Javits Convention Center.

Aside from the sheer enormity of the event, this year's AES was particularly significant in a number of ways. AES seems to be successful in attracting younger engineers. I overheard one such attendee who—despite his blue hair and mismatched sneakers—was absolutely enthralled about having heard Chet Atkins' keynote address. Another youth was starstruck with actually meeting Les Paul, who was walking the floor and checking out the show. Yet even with such reverence for the audio "establishment," younger engineers seem more open to experiment and try new techniques or methods, whether it's connecting a U47 through a guitar amp or taking looping well beyond the simple act of grabbing ready-made clips off a CD-ROM.

An overriding factor that keeps AES fresh and alive is the constant infusion of new products, new technologies and new companies. Hot on everyone's mind this year was 24-bit gear (in both 48kHz and 96kHz varieties)—and not so much as a "someday-this-will-happen" curiosity but as a "we-need-to-look-at-which-system-to-buy" reality. This AES had no shortage of 24-bit products to choose from, ranging from stereo and multichannel converter sets, to consoles and recorders of all descriptions, from megabuck large-format boards to a new breed of inexpensive, stand-alone disk recorders.

After years of accepting 16-bit/44.1 as the "professional" choice, every level of the recording industry finally has access to production equipment that can match the sonic quality of home DVD-Audio or SACD playback. At the same time, with the staggering rise of MP3 downloads, there seems to be very little interest in the recording community to create professional mastering/transfer tools for optimizing mixes for MP3 release. Today, when terms such as "single pull" (and certainly "B-side") have almost lost their meaning, MP3 waits in the wings as THE new means for album promotion, with the potential for making or breaking a record launch (especially with new artists). Engineers and producers need to be equally concerned with both high- and low-resolution release formats these days. Perhaps we'll see such product at some future AES.

Without a doubt, the 107th AES was a success at every level, once again proving why AES is the premier event for the professional audio industry. The *Mix* staff has assembled an in-depth report on the product hits from AES, which begins on page 106 (with a complete list of TEC Award winners on page 147), and we'll continue our coverage with more next month. Meanwhile, AES returns to the Palais de Congres in Paris in February 2000 for its 108th convention, but one thing's for certain: This recent show will be a tough act to follow.

Bet on it!



George Petersen



American Business Press

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CIRCLE #005 ON PRODUCT INFO CARD



Chicago's Alien Soundscapes

If the name Alien Soundscapes Incorporated conjures up some nightmare vision out of *The X-Files* or the paintings of H.R. Geiger, rest assured the intent is entirely benign.

"It comes from my love of astronomy and science fiction," says owner Chris Greene of his Chicago multimedia, mastering and recording facility. "I feel as though the name implies creativity and almost a higher calling in terms of both expression and fidelity."

For Greene, the building of ASI fulfilled a long-held dream. The son of a noted opera singer (tenor William Greene, who died in mid-September) and a mother who is a poet and a lawyer, Greene began studying the violin at age 7. Through his mid-teens, he seemed to be on track to become a solo violinist of some note. He studied harmony and orchestration for years and played in various Chicago-area orchestras. But he also became fascinated by recording studios: Through one of his teachers, the famed early Moog synthesizer programmer Hans Wurman. Greene spent a considerable amount of time in a local studio, DB on Wells, where Wurman had "a wall-sized Moog with lots of cables, blinking lights and fantastic sounds," Greene remembers. "Electronics was very appealing to me, and this was my first exposure to the potential of a recording studio."

By the time he was 17, Greene had veered away from his classical studies. "It seemed too limiting," he says now, "though I still adore classical music and quite a bit of opera." He tried unsuccessfully to get a job as an assistant in a recording studio; when that failed, he became a club DJ, working at a number of Chicago's hottest clubs. Eventually, he says, "I decided I wanted to make records instead of spinning them," and with an eye toward building his own studio, he took a series of jobs to earn enough money to buy recording equipment. Along the way, he became something of an expert in computers, and for a while, he worked for retailers debugging computers and did beta testing and troubleshooting for a number of manufacturers, "including most of Digidesign's third-party manufacturers—Emagic, Magma, Opcode..."

Greene started his system by purchasing Digi's Session 8 when it was released. "From there, I just kept expanding to the

point where we're fortunate to have one of the most expanded systems in the world," he says. "I've had this vision of what a digital audio workstation could be, and it has always included Apple, Digidesign, three-plus monitors and an incredible amount of desktop space. So I've been working with that goal in mind." Originally, ASI was in the basement of Greene's home, but after he and a close friend, Alex Gustafson, spent a year producing an enhanced CD-ROM trumpeting the potential of his facility, he managed to get a bank loan to build ASI's current site overlooking the Chicago River. He then brought in architect James Collins and acoustician Doug Jones to work up plans for the studio.

Today, the main room at ASI offers a blend of up-to-the-minute digital and classic analog technology. At the heart of the system is Digidesign's Pro Tools (16 cards strong) and Pro Control, perfect for the mastering and multimedia work that is the studio's specialty. Surround monitoring is done on Genelecs—three 1031s, two 1030s and a 1094 sub—via Kind of Loud's TDM plug-ins. Among the studio's large complement of analog outboard gear are pieces from Manley, Avalon, Demeter, Studio Technologies, Aphex and Rane. Greene also owns a number of vintage instruments and guitar amplifiers.

"Currently our business is in two halves—we have an audio business and a separate media division," Greene says. "We do absolutely first-class media design, which includes 3-D animation, Web sites, CD-ROM/DVD authoring, whatever anyone needs. Our current project is a media makeover for dBSound [the concert sound company], which includes a low bandwidth Flash/static hybrid Web site and an interactive CD-ROM with several very cool 3-D movies of stadium speaker arrays we use to explain their unique techniques. Our next project is to revamp completely in Flash our own alien-sound.com Web site. We have a staff of artists who I believe are the best in the world. And because we're pro audio people, the audio side has always been extremely important to us. The audio side is primarily a mastering and post-production facility. Mastering is the studio's specialty. And I write and produce several projects a year."

ON THE COVER

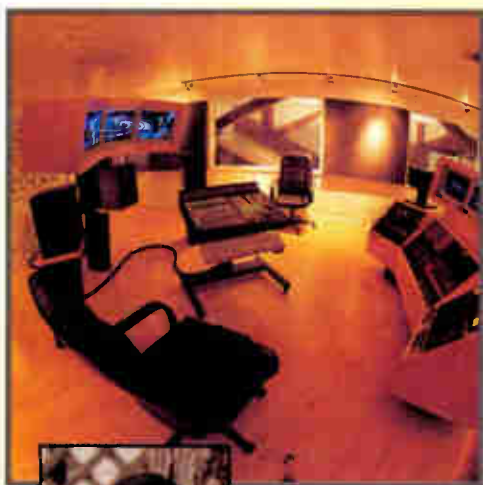


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Above, control room interior of Alien Soundscapes in Chicago. Left, owner Chris Greene

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CIRCLE #006 ON PRODUCT INFO CARD

Barry Bongiovi (right)
and independent
engineer, Rob Eaton at
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World Radio History

CURRENT



PHOTO: DAVID GOGGIN

Members of the MPGA, NARAS and other attendees gathered at the MPGA's booth at the AES convention.

MPGA/NARAS ALLIANCE NEGOTIATIONS

The Music Producers Guild of the Americas held a membership meeting at the 107th AES convention to announce a possible alliance with the National Academy of Recording Arts and Sciences. Producer Phil Ramone emphasized the harmonious implications of the affiliation, and Leslie Ann Jones stated that engineers and producers who are members of the Academy and the MPGA have seen their visibility grow dramatically in the last two years, with added Grammy® recognition of their roles in the music industry. The proposal was submitted to the MPGA's membership; at press time the final vote was yet to be determined.

JERRY HARRISON CO-FOUNDS GARAGEBAND.COM

Producer Jerry Harrison teamed up with Silicon Valley entrepreneur Tom Zito and Netcenter's former head of research Dr. Amanda Lathroum Welsh to launch garageband.com. The site's goal is to identify, cultivate and sign the best of the emerging bands via a unique rating and review system. The site's rating system was developed by Welsh and three of her senior engineers to recognize the quality of the music, not just the quantity of the votes. Known as the Lathroum Comparater Engine (LCE), the proprietary rating system is based on a range of measurement comparisons designed

to eliminate the bias and lack of context that can skew other comparative rating methods.

Bands can upload as many songs as they like, for free, but in order to do so they must first review and rate at least two randomly selected and anonymously assigned tracks submitted by other bands. In order to expose every band's music to as many qualified reviewers as possible, garageband.com designed a "Frequent Reviewer" points program, with rewards ranging from time in a world-class recording studio for bands, to VIP concert tickets for fans.

Every month, top-rated bands will receive \$250,000 recording contracts and will be matched with respected producers, engineers and other industry insiders who make up the site's advisory board. At press time, board members included Jim Dickinson, Dave Jerden, Paul Kolderie, Sean Slade, Stephen Hague, Ed Stasium, Clive Langer and Alan Winstanly, Nick Launay, Tim Palmer, Rick Novels, Dave Way, Mathew Wilder and Stephen Lironi.

Harrison says the site "offers every group an equal opportunity to be discovered—not just those playing in the big cities. For the music industry, we want garageband.com to be the prime A&R Internet site, both by identifying hot, new artists to sign and promote, and also by developing and nurturing those promising new bands that are not quite ready to head into the studio to cut their first album."

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TIMELINE, TASCAM ANNOUNCE ALLIANCE

TimeLine Vista Inc. announced at the 107th AES convention that it has entered into a long-term audio product development agreement with Tascam. This alliance will result in a line of professional audio products and will carry the names of both companies. The MX 24-24 digital disk recorder and the TL-Sync machine

debuted at AES. "Our collaboration with Tascam on the MM Series product line has shown how well the two companies can work as a team," TimeLine Vista president Bob McDonald said. "We expect this new line to further extend our successful track record together."

FAIRLIGHT MOVING TO HOLLYWOOD

Fairlight ESP President and CEO David Hannay announced that the company's worldwide management of all sales, marketing, finance and administration programs will move to Fairlight USA's new corporate campus in Hollywood, effective January 1, 2000. Audio Research & Development, design and manufacturing operations will continue to be based in Sydney and Perth.

"The United States is our single largest market, and we believe that, as an American corporation, we will be better positioned geographically to meet the needs of our growing global customer base, access emerging new technologies and, as well, a broader capital base," said Hannay.

A number of senior management appointments were made in conjunction with the move: John Lancken assumed the position of senior VP, Worldwide sales; Mervyn McCulloch is executive VP, finance; and Greg Sampson is the new Internet business manager. All will be based in the States.

EMTEC GIVES \$30,000 OF MEDIA TO PRESERVE AMERICAN MUSIC

EMTEC Pro Media announced the award of three grants to the following institutions that collect, preserve and archive American music: The Country Music Hall of Fame, the American Folklife Center of the Library of Congress, and the Louis Armstrong Archives at Queens College. In-kind grants of archiving media, valued at \$10,000 each, went to the three institutions.

BOGEN BUYS APOGEE SOUND

Apogee Sound, a private company for nearly 15 years, recently became a wholly owned subsidiary of Bogen Communications International. The new

—CONTINUED ON PAGE 16



Lucas Digital's Skywalker Sound, Marin County, CA

The Force Is With Neumann

Skywalker Sound knows multichannel audio. And to get unreal sound for movies like *Star Wars: Episode 1—The Phantom Menace*, *Titanic* and *Saving Private Ryan*, they have to start with VERY real sound. Their choice of microphones? Neumann, of course.



From the award-winning M 149 Tube (pictured) to the giant-killer KM 184, Neumann mics capture everything from the complexities of a film's score to its most intimate, critical dialog. When it's time for the real thing, be ready with Neumann.



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You need to hear it for yourself. So get up and go to your pro audio dealer today. Your clients will be glad you did.

96K

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PROFESSIONAL PRODUCTS

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INDUSTRY NOTES

Paul Rice was appointed vice president of sales at Mackie Designs (Woodinville, WA). Rice, a professional composer, has held positions at Sam Ash, Digidesign and Apogee...Nashville-based Harman Pro North America named Ken DeBelius director of operations for Soundcraft, Spirit and Amek, and Barry Sanders was appointed sales administrator for Soundcraft. Prior to his appointment, DeBelius served for three years as Soundcraft's market development manager; before joining Soundcraft, Sanders managed the Nashville office of Dreamhire...Lexicon (Bedford, MA) news: Doug Marhoffer was brought onboard as Western regional sales manager; Ray Maxwell was promoted to the dual position of Eastern regional sales manager and director of sales for Lexicon professional products in Canada; and Steve Frankel and Scott Loiselle both joined Lexicon sales, professional products, North America. Lexicon also announced the appointment of Online Marketing as the new rep firm for the Midwest region...Studer AG of Regensdorf, Switzerland, announced that a new distribution company, Studer North America, was formed from a merger of Studer USA, Nashville, and Studer Canada Ltd. John Carey, president of Studer USA, was named president of the new company. Prodromos Constantinou, previously president of Studer Canada, was appointed senior V.P. Studer North America V.P. Michael Tapes was promoted to senior digital product manager, and Gerard Fiocca was appointed technical product specialist...Andy Butler was elected 21st president of the Society of Broadcast Engineers. Butler is director of engineering of public broadcasting service in Alexandria, VA. He most recently served the SBE as treasurer and twice served on the board of directors...Geoff Calver was appointed sales and marketing director at Nashville-based

SADiE (Studio Audio & Video Ltd). Calver previously worked for Sony. The company recently moved to a larger facility at 2218 Metro Center Blvd., Nashville, TN 37228, and opened a West Coast sales office at 3700 Foothill Blvd., suite 223, La Crescenta, CA 91214 (contact Jeff White at 818/352-9201)...Merging Technologies (Northbrook, IL) announced a strategic alliance with Sonorus Inc. for development of high-quality digital audio products...Waves Ltd. (Tel Aviv, Israel) announced a reorganization that includes the centralization of sales and marketing in the U.S. office in Knoxville, TN. Orly Nesher was named chief operating officer at the Tel Aviv headquarters; Chad Bloch was named marketing communications manager at the U.S. office...360 Systems (Westlake Village, CA) appointed Brian James as Western sales manager. James previously served as GM and product specialist at Coffey Sound...Metric Halo Laboratories moved to new offices in a larger facility. The new address is M/S 601 Building 8, Castle Point Campus, Castle Point, NY 12511-0601; 914/831-8600; fax: 914/831-4827...Paul Erbach was tapped as vice president and chief information officer at Shure Incorporated (Evanston, IL). Erbach will be responsible for Shure's corporate SAP system, all desktop computing and the development of the company's global computer network. Also at Shure, Bob Rieder was named manager of audio processing products...Stow, Ohio-based Audio-Technica announced the appointment of Paul V. Hugo as vice president of marketing. Hugo recently served as VP/GM at Sennheiser...BGW Systems (Hawthorne, CA) announced that Steve Cullison joined the company as chief engineer of the Audio/Amplifier division...Eric Shea was named national sales and marketing manager for Johnson Amplification (Sandy, UT). ■

—FROM PAGE 12, CURRENT

company, called Apogee Sound International LLC, will remain headquartered in Northern California and will continue to design and manufacture loudspeakers, amplifiers, signal processors and accessories for the pro audio industry.

"As a subsidiary of a public company, we now possess many strengths and abilities that will propel the growth of the company," said newly appointed president Ken De Loria. "Emphasis will be placed on expanding our product line and cultivating new market segments. Our expanded engineering pool will enable development of a wide range of products, especially in the digital realm."

LAMBERT AND HATSCHKE TO COLLABORATE

Mel Lambert, head of Media&Marketing, and Keith Hatschek, founder of Keith Hatschek & Associates, announced that their two firms will cooperate to offer a range of research services—including surveys, focus groups and analysis—to the pro audio, broadcast and video production industries.

The initial effort will be a series of focus groups to determine what users need and expect from small-format digital audio consoles. The results will be sold on a subscription basis to a limited number of sponsor companies.

CORRECTIONS

In the "Technology Spotlight" on the InnovaSON Sensory II Digital Live Sound Mixing Console (September), we noted that the sound services for the Gypsy Kings tour were provided by Denver Audio. The actual name of the company is AUDIO DENVER, and more information on it can be found at www.AUDIODENVER.com. Our apologies.

The Audio Education Directory (August) included an old area code for Los Medanos College in Pittsburg, Calif. Their updated number is 925/439-0200.

In the story on Irving's Place (October), we misspelled the name of staff writer/producer/engineer Casey Chester. We regret the error.

In October, we stated that Piers Plaskitt was named vice president of worldwide sales and marketing at Euphonix. In fact, he is president, worldwide sales and marketing. ■

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Set your personal creativity into motion. Capture and shape your musical visions. Bring them to life in real-time with the power of integrated audio, MIDI and notation.

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World Radio History

R-1 MULTI-TRACK RECORDER

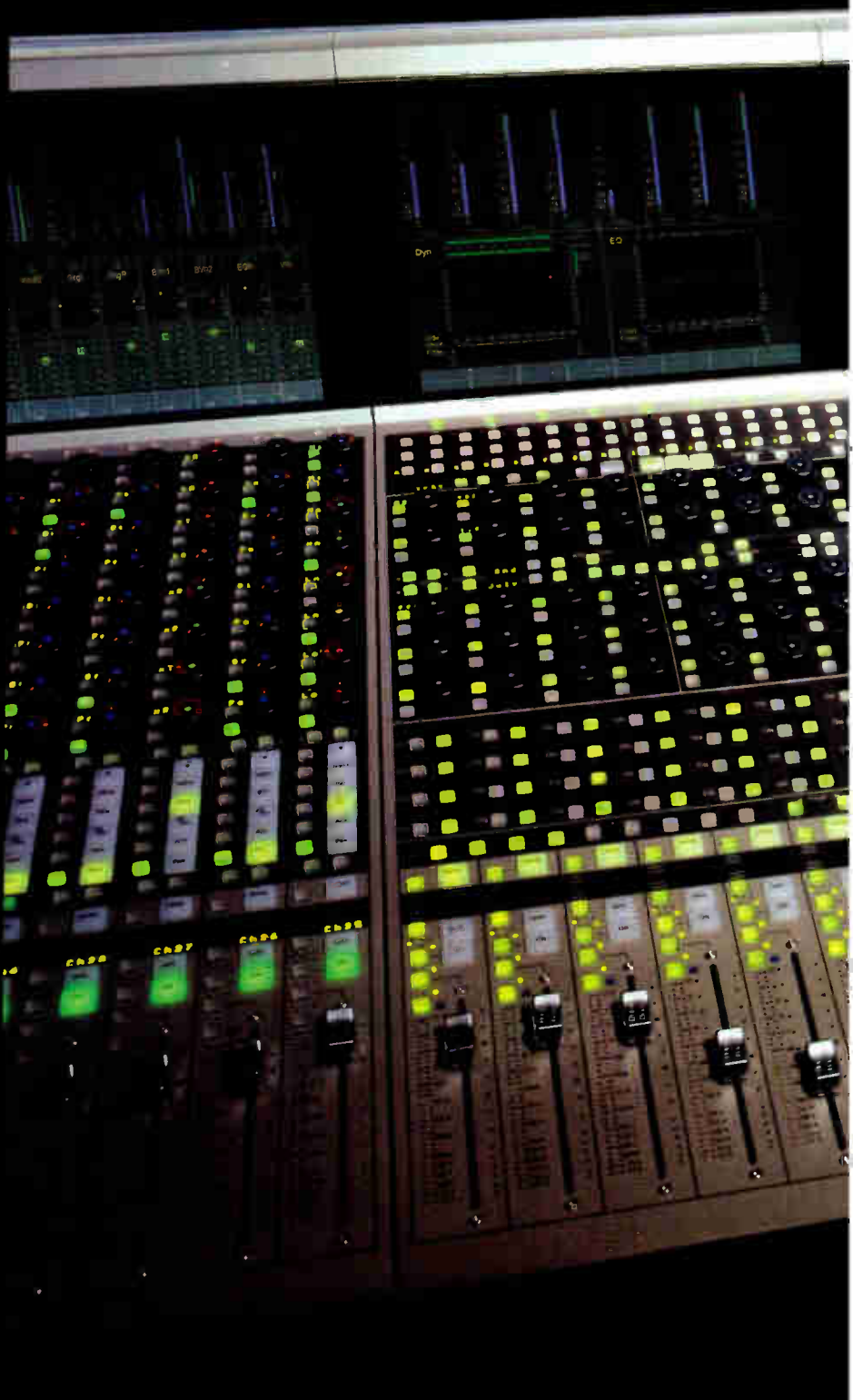
Version 2.0

- 24-bit/96kHz
- 12, 24, 48, 96 tracks
- Reel Feel remote
- high speed incremental backup
- analog, AES/EBU, or MADI interfaces
- fast lockup and machine control



24-bit/96kHz

recording and mixing systems
that work the way you do



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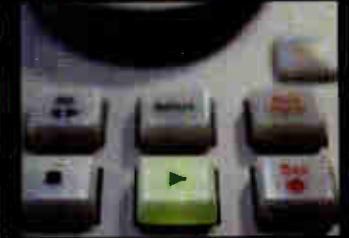
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World Radio History

SYSTEM 5

D I G I T A L

the high performance digital audio console



Five reasons to go digital with System 5:

- 24bit/96kHz signal path and recording via MADI, AES/EBU, or analog
- fast, fun, traditional style control surface with **total automation** and snapshot recall
- **world class** mic preamps, EQ, filters and dynamics, with up to 48 grp, 48 mix, and 24 aux buses
- powerful **multi-format** multi-stem panning with integrated full-featured monitor
- **fault tolerant** architecture



TAKE MUSIC OUT OF THE STUDIO

AND PUT IT WHERE IT BELONGS...IN THE COMPUTER

Nonlinear audio editing. It's about friggin' time! The biggest change in recording and mixing music since the multitrack recorder is finally upon us! I thought I would take this opportunity to give you fine folks some pointers on how to get the most out of it.

WAIT. WHAT YEAR DOES HE THINK IT IS?

Contrary to what you might be thinking, I am aware that it is not 1995. I actually know that DAWs have been shipping for a while.

We all feel the end of 1999—hell, it's the end of the *century*, approaching like a runaway freight train with a frozen OS. Sony just released a transparent blue MP3 player the size of your thumb, and Palm Pilots are already *passé*. I know it is today, and I *still* say that the biggest change in recording and mixing music since the multitrack recorder is upon us only now.

Why? Because 1) most of you still use serial data somewhere in your chain, 2) we have finally entered the third generation of NLA (nonlinear audio), and only now do we have the power promised back when 2-channel editors first appeared, and 3) almost none of you have *really* learned to use NLA's potential yet.

I have been tracking and mixing in the digital nonlinear domain exclusively for the last five years, and I remember how I *thought* I was using the potential fully, until I woke up one day and realized that the secret to its *real* potential was in truly learning and perfecting some new concepts—kind of like learning to play a new instrument.

Yes, the mic tricks you have learned and the basic rules of compression and reverb still apply, but the ways you have always thought about tracking, fixing problems and trying alternate ideas is pretty much obsolete, and holding on to those

concepts will only keep you from enjoying the true power of NLA recording and editing.

Let me put this simply: Resistance is futile. Those of you who resist will go away, unable to compete. Eventually, *only* those who have mastered NLA techniques will exist. Of course the most famous and accomplished among you may go away more slowly than the others (and if you are really lucky and really old, you may even get away with finishing

Those of you who resist will go away, unable to compete. Resistance is futile. Eventually, only those who have mastered NLA techniques will exist.

out your careers before you are crushed), but you *will* disappear if you don't master this new world. It's just too powerful to ignore.

Here is a special personal note to those of you still hanging on to analog by your long classical guitar fingernails: You must eventually accept digital audio as the wave of the now. The longer you wait for it to sound exactly like your beloved analog, the later you will enter the game, the later you will start learning the new rules, and the harder it will be for you to carve out your share of the market. Yeah, the deaf kids jumped in first and recorded harsh, brittle stuff your dog wouldn't listen to, but

things have changed; digital audio sounds okay now, and it gets better every week. It's safe enough for you to start now. Remember, those deaf kids already have more than five years' head start when it comes to NLA technique and experience. To them NLA *is* reality, while linear recording was something that Les Paul and the Beatles had to do in the dark ages.

Be Happy! I have no intention of going on and on about the wonderful improvements in digital over analog here. It's been done. I just want to point out a few areas that I feel are important.

There are obvious differences between analog and digital. To start with, they *sound* different. This is due to the characteristics of the A/D and D/A converters, the resolution of the system, and here comes the first cold truth—the skills, knowledge and ears of the programmers who create the summing buses, compressors, expanders, reverbs, and even the EQs, faders, and pan-pots, in every DAW.

You remember how different various tape decks and recording consoles sounded? Well, DAWs have an audio quality range that is easily 20 times wider than that! Only one rule seems to be surviving the end of the Rust Age—lotsa junk, a couple of winners. The majority of today's DAWs sound unbelievably horrible, several sound okay, a few are pretty good, and a couple actually sound incredible (many who have listened say they are better than analog).

TRUST YOURSELF

So what should you do? First, listen, listen, listen. It's simple. Not all DAWs are created equal. Actually, none are. And this is the point. We know each one has different features, but there is a much more basic consideration. Each one *sounds* different. Listen to their con-

BY STEPHEN ST. CROIX

—CONTINUED ON PAGE 209

How do you get

24

analog inputs

into your Mac or PC

for only \$1495 ?

Introducing MOTU's 24i.

Record up to 24 analog inputs at once, then mix and master - all inside your computer.

- 24-bit hard disk recording system for Mac OS and Windows 95/98.
- 24 balanced inputs with 111 dB dynamic range.
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- Stereo main outs in three formats (balanced analog, RCA S/PDIF, and optical S/PDIF).
- Compatible with all major Windows and Macintosh audio software applications.
- Available as a stand-alone system or as an expander for 2408, 1224 or 24i core systems.
- 24i expander (\$1195) shown below plugs right into your 2408, 1224 or 24i core system and adds 24 balanced 24-bit analog inputs.
- 24i core system (\$1695) includes PCI-324 card and AudioDesk, simple-to-use workstation software for Macintosh with recording, editing, mixing, and 32-bit effects processing.



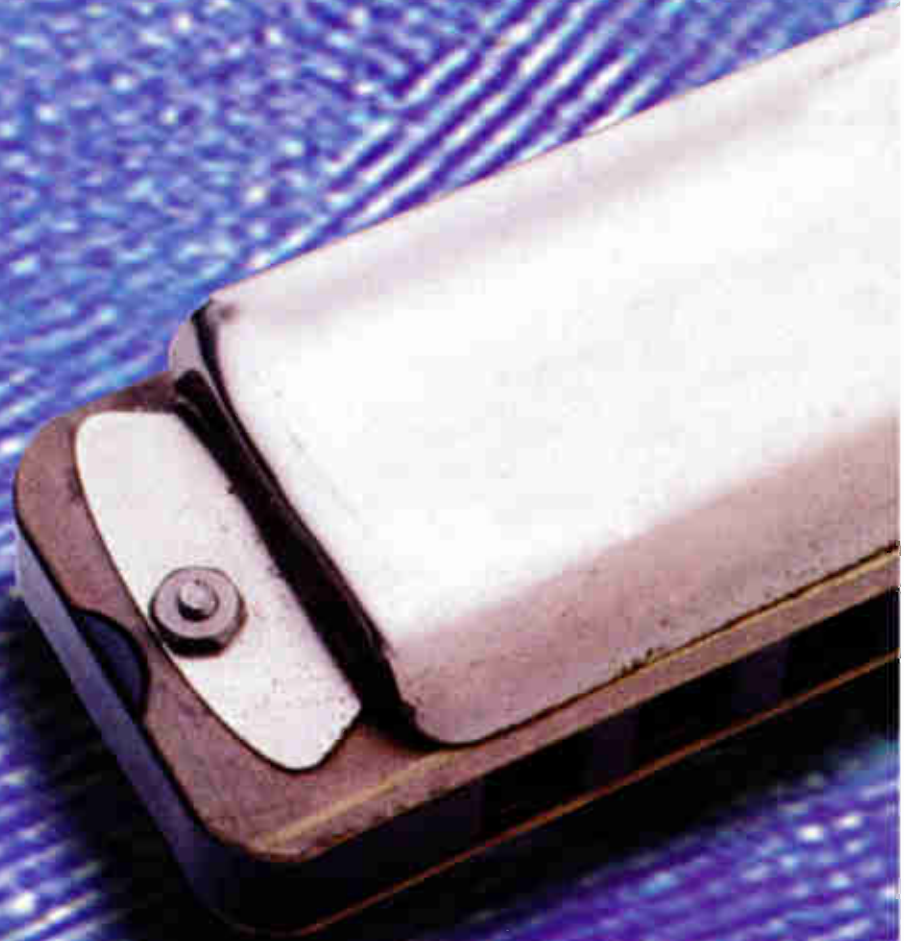
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The harmonica. A simple way to make music for over 170 years.

The harmonica looks and sounds today very much like it did when Christian Messner began making it back in 1827. Since the original design was right, there was never a big reason to try and improve upon it. But today, that's not always the case.

With professional recording media, improvements in manufacturing technology have now made it possible to make a good product even better. More consistent. More reliable.

Fuji, an established name in professional digital videotape, now offers a line of professional digital audio media. We have products for the ADAT and DTRS formats, along with professional DAT, MD and CD-R.



U T O R E



Every Fuji tape and disc comes packed with over 60 years of innovative production technology and manufacturing experience, to make them more consistent, more reliable.

At Fuji, we can't tell you what the future will sound like. But you can bet that we'll find a way to make it sound better.



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CIRCLE #012 ON PRODUCT INFO CARD
World Radio History

IT'S A LARGE AND CONFUSING WORLD, AFTER ALL

THOUGHTS ON DEALING WITH A GLOBAL INDUSTRY



ILLUSTRATION TOMA CURRY

None speaks English, and everything's broken...

— Tom Waits,

"Tom Traubert's Blues (Four Sheets to the Wind in Copenhagen)"

There is not a more self-centered country on earth than the U.S.A. Thanks to the relentless blinding of our media and entertainment industries, our perception of foreign lands is predominantly of places with wars, floods and earthquakes, where people talk funny and eat strange things despite the fact that what they really want is McDonald's and Coca-Cola.

As a result of this, Americans have an odd—and, I used to think,

unique—way of dealing with people who don't speak English. Since we can't conceive of a world where not everyone speaks our language, when we are confronted with someone who doesn't understand a thing we are saying, we simply repeat it, only louder. Of course, this doesn't work, and so everyone goes away from the meeting feeling that the other guy is stupid. It doesn't lend itself to a great deal of cross-cultural understanding, and

BY PAUL D. LEHRMAN

it's one of the many reasons why Americans have a reputation the world over for being boorish.

I liked to think that I was above that. My mother arrived here from Russia at the age of 12, speaking not a word of English. My grandmother, who came with her, had lost much of her hearing before she left Russia, and so she never really learned English. I grew up thinking that Russian was a language that was always spoken at high SPLs, since that's how my mother and grandmother communicated with each other. But I also learned that when I am talking to someone who is not fluent in English, I need to speak slowly and clearly, and if they don't under-



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72

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We're certain Yamaha has the best analog consoles for your money. And we're so confident you'll agree, we'll send you an M3000-40, GA-3212 or GA-2412, in a flight case, for a 72 hour real-world test drive. By the end of the three days, you won't be able to live without a Yamaha console. Contact your Yamaha Commercial Audio dealer today — or call us at (714) 522-9108 and we'll refer you to one. For 72 hours it's your key to a free ride.

You must meet the credit requirements of your local Yamaha Commercial Audio dealer, you can only have the console for 72 hours and you can only do the test drive once.

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CIRCLE #013 ON PRODUCT INFO CARD
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SEE 24-CHANNELS AT A GLANCE.

Instead of a microscopic gray LCD display, you plug in an SVGA monitor and get the whole story on a big screen: channel and aux levels, EQ and effects, mutes, record status—even an electronic “scribble strip.” When you switch fader banks, the display automatically switches, too.



RECORD 24-CHANNELS AT A TIME. The Digital 8-Bus is the only digital console in its price range that lets you record 24 channels at once. Every channel has a Record Ready button; you can punch in and out to your heart's content.



56 INPUTS AND 72 CHANNELS.

Greg Mackie really wanted us to make sure that we got this point across. This is NOT a mere 24-channel console!



At the 1999 NAB show in Las Vegas, our Digital 8-Bus console received POST Magazine's coveted 8th Annual Award for Innovation in Post Production Products.



A REAL PAN POT ON EVERY CHANNEL.

A no-brainer right? Tell that to the other digital mixer and workstation companies. We're guessing that you want to get down to mixing, not clicking and mousing, so we built a real mixer.



APOGEE LOW JITTER CLOCK I/O.

Since the quality of your audio is only as good as the clock that controls your console, we went to Apogee Electronics, the best in the business, to design our Clock I/O card.



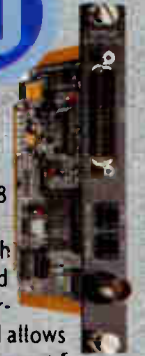
24-BIT PDI-8 CARD

Our 8-Channel AES/EBU I/O card offers optional real-time sample rate conversion on every stereo input.



24-BIT DIO-8 CARD

The DIO-8 card features both ADAT and T/DIF formats and allows you to convert from one format to the other with a single card.



A SOFTWARE PLUG-IN ARCHITECTURE AND ONLY THE BEST DEVELOPMENT PARTNERS.

Add incredible software options like Massenburg EQ, Antares Auto-Tune, IVL Vocal Studio and more. Turn your console into an easy to control sound design pallet.



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3

56 INPUTS AND 72 CHANNELS. It's harder to impress clients when your console isn't twenty feet long, but the D8B gives you the same performance. One-touch switching gives you 24 tracking channels (Chs 1-24), 24 tape return channels (Chs. 25-48), 16 FX returns, 8 alt returns, 8 virtual fader groups, 8 bus masters and 8 control faders.

4

EQ, COMPRESSOR AND GATE ON EVERY AUDIO CHANNEL (W/O ANY CHANNEL LATENCY).

Most other digital mixers or work stations "bus" your audio to a DSP pool for EQ and dynamics. The resulting propagation delay causes phasing problems with your audio. The D8B has dedicated DSPs for each channel pair, so you don't run out of DSP and you incur no DSP latency. (One reason it sounds so good.)

5

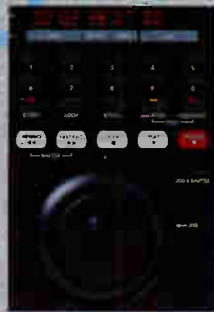
A CHANNEL AT A GLANCE VIA ON-SCREEN "FAT CHANNEL" DISPLAY.

Even million-buck mondo mega consoles don't have displays this informative and easy to use.

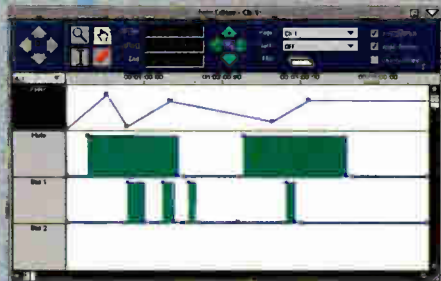


EASY-ACCESS TRANSPORT CONTROLS. Run the transport controls of any tape or hard disk recorder that has MMC.

Add cue points anywhere. Create song start and stop points or loop between two points. The D8B speaks SMPTE or bars/beats/ticks. You can use the keypad to dial in to any point with frame accuracy.

11**12**

AUTOMATION EDITING MADE SIMPLE. The Digital 8•Bus' Version 2.0 software provides you with the most comprehensive automation and automation editing tools ever found on an automated console of any size. View levels and mutes on a fullsize pop-up Mix Editor window that scrolls in real time with the audio. Then make changes graphically with the flourish of a mouse — or by typing in exact time code.



CIRCLE #014 ON PRODUCT INFO CARD

12

TWELVE REASONS WHY

48 Windows, Walter Afanasieff, Arista Records, David Arnold, The Bomb Factory, Jeff Bridges, Ed Cherney, Cinemuse, Columbia /Black Music Division, Michael DeLorenzo, Tim Dubois, The Dungeon, Earth, Wind & Fire, Ed Green, Mick Guzauski, Scott Hendricks, Islandlife Records, Wayne Linsey, Little River Band, Machine Head Post Production Studios, Binky Mack, Bobby Mackston, MXPX, Keith Olsen, Glen Phillips, Poke, Trent Reznor, Lance Rubin, Michael Score, Soundelux, South Beach Studios, Chester Thompson, Virgin Records, Bruce Willis, Dwight Yoakam, & the CIA are among those who

OWN A MACKIE DIGITAL 8•BUS.*

(Thousands in use around the world everyday.)



*Mention in this excessively wordy headline indicates ownership only as reported to Mackie Designs and is not intended in any way to denote endorsement, official or otherwise, by the individuals, companies or organizations listed above. (Specially the CIA.)

World Radio History

stand me, I should find other words that perhaps will be more familiar to them.

Nonetheless, a few years ago, I found myself characterized as an ugly American thanks to an offhand comment I made in an online discussion group. A large Japanese company posted to the group a press release that was, to put it politely, a little awkwardly phrased. I expressed that I considered it dumb, if not arrogant, for a company with such formidable resources to post an important press release without at least having it checked over by someone who spoke

English well, just to make sure that English-speaking readers would be able to make head or tail of it.

The group's reaction was fast and furious, mostly along the lines of "Lehrman, you ignorant/xenophobic/chauvinistic/racist/jingoistic slut/pig/Yank/(unprintable noun)! How dare you expect the rest of the world to speak your language! Don't you know there are billions of people who don't speak English? How would you feel if they criticized you every time you tried to write something in their language?"

The response was vehement enough (and from people whom I respected

enough) that I uncharacteristically held my tongue and didn't pursue the matter. But this past summer I did something else equally uncharacteristic, and it brought that incident back to mind.

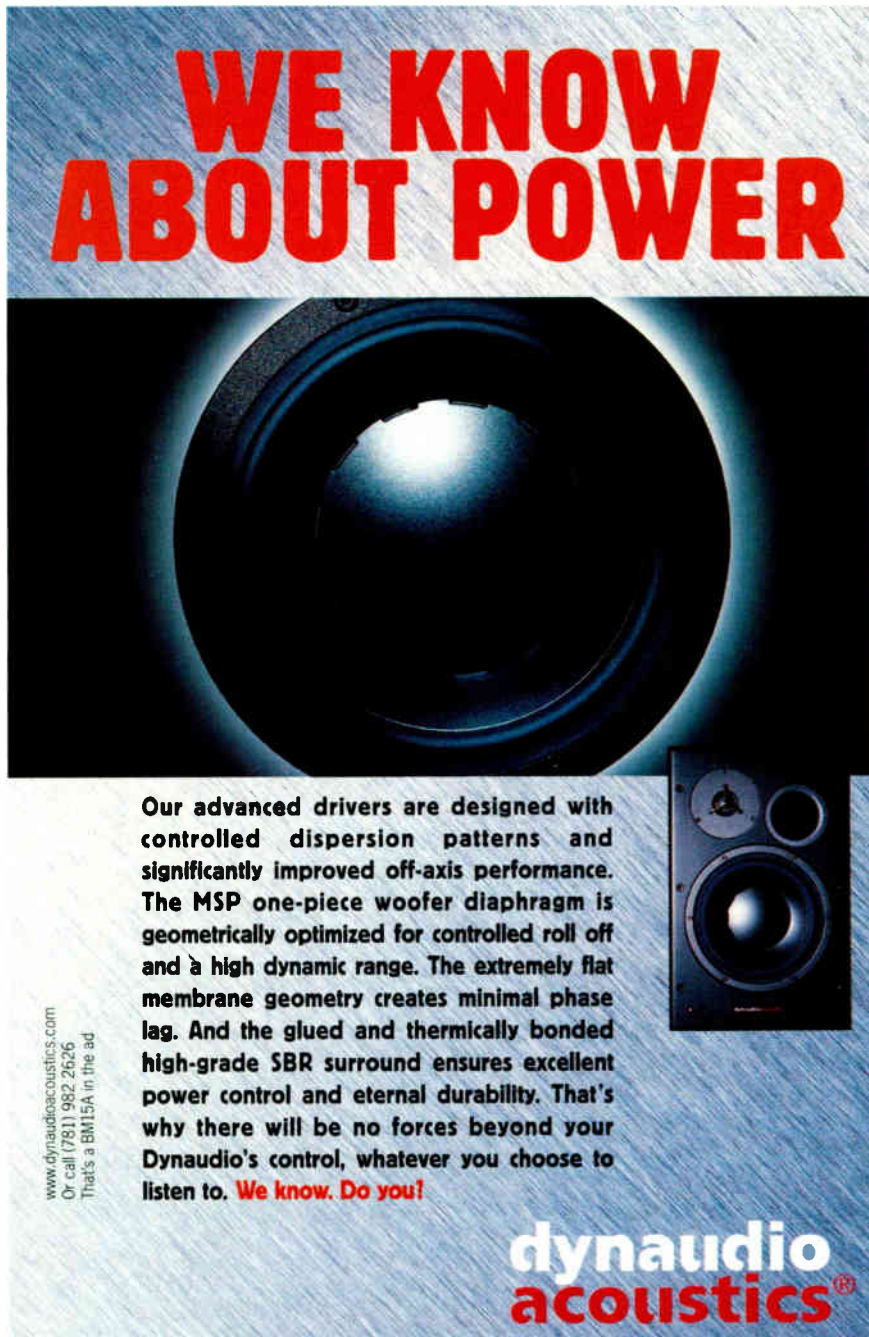
I am not much of a world traveler—my brief adventures in Trinidad are now a matter of public record, and I have gone on short jaunts to Europe a couple of times on business—but this summer I let my wife talk me into spending a whole month in France, on vacation. She had been wanting to do this for years, and I had run out of excuses, so through an agency we found a French couple who wanted to spend a month in New England, and we exchanged houses with them. Theirs was a lovely, modern house in Perpignan, a small city on the Mediterranean, very close to the border with Spain. We also exchanged cars, and so it worked out to be a relatively inexpensive way to have a fairly exotic vacation.

Now, we had been to France before. I had taken my wife to a computer-music conference in Paris when we first met, and a few years before that, she had done a tour of France and Italy. We didn't recall any major problems communicating with the locals, but this time, just to make sure we'd be okay, we hired a private tutor to help us brush up our high-school French before we got on the plane. He tried to warn us that we were about to enter *la France profonde*—the real France, as opposed to the more international areas of Paris and the Riviera.

And *profonde* it was. We found that literally no one in Perpignan or the surrounding area spoke English. We had been warned that, among Western European countries, France has the least number of bilingual citizens, and it was most definitely true in this region. We found a handful of English speakers, but they were either tourists or expatriates: Belgians, Dutch, Danes and Germans, as well as English and Irish. But among the natives—the post-office workers, bank clerks, waiters, hotel clerks, even the government tourist office staff—hardly anyone spoke English at all.

Furthermore, the thought that someone would be in their midst and not be fluent in French didn't matter to them. When I would approach someone with a carefully thought-out sentence, in what I hoped was well-pronounced French, the response was either "*Comment?*" ("Huh?"), thus making me feel like an idiot, or, if I was successful at constructing a coherent sentence and they actu-

—CONTINUED ON PAGE 210



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TOM DOWD, PART 2

ON RECORDING OTIS, ARETHA, CLAPTON, THE ALLMANS AND ROD STEWART

Forget the introductory hoo-hah (see last issue). We continue our conversation with recording legend Tom Dowd.

How did Otis Redding strike you?

Oh, he was a pussycat. He was a lover. He was a great human being. I recorded Otis for Stax once or twice on singles, because they were doing them alone themselves. When they were going to do the *Otis Blue* album, they called me up and said, "Hey, you gotta come down. Otis is only going to be here for two days. We have to do an album." So we did the album in two days. That was it. Boom. Done. Everything was live, on the fly.

So all the charts were written out and all that by the time you got down?

No. Nobody could read. "Sing me the song. Play me the song." It was head charts for the horns.

What were the Stax studios like technically? You'd been used to controlling your environment, one could say.

[Laughs.] Hysterical. The first time I



An Aretha session, late '60s. Tom Dowd is at the rear right. That's Jerry Wexler left of Aretha.

350 mono and two Ampex four-position passive mixers connected in parallel into the mono machine. *We're talking crude.*

Remember, I had been recording four, going on five years on 8-track. And I'd been doing stereo for ten years. And I walk into this and I go, "Gulp!" [Laughs.] But you know what? They were making hit records, so don't laugh. That's it; that's the first thing. Ultimately, I snuck a 2-track machine in on them and fed it to the mono simultaneously so that I could play them back everything in mono. And once or twice I'd play it back to them in stereo, and it was like, "What's that, man?"

"Hey, it's coming out of different places!"

Yeah, exactly. These are jovial things, but they were actually quick to adapt.

The first time I got called down there was on a technical problem.

They hadn't been able to deliver us a record for five or six weeks, and they kept on saying, "The equipment's broken. The equipment's broken." And Jerry Wexler said, "Dowd, I don't trust what they're doing there. Either they're not making records, or somebody's pulling something over. Get your ass down there, and find out what's wrong." I got down there on a Friday night—this is the truth—about 7 o'clock Memphis time. I didn't know [Stax boss] Jim Stewart; he didn't know me. He picked me up at the airport, drove me to the studio, and I said, "What's the matter?" and he said, "The Ampex dealer can't get us this part, and that part is back-ordered."

I get in the studio, and I look at the machine, and it's very simple. The brake bands are broken, and the Stop and Start switch doesn't feel right. I turn the whole thing upside down, look at the electronics, I grab the phone and I call Phil Eihle up in New York and say,



ever walked in to Stax Records—this is 1962—they had taken the seats out of an old theater, and that was the studio. Stage-right wing was the control room, with a little window looking into the studio. In the control room was an Ampex

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"Get me brake bands on a 350, a pair of them, feed and take up. Get me a pile of 68k resistors. Get me this and that." I'm reading him a list of equipment just looking at this thing upside down. This is standard—we replace these parts in the damn Ampex every six months. And I'm reading this and one thing and another, and I said, "Now when you get all done, call La Guardia airport, and find out when the first plane is to Memphis that you can catch up with. Give a stewardess \$25. Give her the brown bag so she can see the parts and not think it's a bomb, and tell her to page me when she gets in to Memphis, and I'll give her another \$25. Phil calls me next morning, around 11 o'clock Memphis time: "It's on Eastern Airlines flight so-and-so out of here and the stewardess's name is whatever the hell..." I said, "Fine."

Jim Stewart and I go to the airport together, I give this girl \$25, she gives me the brown bag, and as we're going back to the studio, I say to Jim, "Hey, do you have a soldering iron?" Jim says, "I don't know." "Do you have long-nosed pliers?" He says, "I don't know." "Have you got an electronics store around here?" He says, "Yeah." I said, "We're going to spend \$15. We went in. We bought a soldering gun; we bought a screwdriver; we bought a nut driver, nickel-and-dime parts. I went into the studio. By now it's about 2, 2:30 in the afternoon, and the band is practicing. I'd never seen them before.

Which band was this?

This was Booker T and the MGs. And they're *digging*. They'd go in and work two, three hours every Saturday afternoon just running tunes down, playing.

So I go in, turn the machine over and I zip-zap here, zip-zap there, I align the machine, I throw on a 7-inch reel, I hit the Record button, and I start recording what the band is rehearsing. Before that night is over, [MGs guitarist] Steve Cropper and I have become bosom buddies, and I'm having ribs at so-and-so's house and greens at so-and-so's house, and we're going to play golf at 7:30 in the morning. So goes that day. About 10:30 the next day, we're back in the studio, because they want to get down these ideas they have and put them on tape so they don't forget what they're doing, and then Rufus Thomas walks in.

"Baby's back, dressed in black..."

Right. Rufus comes walking in in this



Eric Clapton and Tom Dowd, circa 1971

suit—fine threads. He's just coming home from church. And he says, "I was drivin' down MacLemore [Avenue, where the studio is located] and I see how many cars are in the parking lot, so I figure the studio's working; somebody's fixed it." So I meet Rufus for the first time. And he looks at the band and says, "Hey, I got this ditty. It'll take two minutes. Let me sing it to you, and then we'll record it. So I threw a tape on. They run the song down once or twice; I make two passes at it. I play it back to him; he says, "Yeah, that's fine, man." He's going home happy as a pig in a poke.

And that's "Walkin' the Dog"?

That's "Walkin' the Dog." I go up to New York with a tape under my arm the next day, and I finally get to Wexler's office late in the afternoon, and I say, "Hey, the studio's flying, they'll chase you some stuff, and here's proof—I made this yesterday." And he listens to it, and he says, "Put the damn thing out!" [Laughs.]

You also worked with Aretha Franklin. She'd done some good music for Columbia but she hadn't really broken before you worked with her.

I've said it before: Aretha cannot sing a bad note. I don't care what song you give her; she'll sing her tush off. It's just a matter of the right time, the right place and the right song. Originally they wanted me to record her in Muscle Shoals, but I just didn't see recording her in mono only there. So Phil Eihle and I rented a 4-track for ten days or two weeks or something, and escorted it into Muscle Shoals like lug-

gage. Showed up in Rick Hall's studio and said, "Rick, we've got to connect this machine to your console for the Atlantic recordings." He says, "You're going to lose my sound!" He's got nail-polish marks on all the faders: Here's the bass; here's the drum; here's the piano.

What kind of console did they have?

I don't know. It was a radio console. It was in exquisite condition, I must say, and there was a man who was doing the servicing who was an old radio engineer/transmitter service technician who worked between Muscle Shoals and Memphis. He knew what he was doing.

So Phil and I flipped this console up on its back and looked at it. I think it had six or eight positions. And I'm saying, "Phil, I'm thinking about how I'm going to record. We're going to make this track her vocal track. We'll make this track the percussion and bass. We'll make this track the guitars and organ. No, make the organ with the bass and the piano with the guitars..." What we did was unwire the busing on this console so that we could assign these three faders to track one, this one to track two, and so on. We put the console down, and then we let Rick do one of his own regular sessions on a mono feed. But when Aretha came down, we were ready, and we did her in 4-track. That introduced Muscle Shoals to multi-track.

This is "I Never Loved a Man the Way I Love You"?

Yeah. And then when the sessions ended after like 15 or 20 hours, and

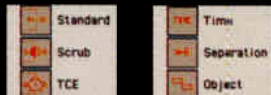


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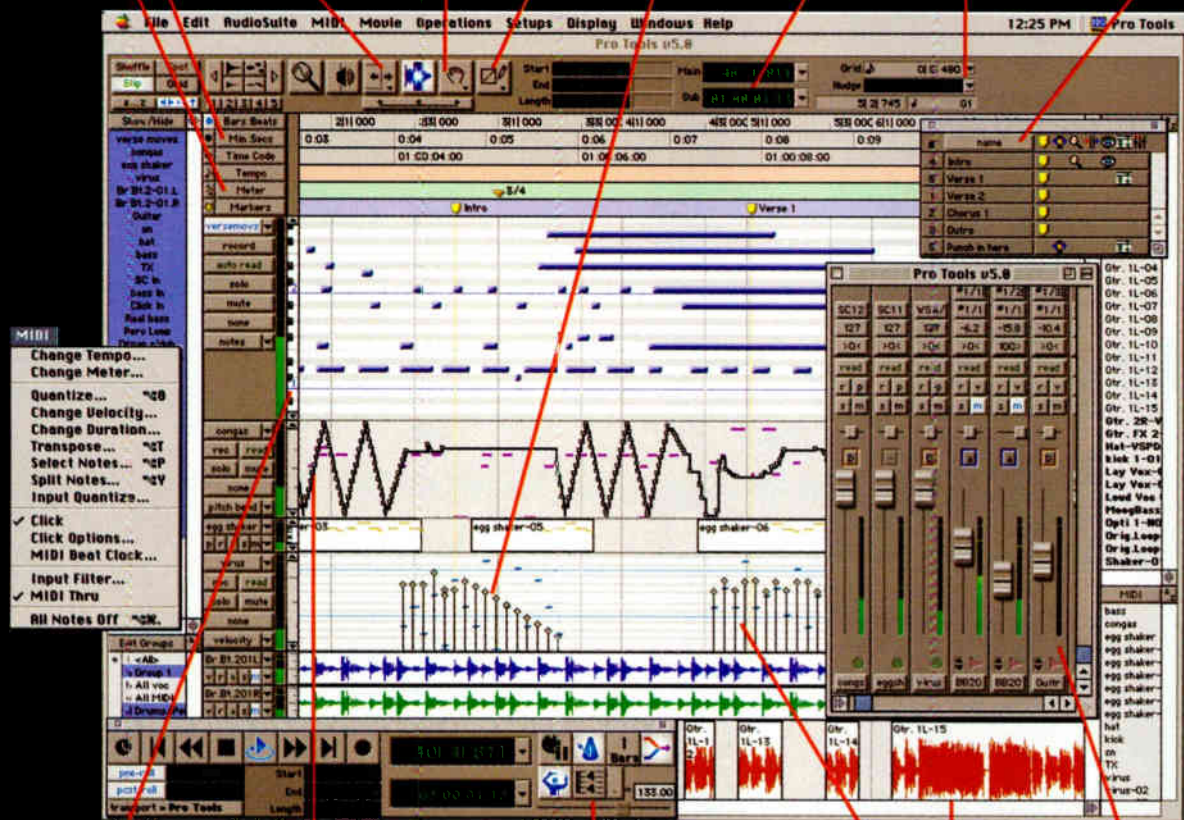
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THE MIX INTERVIEW

everybody was going back to New York, Phil and I had to go back into the studio and unwire what we did and restore every nook and cranny and every piece of dust and restore the console. And then when we got up to New York, we immediately transferred everything to the 8-track machine.

Where was Aretha's version of "Respect" done?

The Aretha one was done on 60th Street [at Atlantic Studios]. That session flew. We brought part of the Muscle Shoals band up and part of Memphis.

Had the Muscle Shoals and Memphis guys played together much?

They all talked the same language. [Laughs.] They knew each other, and they might gig on a weekend here and there, but no, they never camped together.

So that was a slightly unusual choice by you.

Oh, yeah. There's a videotape out there that's a 22- or 23-minute tape on yours truly, and there's an Aretha session cut in there that's about two-and-a-half minutes long. And if you look in there, you'll see Roger Hawkins; you'll see

Tommy Cogbill; you'll see Jimmy Johnson and Eric Gale. Aretha is at the piano. There've got to be one or two other musicians but off the top of my

Once the word got out that we were doing Aretha sessions, after "I Never Loved a Man" came out and we needed an album in a hurry, we had people climbing through the door wanting to play on this session.

head I can't picture them. And I'm in the control room yelling at them, and they're not paying attention, and I just busted out of the control room, and I'm

walking in among them giving them directions and counting off and singing them parts. But that's the potpourri of the Muscle Shoals/Memphis rhythm section that we used for the most part on that album.

At one point, when we did the second leg of that album, two days later, I walked in the studio, and I had seven guitar players in there. Joe South heard we were doing her; he wanted to play. As I say, I had Jimmy Johnson, I had Eric Gale, I think Steve Cropper, one or two of the New York guitar players, and in the middle of the session who walks in the control room to see what we're doing? Eric Clapton! Now what do you do? You look at one, and you say, "We only need one guitar on this," and then the other six guys are ready to kill you. "Why did you pick him?" And Duane Allman, too. Hello? What do you do now? Once the word got out that we were doing Aretha sessions, after "I Never Loved a Man" came out and we needed an album in a hurry, we had people climbing through the door wanting to play on this session.

You've said you always liked to record Aretha while she was playing piano.

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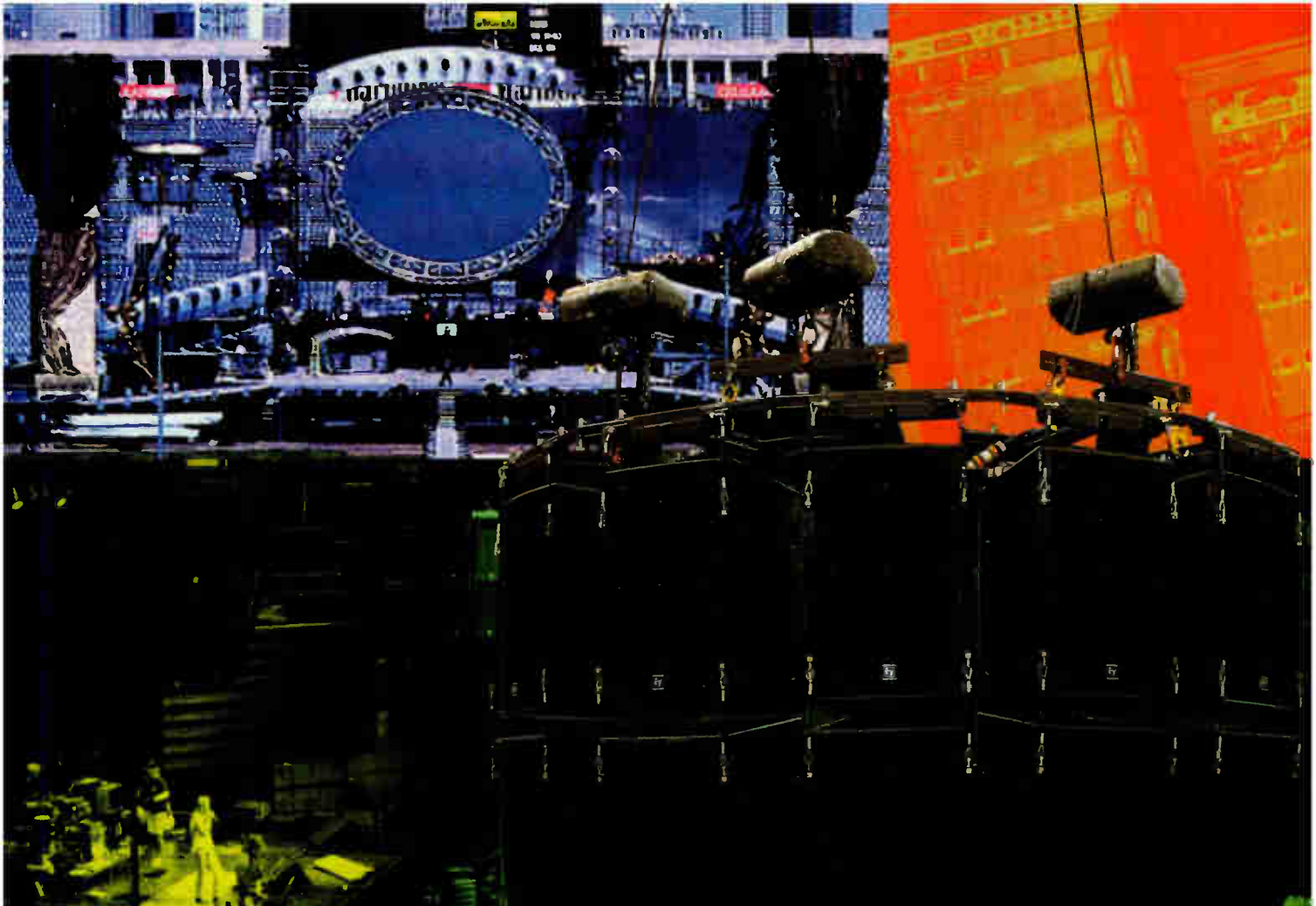
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THE MIX INTERVIEW

Why is that? I guess you phrase things differently when you're playing and singing at the same time.

Yeah, her timing and phrasing shifts when she is standing up as opposed to when she's sitting down. When she's playing piano, it's a lock. When she is standing up, with the facility she has, and hearing what's going by, she's singing the same song but the timing is entirely different. The expression is different because she's not distracted.

Was she involved in her own arrangements at all? Would she have had a hand in the rearrangement of "Respect"?

Oh, yes. She and her sister, who passed away, were always singing each other parts, and then she'd come in the studio and sit down at the piano.

Tell me a little bit about working with the Allman Brothers. People don't tend to ask you that much about them, but I've always thought they were really a great band, and underrated.

That was an adventure. I was supposed to do the Allman Brothers in '69 or something like that, in New York. As fate would have it, I got dispatched ei-

ther to Memphis or Los Angeles when I'm supposed to be doing them in New York on their first album. So one of the chaps that was working for me, Adrian Barber, did them. They were on a budget—they had to be in and out in two days, and that was it. And Adrian was



not familiar with the Allman Brothers, but he did a helluva job recording, I thought.

You already knew Duane [Allman] from Muscle Shoals...

I knew Duane, but I didn't know the rest of the band.

For some reason I was in Macon,

Georgia, for something, and I went from where I was staying, walking down Broadway toward [Capricorn records chief] Phil Walden's office, and I hear the sound of this band coming out of this rehearsal room studio. I didn't walk in; I just heard them playing. And I stood there for about five minutes, and I thought, "Whoever this is, they belong in a studio. They're wasting time where they are right now. Get them the hell out of there. They swing, they're blue, and they're driving, all at once." To me, it's three cultures all at the same time. It was *wicked*. So I get down to Phil's office, and I said, "By the way, whose facility is that up there?" He said, "That's our studio." I said, "Who's in there now?" And he said, "The Allman Brothers." I got up and I said, "Phil, send them down to me in Miami tomorrow. Get ready to record. Don't let them play any more. They'll lose their edge." So they came down to Miami like two, three days later, and that's when we started *Idlewild South*.

Was that Criteria?

That was Criteria. Ronnie Albert was the engineer, and he was beautiful. He was young and impressionable and as fresh as they were. He didn't have any



inhibitions. He just *flew*. He said, "I want to do this instead of that." I said, "Fine. If you think it'll sound better, do it." And boom, boom. The band came in, and I think we did three, maybe four songs in two days, and then they had to go back on the road. So we were halfway through an album in one sitting.

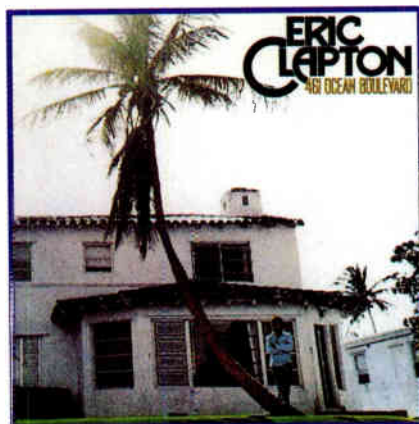
Was Criteria all MCI equipment at this point?

Well, Jeep [Harned of MCI] had altered or customized every bit of [Criteria owner] Mack Emerman's equipment, and brought the Ampexes up to snuff. He didn't have an MCI tape machine yet. He was still updating Ampexes. And the console was modified by Jeep, whatever the species of it was. Or it might have been the first version that MCI built. I know I did [the Allmans'] *Eat a Peach* and [Derek & The Dominoes'] *Layla* on that MCI console.

When you did Derek & The Dominoes, you'd done Cream, so you already had a relationship with Eric Clapton. That was quite a different animal, though, than Derek & The Dominoes. Did you know it was going to be a classic?

We actually did the whole album in ten days—vocals, everything. The only

thing that was altered was Eric changed the solo on one song in October, and we added the piano part to "Layla." But I said when we finished the initial pass at the album, "This is best album I've done since Ray Charles' *Genius*." Because that's the way it hit me. It just



killed me. And of course the record didn't hit for a year. It was like a dead dog. Thank God Atlantic had the patience and the perseverance to stick with it. Because it could have fallen by the wayside. But they stuck with it for a year, and a year later, after "Layla" hit, it became the national anthem. It had to

happen. I think by the time it hit I was into the [Allman Brothers'] *Fillmore* album.

Let me ask you a delicate question about drugs. Obviously there's lots of cocaine, there's heroin happening during this era at some sessions...

I will give you my reading on drugs, in spite of Bobby Whitlock, in spite of Eric, in spite of anybody. The Allman Brothers and Derek & The Dominoes—if I denied that they drank, that they used ups and downs, that they smoked, I'd be lying. But when I said, "Two o'clock we're starting," then at two o'clock I would have four, five, six, seven people walking in clear-eyed, fresh out of the shower, wanting coffee, and saying, "What are we doing today?"—lucid and clean as a whistle. Every one of them. I don't know what the hell they did when they weren't with me—don't know if they'd been in bed or where they'd been, but at two o'clock they were ready to play.

I think about Coltrane sessions, where Paul Chambers would show up an hour late. One time Philly Joe [Jones] shows up, but he doesn't have his drums because they're locked in a club. Another time Elvin [Jones] shows up,

You want to be the one to tell him the battery in his microphone died?



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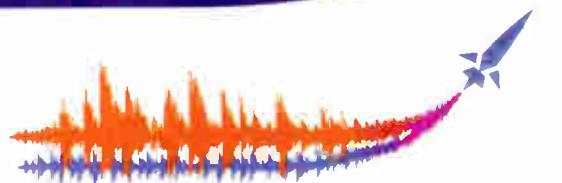
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and he's like three feet off the ground. I didn't have that problem with the musicians that we are talking about now.

Even later, with Clapton, when he was having more problems? Ocean Boulevard and that era?

There wasn't a drug problem, but there was an alcohol problem. I'll be honest that there was one time when we were doing something acoustic during—it might have been "Hand Jive," or something like that, during the 461 album—and Eric was on his second bottle of scotch. I went out

there, and I started drinking scotch, and both of us fell asleep on the floor, side by side! Wild, right? Here's Eric and I on the nod, like, "Hey man, we better stop." [Laughs.] The alcohol problems that I had on *Ocean Boulevard* were far worse than any other kind of problems that I had on anything else with the Brothers or with Derek.

You recorded some really key stuff with Rod Stewart. You did six albums, or something?

[Laughs.] The madman. Yeah.

The first time I saw Rod Stewart he was playing tambourine and singing for

Jeff Beck. Then it was like ten years later that [Warners president] Joe Smith called me up and said that they were on the verge on signing him from Mercury, and one of the reasons was that he wanted to make records like this and that, and would I record him? And I said, "Of course. It'd be my pleasure." And that's a whole other adventure and another series of funny stories.

Generally speaking, he was good to work with?

Oh, yeah. But he was a tough taskmaster.

Were those mainly session guys, as opposed to a band, on those records?

Well, the first two albums that I did with him, *Atlantic Crossing* and *Night on the Town*, if you will notice, I used all studio musicians. You will notice David Foster was my piano player. [Laughs.] And the truth of the matter is, in all sincerity, I loathe having to record a group, because I'm limited by the invention or the facility that the group can play. When I was doing Rod's first albums, you'll notice I was casting—I'd have this drummer and this bass player on two songs, and then this piano player with this drummer on another. It was like casting a movie. Later on, when his band did their world tour, right after *Night on the Town*, and it came time to record again, all of a sudden I didn't have the luxury of calling for this musician or that musician. And if I did, I'd be putting somebody's nose out of joint. So the production concept changed drastically from the first two albums to the later albums.

Rod Stewart, because of English tax laws and considerations having to do with financing, when he started recording for Warner, his advisers said they didn't want him to say the songs were written in England, because then they'd be subject to tax. And they didn't want to record them here because blah, blah, blah. So we're doing the tracks here, the vocals there, and he'd write a song when he was on a plane. They found every way to evade pinpointing where the songs were done.

At one point, the situation was: Everything is fine, but we can't do the vocals here because we did the tracks here. This is some of the stuff I did in Memphis or in Los Angeles. So the endeavor is we zap up to Toronto to put the vocals on. We're up in Toronto about two days, and in the middle of the second day in the studio working on a vocal and out of a clear blue sky, Rod lifts the earphones off, he says, "I



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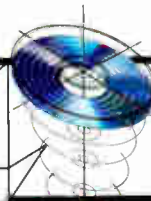
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can't sing in this place. I can't stand this city. I want out of here." He goes storming out of the studio. And he was singing well. I thought, "Oh, boy, what do I do now?" Because we had shipped the tapes into Canada, through customs, I now have to make certain that everything is packed the same way, stored in the same boxes, so that I can get it back out of the country and not have it held by Canadian or American authorities.

And Rod comes busting back into the studio about a half-hour later. He says, "When are we going to leave?" Now he's really uptight. And I described to him, "Rod, I have a problem. Because we brought these things into the country, we have to ship them out in exactly the same cases, the inventory lists have to read the same, otherwise we'll have..." And he has no patience with this. "I'll wait in the car." Finally, I get out into the car, and he's sitting there with his notebook, and he says, "Take this song down." I look at him, and I say, "I don't have my recorder." Well, I had a stream of expletives go by that only an English soccer fan could have used. He was livid. And I said, "Sing me the song." And he says, "What for?" And I said, "Sing me the song." So he starts singing this verse, and he sings me this chorus that he's written, and I have a piece of manuscript, and I am scribbling down what he has written, as he's singing it. And I say, "Sing it one more time, and then stop." He sings it one more time, and I say, "Okay, now what's the verse go like?" And he says, "Well, I haven't finished the verse, but it goes 'la-de-da.'" And I'm thinking, "I don't want to make him self-conscious. He just changed keys on me. I won't say anything."

We get all the way back to Los Angeles, and *Night on the Town* becomes a monstrous hit. He goes on the road. Comes back from being on the road, and calls me up one day in Miami, and he says, "Mate, how would you like to record next week? I'm ready to record." I said, "Fine." I get out to Los Angeles, and he plays me one or two songs that the band has worked up. We start to record, and about halfway through the first date he looks at me, and he says, "Knock it on the head." I said, "What do you mean?" He says, "It doesn't sound good. It sounds terrible." And I said, "Rod, it's going to cost us money. We've booked the studio, and we've contracted the musicians for



Left to right: Steve Cropper, Rod Stewart, Roger Hawkins, Tom Dowd, Jimmy Johnson and Barry Beckett recording *Atlantic Crossing* at Muscle Shoals in 1975.

two sessions a day for the next three days, and whether we record or not, we have to pay them." Well, now there's another series of expletives; here we go. I said, "Look, we have to find something to do." So we're going back through old songs and notes that I have in this shoulder bag. And I come up with this piece of manuscript, and I say, "Wait a minute! Do you remember you played me this thing? You sang me this song." And I start to play him like two bars of it. He says, "Give the band a lunch break. I'll be back in an hour." And that was "You're in My Heart." I still have the original manuscript where I scribbled down his nutty singings when we were in Toronto. At his last wedding, I toted along the manuscript, and Rod scribbled on the bottom of it, "Mad shoutings from a Toronto car park."

You always liked tracking live. Was it a hard adjustment going from recording that way to the more piecemeal method that was more prevalent in the mid- and late '70s? Even the sound of studios changed in the '70s.

I adjust to what the artist feels is the most comfortable. If I have my druthers, I will record as many musicians simultaneously as I possibly can. Because I want the breathing. I want the interaction. Even if the vocal I'm taking is never going to be the final vocal, I would like the vocalist to sing while the band is playing, so if there's an inflection, if there's an ad-lib, the band responds to it. Because I can't build that response in; I can't invent it. So I am more inclined to enjoy live recording of as many people in the band at one time

as I can possibly get.

It seems, though, it's sort of swung back that way a little bit now.

The thing that really cooked it or cured it for me was the Allman Brothers, when we put them back together again for the umpteenth time [a few years ago].

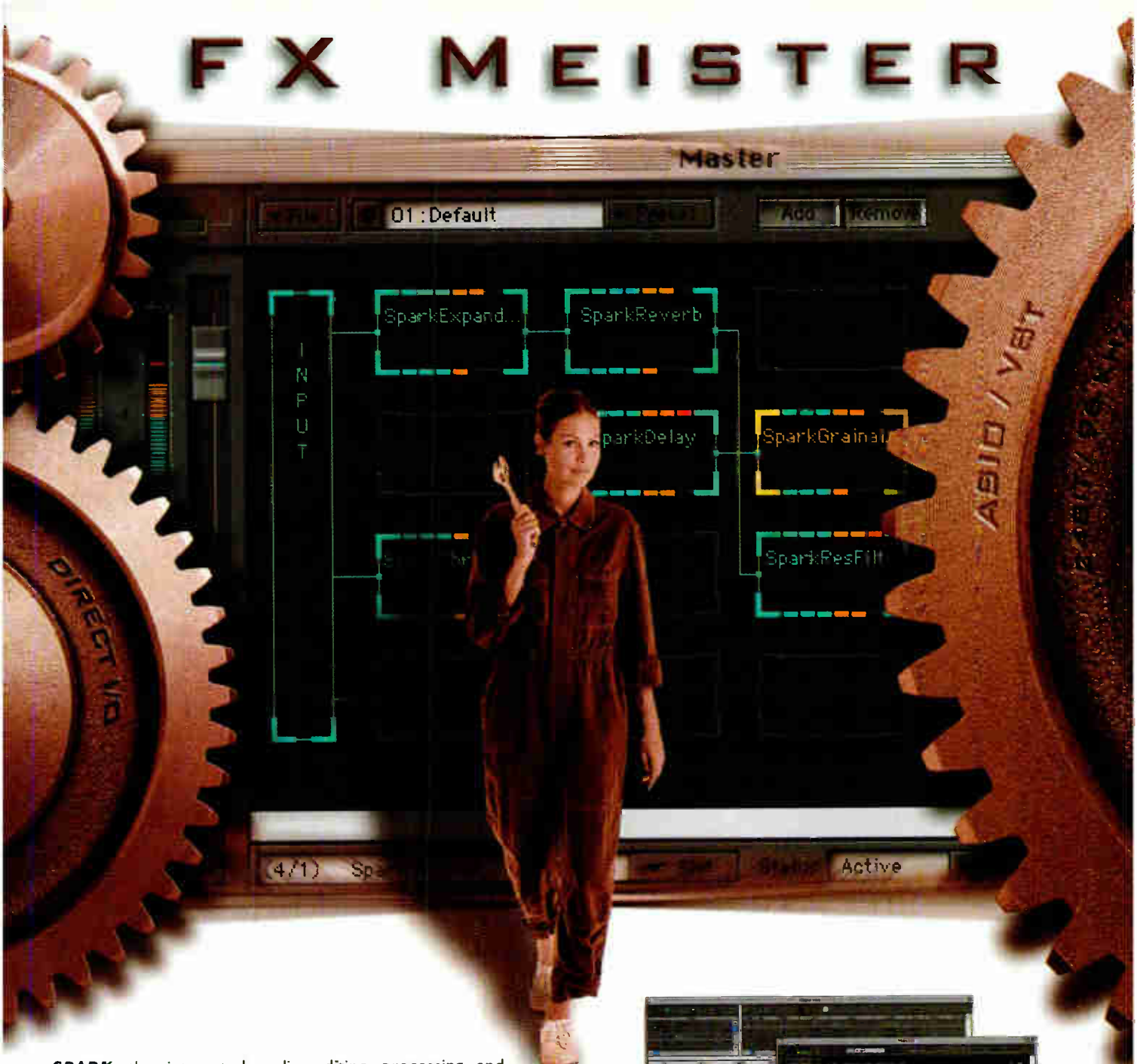
Those are some really good records. I like Seven Turns a lot.

The first one we did was very, very tough. We were tracking and then adding a solo, then adding this, adding that; it was an overdub special. It was designed that way, it took a lot of time, and it came off that way. But when it came time to do the next album, I said to them, "I would love to go back to recording like we used to. Where I have five, six of you guys in the studio at one time, and we record." Well, that's when [drummer] Butch Trucks and [manager] Bert Holman came up with their idea of recording at Burt Reynolds' barn up in Jupiter, Florida. And we set the band up in the barn as if they were on stage—foot monitors, no P.A. feed, and a riser with the drums up high. And we rented a truck and pulled it up outside the barn. Rehearse two or three songs—boom—hey, that's ready to record. Record it, and the only thing we're overdubbing is either the vocal or the solo. Everything else is live as they flew by on that one pass.

Do you get the same thrill in the studio that you did 50 years ago?

Oh, yeah. It's still a rush. Something goes by, and you go, "Wow." You get a glow, and you think, "Hey, I'm lucky I'm here." ■

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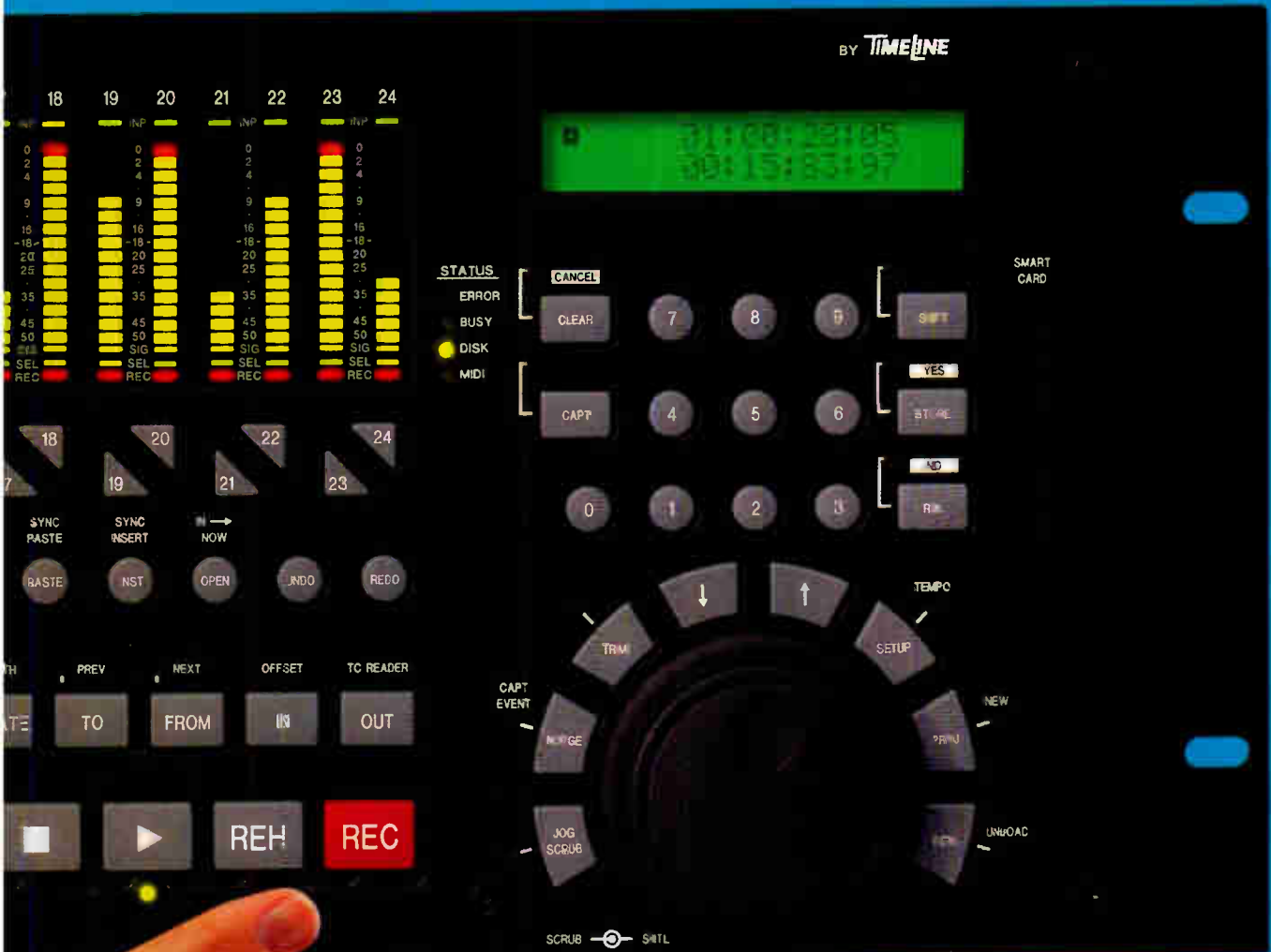
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Hip

by Jimmy Douglass

Hop

GETTING THE
INSIDE DOPE
FROM THE
HOTTEST MIXERS
IN MANHATTAN

Walking west on 54th Street in New York City, between Ninth and Tenth avenues, I see on the right the new Hit Factory while aiming for Sony Studios up ahead on the left. Just a block over is the once-famous Power Station, now revived as Avatar Studios. It's the end of a record-breaking hot day in the city, around 8:30; the sun is setting, and it's still 85°.

In an era where the home studio flourishes and many larger facilities have given way to one-room project studios, I realize that I am no more than five minutes' walking distance from at least ten of NYC's top, constantly booked, premier Big Rooms—Right Track, Sound On Sound, Quad, Daddy's House and more. These rooms have survived, and now thrive, even though the Music has died, that Music being traditional rock 'n' roll, which ruled the '80s and kept these Mega Flagship Studios afloat. It was that rock 'n' roll glamour that brought a lot of people into The Game in the first place.

ON TOP



Bob Power at Sony Music Studios



Jimmy Douglass



"Prince Charles" Alexander



Tony Maserati

PHOTO: MEGAN CONNELLY

The street is now lined on both sides with SUVs, with top-shelf, loaded, customized Navigators, Expeditions, Lexuses, Jeeps, etc. As I approach, I can hear one Jeep banging sound loud enough to shake the buildings, filling the whole block with sonic boom. There must be 15 to 20 people just hangin', chillin' outside Sony Studios and across the street.

Some are in session, and some are there to be a part of sessions. I suddenly recognize the song as I hear Missy Elliott singing a hook I recorded with her two nights earlier. The rapper on the track is Eve from Ruff Ryders, and the person playing the beat is none other than Swiss Beats, one of the hot, new hip hop producers on the scene. He's in the middle of mixing this Tune, and in the new tradition of hip hop recording, he's appealing to the Community for mix approval. It's as much about Vibe as EQ.

It seems that since the early '90s, when the big rooms began feeling the threat from the smaller rap studios, NYC became a rock 'n' roll ghost town, undergoing a major metamorphosis and emerging a hip hop Mecca.

During the same time, I came to notice that the craft of

audio engineering in the hip hop world had changed, and I've had to alter my style of making these records and my role as an engineer.

I went to visit with some of my compatriots (those who were available at post time) and found an informative view of the changing role of engineering from New York's Finest, Class of the '90s, Millennium Closers, the Hip Hop Magnificent Seven, Engineers for Hire.

THE PLAYERS

Jimmy Douglass, moderator: Aaliyah, Timbaland, Ginuwine, Missy Elliott

"Prince Charles" Alexander: Notorious B.I.G., Puff Daddy, Mary J. Blige, Mase

Ken "Duro" Ifill: Will Smith, Jay-Z, DMX, Ruff Ryders

Tony Maserati: Puff Daddy, Mariah Carey

Bob Power: Erykah Badu, D'Angelo, The Roots, Tribe/De La Soul

Tony Prendatt: Lauryn Hill, RZA, Wu-Tang Clan, Wyclef Jean, Public Enemy, Canibus, Mary J. Blige

Joe Quinde: KRS-One, Noreaga, Fat Joe, Jay-Z



Why New York? What's here?

Alexander: Here in New York, you walk out the door, and you can see anyone. New York, being a cultural melting pot, is a mirror image of what hip hop has become, a cultural melting pot.

Maserati: New York vs. L.A.? I don't feel as much of the sense of Community in L.A. There is no hang thing there. It wasn't the same because the session guys weren't the producers. They were the players, and that's one of the things that has changed a lot in New York hip hop.

In a genre of music generated mostly by samples, sequences and very few live musicians, do you really need these big rooms to mix in?

Power: All I want out of a room to mix in is enough inputs, a console that doesn't sound terrible, and a place where s— works and the quality is maintained.

Alexander: The producer's aural experience is heightened [in a big room] because there are large monitors in a large space, and he can hear it like he's in a club. I believe that aural experience is necessary for hip hop production. It's not necessarily what I need, but it's good for the producer. And then there's the psychological element of being in a successful environment and all that. So I don't think the big rooms are gonna disappear.

Prendatt: Hell, no...but the Community does. The clients in hip hop need to hype themselves, need to amp themselves, to charge themselves in a way they do not achieve being at home listening on an 80-watt or a 100-watt system and a set of little speakers.

Quinde: Probably not, 'cause sometimes you make the beat at home and, using a Finalizer or something, put up the raw stuff and it's got more of what you want than if you mixed and tweaked something in a big place for ten hours. But it's more enjoyable to mix in the big rooms. I think the listeners, and the producers and the artist, are finally liking good sound, whereas six years ago they would be like, "What are you doing to my mix? You're making it sound too nice."

The large room also holds the Community. I rely on it too sometimes, 'cause when I play the mix I want everybody to rock. It's a necessity to have the people in the room. You're kinda seekin' their opinion, and sometimes your best critic will be the passing-through visitor who will comment, "I don't like it."

Maserati: Do I really need all this gear and big rooms? No, but I have to have the best equipment I can get: I want a J9000, or a full-blown VR. I need the Edge.

Back in the day, doing rock sessions, we'd set a start of 11 a.m., all show up by 1, and work till 1 or maybe 2. How are the hip hop hours?

Maserati: The hip hop hours are around the clock—you know that as well as I do—and luckily we're in a position where we're sought after, so I can suggest, when asked: "I wanna work at noon, I wanna work at 1, and I wanna get it done by 2 a.m. or 3 a.m." You know what I'm saying?

I know what you're sayin', but do they know what you're sayin'?

Maserati: No! I have to be the one to



Tony Prendatt

I don't wanna work seven days a week, 20 hours a day, and my clients are cool with that. So I work six days a week, 17 hours a day. (Laughs.)

Power: I wish there was a way to make records between 10 a.m. and 8 p.m., but it doesn't work that way. You always end up with these 12- to 16-hour days.

Prendatt: It's overwhelming, but you deal with it 'cause you're there to do the job. I work a minimum 14, maximum 22 hours on a shift. Turnaround time if you're doing steady into a project is max six to seven hours, and it runs minimum six, max seven, days a week. Those are project hours.

Alexander: There were days back with Jodeci, Father MC, Heavy D, we would sleep in the studio. I think true hip hop is 6 p.m. to like 9 or 10 the next day. I like to think I do pop hip hop, I'm lucky cause my hours are more like 12 noon to 2 a.m.—hip hop banker's hours.

Quinde: The hours are endless. It's been one big mix for the last seven years, practically. One big day could last seven years. A 15-hour day is an average day; a ten-hour day is a half-day.

In R&B and hip hop, has the line become one and the same because of the people and the Vibe? I'm calling hip hop and R&B the same.

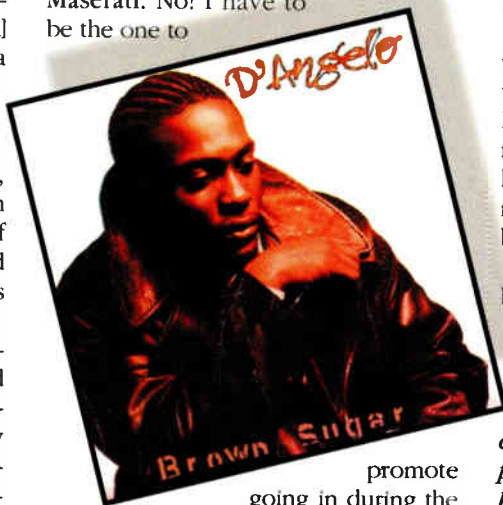
Maserati: If they're singing on it, and that's all that's on it, then it's R&B. But the actual clientele is the same.

Alexander: The closer hip hop gets to pop it starts bleeding over into R&B.

Duro: Hip hop has fused with R&B, and any hip hop engineer should do the same.

DIGITAL OR ANALOG

In hip hop, many times we are dealing with a 2-track loop that might have come off of someone's cassette, an old scratchy record, noisy as heck. It's dirty,



promote going in during the day, while I'm alive, while I'm awake. They still have an around-the-clock schedule. I mean, if I'm lucky I'll finish with Puffy at 2 in the morning, and he's got somebody else coming in right behind me to do another session. He may not be there, but he's got his staff there. The nature of the business is when you're hot you're hot, and you do everything you can to keep the ball rolling. And they're doing it. I'm doing it. You're doing it. You're trying to fill in as many hours as you can stamina-wise deal with.

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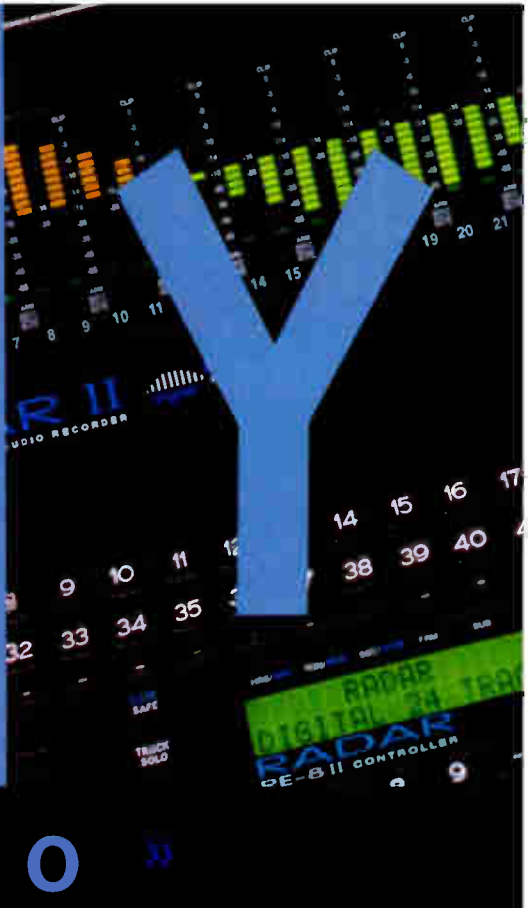
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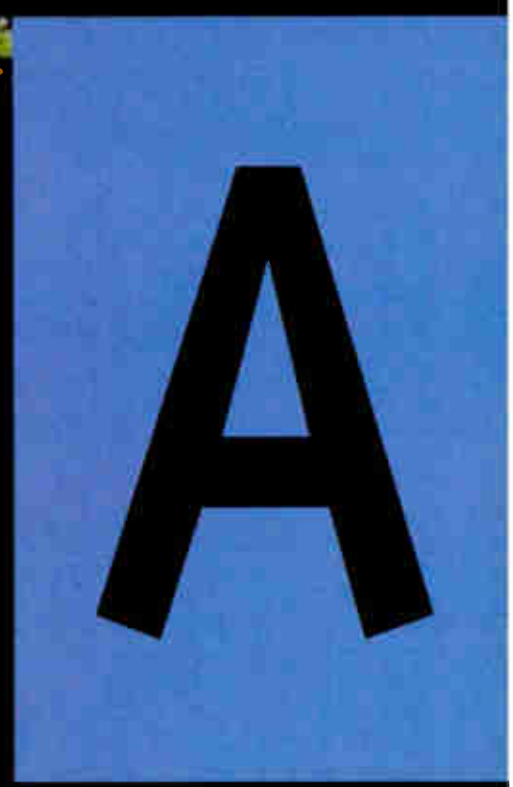
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it's grungy, and suddenly we're going to digital, when in fact those analog edges might have smoothed it out quite nicely. Do you have a preference, analog or digital?

Power: Whatever gets you there. Sometimes it requires digital, and sometimes it doesn't. I know when I'm making a hip hop record and people start talking the word digital, I say, "Why?" Sometimes it's cost-effectiveness. I'll stay with two 2-inch reels for the whole project, and you know, it'll add an extra year onto your life while you mix, waiting for lockup. But in the meantime, I will have thrown things to Pro Tools, thrown 'em back or keep it in there—run it virtual. Whatever gets it done. Certain kinds of music lend themselves better to stay in digital, and I don't think hip hop is one of them. Still, I insist on having it available.

Maserati: I didn't like digital until Pro Tools 2.4. There are a lot of conveniences creatively. Many people in hip hop are embracing it so quickly—boom, just like that, everybody's into it. I'm very surprised. It took me five years to convince the guys I work with to use a Zip drive instead of a floppy disk.

Alexander: In the pop hip hop thing, there's always been this need, desire, this want, to make samples sound clean and great. In the pure rap hip hop, they want it dirty. I'm not really an advocate of changing sound drastically. If you came to me with something that sounds like it came from a cassette, I'd think that's really how you wanted it to sound. So if you weren't there when I mixed it, it'll probably sound exactly the way you gave it to me. I don't believe that I know what's right about the sonic process. All I wanna do is service what your vision is. It's like being a camera man—you capture.

Prendatt: I prefer to work digital—speed and ease. There is a marked difference between analog and digital and how it treats the low-end necessities of hip hop music overall. But we also live with the fact that as technicians, it all ends up digital by the time it gets to the consumer.

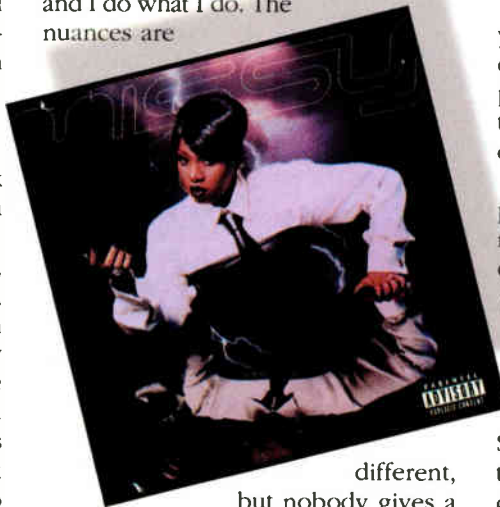
Since automation and recall rule the day, and we're not always available to redo our own work, how do you feel about other people getting hold of your recall and being able to mimic your little secrets—and even put their name on it?

Alexander: At first I didn't like it. I think it's disrespectful to those of us that call ourselves mix engineers. I think because of the whole hip hop perspective on engineers, it's kinda like we are butlers—"a little more reverb, sir?" It's not gonna go away, 'cause that's how the producers and record companies view our work. Our work is that interchangeable, for many of them, and I've had my opportunity to mix some other people's recalls and put my name on it, too. So if you stay in The Game long enough and if yours gets recalled, somebody puts their name on it. You get a recall, you put your name on it. I don't know how to solve this riddle.

Do you believe only you can do what you do?

Prendatt: Nope. The next guy's waiting right around the corner, and I start each day by asking myself what I can learn today.

Power: Absolutely not. There's a lot of people that do what they do, and I do what I do. The nuances are



different, but nobody gives a hoot about that. Basically, our point is to bring forth the musical expression in as cool and digable and bold a way as we can.

Duro: Yes. It's just like a painter. No two painters are gonna paint the same picture. It's all a Vibe thing, and everyone hears things differently.

In the image of the traditional rock 'n' roll session, the engineer does certain functions—EQ, effects, etc. Do you find, more and more, that part of your job is a little more than just manning the console, that the MIDI gear, sync and other issues are now included in your



Joe Quinde

tasks as well? It seems the hip hop/R&B world has created a new breed of engineer/mixer with traits that heretofore were called production—overseeing vocals, moving parts and flyin' stuff around.

Quinde: True. Taking more of the responsibility makes it easier for them to rely on us because the artist and the producers—who wanna be the artist—are very high-profile these days. And just like the artist, it's very easy to aggravate [producers]. You gotta treat them just like the artist and make their day go just as smooth.

Maserati: It's gotten different. Five years ago when producers used to come in, the first job I had to do was program their song, and my assistant turned out to be my engineer. The second job would be like flyin' vocals.

It's very rare that they'll bring any piece of equipment in that I won't put my hands on. Any kind of new synth or sequencer, I'll mess with it. You gotta know the boxes. That's been my thing from the beginning, when I started working as an engineer with Full Force. I was the only guy in the studio who knew how to use the S900, the S550 or the 808 or things like that, 'cause I was the only one who cared. The rock 'n' roll guys thought it was bullshit, and I thought it was cool. Now the younger rock guys that I know, they all have sequencers; they all know how to use sequencers and Pro Tools kind of stuff. I don't think the rock guys are *not* into it; I think that they are just getting into it. They don't have the need for it as much, whereas what I do, it's from day one.

Alexander: Yes. It spills over into MIDI programming and now Pro Tools work. I'm amazed that anyone can hold down the type of gig that I hold down and not know all those boxes. If you're gonna sit in my seat,

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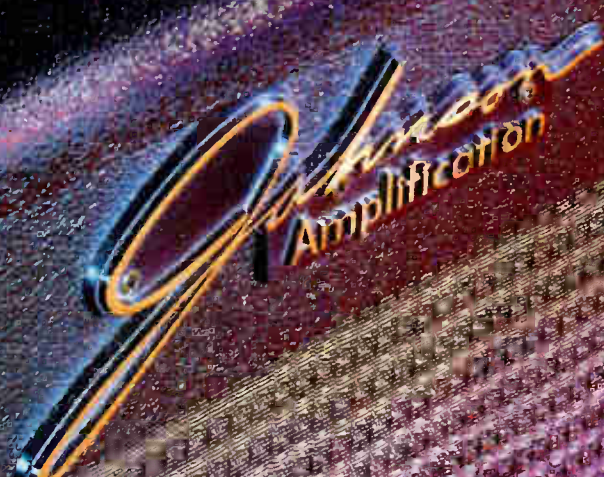
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you better know a whole lotta stuff.

The MIDI question is related to Pro Tools. It was the same as knowing a lot of buttons. It's off the console. I'm sittin' there staring at this little screen, when we've had 50 years to develop this lush console. Now I'm sitting over here with this little screen and using this \$500,000 console as a monitoring device.

Prendatt: If you're going to be a successful engineer in the genre we're working in, you have to know how to produce records, and that is how you will best function and best be recognized. You also have to have some working knowledge of all the equipment around you, all the MIDI. You have to think with a musician's hat, you have to think with a technician's hat, as well as with an arranger's hat, from the perspective that a lot of the producers are young. They are MPC-oriented producers and not necessarily musically trained, and they depend on your help and guidance in order for the job to get done right and cost-effectively.

Power: A lot of my earlier work that I engineered, and/or mixed, I did the lion's share of both the MIDI programming, the hands-on stuff—not creating the artist's stuff, but making it happen—as well as vocal flies and all that. I tell kids coming up now, especially in this town, "If you wanna move ahead as an engineer, be fabulous with MIDI, and you will save people's ass constantly, and they'll always come back to you."

Duro: I play sequencers. I do productions. I've done beats since eighth or ninth grade. You are expected to do everything—MIDI, sync, etc. The more gear you know, the more you work. I started in the MIDI room.

THE CREATIVE TEAM

Do you find that the entourage is necessary for the artist's creative process?

Alexander: I think it's a very important part of the process. I think without an entourage, you have a solitary person dealing with a solitary message, and the music we work on these days is more of a cultural expression than a musical expression, and the culture is there to be shared. So the more people involved

in disseminating the culture, the closer you can actually get to it. Most of the best engineers know the creative thing is the most important thing in the room. Anything I can do to help the creative flow, I wanna do.

Figuring out what's a good EQ, the good gate ratio and compression ratio, is done in a solitary space. And once a whole lot of people get into the room, I want them to enjoy their experience in the room—play cassettes, play DATs. They work hard to get the money to have these experiences, and in addition to making great product that will sell, I want them to have a good time. The amount of time I really need to mix a

I tell kids coming up
now, especially
in this town,
"If you wanna move
ahead as an
engineer, be fabulous
with MIDI."

—Bob Power

record is not really the bulk of the time I'm in the room. There's a certain portion that I know early in the day, when I know I'm gonna get 90 percent done of what needs to be done. The rest of the day I'm really there to make sure that the room doesn't blow up, the console doesn't blow up, nothin' gets spilled on the console, and that my work, whatever I have done during the day, stays intact. I'm making sure people aren't touching faders.

Quinde: It's a common thing to have ten to 15 people in the room while you're working or mixing, even though only one or two of them is actually doing the work. The peers being in the room is helpful when they're dropping their lyrics or making their beats. The peers are actually the public, and they bounce it off of them, and, of course, if it's whack and they don't like it, they let 'em know.

Maserati: I love it. I dig an audience. I'm lucky enough to get the respect in the way I run my room, and that respect trickles down to everybody in the room, and I try not to take advantage of that. So I allow all the people that they

invite in as long as they do it within my parameters. They can joke, we can have fun, we can watch a ball game, but when I need to concentrate, when there's a vocal being done, when the artist is in the room, everybody shuts up or gets out.

Prendatt: The control room in the hip hop environment is usually a much more social and populated situation than the traditional control room environment. That's the nature of the art, it's part of the culture that goes with the art, and we as engineers have to accept that as part of the job, working with it and around it as best we can.

The rules of production have changed; the rules of engagement in that environment have changed. We as the workers for hire, we as the servant of the client, are mandated to make changes. We as engineers and technical support have to make adjustments according to a changing market. You gotta work fast; you gotta think fast; you gotta have your trick bag in hand and know what you're going for.

The word "control" in control room—how do you maintain the respect?

Prendatt: My basic term is very simple: When I need the control room vacated and quiet, everyone respects that, and when they need to be able to have their support crew in the control room, they can. On a mix, I clear the control room.

Maserati: To me, it's a positive. I haven't lost control, I gained an interaction, and music is about interaction.

Alexander: The whole entourage thing doesn't happen till about 6 p.m. The first few filterings of crew might come and see me in the room, and they do an about-face. They just know that this is not the play room when I'm here working alone. Then when the King arrives—whoever that might be, the producer or artist, the King of that environment—they bring the entourage around with them.

Duro: I won't work with the thousand-people posse environment. When I'm working, I need everyone to get in the lounge. If everyone won't get in the lounge, I'll go shopping. I don't play that, 'cause at the end of the day, the credits won't say, "Mixed by Ken 'Duro' Ifill, with 50 people standing behind him playing cards and talking." It's just gonna have my name, and people are gonna be like, "Yo, this boy's fallin' off. What the heck was that?"

Your thoughts about the level of the craft?

Power: The level of engineering has gotten better and better. It really both-



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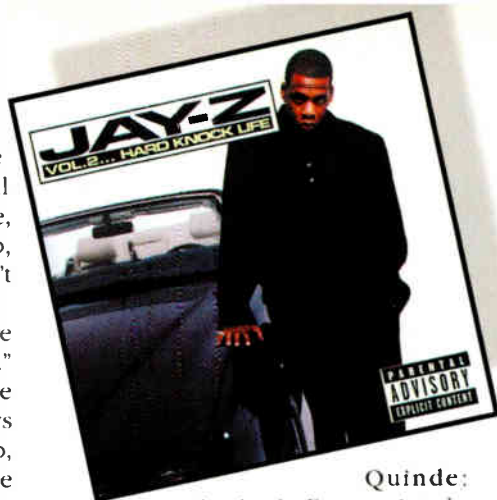
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and I both know that we're here to help people's dreams come true, and it's a very sacred trust. The attitude that some practitioners have, as well as the engineering community at large, even though they don't do hip hop, the attitude toward it is that it doesn't matter.

I used to get all the time: "Oh, you're mixing mostly rap. That must be easy." And they don't understand it's just the opposite, particularly in the old days when you're just dealing with a loop, and you gotta pull everything outta one loop. You really learn how to use an equalizer.



Quinde:

A scientist I'm not. A technician I'm not. I play the mixing console pretty much 'cause I'm a musician. I am not like some of the classic engineers. They're knowledgeable technically, I'm a Vibe-ist. I'll even sometimes mix with my eyes closed.

Power: I love it when there's kids coming up, especially producers, who "don't know what they're doing," and they come out with shit that's so cool and inventive. It's one of the things that I think is a great benefit to both of us; we're both constantly working with new people, with new ideas, and we're forced to adapt to new ways of working.

Quinde: Everybody's job is pretty equal, almost from artist down to the sound. It's a big team effort, I think.

Alexander: The smile comes on my face when I get that phone call: "We've tried everything. We mixed it once. We mixed it twice. We mixed it three times... Can you please mix this record for us?" You gotta make it sound competitive.

Maserati: One of the things I find works for hip hop, and maybe even rock to an extent, is whenever hip hop starts to sound too sophisticated, there's something wrong. The engineer always wants things to be right, if there is a right, and being right doesn't mean it's the best thing for the music. Ninety percent of the engineering in hip hop is being invited to the party and being part of the Community, more than the actual dBs and technicalities.

If you ain't feelin' it, then you probably shouldn't be in it. To change gears, I was stuck upstate for two years in a studio where they had no 1/4- or 1/2-inch machines, so I got used to mixing to DAT only. I still do. What do you mix to?

Quinde: I go through a 1/2-inch first—get that little squash. Then to a DAT master.

Prendatt: I mix to 1/2-inch analog, no noise reduction, 30 ips, because that's your last bastion of fatness. And DAT.

Alexander: I love to mix to 1/2-inch

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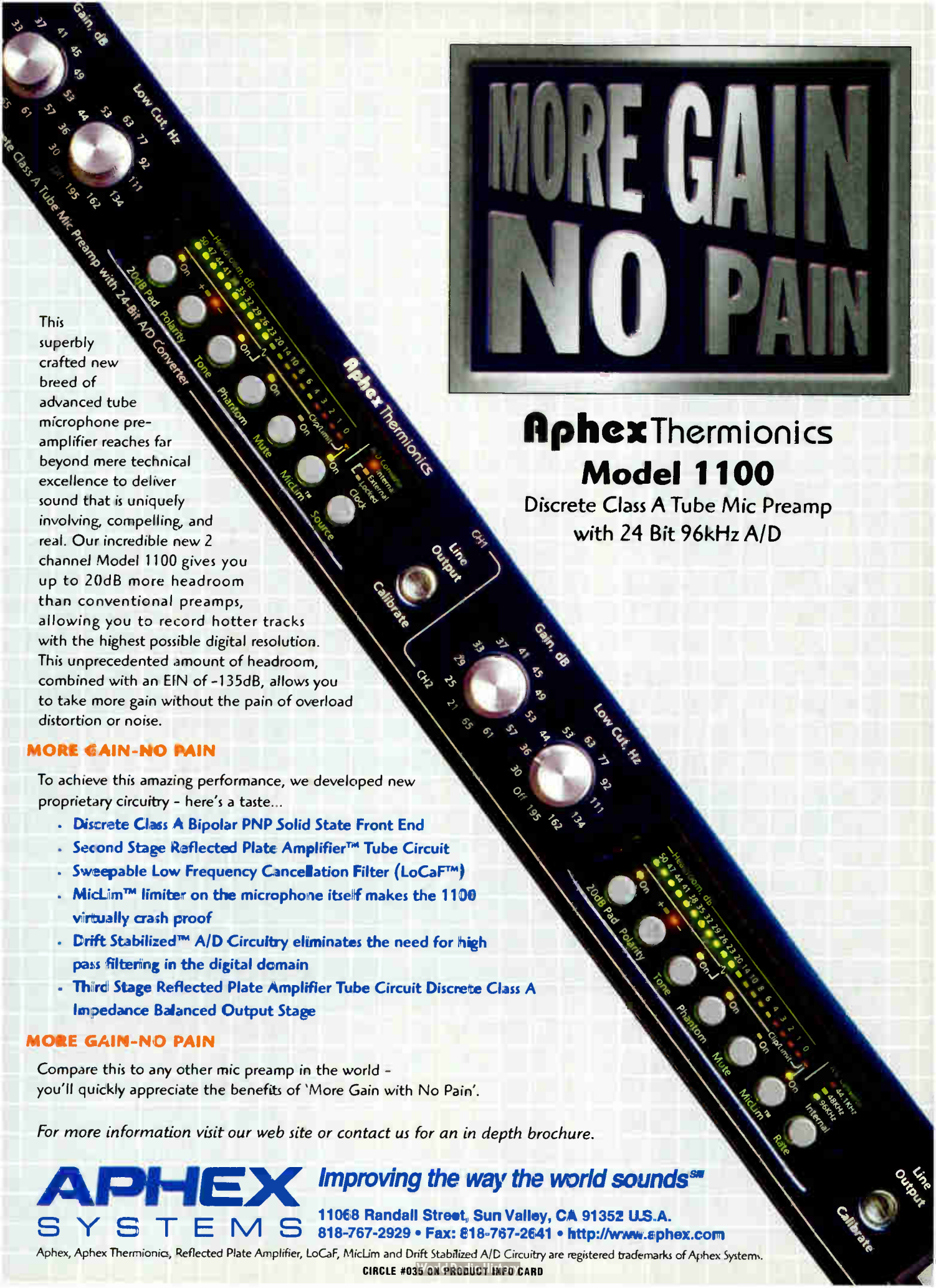
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and DAT, lately storing them in Pro Tools.

Maserati: Mix to 1/2-inch and DAT simultaneously. Master from the 1/2-inch.

Duro: I prefer analog 'cause of what it does to the low end, tape compression. I mix to 499 1/2-inch analog. Even DATs I take off the repro head of my 1/2-inch. I prefer to use the ATR-102.

Power: I mix to 1/2-inch and DAT, and back into my 24-bit Pro Tools/Logic Audio, with an Apogee front end.

My favorite studios in town right now are Sony B, Sound On Sound A, Avatar C, Manhattan Center 4. What do you guys like?

Duro: Sound On Sound B Room with a J. Right Track J. Sony Studio D—J room. Platinum Island.

Alexander: Hit Factory. Battery. Quad 9000—my Home Room.

Power: Sony C and D. Battery—I'm comfortable with the assistants and the gear.

Prendatt: Hit Factory—the J9000 room in the new building. Right Track. Battery.

Quinde: Right Track. Sound On Sound.

Consoles of choice?

Duro: Analog SSL J9000—allows you a lot of corrective EQ, as opposed to Neve, which is rounder. I like more of an aggressive sound.

Alexander: SSL 9000, Neve VR, SSL 4000/6000, SSL Axiom.

Quinde: SSL J, Neve.

Prendatt: Analog SSL J9000. They've mastered the electronics; it's not a G Series or E Series game anymore. Digital? Capricorn, Pro Tools.

Monitors of choice?

Alexander: Boxers, NS-10s.

Prendatt: I love well-tuned Boxers. For near-field mixing, Auratones with NS-10s as a second.

Quinde: Augspurgers. But I'll mix in a toilet as long as they can facilitate my equipment. Near-fields: Genelec S33.

Duro: Augspurgers.

Your favorite artist/producers?

Prendatt: Isaac Hayes, Quincy, Lauryn

Hill, Tupac, Dr. Dre, Erykah Badu, D'Angelo.

Power: Q-Tip, Ali-Shaheed Muhammad from Tribe, Me'Shell NdegeOcello, The Dust Brothers.

Alexander: Producers? Dr. Dre, Teddy Reilly, Puff Daddy. Artists: Biggy Smalls, Missy and Timbaland put a signature sound on this genre of music.

Duro: Tribe, De La Soul.

Maserati: Mary J., Mariah, Faith Evans, Robert Kelly.

Quinde: Jay-Z, Nas, DMX.

In a market where the music is being made by 90 percent minorities, isn't it interesting that the service world that caters to them has maybe only 10 percent employment of such?

Maserati: I think that until recently there's been less young black people interested in walking in that door and being a trainee. I think the trend is changing. See, my heroes were Bob Clearmountain, Roger Nichols, Bruce Swedien, people like that. The young African American heroes are Puff Daddy, Teddy Reilly, and people like that, so they tend to wanna be the producers, the music makers. I think the technician thing is a new thing for young black guys.

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One of the problems I had with the traditional studio world—the “rock ‘n’ roll” world—is that it is a closed system. Rock ‘n’ roll, or classical or jazz, is considered the only viable engineering, and if you weren’t recording live music, then you weren’t an engineer. Making music is not about color. That’s the bottom line.

Duro: Young urban kids don’t have the outlets. All they see is what they see on television. That’s why I’m interested in doing some type of press stuff to let the young kids know that there’s other things you can do when it comes to rap music besides being a rapper or making beats, ‘cause everyone’s not gonna be able to do that. Everyone’s not going to be able to be an engineer either, or a tech, but that’s another way into The Game, and I think it’s just another way of knowing that those opportunities exist. You gotta explore all your options and set your goals high. Find a new way to get up to the table and invite yourself into The Game. Even though it may not be exactly the way you wanna be there, you just gotta get there.

Power: I’ve always felt there’s been a real scarcity of black, Hispanic and women, for that matter, engineers. It’s always been a white boys locker room club, and it’s not by design—it’s just the opportunities that have presented themselves have not been available up till now for people who may have come from some place outside the norm. It’s changing now, but it’s been a problem for a long time. People are trying to take control of their own destiny through the advent of smaller gear, that people can afford at home, so they can learn and be more ready to hang in the big studios with the seasoned pros.

Quinde: Things take time, transitions take time, and I think strong foundations—slow, small movements—are better than a quick, large movement. Eventually things will change. ■

Jimmy Douglass is a New York-based engineer. He was profiled in the October 1999 Mix.

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FOUR VIEWS ON 5.1

ENGINEERS COMPARE NOTES ON MONITORING FOR SURROUND

BY PHILIP DE LANCIE

WITH THE SUCCESS OF HOME THEATER SYSTEMS AND DVD-VIDEO, AS WELL AS THE UPCOMING LAUNCH OF DVD-AUDIO, there's no doubt that surround sound is a hot topic in audio right now. As usual in our gear-crazy industry, much of the discussion has focused on the equipment that makes professional surround mixing possible—items such as consoles, recorders and outboard gear. But one of the fundamental (and unfortunately frequently overlooked) truths in recording is that the monitoring environment is the foundation on which the success of the mix rests. Good surround mixing starts with good surround monitoring.

Since surround sound is still quite new to the record industry, there remains much to learn about effective surround monitoring for music applications. As in much of audio, theories only take us so far; to find out the real scoop we need to turn to those brave few who are already in the front lines. *Mix* asked the following four engineers about creating the right conditions for surround mixing while avoiding potential pitfalls.

Michael Bishop, whose 25-year career in orchestral, jazz, blues and pop recording includes winning the 1997 Grammy Award for Best Engineered Classical Recording, is recording engineer and director of new technology at audiophile label Telarc Records in Cleveland.

Gary Myerberg-Lauter is a consultant on private studio setup for the likes of Bruce Springsteen, Trevor Horn and Bob Clearmountain, and co-designer of the 5.1 channel rebuild of A&M's Studio C in Hollywood, California, where he was chief engineer/director of technical operations.

Bobby Owsinski is a partner at Surround Associates in Studio City, California. His recent surround music credits include Pat Benatar, Cheap Trick, Tuck & Patti, Jimi Hendrix, and the Firesign Theater.

Michael Verdick is an engineer, producer and studio owner whose projects in the past 25 years have racked up sales of more than 30 million records. Currently head of

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HAVE THE RIGHT ACOUSTICS OR
SPACE FOR A PROPER SURROUND
SETUP, SO I ALWAYS FEEL LIKE I'M
"WINGING IT." I ALWAYS HAVE TO
KEEP MYSELF ROOTED TO MY
REFERENCE POINT TO KEEP
THE MIX IN PERSPECTIVE.

—MICHAEL BISHOP

A&R and chief engineer at Unitone Recordings in Glendale, California, Verdick's recent work includes a number of 5.1 channel DTS CDs.

Give an overview of the monitoring setup that you normally use (speakers/electronics, placement, room char-

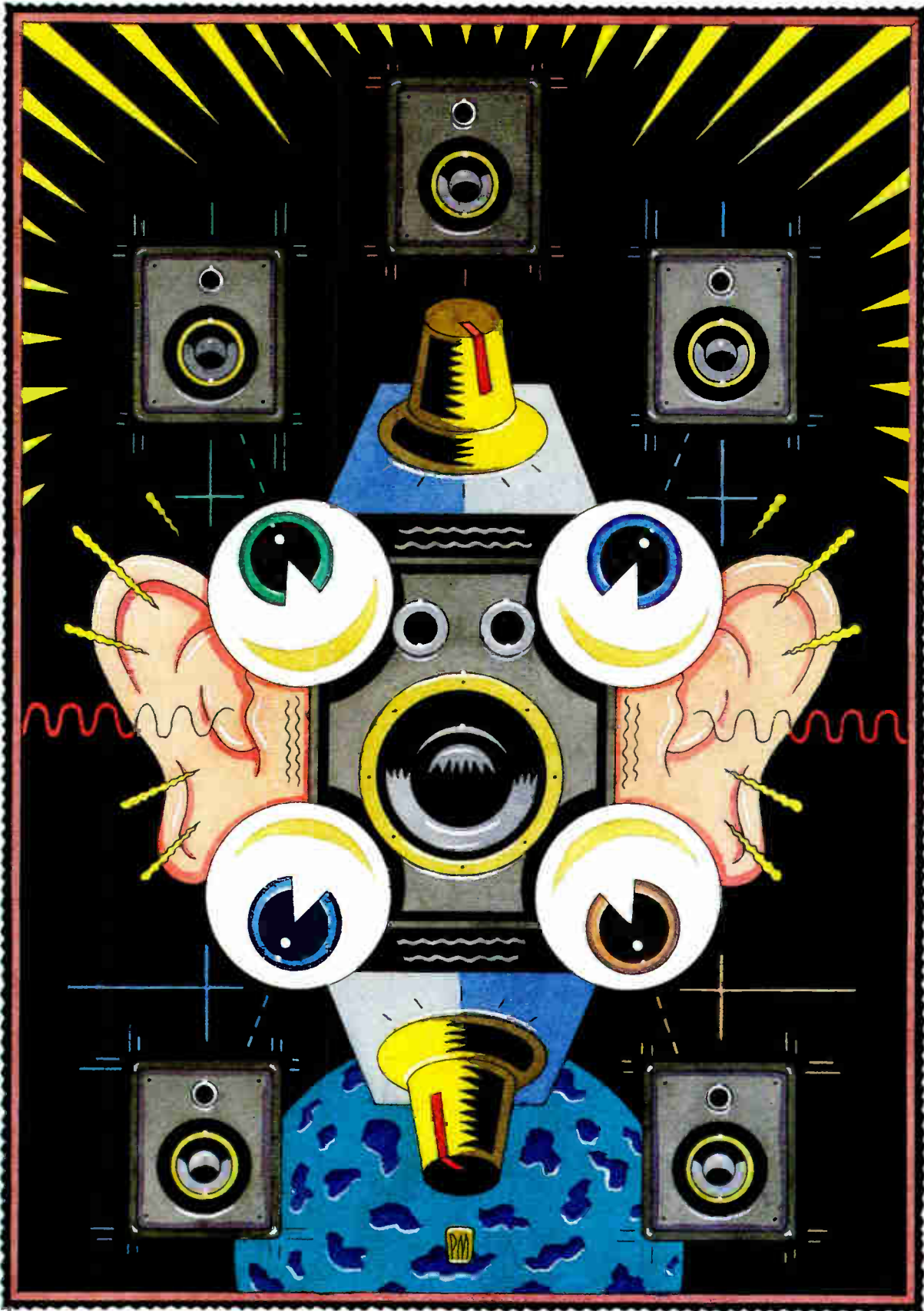


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FOUR VIEWS ON 5.1

acteristics) for mixing 5.1 channel projects, and how it differs from the monitoring setup you use for stereo mixing.

Bishop: If I'm working a typical jazz or blues session in a studio control room, I use either five Paradigm Active 20s with the Paradigm Servo 15 subwoofer, or five Genelec 1031s with Genelec's Subwoofer. Classical sessions are usually monitored through a custom-made surround system from Waveform Inc., of Brighton, Ontario. It has integrated subwoofers and is powered by Threshold Class A amplifiers.

I use an L/C/R setup in an equidistant arc in front. It's important to me to have the center front at the same distance as the L/R speakers for time coherency. In my orchestral sessions there is a dedicated center front microphone that depends on the proper time coherency in playback or there will be image smearing. L/R speakers usually end up at around 60 degrees and the L/R surround speakers at 110 degrees, but actual positioning is determined by careful listening.

The control rooms I work in for orchestral sessions are pretty rough—often converted prop rooms, ladies rooms, green rooms, or lobbies. But most studio control rooms are actually more difficult to get a good surround setup in, since they often don't have enough room for proper spacing of the surround speakers. In fact, very few facilities have the right acoustics or space for a proper surround setup, so I always feel like I'm "winging it." I always have to keep myself rooted to my reference point to keep the mix in perspective.

Myerberg-Lauter: The theory we had at A&M was that the methods and practices established through years of record production should not change for surround. With that in mind, it's a must to provide switchable main and "mini" monitors. Our mains were designed in-house to be used as either 5.1 or stereo. They consisted of five identical dual concentric 15-inch speakers with a dual 15-inch subwoofer. In

stereo mode the sub would reconfigure as a derivative L/R stereo pair. A 6-channel monitor matrix system was built in-house and provided the playback A/B switching, individual mutes and dim, and a fixed 85dB selector. The main monitors were focused at approximately 18 inches in front and behind the engineer's head in a diamond pattern. The mini system would be set up to the client's specification.

Owsinski: I'm often asked to try out surround monitor systems, so I've used just about every one on the market. The one I use most often is a Tannoy AMS-8 system, with a Martinsound MultiMaxx monitor controller and an M&K LFE-4 bass manager. For a sub I use a Tannoy PS115, although I also use an M&K when in a larger room.

round setup practices that were developed for theatrical film mixing (overall level, placement of rears, subwoofer level, etc.) have in determining surround setup for music projects?

Bishop: Like it or not, most home listeners will be listening to our material on a typical THX-certified home theater system. As KK Profit recently told me, "Who's going to move their speakers after viewing *Terminator* just to listen to some music?" It's just not practical to assume anyone is going to do anything special to accommodate our recordings properly at home. That usually means dipoles on the sides or in the rear, so I have to keep in mind that anything I place in rear channels may not work as well in home playback as it does for me on my monitors.

MANY FILM PRACTICES FOR SURROUND DON'T TRANSLATE VERY WELL TO MUSIC. WE DON'T MIX MUSIC IN STEREO USING FILM TECHNIQUES, SO WHY SHOULD WE DO THAT IN SURROUND? —BOBBY OWSINSKI

Verdick: For surround mixing I like to use Genelec 1032s, with treble tilt set to -4. In terms of position, the distance between the left and right tweeters equals the distance from each tweeter to the mixer position, which creates an hourglass. The speakers are on their sides, with the tweeters as close to ear level as possible. The distance out from the mixer is dependent on the rear of the room, but ideally I like about six feet from the mixer position, especially if the console is not too large.

For surround mixing I don't like the room too dampened, and if possible not too much use of rear trapping or compression ceilings. If the room is too dead it sounds unrealistic and dry for me. It requires too much amplification, and can often result in an overuse of high frequency EQ compensation in the mix.

In stereo mixing I use an "on-the-console" speaker distance of about three feet. I use Genelec 1031s, because I don't require the bottom that gets lost when speakers are moved out three more feet.

What role do you think standard sur-

Myerberg-Lauter: Although I generally agree with the film people on levels, I diverge from them regarding the rear speakers. I feel strongly that there must be five identical speakers in the array. No omni rears, and no bass management.

Owsinski: Many film practices for surround don't translate very well to music, which is what I mostly do. The 85dB standard doesn't apply because most music mixers listen at a variety of levels through the course of developing a mix. Also, in film you have focused panning, where panning to the center sends the sound to the center channel rather than to the middle of the soundfield. That usually doesn't work too well for music, which usually requires divergence panning to do what most mixers want to do. Film-style placement of the surrounds doesn't lend itself very well to music either. After all, they're restricted by the screen and we aren't. We don't mix music in stereo using film techniques, so why should we do that in surround?

Verdick: The single biggest difference in surround mixing for music projects

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FOUR VIEWS ON 5.1

is that to get the bottom response we need the same full range speakers for all positions. We also probably monitor at higher levels, because we are creating a complete room canvas. And since music projects involve constant sound rather than effects, which are more forgiving, we need a clearer, more defined subwoofer response. I think most music mixers are standardizing on a cutoff frequency for the subwoofer in the area of 75 to 85 Hz tops.

When mixing for 5.1, are you monitoring on five equal speakers (plus the subwoofer), or are the center and surround speakers smaller, as they are in many home theater systems? If all speakers are equal, do you take any measures in your mixing to accommodate listeners with smaller center/rear setups?

Bishop: All five main speakers are directional and equal, but I'm always considering the effect of perhaps deficient center or rear speakers when deciding what to put on those channels. I will usually place a source on left- and right-front channels in addition to the center-front channel, just in case the listener's center is a 3-inch speaker under a TV set. I can't help but feel I'm compromising the mix in accommodating what may be inadequate center or rear speakers, but that's the reality of what our material may be played on.

Myerberg-Lauter: We use the same methodology as we do in record production. The engineer using a large and a small system will be able to arrive at the best compromise that should translate well for most consumer systems.

Owsinski: I always use five equal speakers unless someone sends me a set to try that is otherwise—although I strongly encourage them to send all identical. If you're only sending ambience to the rears, then smaller or different monitors will suffice, but all the best mixes I've participated in had a lot of strong source material in the surrounds and were just plain loud. However, I do listen on an alternative set of small surround monitors—usually NHT M-00s—to hear what it will be like on a

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FOUR VIEWS ON 5.1

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Verdick: Where the unequal speakers will fail most is in the 90 to 160Hz range, the heart of most fundamental bottom for music. The problem of unequal speakers should be addressed at the consumer level, because unfortunately it simply doesn't work to compensate in the mixing stage for home systems with unequal speakers. If you try to fill more in the subwoofer—which has a different sound, effect and phase response—instruments such as bass will have one note too loud and another completely gone, and the mix will not sound good in any environment.

What role does the "near-field" concept play in your surround monitoring,

and what distance do you prefer the speakers to be from the mixing position? Are you most comfortable with a situation in which the speakers are all built into the room (like the typical "mains" in a stereo room), or free standing?

Bishop: I much prefer free-standing monitors. I need the flexibility of positioning the speakers to my liking, and it is easier to adjust the acoustics of a control room with free-standing speakers. Getting a control room to be well

behaved on all planes can be pretty difficult, considering the reflections set up by five main sound sources in a room.

Myerberg-Lauter: A well-designed room with soffitt-mounted "Rock 'n' Roll" monitors is best. That leaves plenty of room for an alternative mid/mini set.

Owsinski: I've been in situations where the soundfield was very large, and some that were very small. It's very difficult in the large situations to get sufficient level and headroom to fill up the room unless you have some pretty

WE USE THE SAME METHODOLOGY AS WE DO IN RECORD PRODUCTION. THE ENGINEER USING A LARGE AND A SMALL SYSTEM WILL BE ABLE TO ARRIVE AT THE BEST COMPROMISE THAT SHOULD TRANSLATE WELL FOR MOST CONSUMER SYSTEMS. —GARY MYERBERG-LAUTER

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FOUR VIEWS ON 5.1

hefty monitors and power. I'm most comfortable at five to six feet.

The studio I'm doing most of my work in lately is Front Page Recorders. They have a ground-up 5.1 room with soffitt monitors that sound great. In this case, I use their soffitts not so much for the low end, but for a quick check, and to move some air for fun. But most of the work is done on the near-fields.

Verdict: I find that near-fields offer a more reliable and realistic environment.

would be our Cincinnati Pops sessions that have a full orchestra plus rhythm section, soloists, keyboards, singers and more. On those sessions it gets a bit hairy to balance the stereo and surround mixes simultaneously.

The stereo and surround mixes may not have the same components making up the mix. For instance, some microphones used for surround may not be used for the stereo mix. For this very reason I am opposed to relying on a DVD player to do a downmix to stereo from our 5.1 mix. We have to supply a proper stereo and 5.1 mix for the release.

To keep the monitoring consistent between the two configurations, we calibrate the acoustic output of the two systems to be equal. However, once the artist hears the surround mix, they often don't want to hear the stereo monitors anymore.

Myerberg-Lauter: I find that the stereo

THE PROBLEM OF UNEQUAL SPEAKERS SHOULD BE ADDRESSED AT THE CONSUMER LEVEL, BECAUSE UNFORTUNATELY IT SIMPLY DOESN'T WORK TO COMPENSATE IN THE MIXING STAGE FOR HOME SYSTEMS WITH UNEQUAL SPEAKERS. —MICHAEL VERDICK

They're also very appropriate for the many home or small production studios that will start mixing in surround. *When mixing a project that will be released both stereo and 5.1, are you frequently switching back and forth between monitoring configurations when mixing? If so, are the stereo and surround monitoring setups completely separate? Do you use any particular technique to balance the monitoring setups for a smooth transition between monitoring modes?*

Bishop: Telarc's orchestral sessions are always recorded directly to 2-track and 6-track for surround. So I frequently switch back and forth from stereo to surround monitoring. Luckily, a lot of those sessions don't require much active mixing. Once I get a sound and mix, things stay put pretty much for the duration of the session. An exception

process is done first and then the 5.1. EQ, dynamics and effects for each process require a completely different approach, so usually a serious 5.1/stereo mix will be exclusive and not derivative.

Owsinski: Stereo mixes and surround mixes are like apples and oranges and should be done separately. It goes the fastest when the surround mix is based on the stereo mix, however, so the stereo mix should come first. I'll listen on a pair of NS-10s and the main soffitt monitors before panning everything out.

While doing the surround mix, I listen quite frequently in both stereo and mono, which is easy to do thanks to a couple of switches on the MultiMaxx. If you calibrate all systems to the same level then the transition is always smooth. Most people don't know how to correctly calibrate a surround sys-

tem—especially the sub and LFE portion—and that's where they get into trouble.

Verdick: I prefer to mix the stereo version first, then expand on what I've created for surround. They are such different experiences, mindsets and setups. So trying to do simultaneous mixes would be difficult for me. And folding down 5.1 for stereo doesn't work. Usually I've found that listening to the stereo mix is very unsatisfying after the surround version is available.

What observations do you have on subwoofer placement and level? Are you assigning to the sub channel much while mixing, or are you leaving it up to bass management to derive subwoofer material from the other five channels during playback?

Bishop: Ideally I like to have two subwoofers. The level is carefully set from listening to our reference recordings after basic alignment. I tend to have the subwoofers set 3 to 4 dB higher than the rest of the system. I'll usually assign sources to the sub channel while keeping in mind what a bass management system may do to the balance. I always assign some special effects to the sub channel on the sound-effects portions of our Cincinnati Pops releases.

Myerberg-Lauter: I always run dual subs, even on the mini system, and I place them between the center and L/R. With all 5 speakers at 85 dB, the sub is set to 92 dB. I am not a supporter of bass management in a 5.1 music scenario. In my view the engineer is the bass manager!

Owsinski: I've found that the actual placement of the sub in the room was only important in situations when I couldn't get enough level or headroom. As long as it's calibrated correctly at the mixer's position, then the placement doesn't seem to be too critical.

As far as assigning to the sub, if the mix requires it I'm not afraid to use a lot of LFE in addition to the low end stuff that gets automatically redirected to it. In fact, most of the best mixes that I've been involved in or heard used a great deal of LFE. The trick is what to send there so it doesn't get too muddy.

Verdick: In a live environment it can be difficult to set the subwoofer level with static tones. So I use my ears, with the dinosaurs from the DTS demo disc as a reference. Many matrixes cut off the response of the subwoofer channel to 85 Hz. If mixers don't listen through a matrix, and turn up the subwoofer to 150 Hz while mixing—which would really cause directionality problems—

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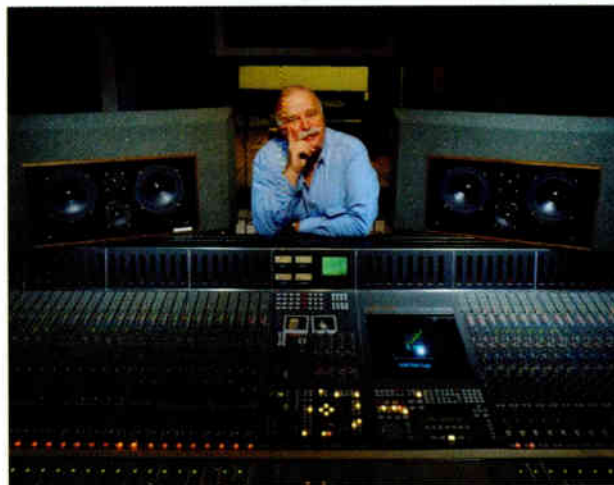
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FOUR VIEWS ON 5.1

they could be in for a shock with their final release. This is why if you're listening straight through to the subwoofer, you should set its response no higher than 85 Hz.

I only assign music to the subwoofer that benefits from its frequency response. Since the phase and directionality is quite different, I paint or orchestrate with it for what it does best, not to compensate for what I can't hear somewhere else.

How do you see the design of control rooms changing over the next few years as surround sound becomes an increasingly important aspect of mixing music projects? Do you think stereo and surround mixing environments can happily coexist in the same room,

or that separate rooms for surround-only are a better way to go?

Bishop: Of course we'll get better results with dedicated 5.1 or stereo mix rooms. I don't think one can really expect a room to behave properly for both systems at once. My best results have been from separately set-up control rooms. The only way to make a control room handle surround properly is to have a lot of cubic volume. Reflective surfaces need to be far enough removed from the speaker sources.

Myerberg-Lauter: Experience tells me to never build a room that is application specific. A&M Studio C worked equally well for both 5.1 and stereo production, and proved that coexistence is critical in a music studio if you want the room to remain booked.

Owsinski: The general trend I see in studio design has more to do with routing digital around the studio than worrying about 5.1, although there are a lot more 5.1 rooms springing up all of a sudden. Personally, I don't find the made-for-5.1 rooms that I've worked in to be dramatically different from normal stereo rooms, except for the fact that they naturally accommodate surround mixing requirements more easi-

ly. Stereo in a surround studio is a lot easier than surround in a stereo room, but it's not too much of a stretch either way if you know how to do it. Most quality surround monitoring systems give you at least as good a result in terms of extended frequency response as many studios' main monitors—though maybe that's not saying much for main monitors in general. The difference in facilities is more in the gear—consoles with surround panning and monitor systems, and multitrack machines such as Genex or DA-88—and the staff.

Verdick: The real issue isn't stereo vs. surround control-room designs. It's more whether a room is able to control the volume and response of large, built-in monitors, which require more trapping and design in specific areas. More mixers are ignoring large monitors and using near-field speakers, so the studios of the future will be designed for near-field, which by coincidence works for surround as well. Just don't get too large a couch, and leave room on the sides for speaker stands. ■

Phil De Lancie is new technologies editor for Mix.

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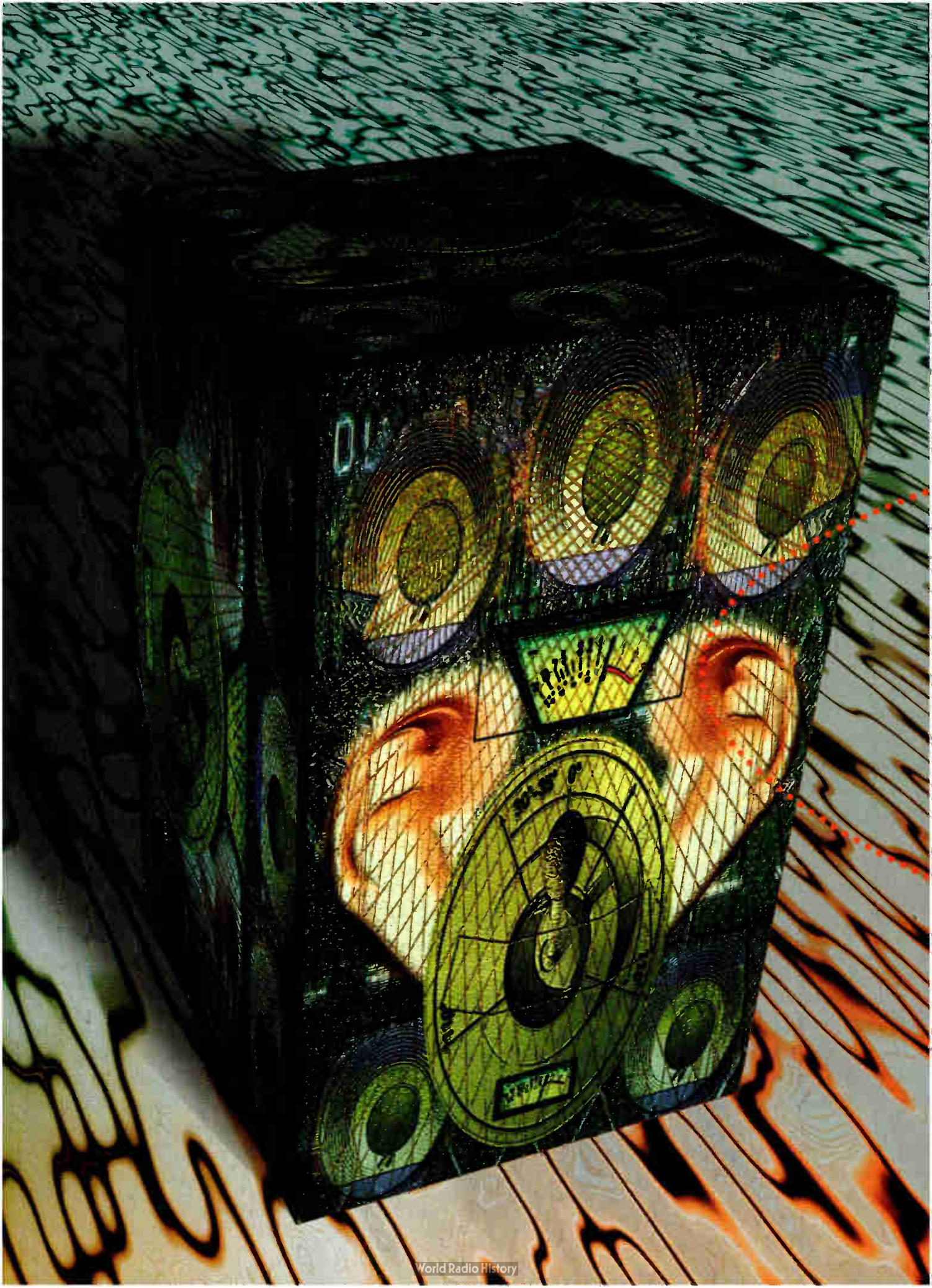
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THE WIDE-DISPERSION

LISTENING SPACE

 by Manny LaCarrubba

Anyone who makes audio or music recordings will frequently ask themselves the question: "Does it sound good?" And if I'm about to spend my clients' money on recording rooms they plan to rent out, the room had better "sound good"! Equally important, any product leaving that studio must "sound good" elsewhere in the known universe if I ever want to work again.

Over the past couple of years, my partners and I have spent a lot of time investigating how sound bounces around a room, particularly in the horizontal plane, and its effect on how we hear stereo recordings. Based on our collective experiences as recording engineers, a lot of good, published acoustical research and some very strong anecdotal evidence from our work with ultra-wide-dispersion loudspeakers, we believe we have pieced together a good bit of the "sounds good" puzzle. And the control room that most recently came out of this quest is "The Garden," the new 5.1 mix room at The Plant Recording studios (Sausalito, Calif.), shown on the August '99 cover of *Mix*.

With its wide-dispersion monitors and oval-shaped control room, The Garden definitely represents a departure from traditional approaches to acoustics and room de-

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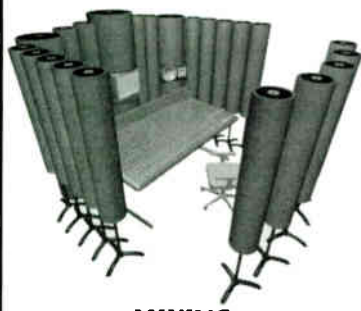
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sign. Let's explore this topic further, with a look at the way loudspeakers, rooms and people interact in terms of acoustics and psychoacoustics.

Starting with the obvious, loudspeakers and rooms form an acoustic transmission path. They both affect what we hear and how we perceive sounds—two VERY different, but related phenomena. Loudspeakers should have low-distortion, flat-frequency response, be free of audible resonances and have good off-axis response. At the very least, rooms must minimize standing waves and be free of excessive reverberation. On these basic points there is little, if any, disagreement. But loudspeakers also need to have horizontal coverage angles of 140° or more, while

Anyone who measures loudspeakers knows that the performance spec quoted earlier (140° or better coverage angle with no high-end roll-off) is unrealistic: "It can't be done."

Well, those funny-looking speakers on the August *Mix* cover have a horizontal coverage angle of over 180°. All the way out to 16 kHz, the response is reasonably smooth, even at extreme off-axis angles. This behavior, which we call Panoramic Power Response, is made possible with the use of a device we call an Acoustic Lens, a pair of which is visible sitting on top of the cylindrical woofer section in the picture. And with this performance capability, the rules of the studio design game change.

Most loudspeakers' lumpy, lowpass filtered sound is emitted into the room. Just because we've gotten used to it doesn't mean we don't hear it!

maintaining flat response and frequency extension well above 10 kHz. Control rooms should have hard sidewalls to make use of the off-axis acoustic power generated by such loudspeakers, and be well-damped at the front, rear and ceiling. Diffusion should be avoided, particularly on the rear wall. (That is, if you have the luxury of building from the ground up. No offense to the diffusor makers here. It's great stuff with lots of good uses.)

LOUDSPEAKERS

All loudspeakers radiate sound in every direction. If you soffitt-mount them, you constrain the output to a hemisphere, but the total acoustic power output is essentially the same. We tend to focus our attention on the axial response of the speaker as a matter of test convenience and simplification, and there is no doubt that a speaker's direct sound is very important. Unfortunately, the off-axis, extreme off-axis and overall power response of loudspeakers is frequently overlooked as a matter of engineering convenience.

Typically, the off-axis response of most loudspeakers shows reduced high-frequency response as we move off-axis around the loudspeaker. Worse, due to the different directivity patterns of the individual drivers, most loudspeakers have increasingly lumpy response curves as we move around to the side of the speaker. All of this lumpy, lowpass filtered sound is emitted into the room. And we definitely hear it. Just because we've gotten used to it doesn't mean we don't hear it!

Conventional wisdom extols the benefits of directional loudspeakers and rooms that damp or diffuse early reflections. Usually, such treatment simply adds more lowpass filtering to the "lumpy lowpass" reflected sound and to the room tone in general. The loss in high-frequency information particularly reduces the localization of phantom images and phantom reverberance cues, and darkens the perceived overall timbre. With a loudspeaker that's free of the dispersion limitations, accurate lateral reflections from hard sidewalls in the room provide the listener with full-

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frequency, phase-coherent information that the ear/brain uses to localize the loudspeaker and related phantom images, an essential part of how humans perceive and localize sounds.

The better that we can localize the loudspeaker, the easier we can perceive all the timbral, timing and ambient cues in the recording that the loudspeakers, especially in stereo or surround arrays, are playing back. This may seem somewhat counterintuitive, but with such a system, phantom images become more stable and "palpable," and the depth of the stereo sound-field increases, with more resolution in the ambience and reverberance of the recording.

LOCALIZATION

To help us tie this together, let's review some observations about the hearing process. Humans are extremely good at localizing sounds in the area covered by our field; conversely, localization is far less acute from above, below and behind us. We use the high-frequency content of the reflected sounds to help localize sound sources and the low-frequency content of reflections to "localize" the boundaries of the room. Early reflections—up to about 50 milliseconds—are "fused" together as a single timbre. Filtered reflections are more audible as being separate from the integrated sound than those with the same timbre as the direct sound. Reflections from above, below and behind are more disturbing to the localization mechanism than those from the sides. Laterally reflected energy increases a sense of envelopment from music playback—live or recorded—while highly damped and anechoic spaces are unnatural and unmusical listening environments.

In most control rooms, the loudspeakers will emit sound in every direction despite the best efforts of the designer to limit their directivity. Those who pay no attention to directivity issues will also suffer from lumpy off-axis and power response as mentioned earlier. If the sidewalls are damped, they will further lowpass-filter the room reflections. The net effect is to remove, reduce or distort the room reflections that the ear/brain needs to help localize the sound source (i.e., the loudspeakers and their related phantom images). If there is diffusion in this transmission path, then the reflected energy is robbed of its phase coherence and becomes useless in the localization process. If the reflected energy comes from behind or the same direc-

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tion as the direct sound, it will not support the localization process as well as laterally reflected energy does. Without sufficient laterally reflected energy, the sound will likely lack a sense of envelopment and, I daresay, musicality. If the decay time of the room is not short and very similar in each octave band, at least at mid- and high frequencies, the room will impart its own "color" on the perceived sound.

In The Plant's new mix room, my weird-looking monitors—like any other speakers—emit sound in every direction. However, there is no lowpass filtering of their output in the horizontal plane until you are over 90° off axis, and directivity is reduced only in the vertical plane. The room's reflective and non-diffusive sidewalls provide full-frequency lateral reflections that aid in the localization process. The rear wall is absorbent except for a mid- and high-frequency cylindrical reflector that directs some energy back toward the sidewalls of the room. The front wall acts as a very efficient broadband absorber. The room has a constant decay time of about 0.2 seconds from 250 to 8k Hz. It doesn't sound the least bit overdamped. Normal speech in the room sounds normally ambient. The ultra-wide-dispersion monitors provide a huge sweet spot, and the key word describing how this all sounds with music playback is "clarity."

Unfortunately, many people regard listening-room acoustics as an exercise in damping or diffusing reflections, which, in general, is a questionable practice. I've heard early reflections and comb filtering effects referred to as "acoustic distortion." This is not necessarily the case. Properly done, these effects provide "good data" for our auditory system to use in dissecting the information provided by the recording. If wide dispersion of high frequencies is included in the equation, then these effects are further enhanced.

In conclusion, I should stress that these concepts are not all that new, nor are these ideas necessarily all my own. But as we begin to build music studios specifically for surround mixing, emphasis on the horizontal plane becomes even more important. I hope this article gives you some food for thought as you set up your own mix room. ■

Manny LaCarrubba is the president of Sausalito Audio Works and wishes to thank his partner David Moulton, from whom he stole much of the information for this article.

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MULTICHANNEL DIGITAL AUDIO WORKSTATIONS

The Latest and Greatest Contenders

BY SARAH JONES

In the world of digital audio, keeping up with new technology is anything but easy. Unlike tube gear, the market for vintage workstations is essentially nonexistent, with the general rule being "cutting edge today, doorstop tomorrow." But with the rapid decline of memory and CPU prices and the rising affordability of high-bit/high-resolution converters, now may be the perfect time to look at upgrades and new systems.

To help you to stay on top of the latest developments, we've assembled new product information on a variety of multichannel digital audio workstations, from software-based systems on a range of platforms, to stand-alone hardware units. The products are listed alphabetically by manufacturer, and Web addresses have been included for access to more information.

Akai's DD1500 is a stand-alone multitrack MO/hard disk recorder/editor with comprehensive sync capabilities. Key features include support for 16 tracks on hard disk (eight tracks on current-generation MO disks), a control surface with dedicated transport, editing and function keys, and a high-resolution video display. The DD1500 locks to LTC, VITC and bi-phase at any speed, forward or reverse, with RS-422 machine control. Up to 12 inputs and 20 outputs are available.

In addition, Akai's DD16PB Plus dubber provides 32 voices of random-



Sony Digital Audio Disk Recorder 5000

access playback on 16 outputs, either analog or digital, in sync with timecode or hi-phase, forward and reverse. The DD16PB Plus offers direct playback of most DAW formats, with 24/96 resolution. Price: from \$5,894. Also from Akai, the DD8 Plus dubber offers 24-bit linear resolution and a 96k sampling rate, with 8-track random-access recording, controlled via RS-422, parallel or Akai's own remotes.

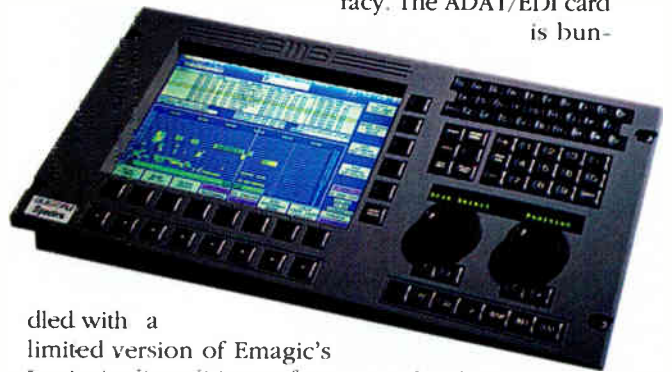
Akai's new RE32 remote provides real-time control of transport and record functions for as many as 128 tracks and comes equipped with the company's SuperView graphic display driver. Users can now control multiple Akai DD8 Plus dubbers and DR16 Pro recorders via the built-in AkaiNET (Ethernet) connection with sample-accurate lock between machines.

By combining the \$399 ADAT/EDIT PCI card and

Fairlight Merlin Digital Multitrack Recorder



software system with the new rack-mount AI-3 24-bit analog-optical interface, **Alesis** presents a flexible system for recording multiple channels straight to hard disk. Both devices use the ADAT Lightpipe multichannel optical interface, and the ADAT/EDIT has inputs and outputs for ADAT optical, as well as ADAT sync for single-sample accuracy. The ADAT/EDI card is bun-



AMS Neve AudioFile SC

dled with a limited version of Emagic's Logic Audio editing software, and will work with most ASIO-compatible applications.

In September, at the AES convention in New York, **AMS Neve** debuted AudioFile SC, a new high-performance, 32-track audio editing system. AudioFile SC features a performance accelerator that boosts operational speed up to 50 times faster. Systems may be interconnected via the company's StarNet network, with an integral PCI bus providing a gateway for interfacing the system, and AudioFile SC may be combined with AMS Neve's digital consoles for integrated post-production systems. SC upgrade packages are available to AudioFile owners.

Also new from AMS Neve is the Offline Media Toolbox, which manages the various "housekeeping" aspects associated with the upload and download of projects, as well as the import and export of files from other systems. Key features include offline backup/restore of projects; import of OMF1 2.0-compatible files; and .WAV file import/export.

Berkley Systems (BIAS) has announced DECK 2.7, featuring driver support that makes it compatible with all ASIO hardware. Other DECK features include as many as 999 virtual tracks, playback of up to 64 simultaneous tracks, real-time DSP, OMS compatibility, and support for

MULTICHANNEL DIGITAL AUDIO WORKSTATIONS

Adobe Premiere plug-ins and QuickTime digital video playback and sync. DECK works in conjunction with third-party audio cards or in "native mode" on almost any recent Mac (including all PowerPC and G3 CPUs, even PowerBooks) with no additional audio hardware.

Cakewalk recently released Cakewalk Pro Audio Version 9 for Windows 95/NT. New features include WavePipe technology for low latency and enhanced audio streaming; export to MP3, Windows Media Advanced Streaming Format and RealAudio G2; and AudioX support, with complete control of the Yamaha DSP Factory. Other enhancements include interleaved stereo tracks, the ability to combine stereo and mono audio data in one track, smooth audio scrubbing, and improved MIDI features such as a multi-track piano roll view and the new Session Drummer and Style Enhancer MIDI plug-ins.

CreamWare's tripleDAT workstation is now in Version 3.0 release, with the

most significant upgrade being the integration with Pulsar and SCOPE, CreamWare's DSP-based audio platforms. Owners of both systems can now access the I/Os of Pulsar (20) or SCOPE (24) directly from within tripleDAT, making it possible to record up to 16 tracks at once. In addition, tracks can be routed internally from tripleDAT into Pulsar/SCOPE, where they can be mixed and processed through the effects on the DSP cards, taking the burden off the host PC. Other new features include 96kHz support and direct inte-



Cakewalk Pro Audio Version 9

gration of .WAV and AIFF files.

Digidesign's Pro Tools 5.0 software upgrade (see *Mix*, September 1999) offers more powerful features for music and post-production on the Mac and Windows NT platforms—including the long-awaited native support for the cap-

ture, import and playback of Avid media within Pro Tools. Other highlights include an update to the plug-in architecture, an integrated MIDI sequencer (with sample-accurate view of MIDI and audio tracks, grid-based editing, arranging via regions and edit groups, and more) and a redesigned OMF transfer tool (now with OMF import and export). Pro Tools 5.0 incorporates aspects of Avid AudioVision with new features such as a fixed-playhead display, capture tool for non-timeline recording (up to eight tracks), a 2-channel clip editor for non-timeline editing, integrated EIDL autoconforming and track arming/recording on external transports via 9-pin control. Two new video hardware options, Digidesign AVoption and AVoption XL, provide Avid Video capture and playback. In addition, Digidesign enters the host-based DAW market with a bundled, reduced-feature version called Pro Tools LE, which adds CPU-based mixing and real-time AudioSuite plug-ins to the company's entry-level hardware. LE

runs with Digidesign's new entry-level project system called Digi 001—which was announced at AES—as well as the Audiomedia III card.

Digital Audio Labs offers the V8 system of PC cards and external components. With a single V8 Main Board and choice of one or more V8 I/O peripherals, a system can provide 16 true tracks

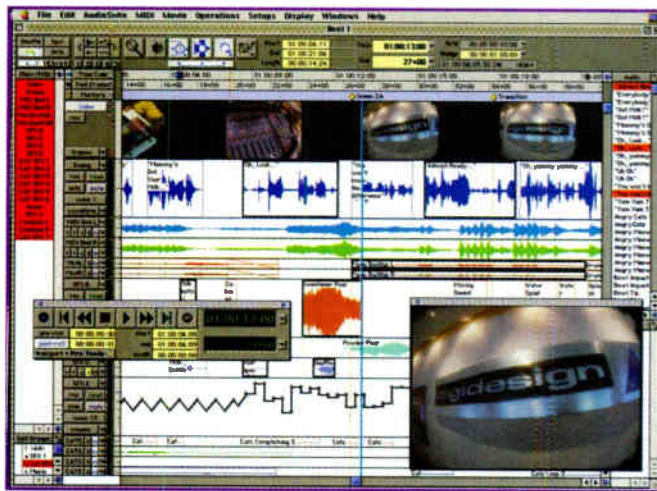
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of hard disk recording, with a 32-channel real-time automated digital mixer. As many as three DSP Super-charger modules may be added, each capable of running channels of real-time automated EQs, dynamics processors and effects. The V8 was engineered to operate exclusively with third-party software and plug-ins—including applications from Cakewalk, SEK'D, Waves, Minnetonka, Antares, QSound and others. DAL also offers a family of cards including the CardDeluxe (successor to the CardD), a PCI design supporting resolution of up to 24 bits/96 kHz and offering S/PDIF digital and balanced analog I/O. The card offers 4-channel operation, works with most 24/96-compatible software, including Cool Edit Pro, SAW and Cakewalk Pro Audio, and supports DirectX and Windows 95/98/NT and ASIO.

Digital Audio Research released its latest-generation processing platform—STORM—and the associated range of SoundStation STORM audio editing systems. The new generation is initially available as a 32-track system, scalable up to 128 internal tracks, and comes with a choice of control surfaces—DAR's new high-resolution color touchscreen controller or a compact controller for use with a mouse and monitor. Users can display up to 32 tracks at a time, with selectable viewing of waveforms, visible fades, crossfades and marks, vertical track zoom facilities and more. STORM supports sampling rates up to 192 kHz and 16- and 24-bit operation, with the ability to incorporate segments of different bit depths in the same reel. A 100Mbit D-net network port is standard. STORM offers DSP capabilities including segment-based EQ, pan, gain and mixing. The STORM lineup is complemented by the OMR8 disk-recorder range, which now includes onboard DSP and native Pro Tools compatibility. All of DAR's latest-generation editing systems incorporate Genesis software, which provides the ability to operate with a wide cross section of third-party devices and software, plus full networking capability, supporting Broadcast .WAV, OMFI, AES31, Pro Tools and Lightworks.

The Postation from Australia's **dSP** (see *Mix*, September 1998) is a digital production system offering 32-track recording and 32-channel onboard mixing, with the capability of accepting 48



Digidesign's Pro Tools 5.0

additional inputs and nonlinear video. The Digital Editing Processor, the core of the DSP audio system, offers digital inputs and outputs (Y2 and AES/EBU), resolutions of 16- to 24-bit, and delivers up to 32 tracks of sustained audio playback.

The SPEED control surface provides single-action editing via a simple layout that has the editing keys placed around a smooth jog wheel, with dedicated track select keys and a numeric keypad. The user can view the waveform in various ways and can simultaneously record and playback on all tracks using threshold, punch-in/out, auto punch-in/out, or import from a quick and comprehensive clip database. A variety of software configurations provides options for automation, machine control,

Emagic's Logic Audio 4.0



touchscreen control, signal processing (including sample rate conversion, time stretching) and EDL conform. As many as eight desktops or Postations can be placed on a network, and an OMFI Connect station allows for integration from OMFI-compatible systems (OMFI NetConnect).

Emagic is shipping Logic Audio 4.0 for Mac and Windows 98—the Windows version has been completely rewritten for the 4.0 release. The upgrade supports 24-

bit/96kHz recording, includes 34 proprietary plug-ins and debuts a new, streamlined graphical interface featuring multiple-language support. Emagic has also introduced EASI (Enhanced Audio Streaming Interface), a free, cross-platform, public interface—nondisclosure agreements are not required. The core technology is platform-independent and includes multichannel support via full-duplex operation and sample-accurate sync. EASI reduces the CPU load by taking advantage of hardware accelerator functions and minimizing data transfers/format conversions.

E-mu's Audio Production Studio is a PCI-based system offering 64 voices of sampling, multitrack hard disk recording, and real-time DSP effects. The system includes a PCI card, drive bay input/output module, and a suite of software including a MIDI/audio sequencer, a sample preset editor, mixer/effects control software and hundreds of sounds on

MULTICHANNEL
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WORKSTATIONS

CD-ROM. The APS has the ability to record and play full-duplex, studio-quality audio directly on your hard drive while playing and recording MIDI sequences.

Version 2.0 software for the **Ensoniq** PARIS workstation is shipping. What's new? A Crossfades Bar in the Editor window of each SubMix offers quick access to tools for setting the shape and length of any fade-in/out or crossfade. V2.0 also supports the import/export of 16- or 24-bit mono (or interleaved stereo) as SD2 and .WAV files. For file management, new Delete Last Take and Select Last Record File commands simplify operations when recording multiple takes. And the PARIS ASIO drivers (now included with the software) allow PARIS hardware to be used with sequencers such as Steinberg's Cubase VST, Emagic's Logic

Audio and Opcode's Vision DSP and Studio Vision Pro.

Euphonix recently introduced the SL156, a hardware interface providing machine control of the Euphonix R-1 multitrack recorder from all SSL G Series and AMS Neve V Series consoles. With the SL156 interface, G Series and Flying Faders, users can retain console machine control while taking advantage of the 24-bit recording and random access capabilities (such as as instant locate, nondestructive record and cut/copy/paste editing) of the R-1. The SL156 allows 48-track record-ready arming with lamp tallies from SSL consoles, as well as direct cue control from SSL and Flying Faders automation systems. In addition, the SL156 offers one-button re-patching to allow an "instant swap" between the R-1 and any parallel-controlled tape machine. Also at AES, Euphonix announced a software upgrade for the R-1 that makes the system fully 24-bit/96kHz capable.

New from **Fairlight**, the Merlin Digital Multitrack Recorder is a networkable disk-based recorder that can record 24 tracks of audio with up to 24-bit resolution (bit widths may be mixed within a project), at sampling rates to 48 kHz.

Merlin inherits a variety of features found on MF3plus and FAME systems, with direct file exchange capability and networking ability.

In addition, Merlin offers a full upgrade path to 48 tracks/96 kHz. A controller replicates the interface of tape-based multitrack recorders, and Merlin offers recording modes to suit various applications: traditional multitrack tape emulation, a nondestructive DAW mode and an automatic recording mode for managed takes and ADR sessions. Editing functions (selectable from the controller's LCD screen soft menus) include cut-and-paste, razor, track, gate and trim editing functions, with a scrolling waveform display across all tracks. I/O is configurable (available with all-digital, all-analog or a combination of analog and digital inputs/outputs) and the unit offers comprehensive sync and machine control capability. Merlin files are compatible with MF3plus, FAME and DaDplus audio platforms, and networking options allow Merlin to connect directly to Fairlight's MediaLink peer-to-peer networking solution and NT audio server.

Foretix offers the new VM 200/VR 800 digital recording and mixing sys-

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MULTICHANNEL DIGITAL AUDIO WORKSTATIONS

tem, comprising two units that can be used together or separately. The VR 800 (\$749) is an 8-track disk-based recorder (storage is to a variety of internal and external media) that offers nondestructive editing features, graphic envelope display, autoscrubbing, varipitch, MIDI and word sync, and more. Priced at \$1,499, the VM 200 is a 20-input/8-bus digital mixer built around 32-bit RISC processing, with moving-fader automation and plenty of DSP functions.

Designed for multichannel recording and mastering applications, the **Genex GX8500** multiformat 8-track digital recorder (distributed by HHb) can record in linear and nonlinear modes. Formats supported include AES/EBU, S/PDIF, SDIF-2 and Direct Stream Digital, and the new Super Audio CD standard. Sample rates are user-selectable up to 192 kHz, and bit resolution is to 24 bits (optional A/D/A converters enable 24/96 recording). Storage is to either the built-in 5.2GB MO drive, or via SCSI to remote disk or removable media. Cross-platform compatibility is offered, with support of BWF/.WAV files and a variety of disk formats.

Innovative Quality Software's SAW-Pro provides nonlinear, nondestructive editing and 24-bit hard disk multitrack recording; features include 3D real-time mono/stereo tracks, support of up to 12 stereo devices, DirectX/VST plug-in support, 99 levels of multiple undo, and more. IQS also recently released its Levelizer plug-in, a 32-bit dynamics processing and mastering tool for SAW32, SAWPlus32 or SAWPro. The Levelizer offers a gate, compressor and peak limiter/normalizer, with accurate gain reduction metering of all combined functions, a remove silence function, and the ability to scan and display the highest 50 peaks.

The latest offering from **Intelligent Devices**, Virtual Paris Pro is a virtual recording studio/audio editing system

with integrated MIDI functionality. A recorder/editor offers 1,000 tracks of advanced free-form editing, 99 levels of redo/undo, user-definable crossfades and an integrated sample-level editor. Mixer features include five multimode EQs and six inserts per channel, 12 effects buses, and up to eight stereo buses. In addition, user-configurable tool sets and views allow for saving screen configurations, and a mini-mixer provides a comprehensive overview of the mix. Virtual Paris Pro supports third-party control surfaces, VST and DirectX. All parameters are fully automatable. Also available



Intelligent Devices Virtual Paris Pro

is Virtual Paris, offering the same functionality with slightly scaled-down features such as 250 tracks of advanced free-form editing, ten levels of saved redo/undo, three multimode EQs, two inserts per channel and six effects buses.

Korg's latest is the D16, a 16-track integrated digital recording system including a 24-bit digital recorder, 24-channel digital mixer, effects system (including modeling), and a built-in 2.1GB hard drive. The effects section (97 effect types) features Korg's latest REMS (Resonant structure and electronic circuit modeling system) technology, which emulates a wide variety of effects, amplifiers, speaker cabinets and microphones.

The Desktop Audio System Core2 from **Lexicon** offers connections for four channels of analog in, eight channels of analog out, eight channels of ADAT digital I/O and a stereo S/PDIF pair. The system features 24-bit A/D and D/A converters, with selectable dbx Type IV soft-knee limiting on every input channel, to simulate tape compression and provide 4 dB of improved headroom. It ships with Syntrium's Cool Edit Pro SE. An optional daughter-

board includes all of the effects found in the Lexicon MPX 100 Dual Channel Effects Processor.

Unveiled at AES, the HDR24/96 from **Mackie** is a rackmount 24-track recorder/editor that's 24-bit/96kHz-capable. Final details were unavailable at press time, but this less-than-\$5,000 unit includes an onboard 20GB IDE-format hard drive, an empty drive bay allowing for a second hard drive, and a rear panel SCSI port. The back panel I/O uses the same cards as Mackie's D8B digital console, so users can custom-configure the HDR24/96 for any type of connections,

whether digital (ADAT/TDIF or AES/EBU) or analog. Other features include MTC and SMPTE sync import of SD2, AIFF and .WAV files, 192 (8x24) virtual tracks and onboard DSP (phase reverse/normalize, reverse, pitch shift and time compress/expand). Among its edit functions are: drag-and-drop with a choice of nine crossfades, track slipping and keyed sample replacement for replacing drum parts. A meter bridge is optional, and users can add a standard PC-style keyboard and

S-VGA monitor to expand the system. Two HDR24/96 units can be synched to provide 48-track recording capability.

Mark of the Unicorn features a family of mix-and-match workstation components. The 2408 is a multichannel digital audio hard disk recording system for Mac OS and Windows, including a PCI card (PCI-324), rackspace I/O unit, I/O software drivers for both Mac OS and Windows, and the AudioDesk software package, featuring 24-bit recording and real-time, 32-bit effects processing. Effects plug-ins are supported (in the MOTU Audio System and Adobe Premiere formats), along with MOTU's PureDSP time-stretching and pitch-shifting technology. MOTU's 1224 is an expander for a 2408 core system, or it can be used as an independent core system (includes the PCI-324 card and AudioDesk). The 308 is a multiformat digital audio interface designed for use as an expander for an existing MOTU core system; as many as three can be connected for 72 simultaneous I/Os. Although AudioDesk and Digital Performer (MOTU's MIDI sequencer with integrated digital audio recording) are software front-ends, the hardware is compatible with all major

translate investment into profit

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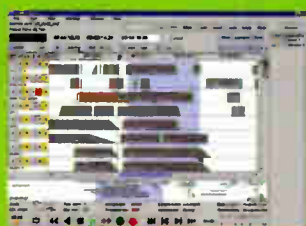
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GA 32/12

GF 24/12

M3000-400

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Yamaha's mixing console line is legendary. Many of today's premier sound engineers learned the business on Yamaha boards. And a veritable Who's Who of

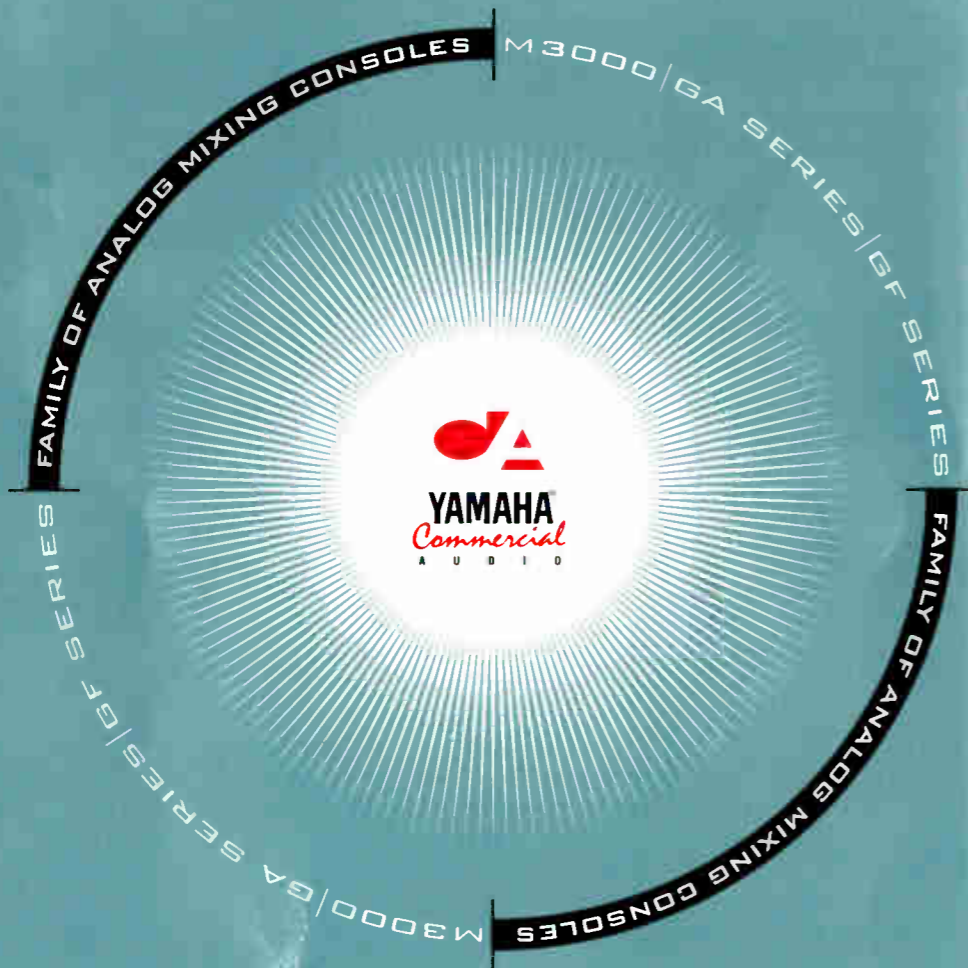
the world's most prestigious performers and venues have relied on Yamaha consoles to meet their demanding live sound requirements.

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M3000

With the flexibility to serve as a house or monitor mixer, the M3000 is well suited to a variety of large events. It is perfectly at home in fixed installations, large houses of worship, theaters, theme parks, concerts and industrial gigs.

- Available in 24 or 40 mono input channel versions, both with an additional 4 stereo channels.
- Mono inputs with XLR-type microphone/line connectors.
- Phantom power individually switchable on all mono inputs.
- Stereo channels have both "A" inputs XLR and "B" inputs (1/4" jacks).
- Group/Aux Diversity System for a wide range of signal-routing requirements allows the console to be used as FOH or monitor mixer... or both!
- Midi Mute Groups with 8 hard assign switches and 128 Scene memories with MIDI-control capability.
- Input channels can be individually assigned to any of 8 VCA groups.
- 20 x 8 submix matrix provides eight independent mixes of the signals on the 16 mix busses, the stereo buss, and matrix sub inputs.
- Outstanding RF noise rejection eliminates unwanted interference and assures a clean clear signal.
- Insert send/return patch points are included on all mono channels, stereo channels, as well as mix, aux and stereo busses.
- All mono channels feature switchable high-pass filters, sweepable from 20Hz to 400Hz.
- Mono channels have a flexible 4-band equalizer, with sweepable frequencies in all 4 bands and switchable bandwidth for the HI MID and LO MID bands.
- Fixed-frequency 4-band equalization with switchable HI MID and LO MID bandwidth on stereo channels.
- EQ bypass switches are provided on all channels.
- Dual (redundant) power supplies may be used with no switching unit required.

GA CONSOLES

With their Group/Aux diversity, Yamaha GA consoles are quite nimble; they can easily handle virtually anything a dinner theater, concert hall, church, theme park or local rock band would demand of them.

- Available in 20 or 28 mono input channel versions.
- Both consoles have 2 stereo input channels in addition to mono inputs.
- Mono inputs have both XLR-type microphone connectors and balanced/unbalanced TRS phone jacks.
- Phantom power switchable in groups of 4 for all mono inputs.
- Twelve Mix Busses: ten mix/aux busses plus (dual) stereo busses.
- GA Diversity feature allows the console to be used as a FOH or monitor mixer.
- Two matrix sub-mixes from the M1 through M4 mix busses and the stereo buss.
- Four stereo aux returns with independent level controls.
- Record Out/Tape In feature.
- Comprehensive monitoring via control-room monitor and headphone outputs with independent level controls.
- Peak-reading level meters provide accurate visual monitoring of the signal appearing at the ten mix busses, the stereo buss, and the PFL and AFL busses.

GF CONSOLES

Small in stature but still bearing the trademark Yamaha audio and design superiority, the NEW GF consoles are for small but important venues like night clubs, schools and commercial installations.

- Available in 12, 16 or 24 input channel versions.
- Mono input channels feature both XLR and TRS type connectors.
- Phantom power and insert jacks available on all mono inputs.
- Stereo Inputs are switchable between "A" input phone jacks and "B" input RCA type pin jacks
- Three band EQ with sweepable midrange on mono inputs plus HPF.
- 6 Aux Sends' aux 1 and 2 are fixed "pre" and auxes 3/4 and 5/6 are "pre" or "post" selectable.
- Input channels assignable to any or all of the four busses and/or stereo outputs.
- Two stereo aux returns with independent return level control feeding the 4 groups, aux 1-4 and stereo busses.

MULTICHANNEL DIGITAL AUDIO WORKSTATIONS

Mac and Windows audio applications.

Micro Technology Unlimited offers the Microsound Digital Audio Workstation, available with computer or by adding the Microeditor software and Krystal DSP audio card (required for Microeditor, a 32-bit Windows 95/98/NT application) into your computer. The Krystal DSP sound card and Microeditor are the heart of the system, which processes and mixes with 24-bit samples and 56-bit accumulators, with proprietary algorithms to convert back to 16 or 24 bits. Microeditor offers random access editing with Floating Tracks for adjusting segments in sync; Disk Layering allows overlapping of more than 100,000 sounds. Microeditor 5.2b and MicroCD 2.3 are the latest production releases, available online at www.mtu.com.

Studio Vision Pro is **Opcode's** integrated MIDI sequencing and digital audio recording software for the Macintosh. Version 4.5 includes comprehensive automation for consoles and VST plug-ins, ReWire support for software synthesizers, and audio file management, EQ and plug-in enhancements. VST features Power Mac-native code, Digidesign Pro Tools TDM and ASIO hardware support, advanced DSP features, real-time effects and EQs, and patented Audio-to-MIDI, QuickTime Movie support; it comes with BIAS Peak SE sample editing software.

Otari has released software upgrades for its RADAR products. V2.03, aimed at RADAR I users, adds features such as selective backup and restore and a revision of the progress indicator system to include both time remaining and quantity of backup or restored data. In addition, audio recorded in 16-bit mode on a RADAR II and backed up to Exabyte tape can now be restored to RADAR I. The revision provides support for the RE8-II controller, including a new sync user interface, default SMPTE rate preference setting, illegal sample rate detection and more.

The Version 2.07 upgrade for RADAR II enables the display of waveforms for audio levels above the Wave Noise Floor, using new zoom and scroll keys on the RE8-II remote. A new menu item under the DI I/O menu routing

section lets the user select which tracks to input from the multichannel digital inputs (TDIF or AES-Multi). A new internal/external SMPTE display mode has been included for when RADAR II is controlled by an external transport such as a VCR or audio deck.

Peavey and Cakewalk have joined forces with StudioMix™, a moving fader hardware control surface that integrates with Cakewalk 8-track digital audio recording/MIDI editing software. The console includes MMC transport keys, jog/shuttle wheel, four user-definable soft keys and tactile control of volume, pan, sends, returns, track arming, mute, solo, chorus/reverb, etc. This "studio in a box" package retails at \$899.

New from **Roland**, the VSR-880 Digital Studio Recorder is a rackmount 8-track recorder with 128 Virtual Tracks, featuring nondestructive editing with 999 levels of Undo. Applications include direct replacement for tape-based MDMs; integration with digital mixers; and track expanders for current V-Studio owners. The VSR-880 features an R-BUS connection, providing eight channels of up to 24-bit digital I/O when connected to other R-BUS devices, or to ADAT and Tascam TDIF units using the optional DIF-AT.

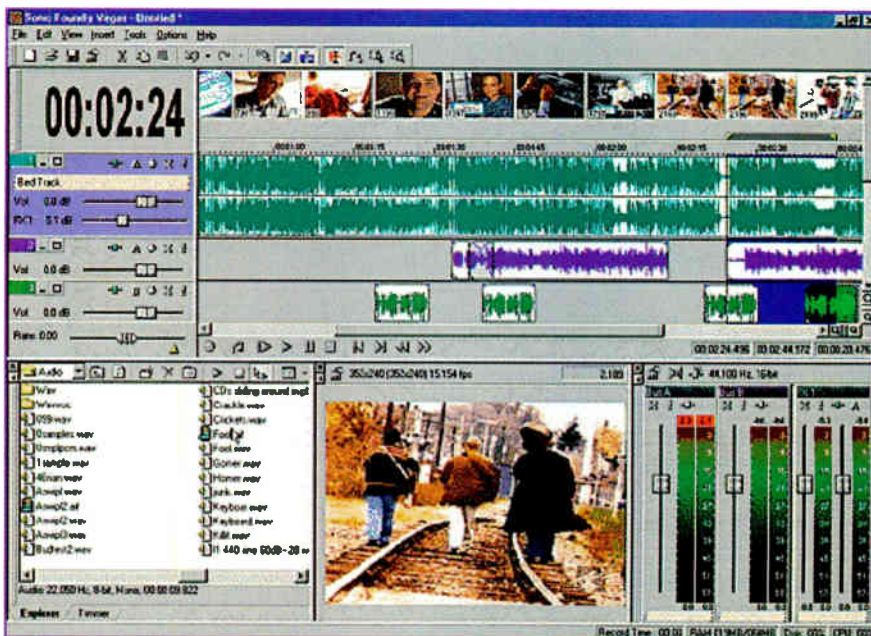
An optional VS8F-2 Effect Expansion Board adds two powerful onboard stereo effects processors. Thirty-six stereo effects algorithms include Roland's COSM-based effects such as the new Speaker Modeling and Mastering Tool Kit algorithms. The VSR-880's built-in SCSI port can be used for backing up projects to external devices or

for use with Roland's VS-CDRII CD Recording System.

New from **SEK'D** is Version 5.3 of **Samplitude 2496** multitracking/mastering software for Windows 95/NT. Features include a new surround editor that allows users to create true 5.1-channel or 2-channel Lt-Rt (Dolby Pro Logic-compatible) mixes. Samplitude now supports the Apple QuickTime format (*.mov) and also imports and exports AIFF files in high-resolution 24- or 32-bit formats. Other new features include an intuitive, flexible mixing environment, more MIDI capability (including the ability to import MIDI files or record MIDI in real time), MP3 encoding, sync enhancements, support for mono plug-ins such as Antares Auto-Tune, and more.

Designed for DSP-intensive applications, the **SADiE ARTEMIS** is supplied as a fully configured turnkey system with eight to 24 inputs and outputs. Support for 24-bit/96kHz and 192kHz audio editing is standard, and all internal audio processing is to 32-bit floating-point accuracy. All ARTEMIS systems include SMPTE timecode support, four channels of RS-422 control, SCSI ports for connecting additional hard disks, CD-R, DLT, DDS or Exabyte drives, and a rackmount breakout box. The latter provides eight channels of AES/EBU digital I/O on XLRs, digital reference input, RS-422 9-pin I/O and eight channels of unbalanced analog I/O. As an option, balanced analog I/O is available. ARTEMIS exploits many new features in the SADiE 3 software: The latest version now includes full surround sound mixing facilities, allowing the user to select between mono,

Sonic Foundry's Vegas Pro



MULTICHANNEL
DIGITAL AUDIO
WORKSTATIONS

stereo, LCR, LCRS and full 5.1 surround mixer strips.

At September's AES convention in New York, **Solid State Logic** debuted MixTrack, a 24-bit, 96-track hard disk recording option for the Axiom-MT digital console. MixTrack is a completely

integrated option, operating over Ethernet from the MT's machine control panel. The integration provides access to control-panel features, such as a scrub wheel that enables automated events to be set using SSL's varispeed automation write capability, enabling set-up of automation events with the recording medium at rest or at scrub speed (as opposed to catching events "on the fly"). MixTrack can provide up to 4½ hours of recording on each track, and additional removable hard disks are available as options.

Vegas Pro marks **Sonic Foundry's** expansion into Internet authoring tools

and media editing. Retailing at \$699, the application is a nonlinear multitrack recording/editing system for Windows. Based around a multi-threaded architecture for real-time performance (including editing and effects), Vegas Pro is 24-bit/96kHz capable, accommodates unlimited tracks and includes DirectX plug-in support. Additionally, Vegas Pro has the ability to mix file properties, bit depths and sampling rates. Also standard is support of MP3 files and the creation of streaming media content, including the ability to incorporate timeline metadata for both Windows Media Technologies 4.0 and RealNetworks RealSystem G2 file formats.

The SonicStudio HD workstation from **Sonic Solutions** offers real-time, nondestructive waveform/bar/text-mode editing, multichannel audio scrubbing, 144 virtual tracks with real-time, infinitely variable crossfades, drag-and-drop sound placement and copy-and-paste editing, auto or punch-on-the-fly recording, multiple EDL playback and simultaneous record, timecode reading and writing, and QuicKeys®.

The system is 24-bit throughout, with ten types of real-time EQs and filter dynamic and snapshot mix automation real-time 96kHz-to-44.1kHz sample conversion, internal digital mixdown and Sony Super Bit Mapping™ and Si Turbo Bit Mapping bit-reduction algorithms. A variety of formats are supported, with true 16- to 24-bit resolution and sampling rates up to 192 kHz. Sonic Studio EDLs are directly compatible with Sonic's DVD Creator™ and DesktopDVD All-In-One DVD publishing workstations and workgroups.

The SonicStudio HD features the HDSI™ Plug In Processor, allowing third parties to develop technologies for mastering, High Density Audio and new audio formats.

The **Sony DADR-5000** Digital Audio Disk Recorder, an alternative for the analog magnetic film dubber, is a 16-channel recorder for selectable 16-, 20- or 24-bit uncompressed digital processing. Designed to network without external synchronization, the DADR-5000 now lets users plug and play Pro Tools disks without format conversion, real-time transfer or generation loss.

Soundscape Digital Technology's newest workstation, R.Ed, combines 32-track, 24-bit hardware (up to 28 inputs and 32 outputs per unit) with complete editing software for Windows 95/98/NT. R.Ed provides host-independent processing and supports two fixed and two removable IDE drives per unit. I/Os in-

Digital Studio Essentials

Nobody ever thought that improving the recording process could worsen the sound. But that's exactly what direct digital recording does - it leaves your sound brittle and harsh. Introducing three solutions from Bellari - the MP110 DIRECT DRIVE Tube Microphone Preamp, the LA120 Tube Compressor/Limiter, and the new ADB3b Stereo Tube Direct Box. These boxes round out the digital edges, and restore the natural warmth to your sound.

If you're recording digitally, a Bellari tube product is simply essential. Bellari, oh oh!



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- Multi-machine recording and editing
- VGA display : 1 to 32 tracks with Waveforms

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DL1500

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MULTICHANNEL DIGITAL AUDIO WORKSTATIONS

clude AES/EBU and TDIF ports. An optional board adds 2-in/4-out balanced XLR analog I/O (with 24-bit converters); Soundscape's SS8IO-1 option adds up to 24 channels of XLR balanced analog I/O and 24 channels of TDIF/ADAT conversion.

R.Ed software is an updated version of Soundscape's SSHDR1-Plus Version 2 systems, with a new user interface. Features include nondestructive editing tools such as cut, copy, move, trim, slip, normalize, real-time fades and multichannel audio scrubbing. R.Ed can also



Soundscape Digital Technology's R.Ed workstation

play synchronized nonlinear video files via video capture cards. R.Ed is modular—two or more linked R.Eds can provide more than 64-track playback and 48 digital I/Os at 24-bit resolution. The Soundscape Mixtreme PCI card provides the expandable mixing engine for use with the company's mixing and plug-in environment with real-time, third-party DSP.

Soundtracs has introduced DSM, a production station integrating a SADiE audio editor with video playback, and based on the architecture of its new DS-3 32-bit console. DSM features a 96-channel mixer and 32-track nonlinear audio editor, facilitating subframe-accurate sync between audio, video

and automation. Single-step filing allows all data to be loaded, saved, archived and restored in one operation to a single medium.

The AudioCube 3 from **Spectral** is a 24-bit/96kHz mastering, audio restoration, archival and editing workstation, based on dual 500MHz Pentium III processors in a 5U rack enclosure. The AudioCube performs numerous real-time audio restoration functions (de-Noise, DeBuzz, DeCrackle, de-ess, DeClipp, etc.) in multichannel formats and includes an editor. The Quadriga module offers automated transfer from analog tape or vinyl, while monitoring the incoming audio data and reporting on errors.

Steinberg is now shipping its Nuendo system on the NT platform. Nuendo combines native audio processing with real-time effects, a VST-compatible plug-in architecture and up to 256 tracks of

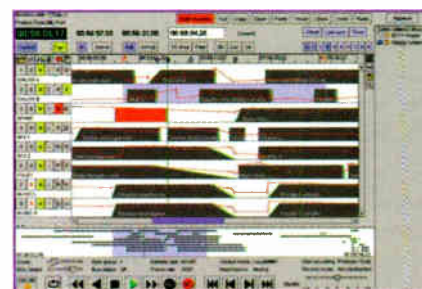


Steinberg Nuendo system

stand-alone system, but is part of a suite: The Studio Plug-In adds a 4-track mixer, and the Audio Cleanup Plug-In provides restoration tools like click/pop elimination, hiss reduction and clip restoration.

Spotlighted in last month's *Mix*, **Tascam's** MX 24-24 is a disk-based, 24-bit, 24-track recorder/editor. This stand-alone, four-rackspace unit supports Broadcast .WAV and Digidesign's SD2 file formats, and an optional software utility converts MX 24-24 EDLs to/from standard OMF files. Features include an internal hard disk, empty bay for adding another drive, rear panel SCSI port, MIDI and SMPTE read/write/chase, MIDI Machine Control, rehearse/auto-punch/looping functions, jog/scrub wheel, a cascade port for linking multiple units and a choice of destructive or nondestructive editing modes. Optional I/O cards include TDIF, ADAT Lightpipe, AES/EBU digital and balanced analog. Retail is \$3,999.

ViewNet Audio from **Timeline** is a graphical user interface application for the Tascam MMR-8/MMP-16 digital



Timeline's ViewNet Audio

digital audio, plus MIDI enhancements. Cubase 4.1 VST, the most recent version for the Mac, includes dynamics processors built into audio channels, VST remote control devices, ASIO 2.0 features, VST mixer views and Yamaha DSP factory support. Cubase 3.7 for Windows is also shipping.

Syntrillium is shipping Cool Edit Pro Version 1.2. Upgrades include full reverb, hard limiter, pitch bender and DTMF/notch filter effects; RealMedia G2 support; automatic silence detection and deletion; preview for almost every effect; and VCR-like timed record capability.

Just around the corner is Cool Edit 2000, a pro-level, 24/96-capable editor/recorder with more than 20 DSP effects (Reverb, NR, Time/Pitch Stretch, etc.). Cool Edit 2000 will be available as a

multitrack systems. The software provides real-time status display and control of multiple machines, along with commands for manipulating audio events. Created in JAVA, ViewNet Audio is compatible with Macintosh and Windows 95/98/NT systems. Also released, Version 1.1 of TransAudio PipeLine, a software application that

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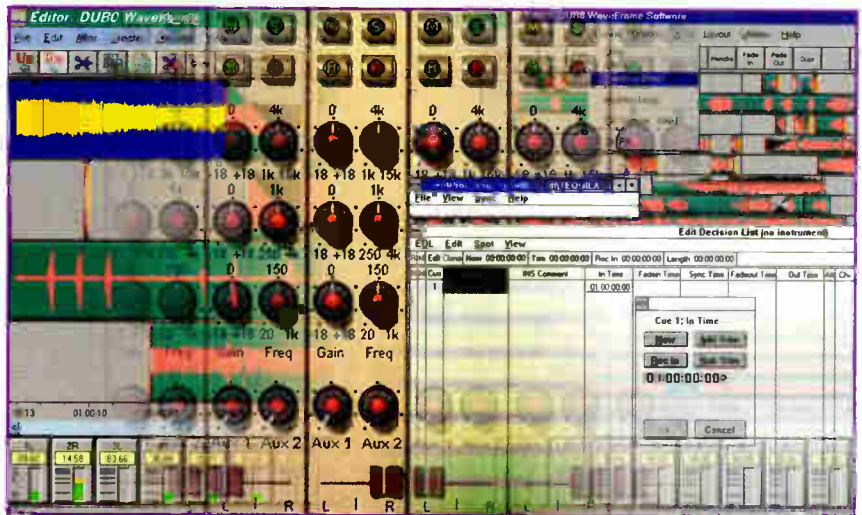
MULTICHANNEL DIGITAL AUDIO WORKSTATIONS

provides backup, import and export of popular DAW file formats. The software can perform a TapeMode convert, which rewrites all audio referenced in a session into contiguous files.

The 4-channel TCR4 and 8-channel TCR8 from **360 Systems** are designed specifically for broadcast, video production and video post-production. Both models offer 24-bit audio, a large amount of internal hard disk storage, high-density removable disks, complete



TCR8 from 360 Systems



WaveFrame's NetWave Digital Audio Software

timecode implementation and VTR emulation. The 4-channel unit, when coupled with timecode capability, could be used as a replacement for DAT machines and "audio dedicated" VTRs. TCR8 provides several hours of 8-channel audio. Both units offer editing features such as user-selectable crossfade length; dynamic edit mark features; and pre-roll, edit in, edit out and post-roll. Rehearse functions allow for full simulation, and the RMW (Read-Modify-Write) feature provides layering and mixdown capability. Sys-

tems include analog and digital I/O, a large display screen, built-in keypad for cut titling and organization, and a number of remote control options including P2 (9-pin), RS-422 and GPI connections.

Studio Suite 16 from **Tracer Technologies** is a 16-track digital recorder that emulates the typical multitrack tape deck interface. Features include multiple card support, DirectX support, effects, automation and editing features.

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WaveFrame has been busy: Net-Wave, developed with mSoft, provides complete integration with the WaveFrame editing system—sounds are stored on a Windows NT server in .WAV format. Sounds are searched, auditioned and selected in a Web browser application and transferred to the user machine in the background. Mix to Pix brings the DSP engine of the upcoming WaveFrame 7.0 to current users—the engine (up to nine 56303 processors) can provide 32 channels of mixing, with EQ, aux sends and panning capability on each input. WaveFrame Digital Video adds full-motion NTSC nonlinear video to all WaveFrame systems. And finally, the Event Processor, co-developed with E-mu, brings a cuesheet-based sampler to the WaveFrame system.

Yamaha's DSP Factory comprises a DS2416 Digital Mixing Card and an AX44 Audio Expansion Unit, combining to turn a personal computer into a multitrack recording/mixing system. The DS2416 PCI card offers the mixing power of the Yamaha O2R, complete with 24 channels, onboard digital effects and dynamic processors, plus 16 tracks of hard disk recording at up to 32-bit resolution. The DS2416 offers host-independent processing and is controlled using software from developers of MIDI and hard disk recording applications—companies include Steinberg, Emagic, Canam Computers, C-mexx, Cakewalk, SEK'D, Minnetonka, MxTrax and others. Cards can be linked, and expansion cards are available. The AX44 installs into a tower drive bay and provides four 1/2-inch analog inputs, two of which can accommodate microphones, and four 1/2-inch analog outputs, plus a stereo headphone jack.

Finally, slated to ship this fall, Yamaha's D24 is a stand-alone 8-track magneto-optical recorder/editor offering 8-track simultaneous record and play at 16/20/24-bit audio and 44.1/48kHz sampling rates, along with 4-track record/play at 96 kHz, SMPTE/MIDI sync, and the capability to interlock up to six units for 48-track capability. ■

Sarah Jones is a technical editor at Mix.

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BIG NEWS FROM THE BIG APPLE

T Product Hits of the 107th AES

BY THE MIX STAFF

The torrential rains that plagued the East Coast the week before AES disappeared just as suddenly and completely as the microphones, recorders and computers that mysteriously "walked" off the show floor and out of the Jacob K. Javits convention center during the opening days of the 107th AES convention. Lax security aside, this was a delightful AES show: The shuttle buses ran (mostly) on time, the weather cooperated and a superb mix of papers, workshops, technical sessions and tours complemented the record-setting turnout of manufacturers hawking the latest in audio technology on the exhibition floor. With the arrival of new—stereo and multichannel—release formats, higher-resolution tools, digital broadcasting and Internet distribution, everybody at the show had something to learn, see, hear or buy. For attendees, AES arrived right on time, and there were plenty of new toys to check out. Here are a few that caught our attention...



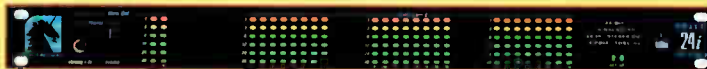
Digidesign
Digi 001

DAWS AND ALL THAT

The number of workstation products at AES was nearly overwhelming. And new compact rackmount DAWs, such as the Tascam MX 24-24, Mackie HDR24/96, Akai DR16 Pro and Roland VSR-880 all bring disk-based production to new levels of affordability. Aimed at the mid-level user were updated versions of the Euphonix R-1 and Otari Radar II, along with Merlin, Fairlight's re-entry into the music production market. Meanwhile new workstations for high-end users included AMS/Neve's AudioFile SC and Solid State Logic's MixTrack option for its Axiom-MT digital board. For detailed information on these recorders and workstations, check out our "Multichannel Digital Audio Workstations" feature, beginning on page 88. There was a plethora of new plug-ins at AES, too,

and we'll bring you a feature on those next month.

Competition in the "DAWs-for-musicians" market is heating up. Mark of the Unicorn's (www.motu.com) 24i audio interface provides 24 channels of balanced analog inputs and four stereo outs: balanced 1/4-inch analog, and S/PDIF (coaxial and optical). The 24i is available as an expander for an existing MOTU Audio System (\$1,195) or as a core system (\$1,495), which includes the PCI-324 card and Audiodesk workstation software. Three 24i rack I/Os can be connected to a PCI-324 audio card for 72 inputs and six outputs; the 24i is compatible



Mark of the Unicorn 24i audio interface

with the 2408, 308 and 1224.

In addition to showing Pro Tools 5.0 software, featuring a MIDI sequencer and support for Avid media (spotlighted in the September *Mix*), Digidesign (www.digidesign.com) debuted its Digi 001 project studio workstation. Its single-rack-space interface has eight analog audio inputs, eight analog outs, separate monitoring outputs, two channels of S/PDIF digital I/O and eight channels of ADAT optical I/O—18 simultaneous inputs and outputs, plus MIDI In/Out. The hardware is bundled with new Pro Tools LE V.5.0, a host-based version of Pro Tools with integrated MIDI sequencing; 24-track, 24-bit playback; five inserts and sends for effects; 16 internal buses; real-time, host-based processing with Real-Time AudioSuite (RTAS) plug-ins; and automation. Retail: \$995.

Steinberg's (www.steinberg.de) long-awaited NT version of its Nuendo Media Production System is shipping. Nuendo is a modular system offering as many as 128 tracks of digital audio, with native processing, surround mixing, Video-Track, MIDI tracks and VST plug-in architecture. Retail is \$1,295. A BeOS version is expected later this year.

LARGE-FORMAT CONSOLES

In the area of recording consoles, this year's AES show had something for just about everyone, whether it was new offerings, significant updates to existing consoles, or models that had been introduced but had only recently begun shipping.

Audient ASP8024



Euphonix (www.euphonix.com) launched its highly anticipated System 5 digital audio console, with SRO crowds packing its booth throughout the show. One Union bought the first, representatives from the Hit Factory bought two, and Euphonix announced the sale of ten boards. (For more information on System 5, see the "Technology Spotlight" in last month's *Mix*.)

Version 2.0 software for Studer's (www.studer.ch) D950 digital console includes expanded features in project management, two-person operation, automation, control groups, EQ, diagnostics, multiformat monitoring and surround panning. Its Virtual Surround Panning (VSP) capability adds depth and dimension to surround and stereo listening environments, by taking a source signal and positioning it "behind" the speaker—in effect, placing the listener further back into the room. When reverb is added, the depth of the monitoring field takes on a new character, bringing a useful and truly musical dimension to the mix process.

At Solid State Logic (www.solid-state-logic.com), the 30th anniversary party was in full swing, with its TEC Award-winning Axiom-MT digital console running under Version 2 software, which adds MIDI FX control, enhanced machine control and PanPoint™ surround panning. SSL claims PanPoint's large, square, low-friction panning action makes conventional joysticks obsolete by allowing control and automation of stereo or surround panning moves via the console's pen/tablet interface. However, the big news was SSL's new 24-bit/96kHz MixTrack hard disk recording option for the Axiom-MT (for more information, see the article on page 88). Studio owners definitely took notice: New York City's Electric Lady Studios

provides 32 output buses, each with limiters for stereo, LCRS and 5.1 surround work. A DS-M version integrates the DS-3 console and 32 tracks of SADiE random access audio and video—all at subframe-accurate sync.

Version 2.0 software for Sony's (www.sony.com) OXF-R3 Oxford console includes expanded functionality for 5.1 surround sound mixing; multistem recording and monitoring; sub level control from



Amek DMS Plus

each full channel; new Sony EQs and compressors; jog/shuttle machine control; and support for dynamically automating external MIDI devices.

Options include GML signal processing, adding 96 channels of GML8200 EQ and GML8900 dynamics processing.

An upgraded version of the company's established Digital Mixing System, Amek's (www.amek.com) DMS Plus console offers up to 96 mix inputs, expanded EQ on all channels and the ability to handle multichannel formats. A DMS-XP Booster System upgrades current DMS consoles to the new system, while Version 3.0 software enhances dynamics processing and expands surround capabilities. In addition to 24-bit I/O and improved A/D and D/A converters, DMS Plus accommodates third-party controllers, including the Akai DD1500, AMS AudioFile and DAR Soundstation. The Channel Panel™ full-function assignment panel provides 48 rotary encoder pots and 32 switches for optional control of all channel parameters.

Audient (distributed by Audio Independence of Middleton, Wis.), the UK-based electronics company founded by Dave Dearden and Gareth Davies, launched the ASP8024 analog console, an 80-channel board with full 24-track routing in a true in-line design. The EQ section can be split for assignment to both the long and short fader paths. Other features include 14 aux buses, 20-segment peak LED meters in the long fader path, a stereo bus compressor/limiter and eight independent subgroups. The ASP8024 is priced at \$31,000.

In other console news, Oram Audio (www.oram.co.uk) purchased the assets of

Trident Audio Ltd. and will repackage some of the products that John Oram designed during his tenure there. On the drawing board now is an outboard box with the mic pre and EQ from the Series 80, built using original components and transformers. And Metric Halo (www.mhlabs.com) has acquired the rights to manufacture and market the Project X mid-priced digital console developed by RSP Technologies. MH will support existing Project X owners with parts, service and upgrades, including an advanced, retrofittable automation system slated for



placed an order, and delivered a check for Axiom-MT/MixTrack on the last day of the show.

Soundtracs (www.soundtracs.com) formally introduced its DS-3 Digital Production Console. Priced from \$120,000, the DS-3 is a 32-bit floating-point digital production console featuring 4-band equalization and dynamics. The console's work surface incorporates touchscreen technology in conjunction with 25 moving faders. Operating at 48 kHz with 24-bit conversion (96kHz capability is optional), the 64-channel DS-3

first-quarter 2000 release.

SMALL-FORMAT CONSOLES

Small-format digital consoles also drew crowds at AES. Mackie's (www.mackie.com) D8B 8-bus digital mixer was run-

ning under Version 3.0 software, which includes an updated GUI (graphical user interface), including a 48-channel fader bank view screen, new snapshot libraries, MixLink™ network capability and support for as many as 16 simultaneous

plug-ins on the first 48 channels.

Speaking of upgrades, Apogee Electronics (www.apogeedigital.com) now offers high-performance A/D and D/A cards for Yamaha's D24 MO recorder and 02R and 01V digital mixers. Not to

Top 10 Live Sound Picks

BY MARK FRINK

AES had no shortage of hot new products for live sound. The much-talked-about Yamaha PM-1D digital board is spotlighted on page 130, and here are some of the show's other noteworthy sound reinforcement introductions, listed alphabetically.

Allen & Heath's (www.allen-heath.com) new 48-channel console has features that match the specs of many contemporary touring desks, with a few twists. Besides eight VCAs, eight mute groups and 128-scene memory, the ML5000 (under \$30k list) has unique two-knob LCRplus™ panning, eight auxes (also configurable as four stereo pairs), eight groups (usable as eight more auxes) and a built-in ClearCom interface.

The Audient ASP 231 dual-channel graphic EQ (distributed by Audio Independence) has a high-Q mode allowing narrower cuts while leaving boosts wider, a backlit display for low-light operation and a "tilt" tone control centered at 1 kHz that rebalances the low-to-high tuning. AI also showed Turbosound's (www.turbosound.com) first self-powered speaker, the TQ-440SP (\$4,447), utilizing a 12 1/4-inch co-ax and a 6.5-inch Turbo-Mid™ device.



Neumann KMS 105

key access to critical parameters.

EAW (www.eaw.com) showed its SB750 (\$2,950 list, same as the SB1000), a companion dual-18 subwoofer for its popular KF750, and its new Avalon Series of purpose-designed dance-club speakers, with six full-range models sporting stylish chrome grilles, plus a dual-12 horn-loaded sub and two tweeter arrays.

Hafler (www.hafler.com) unveiled three live sound amp lines with lightweight switching power supplies, forced-air cooling and MOSFET power. Based on Hafler's TransNova design, the SR line includes the Class-G SR2300 (\$1,395) and SR2600 (\$1,795), providing two channels at 300 or 600 watts. A third amp will offer 1,200 watts and utilize a unique Class-D design. Its GR and GX amp lines will be geared toward commercial contractors and the cinema market.

Neumann (www.neumann.com) debuted the \$595 KMS 105 handheld vocal mic. Not just a repackaged studio mic, its supercardioid K55 capsule is derived from the K50 found in the KMS 150 and boasts 145dB max SPL, reduced handling noise and a frequency response of 20 to 20k Hz.

PureSound (www.puresound.com) updates its unique back-of-the-mic proximity gate with the red LED. The phantom-powered MicMute Pro (\$249) can now be mounted lower on the mic stand—instead of right behind the mic—and has adjustments for attenuation, hold time and sensitivity, plus an external bypass switch.

QSC (www.qscaudio.com) announced the newest generation of PowerLight amps, the PTX, a synergy of the PLX and PL Series, priced between the two series and with features focused directly at touring sound companies.

Spirit by Soundcraft (www.soundcraft.com) introduced the 32LIVE compact digital mixer (\$4,500), based on the 328 with an enhanced feature set geared toward live sound. Soundcraft also introduced its low-cost Series Two console (\$9k for 40 channels, also available in 24 and 32). ■



dbx Model 480 Drive Rack

Audio Composite Engineering's (www.audiocomposite.com) 1160WR is a very wide-dispersion, low-profile, full-range speaker, priced at \$2,395. Employing the rugged, lightweight carbon-fiber technology developed by parent company Sound Image, and using a special wide-dispersion 160x50° waveguide, the 1160 weighs 42 pounds (mostly from its JBL drivers), while 45° back corners allow use as a floor monitor or front fill.

Priced at \$2,499, the dbx (www.dbxpro.com) 480 Drive Rack equalization and speaker management system is a two-rackspace, four-in, eight-out processor offering digital control of all speaker parameters. Two inputs can be used as RTA mic inputs, and one- and two-space slaves are available for \$500 and \$600 less. All can be controlled by the \$2,999 480R remote, with 31 moving faders to recall graphic EQ settings and 32 user-programmable buttons for one-



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CIRCLE #071 ON PRODUCT INFO CARD

World Radio History

be left out, Roland is now shipping its VM-7000 Series digital mixers while Tascam is, at long last, delivering its TM-D4000 digital board.

Panasonic (www.panasonic.com) has developed the DA7V—with the V being the cue for all those video professionals out there who need to manage their audio in a way that complements their visual efforts. Featuring a built-in SMPTE/V-Sync card, the DA7V provides support for transport control of any RS-422 9-pin device, in addition to all its usual audio goodies.

Not all mixers were huge or digital: Calrec's (www.calrec.com) M3 is a compact modular main or submixer available in 10- to 24-slot frames and with dual mono, stereo mic and stereo line channels and 3-band EQ and dynamics on the two main stereo outs. The S/M 84 from Shep Associates (www.shep.co.uk) is a discrete, Class-A, rackmount 8x4 line

Company (www.atrservice.com) unveiled the Danish-built Fairman TMEQ Tube Master Equalizer. Designed with mastering in mind, this no-compromise, 6-band stereo EQ is housed in a six-rackspace, 65-pound chassis with a total of 22 tubes. The Tube-Tech (www.tcelectronic.com) SMC 2A (\$4,395) is a stereo multiband compressor based on tube circuitry (the sidechain path is solid-state), with three independent, band-specific gain, threshold, attack and release controls. Mercury Recording Equipment Company's (www.marquetteaudiolabs.com) line of hand-wired tube gear includes the Mercury 66 (a variable-bias-style compressor said to provide the sound of the venerable Fairchild 660) and the Mercury EQ-H and EQ-P, which are described as "trib-



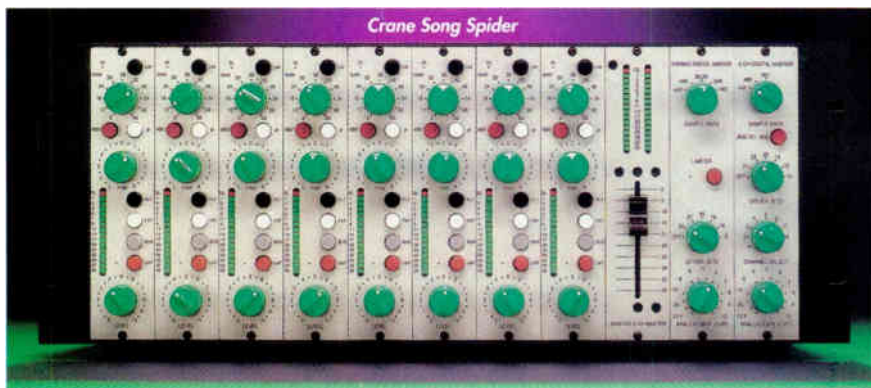
gered filter with start/stop frequencies and resonance and sweep rate controls. Voltage control over the filter and ring modulator parameters is also available.

TC Electronic's (www.tcelectronic.com) System 6000 multiprocessor is a modular system consisting of one or more Mainframe 6000s, each of which can run several DSP-intensive effects simultaneously, with eight channels of 24-bit/96kHz-capable digital I/O and facilities for more analog or digital I/Os. Control is handled via the ICON remote with a large touchscreen and six moving faders. System 6000 includes 100 factory presets from TC's acclaimed M5000, as well as a multi-source input to multichannel output space simulator and five totally uncorrelated diffused reverb fields. Additional features include multichannel/multiband dynamics processing, multichannel pitch change processing and algorithms for reverb, chorus, delay, phasing and EQ. System 6000 is priced from \$8,000.

The Lexicon (www.lexicon.com) MPX 500 24-bit processor offers independent control of effects on left and right channels. Its 240 presets include stereo reverbs as well as Tremolo, Rotary, Chorus, Flange, Pitch, Detune and Delay functions. I/Os are balanced analog and S/PDIF digital.

Now shipping, Sony's (www.sony.com) DRE-S777 Sampling Digital Reverbulator is based on stored models of actual reverb spaces. Optional software includes renowned European concert halls such as Amsterdam's Concertgebouw. A mono in/stereo out 44.1/48kHz unit in its basic form, the DRE-S777 may be configured for 2-in/2-out and surround operation at 96 kHz. Price depends on configuration and ranges from \$7,250 to \$12,500.

Classic digital? Distributed by G



mixer designed by former Neve engineer Derek G. Stoddart. Spider from Crane Song (www.cranesong.com) is an analog 8x2 mixer with discrete Class-A mic preamps, Fat switch tone enhancement and ADAT, TDIF and stereo AES/EBU digital outs with 96kHz operation and selectable dither. API's (www.apiaudio.com) \$2,700 model 7600 input strip combines an API mic preamp, compressor and 550a discrete 3-band EQ in a 1U chassis. The unit can be used as an outboard processor, or multiple 7600s can be stacked to form a custom rackmount console with API's new 7800 master strip providing busing, solo logic, master controls and monitor speaker/headphones control. Yeah!

OUTBOARD TOYS

As reported in last month's *Mix*, Universal Audio (www.uaudio.com) is back with re-creations of its classic LA-2A (under \$3,500) and "blackface" 1176LN (under \$2,500) limiters. Having settled in from its move to York, Pa., ATR Service

utes" to classic Pultec units.

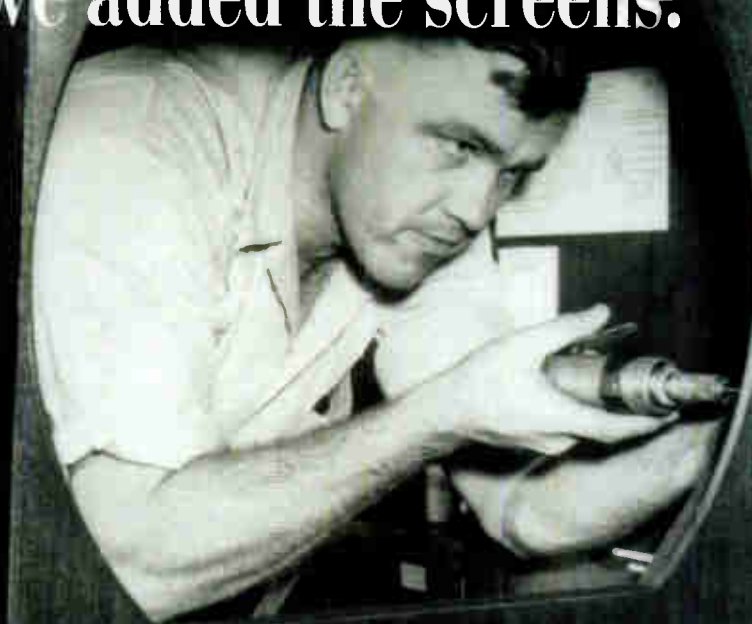
Another "new" entry is Drawmer's (www.drawmer.co.uk) "1960 Mercenary Edition," developed with industry icon Fletcher, who extended the original 1960 preamp/tube compressor design with a Burr-Brown front end, split attack/release controls, true stereo lock and a 1287 tube output stage.

Focusrite's (www.focusrite.com) ISA 430 Producer Pack is a mono channel combining the Rupert Neve-designed mic preamp and ISA 110 parametric EQ, Focusrite's latest dynamic control technology, with Class-A VCA design, an expander/gate, a de-esser and a multiband limiter. Price is \$3,495. A 24-bit/96kHz digital output is optional.

Designed for studios, DJs, music production or sound design, Purple Audio's (www.purpleaudio.com) "The Eyeball" (about \$600) is a single-rackspace synthesizer/mixer with five voices (direct, octave, sub-octave, distortion and ring modulator) controlled by a trig-



It was a great box even before we added the screens.



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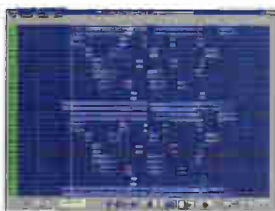


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Built-in segment, region, and waveform editing



SAM software shows multiple machines

The OMR-8 can be configured with any SCSI recording media (Hard disk, Jaz, MO). At the heart of its design, DAR's powerful and efficient Genesis™ file management system works with native WAV files and allows import and export compatibility with major industry audio file formats.

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DIGITAL AUDIO RESEARCH



H A Harman International Company



Dynatron Model 255 digital reverb

Prime. Dynatron's (www.gprime.com) Model 255 digital reverb is a modern implementation of the classic EMT 250 algorithms developed by Karl Otto Bäder and Dr. Barry Blesser. But unlike the original, the AFS digital I/O-only Model 255 comes in a two-rackspace chassis (yet retains the familiar "boat handle" controls) and features five reverb output channels, with initial reverb delay extended to 140 ms. Deliveries begin in January.



MONITOR MAGIC

A scaled-down version of JBL's (www.jblpro.com) TEC Award-winning LSR 28P studio monitors, the new LSR 25Ps (\$479) feature a rugged aluminum enclosure, 5.25-inch carbon-fiber cone woofer, titanium dome tweeter, onboard bi-amping (80W LF/40W HF) and mag shielding. But what really impressed us was that the LSR 25Ps translated precisely to the larger LSR 28Ps when A/B switched at moderate levels.

M&K (www.mkprofessional.com) showed a line of powered monitors, available as MPS-1610P mains, MPS-2525P tri-amped Tri-pole™ surround and MPS-5420 400-watt subwoofer. A companion LFE-5 Bass Management Controller adds 80Hz filters for routing LFE information to the sub and features mute switches for each channel and a 6-channel master volume control. The latter is exactly what most compact consoles need but don't have, mak-



Microtech Gefell M990

with any monitors.

Fostex's (www.fostex.com) NF-1 is a two-way near-field design featuring woofers with Hyperbolic Paraboloid geometry cones made of a blend of wood and banana pulp for low self-resonance, high-strength and low-distortion. The speaker also uses two HP reflectors *within* the enclosure to eliminate internal standing waves. NF-1s are expected to ship by year's end; a powered version is slated for NAIM release.

Aimed at the project studio market, Tannoy's (www.tannoy.com) new Proto-J monitors feature a 6.5-inch woofer and dome tweeter at \$229 for a pair. The company also plans to offer five Proto-J speakers with its PS-100B-powered subwoofer for the first under-\$1,000 surround monitoring package.

TAD (www.tad-pioneer.com), known for its high-end designs, demoed an affordable studio near-field, the Model TSM-300, which combines a single 1-inch titanium HF compression driver on a proprietary round aperture horn, flanked by two 6-inch edgeless structure woofers. Frequency response is said to be 35 to 35k Hz. Retail: \$545 each.

MIC NEWS

This AES didn't approach last year's record of 35 new microphones, but several notable models debuted. Dirk Brauner (www.transaudiogroup.com) teamed up with mic-mod-man Klaus Heyne to create the "VM1 Klaus Heyne Edition," an upscale version of Dirk's excellent VM1, but with Heyne's capsule mods and upgraded components. Retail is \$7,000. More affordable, certainly, is the Microtech Gefell (www.gprime.com) M990, a cardioid-only, large-diaphragm tube mic priced at \$1,695, with shock-mount. Soundelux (www.soundelux.com) unveiled the \$1,995 U99, a multipattern (sweepable—omni to cardioid to figure-8) tube mic with a 1-inch capsule made by BLUE and a minimalist, 12-component electronic design. The Audix (www.audixusa.com) CX-211 (\$649) is a solid-

ing the LFE-5 an affordable solution for smaller project studios and post rooms—

state, large-diaphragm cardioid mic for front-address vocal applications in-studio or on-air. AKG's (www.akegacoustics.com) latest is the C3000B, a cardioid, single-pattern, low-noise, large-diaphragm condenser intended for studio or stage use, priced at \$498. And as gearing up for multichannel work seems to be on everyone's list this year, the 5.1/7.1 version of the versatile SoundField (www.transaudiogroup.com) microphone starts shipping around January 1.

STOCKING STUFFERS

With the holidays approaching, AES is ideal for checking out affordable, useful items for gift-giving. Our selections included Sony's MDR-7509 headphones, priced at \$250 and offering comfort and superior sound. The latest in its Emulator 4 line of samplers, E-mu's (www.emu.com) E5000 retails at a low \$1,695. It has fewer features than its higher-priced siblings but offers the same processing power, 64-note polyphony, a selection of effects, four balanced outputs and more. Sea-

Sound's (www.seasound.com) Transport is a heavy, anodized, lush blue transport controller that sends MMC commands to your workstation, sequencer or MDM and features jog/shuttle wheel, recorder-style transport keys and nine autolocator buttons. At \$199, it's a must-have accessory for any studio. And Neutrik's (www.neutrikusa.com) Minilyzer ML1



Neutrik Minilyzer ML1

(about \$450) is the companion to its popular MRI Minirator, offering measurements of level (RMS or peak values), THD+N, frequency, polarity and common mode (signal balance). This pocket-sized unit features auto-ranging/auto-nulling/auto-scaling operation, selectable HP and weighting filters and a 100x64-pixel backlit LCD display.

There was much more on the floor, of course, and we'll present more hits from AES in our product columns in the months to come, as well as in-depth reporting on all the show's new software plug-ins in our next issue. Meanwhile, AES returns to Paris February 19-22, 2000. See you there! ■

Contributors to this report include Mix staffers Alex Artaud, Mark Frink, Sarah Jones, Roger Maycock, Chris Michie and George Petersen.

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ABYSSINIAN SONS STUDIO

FILTER FINDS A HOME—AND STUDIO—IN CHICAGO

Tucked away in Chicago's arty Wicker Park area is Abyssinian Sons Studio, the creative launch pad for Filter's Richard Patrick. It's more than just a spot where the vocalist/multi-instrumentalist could throw down a guitar idea or 12 at 3 in the morning (which happened a bunch according to co-producer/engineer/programmer Rae DiLeo). Abyssinian Sons doubled as a living space for Patrick (now the sole creative force behind the band after the departure of Brian Liesegang) during the year of work on Filter's latest Warner Brothers offering, *Title of Record*.

Before they had a chance to lay a note down, Patrick had to convert the warehouse to a usable studio with iso booths, control room and a 50-square-foot tracking room with 15-foot high ceilings. Once construction was complete, DiLeo came in, wired it and then got right to work. "We basically started out with me and Richie in a room," he explains. "I would come up with a drum beat or a loop and he would just start laying down guitar tracks."

The duo tracked right into 32 channels of Pro Tools 3, turning to tape only at the final mix, which was done at Ben Grosse's The Mix Room in Burbank, Calif. Suffice to say that this was a mammoth recording project, with DiLeo reporting they filled 35 Gigs of hard drive space with every take. The studio is also stocked with three 888124 I/O Audio Interfaces, a Mackie 32•8 desk, Neve mic pre's and an Akai S3000 sampler for the drum simulation program. The Macintosh 9500 was also stocked with Digital Performer, SampleCell and a handful of plug-ins that they used liberally during the tracking of guitars, drums, vocals and even cello parts. Those plug-ins include Focusrite's EQ and compression, Amp Farm (DiLeo loved the Fender Bassman, and Patrick relied on the Vox tones), Ampulator and Lo-Fi. Traditional outboard gear was kept to a minimum, with only three Eventide 4000s, a TC Electronic G



Richard Patrick (l) and Geno Lenardo

PHOTO: BRAD MILLER

Force guitar processor for guitarist Geno Lenardo's rack and a Marshall JMP transistor guitar preamp for Patrick's guitar tones.

Microphone selection was both simple and straightforward, with Shure SM57s and SM81s in large supply, as well as an AKG RE-15 and a Sound Deluxe that was used for vocals. DiLeo says that on the song "I'm Not the Only One," he used an SM57 on the vocals for the mic's gritty tone. As DiLeo explains, the preferred signal path on the project was: microphone to Neve mic pre and then straight into Pro Tools, where compression and limiting took place via the Focusrite plug-ins.

Though the recording of the album was fairly conventional, there were moments when Patrick and DiLeo bent things a bit. For the guitar track on "Captain Bligh," for example, as Lenardo was laying down the guitar part, he attempted to work a Dunlop wah pedal while twisting the knobs on the G Force processor and playing at the same time. "It ended with Richie doing

the wah pedal with his hand in syn-copation with what he was playing on the guitar," DiLeo recalls.

Some of the other interesting sounds found on *Title of Record* were happy accidents. "Once we started tracking, the mics stayed on the whole time," DiLeo says. "We just tried to let spontaneous sounds creep in and then reverse them or manipulate them in Pro Tools. Richie would do really cool feedbacking swells in front of the monitors, and then we would reverse it. A lot of the spontaneous, spur-of-the-moment stuff ended up being the final take."

Once tracking for the album was completed, Abyssinian Sons Studio was partially dismantled to give the band room to rehearse and Patrick a bigger room to sleep in. With a touch of an upgrade in the software and hardware department—Pro Tools 5 and a Macintosh G4 will likely get the nod—DiLeo says the room is ready to go again. "The goal is to come off the road and get right back in and record," he says.

More power to 'em. ■

BY DAVID JOHN FARINELLA

"I've got the pure sound bug"

I can't help it. Ever since I heard Quedsted's new F11 speakers, nothing else comes close. Clear, unadulterated sound like you've never heard from a compact speaker before. It's all down to their specially developed casing. It uses an acoustically neutral material that's 50% more dense and over twice as rigid as traditional MDF. Together with a unique compression brace to hold the tweeter and bass driver, it increases the effective mass and minimises resonance. The result is a stunning bass performance with incredible dynamic range and sustained heavy-duty musical throughput. With full magnetic shielding and built-in mountings as standard and a

choice of passive, or self powered with built-in 150 W rms amplifiers, it sets new standards in small speaker systems. I knew Quedsted made superb large systems for people like Abbey Road, Crescent



Moon, Whitney Houston's Studio and Sarm, but this is something else. And I think it might be contagious.



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pure sound

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MARVIN ETZIONI

LOST IN THE MOMENT

Musician and songwriter Marvin Etzioni brings his passion for music and his own artistic sensibilities to all of his production work. As a result, he has avoided the trappings of the glossy pop producer and chosen to work with singer/songwriters who create organic, roots-oriented music.

A 20-year veteran of the music business, Etzioni began his career playing mandolin and guitar. He flirted with the big time when his early-'80s band, The Model, got the chance to work with Bruce Springsteen producer Chuck Plotkin. Although no recorded material came out of the sessions, Etzioni gained valuable experience for his next project, which initially entailed producing and helping arrange songs for Lone Justice. After that group's bassist quit, Etzioni learned to play the instrument so that he could tour with them and record their self-titled Geffen debut with Jimmy Iovine producing. Following the record's release, the band toured further, opening for the likes of U2 and Tom Petty. Though things were looking up for Lone Justice, Etzioni left before their second album was recorded to pursue other creative interests.

Etzioni then worked on solo projects as Marvin (albums included *The Mandolin Man*, *Bone* and *Weapons of the Spirit*) and produced and collaborated on songs with other singer/songwriters, including Victoria Williams, former Lone Justice singer Maria McKee, Voice of the Beehive and Susanna Hoffs (whose sessions remain unreleased). He has also co-produced the Williams Brothers album *Harmony Hotel*, produced the song "Miller's Angels" for Counting Crows, the album *Pale* and the song "Brother" for Toad the Wet Sprocket, and Tom Freund's debut record, *North American Long Weekend*. He recently co-produced the Lone Justice compilation *The World Is Not My Home*. Etzioni also



PHOTO: MAX GERBER

has two new solo albums in the works, and albums he produced for Jeremy Toback on RCA and Peter Case on Vanguard are due out soon.

Throughout his career, the song has always been most important to Etzioni. While so many major labels seem to put out homogenous pop, actually striving to make records that sound alike, Etzioni stands out as a producer who cares about maintaining artists' integrity and creative control.

Aside from your work with Lone Justice, you've released three solo albums that you sing and play on. How do you make use of that experience when you work with other singer/songwriters?

Songs have always been the center for me. The way that I hooked up with Ryan and Maria [from Lone Justice] is because I had already gone through the circle of being in a band, working with a major pro-

ducer, and while that story didn't go to completion, I just continued playing clubs. I was active, and I was doing it. So I think artists feel comfortable with that knowledge that I have of songs, because they know I'm coming from an inside place about it.

It's not grandstanding. I understand the process, and I can help with it or encourage it. I think it's what connected Adam Duritz and myself, other records I've done or even the sound of my own solo records. Even though I never worked with Jakob Dylan, we have the same connection. In consideration for working with him, we had talked, and he was a fan of the *Mandolin Man* album. I think that, at least for me, having that as a center draws outside artists to feel like, "Okay, he really *does* know what I'm going through and really does know what I'm talking about here." *With some of the people you've produced—the Williams Brothers, Counting Crows, Maria McKee—you have co-written songs with them.*

BY BRYAN REESMAN

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MEDIUM.

LARGE.



MUSIC AND PAGING SYSTEMS

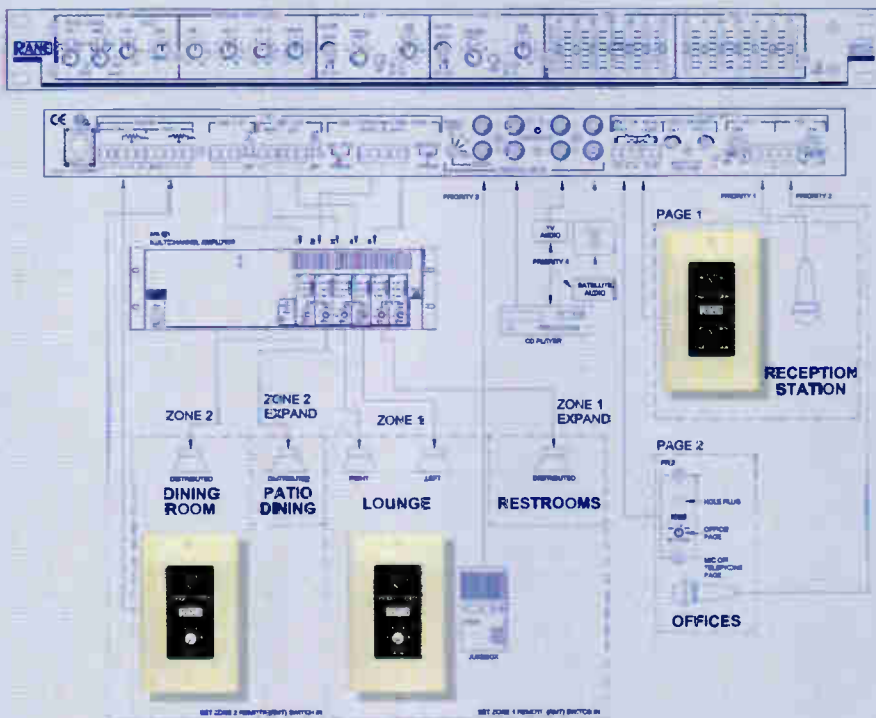
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PRODUCER'S DESK

Is that something you planned, or is that something that occurred during the actual recording process?

Each project is different. With the Counting Crows, I had met Adam and the band prior to the first album in consideration for producing it. Obviously T-Bone [Burnett] did that, but after that record had hit, Adam called and said, "Look, I've got a couple of songs. Would you consider producing them?" I said to send them over. I just gave them a very frank response. I told him the first song was good but I didn't hear his soul in it, and the second song I thought was great. He kind of laughed and said, "I didn't write the first song." He wanted to focus in on the second. Then I said, "I really want to work with the band. I don't really want to do an Adam Duritz solo project with just you on piano. I feel that we can make a really stunning rendition of this song with your band." He said, "You know, you're the only guy that's really talked about it that way." I was really up for the challenge of working with the band because I know how to do that. I know how to take the bare bones of a song and work with a band and find it.

Working with Maria was different. We hadn't worked together since the first Lone Justice album, and I originally came in to do some co-writing with her on her second solo album, and that was it. We had worked on a few songs, and the producer and Geffen liked them. Then I went on tour opening up for Toad, and she said, "Aren't you going to go into the studio and record them with me?" I didn't know I was supposed to. I said, "I tell you what: Let me do this tour, and after I come back, if you want to record together, great." I didn't even know that was our intention, but it just kind of evolved into it.

How do you think a band like Lone Justice would fare today?

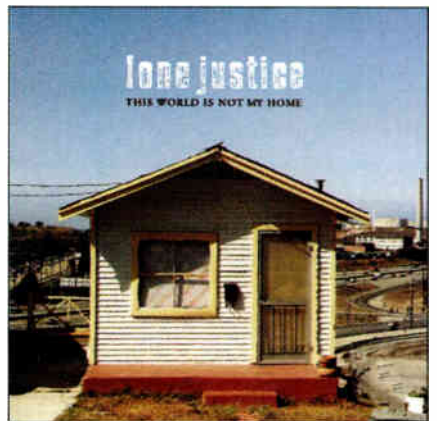
I think really well.

Do you think the climate's better now for that kind of music?

It's completely wide open right now. That [first] album's a contemporary record. I think that the sound we were evolving in late '82 to '83 is pretty much reflective of what's happening right now. Although I'm not quite sure if I was to do it right now if I would approach it that way. I'd want to do something that is as ground-breaking now as that was then. I would probably try to come up with a brand-new hybrid rather than The Clash and Hank

Williams or Stones and George Jones kind of trip.

Maybe now I'd incorporate some other elements. I'm not sure what—beat box elements or just something that creates a new hybrid that hasn't been seen, heard or felt before. But it would still be in a song-oriented vein. The reason I think that the early stuff works is because no matter how you "hybrid" something, as long as the song is strong it doesn't matter. To me, what you have around it is supportive of the tune. A lot of times, you have a style but you don't have a particular substance, and then you listen back to those records and go, "This is smoke and mirrors." But if you have a tune, you can really put it in various points of view, and I think that's why the early Justice stuff would be contemporary, because the songs sing. I think that there's something to that.



What was it like producing yourself on your solo records?

It was interesting because I tried to come up with a point of view that fit the sound in my head. Every once in a while I would hit it. [Laughs.] I think my favorite stuff that I cut on my own I cut with a P.A. system, so that opened things up. We were actually getting the vocals coming through the drum mics, so it's a little bit thicker of a sound. With all I've done, I've experimented and tried other things—even more traditional kinds of recordings—and that seems to have been my favorite sound.

So you like recording live in the studio rather than building up off of the rhythm section like many other producers do?

I don't like that; I like things that happen in a moment in time. On the entire Toad album I produced, every vocal is cut live. Glen even tried to redo a vocal, and he couldn't beat it. Same thing with Tom's record. We added things on top—meaning there was a vocal and a guitar or a vocal and a drum or vocal, stand-up bass



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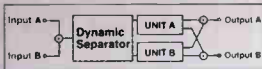
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Dynamic Separation Algorithm

The SRV-3030's "soul" comes from its proprietary Dynamic Separation Algorithm. Dynamic Separation splits signals of different dynamic levels, frequencies, or note densities and sends them through totally independent reverb processors. Thus, a kick drum can automatically trigger a tight room reverb while the snare triggers a hall setting; a horn solo can have less reverb on the quick phrases than on the slower phrases; and different instruments can trigger the type and amount of reverb which best suits them. All of which makes using the SRV-3030 a truly musical experience.



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The SRV-3030's streamlined graphic LCD and three edit modes give you exactly the reverb sounds you're looking for—fast. The quick, knob-based Direct Edit mode, the intuitive EZ Edit mode, and the full-featured Custom Edit mode let you edit as quickly, or as deep, as you want. The SRV-3030D model includes 24-bit coaxial digital inputs and outputs for quick, all-digital connection. You can even store short audio samples for instant auditioning of reverb sounds from the front panel, making the SRV-3030 one of the friendliest reverb processors you've ever met.

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Specifications and appearance subject to change without notice.



The SRV-3030D model pictured above includes 24-bit coaxial digital inputs and outputs.

and drums—but I always had that as the core happening simultaneously.

So, did you have a vocal to a click track or a vocal with other instruments?

It all depends. I don't like using clicks. I don't really mind things having a real heartbeat of their own. Aretha Franklin records actually rush; it's a natural adrenaline that goes through everyone's system at the same time. You couldn't put a click to that. It wouldn't match up. *Obviously, musicians may speed up or slow down.*

Exactly.

Which makes it harder if you take the traditional bass-and-drums-first approach.

I think one of the problems with that is that you're not centering the experience around the song, and you're getting it out-of-time. Meaning that the time experience is no longer about the singer, that it's really about making the record. I see myself more as someone who produces artists rather than just produces records. You can actually go through that process and eliminate the artist.

By doing things clinically?

Yes. You know, there are producers out

there who produce records and the last piece that they actually need is the artist. For me, that's the first piece I need. If I don't have the artist in the room, then I'm not producing the record. There's nothing that's going to happen. I've seen it first hand. "Oh, yeah, get the singer. Who's that guy? Who's that girl?" I really feel that the whole thing has to revolve around the artist and that the artist has to revolve around the song.

What do you look for in an artist you want to produce?

A vibe.

Is it something that you figure out when you hear their music?

You know, the first time I heard Toad [the Wet Sprocket] was on a really bad ghetto-blasted recording of a rehearsal. It kind of reminded me of early XTC even though it sounded all distorted. It just had a warm pop sophistication. It was really guitar-oriented. This was '88, pre-Nirvana, and I really thought that was where music was going to go. I just thought, "Wow, there's really room for this," even though it was the worst recording in the world. So that's what enticed me about the band initially. I like to feel like—"Where's the opening?

Where's the possibility of music? Where can this go? How is this going to fit in?" I find that the more that people try to fit in, the less they stand out.

What I thought was interesting about the Tom Freund album you produced is that instead of an "AAD" or "ADD" listing, you have "AVD": analog-vinyl-digital. What's that about?

It's something I came up with on my first solo album, and I played it on Tom's record. Basically, you take your analog tape and literally make a vinyl copy of it. Then we play the vinyl into the digital format, the 1630 machine. That 1630 goes out to how you press your CDs.

So you mixed it onto vinyl?

No, we mixed it onto tape. That's the analog. Then you take that tape and make a vinyl copy. You literally play the vinyl copy on a turntable into the digital domain.

I heard some crackling right at the beginning of Tom's album and wasn't sure if that was a dubbed-in sound.

You're actually hearing a record.

One of the things I've noticed in the digital age is if you record in analog and mix and/or master digitally you can get a good sound, but older analog records remastered onto digital do not

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PRODUCER'S DESK

sound so good because they were not meant to be played in that format. This seems like a way for you to keep the warm sound of analog in a different way. Tom's album sounds like you could have recorded it ten or 20 years ago. Were you happy with the way it came out?

Yeah, I think there are some nice moments on the record.

How does AVD work better for you than AAD?

It thickens the sound. It just widens the bottom end. There's no format that sounds better than a record. You can either trust your ears, or it can be explained technically, but that's just how it is. The grooves are wider, there's more space, and there's more depth. So to actually bring that into the CD world...It's actually a lot closer to what it sounded like when we were in the studio.

Will you try it again with other records?

I did it on the Lone Justice compilation on the first five tracks, because it seemed to work on them. After that, I didn't really feel that it needed it. Depending on if it feels like the right thing to do, I would do it again.

Where you worried that vinyl clicks and pops would interfere with the sound quality?

It takes a little bit of patience.

Did you have to do it several times?

Sometimes, yeah.

Do you do it track for track?

It depends. I've done it where I've done an entire side, or depending upon the length of the song, you have to do three [songs] per side. I've experimented with this every possible way. The inner grooves on a record don't sound as good as the outer grooves because the inner grooves are going faster. So we actually have the ability—if you use a 14-inch record when we do this—to make the inner grooves sound almost as good as the first groove. So that's what we did. But I've done it a little more traditionally. I've tried everything. I've tried 45s. I've tried larger records. I've tried regular 12-inches. The best format really seems to be 33, either 12- or 14-inch. Usually, your opening track on a record has the highest fidelity.

What's the future like for Marvin the Mandolin Man?

Just to keep doing it, to keep writing and keep recording. I think that people are really open to discovering new

music, and if that means going on the Net and getting records out there, then that's what I'll do.

What solo records do you have coming up?

I'm working on *End of the Century Waltz*, which is a compilation, and there's another record I'm finishing up called *Marvin Country Communication Hoedown*. I cut part of it in Nashville and part of it in L.A.

How would you describe your solo work?

Probably by design, I perceive albums as films in a way. I'll take a particular point of view on an album. *The Mandolin Man* is an intimate, introspective record. The second album *Bone* feels like a Ken Russell movie; it has a little more of a Lou Reed or Stones influence. The third one, *Weapons of the Spirit*, was just about what the title reflects. I was trying to make a record of optimism. So each record has a different point of view. The best thing I can do is to honor that and keep on with it, and, whenever I've done that, things have landed in a positive and unexpected place. ■

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



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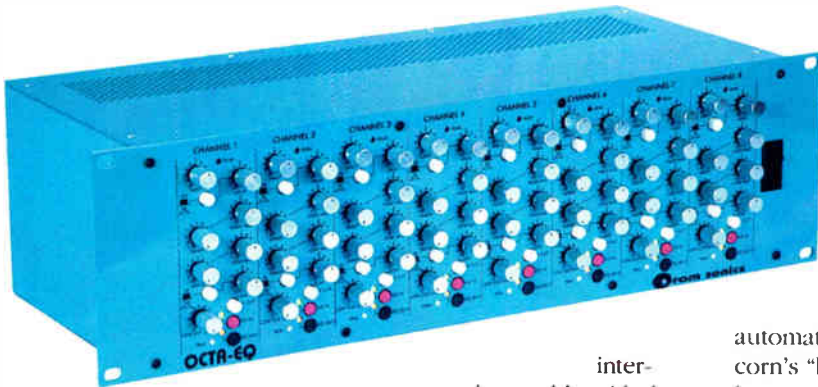
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PREVIEW



ORAM OCTA-EQ & OCTAFADE ▲

Oram Professional Audio (distributed by Sweetwater Sound in Fort Wayne, IN) introduces the OCTA-EQ, a \$2,750 unit with eight channels of EQ, as found in the BEQ Series 24 console. Each EQ module has four bands of control with sweepable mid-bands, high/low switchable shelves, variable low cut and Oram's unique hi-cut filter. EQs can be split to provide two independent channels of EQ for a total of 16 channels of EQ. Also featured are EQ bypass, XLR-balanced I/O and dual-voltage powering. OCTAFADE is a flat-response rackmount audio mixer with ten 100mm faders (eight inputs, two master faders), two LED output meters and balanced I/O. Channel inputs offer mute and pan controls. OCTAFADE's price: \$1,999.

Circle 327 on Product Info Card

HSE AUDIO LAB M4000 MIC PRE

HSE Audio Lab (distributed by Northern Lights Audio in Bellmore, NY) offers the M4000 retrofit mic preamp card for all SSL 4000 series mixers. The M4000 requires no changes to an existing console and is completely

inter-changeable with the old preamp card. Offering a microphone preamp stage, line input, direct output, output to multitrack routing section, and insert send and return, the M4000 card is a completely new design with an optimized Class-A discrete technology input stage for better sound and matched components for low-noise performance.

Circle 328 on Product Info Card

NEW CAPRICORN SURROUND FEATURES ▼

New software for the AMS Neve (NYC) Capricorn offers a range of surround mixing options. Capricorn supports mixing in all major surround formats, including

LCRS, 5.1, 6.1/Dolby EX, 7.1 and IMAX. New features include automated routing and support for VCA groups in

automated mixes. Capricorn's "bank" layout has been extended, allowing users to move any channel to a new position on the console surface as needed and to control surround panning from the sweet spot, regardless of original channel strip location. A new CXS digital surround monitoring system option enables as much as six different mix versions to be created and compared, and eases checking of stereo/surround mix compatibility.

Circle 329 on Product Info Card

QUESTED POWERED MONITOR ▶

Quested Monitoring Systems (distributed by Q.USA in Madison, WI) debuts the

VS3208, a powered, 3-way loudspeaker that fits in a 19-inch rackspace. Containing two 8-inch woofers, a 3-inch softdome mid driver and 28mm tweeter, the unit has an input sensitivity switch with an 18dB range and 3-position EQ switches for all



three bands. The internal amplifier provides more than 400 watts RMS. A passive version, the VH3208, is also available.

Circle 330 on Product Info Card

ATI 8MX2 PREAMP/MIXER

ATI (Audio Toys Inc., Columbia, MD), now part of the newly formed ATI Group, has reissued the 8MX2 preamp, combining eight of ATI's hallmark high-voltage mic preamps with an 8x2 mixer in a one-rack-space unit. The 8MX2's preamps ensure absolute fidelity, and the unit's input range spans microphone level to line level. The 8MX2 may be used to provide alternate input channel mic pre's for a mixing console, or may be connected direct to balanced line level inputs of a digital multitrack



PREVIEW

recorder. Integral cue and stereo mix buses provide comprehensive monitoring and live mixing, and up to six 8MX2s may be linked. A built-in, adjustable channel limiter eliminates input overload distortion. Price: \$2,795.

Circle 331 on Product Info Card

VINTECH 2-CHANNEL MIC PRE ▼

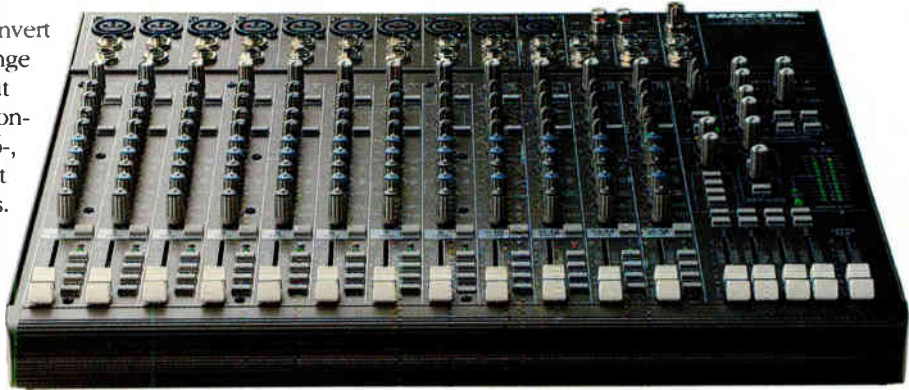
Vintech Audio (Seffner, FL) offers a 2-channel mic pre-amp featuring Class-A, all-discrete circuitry using Neve 1272 parts. Each channel features an input sensitivity switch, output gain pot, phantom power and polarity reverse switches, and a four-LED output meter. The transformer-balanced mic pre's are mounted in a 2-

z-3src can convert over a 1:3 range and an output wordwidth control allows 16-, 20- and 24-bit word outputs. Dynamic range is better than 120 dB (THD+N -120 dB), and the unit supports a wide range of digital I/O formats and synchronization options. Price: \$1,500.

Circle 333 on Product Info Card

FURMAN HEADPHONE DISTRO SYSTEM

Furman Sound (Petaluma, CA) introduces an enhanced version of its Head-



front-panel patching via ¼-inch and TT jacks. Talkback allows users to communicate with each other and the main mixing location. Additional HR-16 features include local effects send/return, overall bass/treble controls and a master level control. The rear panel has 12 RJ-45s for connecting up to six HR-16s, and switches for -10/+4 sensitivity and ground lift. The HDS-16 (\$599) and HR-16 (\$499) are sold separately.

Circle 334 on Product Info Card

MACKIE 1642-VLZ PRO COMPACT MIXER ▲

Mackie Designs (Woodinville, WA) introduces the 1642-VLZ PRO Compact Mixer, with ten XDR (Extended Dynamic Range) mic preamps, offering ultra-low noise and high headroom. Features include 16 input channels—eight mic/line, two mic/stereo line and two stereo line. Each input chan-

nel has four aux sends, 60mm faders and 3-band active EQ (with sweep mid-) on the mono channels. Mic channels also have 75Hz highpass filters; stereo line level channels have 4-band active EQ. Also featured are eight TRS channel inserts, eight direct outs, four stereo aux returns, balanced XLR and unbalanced main outputs, monitor input switching, and a rugged steel chassis. Retail: \$999.

Circle 335 on Product Info Card

NEUMANN SHOCK-MOUNT

Neumann USA (Old Lyme, CT) announces the EA 1 shock-mount for the M147 Tube, TLM93 and TLM103 mics. This all-metal suspension shock-mount is available in both satin nickel finish for the TLM103 and M147 Tube, and matte black for the TLM193. It replaces the older EA 103 and EA 193 suspensions. Retail: \$195.

Circle 336 on Product Info Card



rackspace chassis with internal power supply. Price: \$1,595.

Circle 332 on Product Info Card

Z-SYSTEMS CONVERTER ▼

Z-Systems Audio Engineering (Gainesville, FL) unveils the z-3src sample rate converter, supporting sample rates up to 96 kHz and 24-bit words.

The

phone/Audio Distribution System. The new HDS-16/HR-16 routes eight mono and four stereo signals to each HR-16 Remote Mixer via supplied 25-foot Ethernet cables. The single-rackspace HDS-16 provides power and signal conditioning to drive the HR-16 Remote Mixers and offers



PREVIEW

SANKEN SHORT SHOTGUN

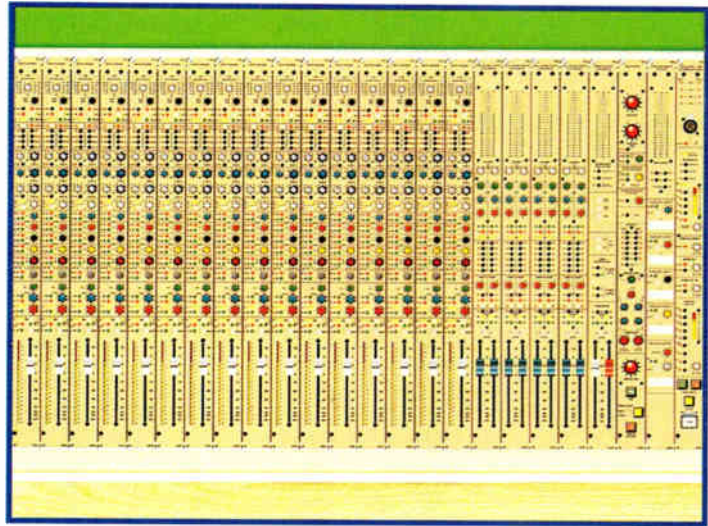
Sanken (distributed by Audio Intervisual Design in West Hollywood, CA) offers the CS-3 short shotgun mic. It is only 10.6 inches long, yet it accurately picks up sound sources, even in noisy environments or reverberant spaces. The CS-3's performance is derived from an array of three directional condenser elements, based on the 5-capsule technology of Sanken's CSS-5 stereo shotgun. New PPS (Poly-Phenylene Sulfide) diaphragms provide excellent response and optimal humidity/temperature stability. The

19mm-diameter CS-3 mic body accommodates all standard accessories.

Circle 337 on Product Info Card

CADAC RECORDING CONSOLE ▶

Cadac (distributed by Firehouse Productions in Red Hook, NY) introduces the C-Type Location Recording Console, its first new recording console in 21 years. In standard format, the modular and expandable C-Type console is available in 12-, 16- and 24-input configurations and features up to eight output groups, plus stereo outputs and monitoring and communications facilities. Input



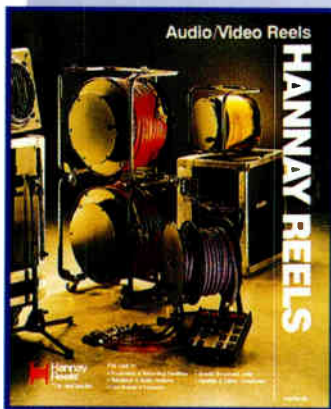
channels accept mic and line inputs, and each has 3-band EQ and a highpass filter. Panning facilities are

comprehensive, with provision for monitoring in 5.1 and other surround formats.

Circle 338 on Product Info Card

HOT OFF THE SHELF

Hannay Reels offers a four-color catalog that provides complete information and specifications for the



company's range of cable reels. Call 877/GO-REELS or visit www.hannay.com ... Studer's A827 24-track analog recorders will be discontinued after the current production run of "Gold Edition" machines. Get yours now! Call 510/297-2711 or visit

www.studer.ch... The Hollywood Edge has released two new sound effects collections on CD: *Foley Sound Library* and *Burtis Bill's Sound of the American West*. Demo discs are available. Call 323/603-3226 or e-mail enusbaum@soundelux.com

... A 96kHz/24-bit digital output card for the PreSonus VXP Dual Servo Mic Preamp Voice Processor features Crystal A/D converters, selectable sample rates (96/48/44.1 kHz), external clock input, psychoacoustic dithering, and S/PDIF and AES/EBU output connections. Call 504/344-8881 or visit www.presonus.com... A hardware interface providing machine control of the Euphonix R-1 Multitrack Recorder from all SSL G-Series and AMS Neve V series mixing consoles is now available. Call 650/855-0400 or visit [\[phonix.com\]\(http://phonix.com\)... Sound Construction's ISO BOX eliminates hard-drive noise by isolating computer equipment in a soundproofed rolling rack. Available in black lacquer, white oak or maple veneer finishes, ISO BOX includes rack shelves, wheels and a fan cooling system. Call 615/313-7164 or visit \[www.custom-consoles.com\]\(http://www.custom-consoles.com\)...](http://www.eu-</p>
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The Digital Dysfunctions sound sample library from Poke in the Ear features a range of futuristic electronic device sound effects and manipulated sounds ideal for game development applications. Designed by Negativland member Chris Grigg, Digital Dysfunctions is available on a CD-ROM; samples are 16-bit, 44.1kHz AIFF stereo and mono sound files. Price: \$149. Call 415/333-POKE or visit www.rarefaction.com... Version 4.0 software for the Solid State

Logic SL 9000 J Series provides enhanced machine control capabilities and augmented automation features. Call 212/315-1111 or visit www.solid-statelogic.com... **Anthro Corporation's AnthroBench** is a heavy-duty workstation that supports 600 pounds of audio or computer equipment. The modular system is available in 48-, 60- and 72-inch widths and two heights, with additional shelf and leg extensions available. Call 503/691-2556 or visit www.anthro.com... **Hollywood Sound Factory's Wild World Of Animals** is a ten-CD set featuring animals recorded in the wild, plus a range of habitats and environments of some of the world's most desolate places, all for a one-time fee of \$495. Call 877/307-3207 or visit www.hollywoodsoundfactory.com. ■



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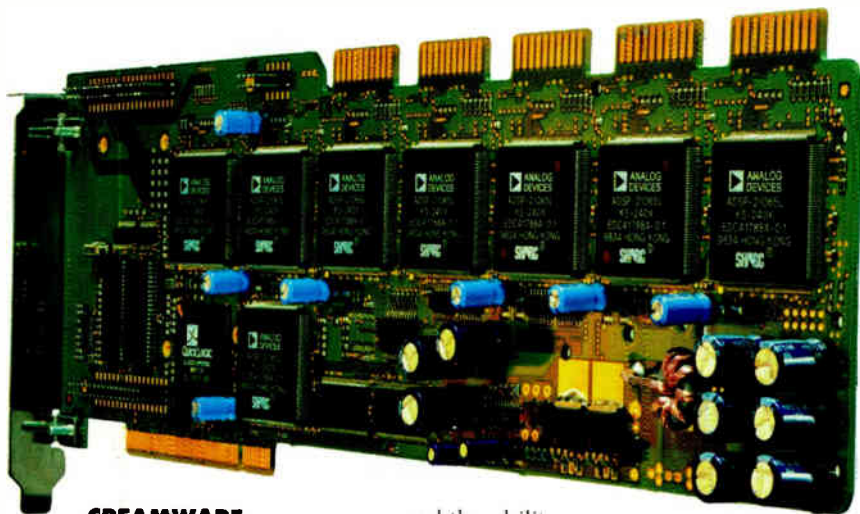
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NEW SOFTWARE/HARDWARE FOR AUDIO PRODUCTION



CREAMWARE SCOPE/PULSAR EXPANSION BOARD ▲

SCOPE SRB (Sonic Rocket Booster) is a new PCI expansion board for CreamWare (www.creamware.de) Pulsar and SCOPE systems. SRB adds 15 SHARC DSPs and features five S/TDM buses for connection to other DSP cards in the SCOPE family (Pulsar, Pulsar SRB, SCOPE). The S/TDM bus allows communication between the cards without adding to the host load, and a load-distribution algorithm optimizes DSP use. SCOPE SRB is shipping now, and retails for \$2,998.

Circle 339 on Product Info Card

MEDIAFORM CD DUPLICATORS

New from MediaFORM (www.mediaform.com) is the CD-5400, a stand-alone duplication system capable of copying four CDs simultaneously, without buffering through a PC host drive. Features include one-button operation, support for 8x drives, automatic identification of master format, audio track extraction,

and the ability to copy either directly from CD to CD, or to and from the system's internal drive. The CD-5400 is upgradable to DVD. Also new from MediaFORM is the CD-3706P duplicator/printer system, able to duplicate six CD-Rs at a time and output custom images to a thermal transfer printer. Once a job is started, the CD-3706P can duplicate and print as many as 200 CD-Rs unattended. The system can copy all current CD formats, store multiple CD images on the internal hard drive, detect defective blank media and place them in a reject area, and job stream to make multiple copies of multiple masters.

Circle 340 on Product Info Card

CHANNEL D MAC THE SCOPE RELEASE 3 ▶

Channel D is shipping Release 3 of its Mac the Scope audio analyzer and signal generator software. The new

release features improved impulse response measurement capabilities, with adding a Burst Mode to the signal generator, and enhanced time record averaging and triggering. Also added in Release 3 are automatic calculation of reverb time,

updated control console and interactive 3D Gouraud shaded rendering for spectrograms and complex-plane response plots. A free, functional demo is at www.channld.com.

Circle 341 on Product Info Card

STEINBERG DISTRIBUTES GRM TOOLS PLUG-IN BUNDLE

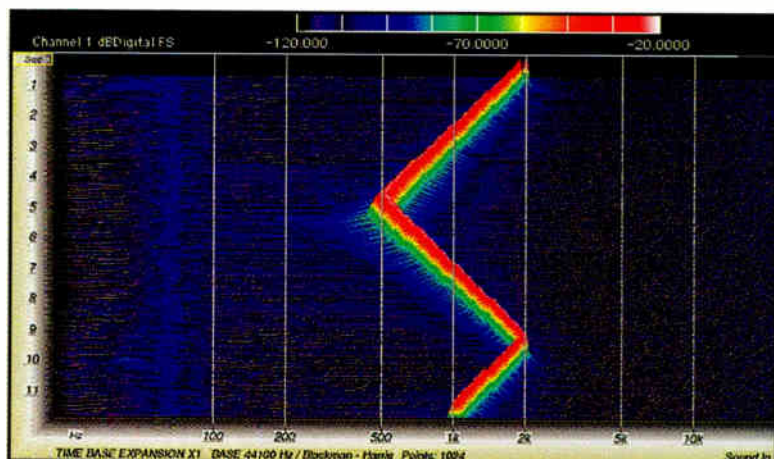
Steinberg (www.steinberg.net) presents GRM Tools, a bundle of four processing plug-ins for PC and Mac VST from the Musical Research Group (GRM) at the Institut National de l'Audio-

visuel (Paris), known for its research in sound modeling. Shuffling is a random micro-splicing and shuffling algorithm that creates imaging and movement effects, while preserving the overall continuity of the sequence. Comb Filters is a bank of five comb filters with resonance up to self-oscillation. Band Bass comprises two filters, a highpass and a lowpass, which together can form a variable-width bandpass or band-reject filter; cutoff frequencies can be set individually. PitchAccum combines two transposers with feedback delay; transposition is switchable on a periodic or random basis. All four plug-ins have the same preset handling, which allows settings to be assigned to a single button; a delay parameter sets transition time for morphing between plug-ins.

Circle 342 on Product Info Card

TDM PLUG-INS FROM DIGIDESIGN

Digidesign (www.digidesign.com) debuts its Bruno/Reso and



SoundReplacer plug-ins. Bruno/Reso is a TDM combination offering synthesizer/vocoder-like audio processing using cross-synthesis technology to generate new sound textures from an audio signal. A MIDI keyboard is used to "play" the plug-in, by playing back the generated signal at the pitch of the key pressed. Bruno features adjustable crossfade rates for controlling time parameters and a switch function creating additional changes in texture, which can be controlled via MIDI or an external track. Other adjustable

as three samples can be triggered from separate adjustable amplitude threshold zones, and a slider sets balance between the original audio and samples. A peak align option allows sample-accurate triggering, independent of waveform characteristics.

Circle 343 on Product Info Card

MICROTECH CD-R PRODUCTION SYSTEM ▼

The ImageAutomator 150 from Microtech (www.microtech.com) is a 4-drive automated CD-R duplication/printing system with a 400-disc capacity. Premas-



parameters include Timbre, Amplitude, Pitch and Voice. Reso is similar to Bruno but uses a resonance generator as initial signal, allowing manipulation of the signal through Damping and other controls. Digidesign's SoundReplacer AudioSuite plug-in replaces onscreen audio with samples, such as drum hits, using sounds from a library or hard drive. The original performance is retained, as the dynamics of the replacement file are automatically adjusted to match the level changes on the original track. As many

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production system. ImageAutomator systems start at \$8,395.

Circle 344 on Product Info Card

AAS TASSMAN SOFTWARE SYNTH

Applied Acoustic Systems (www.appliedacoustics.com) offers the Tassman, a Windows-based real-time software synthesizer based on physical modeling. The Tassman is modular and incorporates physical models of analog hardware, acoustic objects and musi-

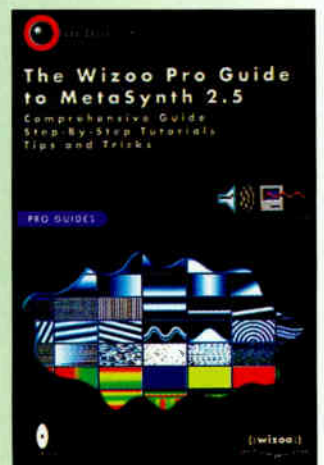
cal instruments, enabling the simulation of traditional synthesis techniques and acoustic instruments, the creation of new instruments and real-time audio processing. The interface offers "building blocks," which can be patched and saved in a software library. The Tassman creates monophonic and polyphonic sounds and offers full MIDI support; all interface controllers can be mapped to MIDI controllers.

Circle 345 on Product Info Card

UPGRADES AND UPDATES

Digigram (www.digigram.com) licensed the Dolby Digital Encoder from Dolby Laboratories (www.dolby.com); the first integration will be a module adding Dolby Digital authoring capabilities to Digigram's Xtrack production suite. In other Digigram news, Synchro Arts' (www.synchroarts.co.uk) VocAlign is now available on Digigram's Xtrack... QDesign (www.qdesign.com) is shipping an MP3 software development kit. For licensing, call Mandy Chan at 604/688-1525, extension 24... Black & Whites from BitHeadz (www.bitheadz.com) is a virtual piano for Mac or Windows, based on the technology developed for the Unity DS-1 sampler. It includes more than 400 MB of samples and more than 1,400 individual programs... Be Inc. (www.be.com) has teamed with RealNetworks

(www.real.com) to integrate RealPlayer G2 into BeOS... Antares (www.antarestech.com) is partnering with Mackie (www.mackie.com) to bring AutoTune pitch-correction tech-



nology to Mackie's digital 8-bus console... Wizoo's latest tutorial guides (book and CD-ROM) include Emagic's Logic Audio 4 and Arboretum's MetaSynth 2.5; visit www.wizoo.com... HHB's (www.hhb.co.uk) MD80 80-minute MiniDisc is compatible with all recorders and players.

YAMAHA PM-1D MIXING SYSTEM

DIGITAL LIVE SOUND CONSOLE

How do you get to Carnegie Hall? The answer to that old chestnut is: "Practice, practice, practice." Well, Yamaha has had plenty of practice creating live sound consoles that have become industry standards, and has spent the digital decade working its way up to its latest touring desk. Developed with input from top touring engineers and sound companies, "Project Orange" has been anticipated for a couple of years now.

On the day before the New York AES show, an international who's who of industry insiders gathered at Carnegie Hall for a preview of Yamaha's large-scale digital touring console, the PM-1D Mixing System. (And no, it's not called the PM5000!) The evening was capped by a set from ex-Doobie Brother Michael McDonald, mixed by Randy Weitzel on the PM-1D and heard through a small Meyer Sound P.A. from Andrews Audio. The following day, Weitzel gave me a tour of the new console in Yamaha's AES demo room.

The PM-1D performs all mixing and processing entirely in the digital domain, with 32-bit internal processing, 48 or 44.1kHz sampling, utilizing 28-bit A/D and 27-bit D/A conversion. The CS1D Control Surface operates the rackmount DSP1D digital audio engine, which can be located nearby or "remoted" up to 200 meters away. It is available in a basic 48-channel version or can be doubled to 96 channels, and has 48 mix buses (either submasters or auxes), 24 matrices and 12 DCAs (Digitally Controlled Amplifiers). Dual inputs on each channel provide 96 inputs for the 48-channel system to facilitate fast changeovers. Each channel includes adjustable HP filter, 4-band parametric EQ and dynamics processing. Other features include a user-definable number of aux sends, eight digital effects processors and 24 graphic EQs with notch filters.

The svelte control surface is just over six feet wide, three feet deep, a foot high and weighs 55 pounds. A center master section has 12 motorized faders used primarily for the DCAs, with two rows of 12 knobs for 48 groups on two banks, plus another row of 12 knobs for the 24 matrix outputs (also in two banks). Left of the 800x600 LCD display is the virtual channel, which includes all controls for any selected channel, including mix-bus assignments, EQ and dynamics. To the right of the center master section is the master control for the group and matrix outputs, including a PCMCIA card slot for transferring all



settings from shirt-pocket to console.

At each end of the console are the motorized faders, pan, gain and an aux send for the input channels, arranged as 12 over 12, for 24 channels on each side.

A key to understanding this product is the word "system." In situations where two or three control surfaces might share a single DSP1D processing engine—e.g., FOH, monitor board and remote truck—the processor is configured to select who has priority over the input gain (probably monitors, eh?), with the others having a digital attenuator that follows it. Console-to-rack signals are carried via 68-pin cables, and a pair of Ethernet 10-base-2 cables with BNC connectors. In addition to the nine-space DSP1D rackmount processor, the system uses rackmount modular cardframes for inputs and outputs with hot-swappable cards. The 48-channel model requires six of these three-space frames. Another frame accommodates inserts at the control surface's location.

A 48-channel desk requires four A18 input frames: Three are loaded with dual-input mic/line cards for the 48 input channels, while another holds mic/line cards for the four stereo channels. Two A08 output racks each house eight 4-channel line-out cards comprising all the outputs for the 48-channel model. To accommodate inserts at the console, a four-rackspace D810 Mini-YGDAI cardframe lives with the control surface's power supply and contains up to eight cards to patch analog or digital outboard processing.

Delivery is promised for the first half of next year. A basic 48-channel version has a "target" list price of \$110k. There will be much discussion of how this product measures up to the needs of live sound engineers, but there is no doubt that Yamaha has once again created a benchmark by which other consoles will be measured. Look for one at an arena or shed near you next year.

Yamaha, 6600 Orangethorpe, Buena Park, CA 90620; 714/522-9011; fax 714/522-9103; www.yamaha.com. ■

BY MARK FRINK



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APOGEE PSX-100

TWO-CHANNEL 24-BIT/96KHZ CONVERTER

For more than a decade, Apogee Electronics has been a pioneer in digital audio technology, releasing numerous products such as state-of-the-art digital filters, format converters and, more recently, conversion systems. The recently introduced PSX-100 functions as a complete 2-channel high-density conversion system and capitalizes on the industry's migration toward a 24-bit/96kHz audio standard. Housed in a 1U rack-mountable enclosure, the unit provides stereo 24-bit/96kHz analog to digital conversion, plus stereo 24-bit digital to analog conversion. The PSX-100 also functions as a bit-splitter and format converter. Incorporating Apogee's proprietary UV22 word length reduction technology, the PSX-100 outputs 16- and 20-bit word data without any appreciable loss of detail.

The PSX-100 is a comprehensive system. The A/D and D/A sections can function independently of one another and can be clocked separately or cross-connected. Built into the unit are all the industry-standard interfaces, including multiple AES/EBU, S/PDIF (both coaxial and optical), Tascam TDIF and Alesis Lightpipe. The PSX-100 supports high-density sample rates (88.2 and 96 kHz) and the more conventional 44.1 and 48kHz sample rates. One particularly useful feature is an Aux AES/EBU output that always outputs 24-bit full-resolution audio, regardless of what else may be

taking place. This feature is very convenient because you can mix to a 24-bit device while taking advantage of the UV22 technology to reduce the bit count for a simultaneous mix to a conventional 16-bit DAT recorder.

In terms of its functions and internal operating modes, the PSX-100 does some very cool stuff. In case you were wondering what on earth you might use to capture a 24-bit/96kHz stereo mix, Apogee Bit-Splitting (ABS) technology enables you to use a conventional MDM recorder. If, for example, you are mixing a 24-bit, 44.1kHz recording to your ADAT or DA-88, the ABS technology uses four tracks to accomplish this. The PSX-100 effectively prints the left channel's first 16 bits to track 1 while placing the remaining eight least significant bits (LSB) onto track 2. The right channel is handled similarly by using tracks 3 and 4. For a 24-bit/96kHz recording, Apogee's ABS-96 technology divides the data down the middle again and, hence, uses tracks 1-4 for the left channel and tracks 5-8 for the right channel.

Other noteworthy features include a Soft Limit function that provides maximum digital level to a recording without incurring overruns, the metering of either the A/D output or the D/A input, a Digital Copy Mode to facilitate conversions between the various supported formats, and an Analog

Monitor Mode for monitoring the A/D output through the D/A converter. Additionally, an optional video card can provide sync to PAL, NTSC or black-and-white video signals.

The PSX-100's faceplate is well-organized, making it easy to navigate the various system parameters. A single multiple-press button enables you to select A/D sync options such as the unit's internal crystal with a sampling rate of 44.1/88.2 kHz or 48/96 kHz—along with options for an external clock source and lock status. Other similar keys allow you to select output resolutions (24-bit, UV22 20-bit, UV22 16-bit) and to define the state of the TOS link port—either S/PDIF or ADAT optical. A small flathead screwdriver is all you need to calibrate both the D/A and A/D converters through the convenient recessed access holes in the front panel. The factory default for the D/A converter is set so that an incoming digital signal at -16dBFS produces a level of +4dBu at the analog outputs.

IN SESSION

At this point in time, most engineers will probably use the PSX-100 to create a 24-bit high-density mix from an analog source. I say this because, presently, there aren't that many options (a series of interconnected Genex recorders aside) for actually capturing a multitrack recording in 24-bit/96kHz mode. Let's face it, Studer 827s (yes, this is an analog ma-

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FIELD TEST

chine), Sony 3348s, ADATs and DA-88s are still pretty darn popular. Even Otari's RADAR II delivers 24-bit audio at the conventional sampling rates of 44.1 and 48 kHz. Although this is likely to change fairly soon, these systems aren't going away in a hurry. Bottom line—most of us still capture tracks at a level not quite up to par with the PSX-100's capabilities.

With that said, I opted to feed the PSX-100 an analog stereo mix via the XLR-balanced outputs of a console and print my 24-bit/96kHz mix to eight tracks of a DA-88. After running a pair of XLR cables from the board to the PSX-100 and connecting Tascam's PW-88D dubbing cable to both the PSX-100's TDIF Out and the DA-88, I was ready.

Because I was feeding an analog signal, I defined the 48/96kHz setting and internal clock, followed by an output resolution of 24 bits. At this point, I found that I wasn't feeding signal to all eight tracks of the DA-88 as I expected. Alas, one button-push remained! By pressing and holding the "x2FS" key (which places the unit into Fast mode for high sample rates), signal appeared on all eight tracks of the DA-88, and I was in business.

I printed the mix several times—some with Soft Limit enabled, other times without. While all the mixes recorded without a hitch, I preferred the ones that were created with Soft Limit enabled as I achieved a slightly hotter, more consistent level throughout the recordings. So how did it sound? Not so fast—I'm getting there.

MONITORING WITH CONFIDENCE

For this type of application, the PSX-100 provides two monitoring options: Confidence Monitor Mode and Analog Monitor Mode. In Confidence Mode, the unit's A/D and D/A converters act independently of one another. You can monitor "off tape" by listening to the returning signal via the PSX-100's D/A. Conversely, Analog Mode routes the A/D input signals to all digital outputs in addition to the D/A output. In this case, you end up monitoring the output directly from the A/D. While performing your mix, you can easily switch between the two modes simply by pressing and holding the unit's D/A Input button. In Analog Mode, the A/D Out LED illuminates, but in confidence mode, it does not.

COPY MACHINE

Now that I had a 24-bit/96kHz high-density stereo mix (which, by the way, could only be heard by replaying the DA-88 through the PSX-100 so that the data could be "re-assembled"), I decided to make a copy of the mix to a conventional 16-bit DAT recorder. This process was slightly trickier than the previous operation because the PSX-100 ships with all its rear panel dip switches in the Down (Off) position and, when using TDIF, dip switch No. 1 must be in the On (Up) LR Clock position.

Kudos to Apogee for creating an owner's manual that is clear, concise and to the point. With little effort, I was able to determine the error of my ways and rectify the situation. After feeding Word Clock from the DA-88, the PSX-100 seemed much happier. At this point, I selected UV22 16-bit as my output resolution and fed the coaxial signal to the DAT's coaxial digital input. I was now able to play the DA-88's high-density mix and convert it to a DAT format that could be played on any conventional DAT machine.

A TOUGH CALL

Hearing the difference between a 16-bit and a 24-bit recording is much easier than hearing the difference between a 24-bit/48kHz mix and one that was recorded at 24-bit/96kHz. Could I hear a difference between the high-density mix on the DA-88 as opposed to a standard 16-bit mix to a DAT machine? Absolutely. Here, there was no question that the 24-bit recording was more vibrant and revealed greater dynamic contrast than was exhibited by the 16-bit DAT machine. Would I be able to hear the difference between 24-bit/48kHz and the same recording at 24-bit/96kHz? That's a much tougher call.

Suffice it to say that the Apogee PSX-100 is a very, very good sounding conversion system that is easy to use, is well-documented and is built like a tank. It was pretty damn exciting to be able to create a 24-bit/96kHz mix with so few technical headaches—not once did the unit ever misbehave. At \$2,995, the Apogee PSX-100 is an exceptional tool for the high-end facility in search of a convenient means of delivering high-resolution, high-density master recordings.

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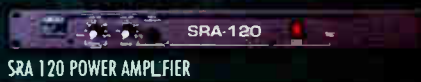
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World Radio History

CRANE SONG TRAKKER

ANALOG CLASS A COMPRESSOR/LIMITER

The Crane Song Trakker is a single-channel, all-Class-A analog compressor-limiter that uses all discrete components in the signal path. Housed in a single-rackspace steel-and-aluminum chassis, the unit has transformerless input and outputs and operates on AC mains voltages from 100 to 240. The Trakker uses Pulse Width Modulation to derive a control signal for the gain changing element—in this case, a Field-Effect Transistor or FET.

Digital control through PWM is not new, and neither is the use of gain-changing FETs: The '60s vin-

control works—the most neutral-sounding gain reduction circuit available.

PWM CONTROL

Trakker designer Dave Hill has studied the properties of various newer and vintage compressors and has developed a set of PWM algorithms that emulate four different basic compressor types: Hard Knee, Soft Knee, Optical and Air-Optical. In addition to the four compressor types, there are four amplifier/modulation styles available that further modulate the compressor's action: Clean, Vin-

trols. The big feature here is that if you change your mind or if a change in the music no longer fits the compressor/amp style you've chosen, you don't have to find and repatch in a different compressor, you just select another compressor type/amplifier style with the Character switch.

COMPRESSOR TYPES

The Hard Knee setting can be thought of as a limiter. When using this mode I had to re-adjust the Knee control (ratio) as well as both the Attack and Release controls. If you like to squash and spank



tage EMT 156 Stereo Compressor/Limiter is an example of a PWM-controlled processor and the revered UREI 1176LN is a good example of an FET-based peak limiter. The technique of converting an analog waveform into a digital pulse train (A/D conversion) for use as a control voltage has two distinct advantages: Once digital, the control signal can be easily manipulated, and in ways not always possible with analog circuitry. Second, the quality of the analog signal path remains pristine from input to output. In the case of the Crane Song Trakker, a pair of parallel FETs, responding to the PWM sidechain control signal, control the audio output by shunting the output audio to ground. This is the same way a resistive passive volume

tage, Clean VCA and Vintage VCA. These tone coloration circuits add further processing to the PWM control signal and are selected by a 16-position rotary Character switch, divided into four quadrants. Each quadrant is further subdivided into the four amplifier/styles and selections are indicated by a different colored LED. Winding through sixteen positions on the Character switch reveals a relay that creates a slight delay between settings (.2 ms). Once you have decided which compressor type and amplifier/style you would like to use, the unit behaves and works like any another compressor that includes adjustable Attack, Release, Threshold and Knee (Slope or Ratio) con-

audio, this is the best and most controllable device for it that I have seen. I found all the grit and graininess I could ever need, without having to worry about quality of the audio path suffering. Soft Knee offers a kinder, gentler sound, much like the OverEasy mode in a dbx 160SL. I found that Soft Knee worked better as a music program processor than it did on most individual instrument tracks. With the Optical mode you'll get a more program-dependent action: The release time increases the longer the signal is present. Air-Optical is the same as Optical except for a high-frequency boost; this emulates the way some vintage tube compressors "build in" a high-frequency tilt to maintain an overall flat response (one of the reasons certain vintage

BY BARRY RUDOLPH

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PENDULUM AUDIO OCL-2

OPTICAL COMPRESSOR



Why the world needs another optical compressor remained a mystery until I tried Pendulum Audio's OCL-2. I used the 2-channel OCL-2 as a vocal compressor on several gigs that I mixed, including John Prine and several dozen bands at the Portland Blues Festival the following week.

But first, some background. VCA compressors, especially common in live sound, achieve accurate compression ratios with well-defined thresholds. A chart of a VCA's gain response shows a 45° slope (1:1, or unity gain), a bend at the threshold of compression, and a second, flatter straight line whose slope is determined by the ratio. Many VCA-based compressors also have employed soft-knee features that allow a smoother transition into compression, illustrated by a rounding of the intersection of these two slopes.

An optical compressor uses a photo-attenuator, whose resistance changes with the light intensity but cannot respond as quickly as the light. Vintage models like the LA-2A use an electro-luminescent panel shining on a light-sensitive semiconductor. The LA-2A's classic soft-knee response is a result of level detection from this circuit's output (feedback detection), instead of the input (feed-forward) detection used in VCA compressors. Unlike a VCA's clinical compression slope with a fixed ratio, the response of an optical compressor moves through a soft-knee at threshold, reaches a plateau of compression at the target ratio, and gradually

makes a transition to higher ratios of compression. As a signal leans into it harder, these increasing ratios add a "density" to the sound that is pleasing to the ear.

The Pendulum OCL-2 uses a proprietary method for enhancing the response of a modernized version of this mechanism, providing faster attack and release times than are available from traditional optical compressors, and offering unrivaled transparency in its fastest settings. I usually find optical compressors a bit dull and woolly for live sound, where clarity and presence are paramount for lead vocals to stand out in the mix, but the OCL-2's performance on vocals is bound to earn it a place in the outboard racks of top tours. On its first outing, the Pendulum's open, clear sound earned many compliments, with an almost embarrassing series of audience members lining up to praise the sound at the end of the show.

In Fast mode the OCL-2 performs a peak averaging of the signal and offers a very open sound. This is the best setting for live work, and is even faster than the fastest manual settings. Six other presets, generally intended for studio applications, are similar to those found on original Fairchild compressors. Four of these have increasingly slower attack and longer release times, with each letting a more dynamic range punch through. Preset 5 has a program-dependent release time emulating

the LA-2A's two-stage release. Preset 6 is also program-dependent, but with three release stages. Both of these presets are useful for full-program mastering or vocal tracking, when the engineer doesn't want the compressor to "suck back to zero" immediately.

The optical compressor section is followed by a Class A, transformerless tube amplifier. Class A circuitry eliminates the crossover distortion found in push-pull output stages, and the omission of a transformer offers an uncolored signal. Though not recommended for best performance, the OCL-2 can be ordered with optional Jensens for applications where galvanic isolation is desired. The transformerless OCL-2 reviewed was unbalanced, with both ¼-inch and XLR connections, but it worked problem-free with standard balanced cables.

The OCL-2 also has side-chain access on a TRS ¼-inch jack for inserting an EQ to allow frequency-tailored compression. Pendulum also supplied 6dB/octave highpass filters cleverly built into the backshells of TRS jacks to take advantage of this "open architecture." These highpass filters inserted in the side-chain reduced the proximity-effect dominance of the compressor's action in close-miked live vocals, and opened up the compressor's sound further.

With large VU meters, this blue-faced, two-space unit has the classic look of its genre. These hand-built gems employ poly caps,

BY MARK FRINK

—CONTINUED ON PAGE 146

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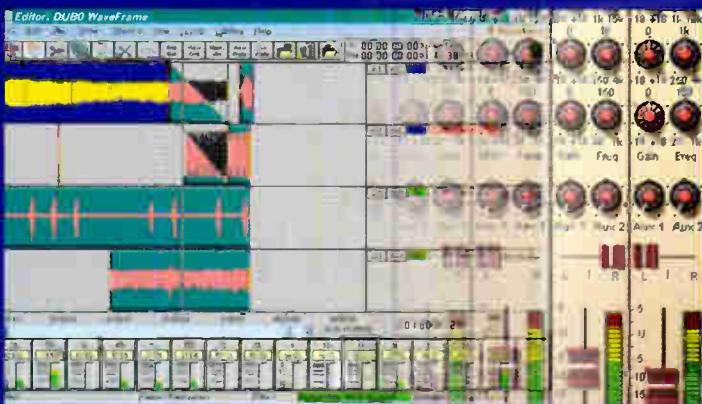
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RØDE NTV

TRUE CONDENSER VALVE MICROPHONE

RØDE microphones, which are designed and manufactured in Australia and distributed in the United States by Event Electronics, have earned an honorable position among recording professionals since emerging on the market just a few years ago. The company's first three models, the Classic, NT1 and NT2, have all been adopted by leading studios and the newest model, the NTV, a cardioid tube condenser microphone priced at \$1,199, appears well positioned to follow in the footsteps of its predecessors.

DESIGN AND CONSTRUCTION

The NTV is shipped in a package that leaves no question that this is a serious recording instrument. Opening the box, I was greeted by a heavy-duty aluminum flight case. Inside, foam pockets secured the various components, including the dedicated power supply and power cord, a 30-foot double-shielded oxygen-free multicore cable with custom-tooled, military-grade gold-plated connectors, a stand-mount, a bird-cage shock-mount suspension and, of course, the microphone itself.

The RØDE NTV is a substantial microphone. The instrument's body is milled from high-grade stainless steel and incorporates two grill meshes. The inner head-screen is

tightly woven and, even without the use of a pop filter, provides reasonable protection from plosive sounds caused by close-proximity miking. The NTV employs a 1.15-inch gold-sputtered, edge-terminated Mylar diaphragm that is suspended in the capsule by its edges. This new 1-inch edge-connected design is significant, because without a center wire, the capsule is able to move more freely, resulting in far more natural extended low-frequency response. It is this single design characteristic that enables the RØDE NTV to deliver a very pleasing warmth and transparency not found in many other microphones.

Every aspect of the NTV's design indicates there were no shortcuts taken. The unit incorporates a hand-selected, low-noise, twin-triode ECC81 valve combined with high-end, audiophile-grade capacitors from Solen and Wima, all of which feed a custom-made Jensen output transformer. The sum total of these components yields some impressive numbers. The microphone's sensitivity is rated at 15 mV/Pa while maximum sound pressure level is a very respectable 130 dB. The NTV's noise rating is less than 19 dBA, and its output impedance is 200 ohms.

SESSION PREPARATION

The NTV's power supply is solidly built and clearly labeled. It should be noted that the unit will operate on both 120- and 220-volt AC supplies, so it is wise to check the setting before powering the unit. The cable that connects the microphone to the power supply is solid in every aspect: Both ends are of the

multipin (gold-plated for optimum signal quality), threaded variety that secures into place by twisting the ring until it is tight.

The NTV's power supply provides an Earth Lift switch to reverse polarity in the event of a ground loop. After connecting the microphone to the power supply, all that's left is to run a high-quality XLR cable from the power supply to your console or preamp—ideally, one that is as short as possible. Powering the unit lights is a blue LED on the front panel of the power supply. (The LED's drive circuit feeds off the filament voltage of the microphone's valve and thus becomes brighter as the microphone approaches its operating level, providing a visual indication when the NTV is ready for use.)

As stated earlier, the NTV ships with both a stand-mount and a shock-mount support, each supplied with an inner ring adapter to fit European-style mic stands. Even though both supports are constructed of an industrial-grade PVC-type plastic, I found that the larger shock-mount unit secured the microphone much better than the more basic stand-mount adapter. In fact, I twice discovered that by the time I had connected the cables and power supply to my console, the basic stand-mount adapter had allowed the microphone to shift position ever so slightly. Given the price of the instrument, the stand-mount support did not exactly inspire confidence. I retired the stand-mount and relied on the considerably more solid shock-mount (which worked flawlessly) for the remainder of my evaluation.

The microphone itself is quite large and hefty, and secures to both supports by resting in the base of the support while the supplied cable attaches from the underside and locks the mic into place. This certainly works, but it appears to me a somewhat rigid



BY ROGER MAYCOCK

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FIELD TEST

method of securing the microphone. Shock-mount suspension systems from Shure, AKG and others provide considerably gentler microphone handling.

SESSION USE

I began my evaluation by using the microphone for dialog recording. After checking to ensure that I was indeed receiving signal, I began experimenting with positioning. It became immediately apparent that the NTV is extremely sensitive and its single cardioid pattern is very clearly defined. For close-proximity dialog recording, I found the microphone did a wonderful job, particularly when the instrument was positioned at a side angle with the voice-over talent speaking across the mic as opposed to directly at it.

As mentioned earlier, the NTV's headscreens actually has an outer and an inner mesh, with the inner mesh functioning as something of a pop filter. I recorded the readings both with and without a dedicated pop filter to see just how much reduction in plosive sounds I could achieve. Although either set of recordings was more than sufficient for my project, I ultimately chose to work with the takes that had been recorded using the pop filter. I found that the takes with the pop filter exhibited fewer plosives, and those plosives that were objectionable were easier to clean up.

In terms of sound quality, I found the microphone provided a pleasant low-end fullness that gave the dialog a warm, rich quality without sacrificing the mid or high frequencies. The NTV's performance was very even and balanced, with no sound coloration.

I also had the opportunity to try the microphone in a small chamber hall. Here, I recorded acoustic guitar and flute, both individually and collectively. By positioning the NTV approximately six to eight feet from the guitarist, I was able to capture a fairly direct sound, yet there was also enough distance to pick up some of the refractive sound energy from the hardwood floor. In this environment, the NTV delivered a clearly defined performance, along with all the guitar harmonics that Heitor Villa-Lobos' compositions are famous for. I could distinguish fingerpickings while still gaining a sense of spaciousness that is characteristic of the room.

My experience in recording the flute was equally successful. In this case, the NTV's internal mesh enabled me to position the microphone fairly close with-

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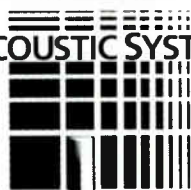
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SONY

FIELD TEST

out being disturbed by all the breath and plosives common to the instrument. I found the microphone captured both the instrument and the acoustic characteristics of the hall very accurately and without any harshness. In this case, the slight fullness in the lower frequencies did a nice job of making the recording seem big and full.

Priced at \$1,199, the RØDE NTV is a well-balanced recording instrument that provides exemplary performance under a variety of applications. I would feel confident using this microphone for ensemble recording, vocal work, piano and other acoustic instruments, as well as overhead miking of percussion. Its tendency to slightly round out the lower frequencies of a recording without coloring the sound adds a depth that many will find beneficial. The fact that the microphone offers only one polar pattern (cardioid) was initially somewhat disappointing, but I consider this to be a reasonable trade-off in light of the price. Aside from my experience with the stand-mount support and the mounting method in general, the new RØDE NTV is a well-made, quality instrument that will make a fine addition to any recording studio's microphone arsenal.

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CIRCLE #094 ON PRODUCT INFO CARD

—FROM PAGE 140, PENDULUM AUDIO OCL-2 metal-film resistors and single-sided audio PC boards. When turned on, the tube's power supplies gently ramp up to extend their life, and after taking a couple of minutes to warm up, relays un-mute the outputs.

Though the name Pendulum is relatively unknown, the exquisite craftsmanship in the OCL-2 is reminiscent of the company's audiophile SPS-1 acoustic instrument preamps, which have found their way into the racks of top players like James Taylor, Leo Kottke and David Wilcox. Two other Pendulum products were also introduced at the recent AES convention—the MDP-1 Tube Mic/DI Preamp and the 6386 Variable Mu Tube Limiter.

Pendulum Audio, P.O. Box 339, Gillette, NJ 07933; 908/665-9333; www.pendulumaudio.com. ■

Mark Frink is Mix's sound reinforcement editor. He can be reached at mfrink@teleport.com.



PHOTO: GEORGE KANATOUS

Sting tries out the custom Gibson Les Paul, presented by Les himself at the TEC Awards ceremony.

Nearly 800 people packed the Broadway Ballroom at the New York Marriott Marquis September 25 for the 15th annual Technical Excellence & Creativity Awards. Winners were announced in 27 categories, but the highlights of the evening turned out to be the special presentations. Les Paul and George Massenburg presented the Les Paul Award to Sting, followed by Gibson's presentation of a custom Les Paul guitar, handed over by the master himself. Then Atlantic Records co-founder/producer Ahmet Ertegun gave a heartfelt Hall of Fame presentation to his friend and colleague Tom Dowd. Next month we will have a complete photo wrap-up. Meanwhile, here are the winners:



15th Annual TEC Awards Winners

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OUTSTANDING CREATIVE ACHIEVEMENT

Audio Post-Production Engineer
Gary Rydstrom

Remote/Broadcast Recording Engineer
Kooster McAllister

Sound Reinforcement Engineer
Dave Kob

Mastering Engineer
Ted Jensen

Record Producer
Glen Ballard

Recording Engineer
Ed Cherney

LES PAUL AWARD
Sting

HALL OF FAME
Tom Dowd

OUTSTANDING TECHNICAL ACHIEVEMENT

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SOUND FOR FILM

I HAVE SEEN THE
FUTURE OF FILM
MIXING . . .

PART 2

by Larry Blake

My friends know they can rely on me for strong opinions on a wide range of subjects, from Pete Maravich's place in the basketball pantheon to whether or not New Orleans is...oh, never mind.

As faithful readers of this column can attest, I don't hold back when it comes to the world of film sound. Yet I can't remember when I

until we were ready to lock the final mix and move on to printmastering. No outboard gear of any type was used. Last month's column dealt with the subject on historic and philosophical levels (consoles and recorders vs. virtual mixing with control surfaces); this second part will focus on specific operations.

SETTING UP

First, you have to figure out the worst-case DSP horsepower that you will need in order to avoid the dreaded "the required DSP is not available" warning. Unless you are doing a temp mix or have a really simple film, you should assume that you will be running at least two Pro Tools systems at the final mix. You will probably

always mixing "in context." Therefore, if possible, you should have in place, on the first day of premixing, all of the systems that you will need on the last day of finals. What you are monitoring as you are mixing (both pre-mixes and final mixes) are, in fact, the final mix stems' outputs, assigned to the speakers with a monitor matrix and some controller that gives you the ability to mute and solo individual stems. I think it's crucial that you be able to do this as a monitor-only function and not have to mute and solo the tracks themselves. With this in mind, you should approach the first day of premixing with an exact roadmap of the track assignments of your final mix stems.

Calculating the maximum number of tracks for each system is pretty straightforward: Current limitations allow for a maximum of 256 TDM "time slots." (The math needed to arrive at this number can be somewhat convoluted; consult your Pro Tools manuals for details.) This means a practical limitation of about 48 tracks, if you assume EQ inserted on each track, plus a standard layout of reverbs. This assortment, by the way, requires about three of the newer MIX Cards, plus a single old DSP Farm.

In setting up for the mix of *Kitchen Privileges*, we found out that we had to be very careful of the number of TDM time slots and of the track order, top to bottom on the screen or left to right on the console. (We're talking about being in the Show All Tracks mode, with all unnecessary tracks—X tracks, worktrack guides, cutting tracks—left unvoiced.) There were times when it appeared that Allocator was lying to us, saying that we had a chip left when we didn't. When DSP Manager would kick in, it would rearrange matters not necessarily with the

—CONTINUED ON PAGE 150



COMPOSITE IMAGE: WETLEY/SHIRAKI

have felt as strongly about any change in technology as I do about the integration of console control surfaces with digital audio workstations.

Last month I wrote about a recent experience I had in New Orleans doing a virtual mix for a film (*Kitchen Privileges*) by automating everything entirely within the world of Pro Tools TDM. From the beginning of pre-mixes through the final mix, we printed nothing to tape

end up with the division that we used, with one carrying dialog, ADR, ADR group and music, and the second containing hard FX, backgrounds, design FX and Foley. Big films that attempt to go this virtual route will need as many as six systems.

Although premixing can be done with one system, you should always have the ability to place pre-mixes in the monitor so that you are

SCORING FOR THE BIGGEST SCREEN

STEVE WOOD CLIMBS "EVEREST" AND SWIMS TO THE BOTTOM OF "THE LIVING SEA"

by Robyn Flans

The first time composer/engineer Steve Wood wrote for orchestra, he had to purchase a one-month pass to his chiropractor. No joke. His back went out before the final sessions for the IMAX film *Eureka*. The afternoon the recording was complete, his back magically got better.

This orchestra stuff was way different for Wood, who had come from a pop music background and had, most notably, worked as keyboardist and music director for Kenny Loggins for nearly ten years. Prior to that, in 1972 while a member of the South-



PHOTO: © MACGILLIVRAY FREEMAN FILMS

ern California band Honk, Wood met up with Greg MacGillivray when the band was asked to do the soundtrack for the film *Five Summer Stories*.

"A surf movie is very much like a porno movie in that it doesn't have a particu-
—CONTINUED ON PAGE 154

Above:
Aglow from within, the climbers' tents sit high on the moonlit mountain in sub-zero temperatures.

Right:
Steve Wood at his Mackie 8-bus console.



FACILITY SPOTLIGHT

DAVE DOES IMAX

TORONTO STAGE POINTS TOWARD A BIG-SCREEN TOMORROW

by Dan Daley

It would not be completely off base to imagine a team of sled dogs trekking across

Dome Audio Video & Effects. The two-story facility sprawls over 50,000 square feet of downtown Toronto and is home to more than 100 employees—mixers, audio and video engineers, digital editors, managers and account executives—creating something of a city-within-a-city. But it wasn't always this way.

Jeff Smith opened the original one-room music

studio in 1972 as Jeff Smith Interchange. The facility grew as Canada's musical star rose, hosting artists such as Rush and Alannah Myles and music-heavy productions like SCTV. Then, just as the country's music fortunes retreated in the 1980s, Hollywood and Madison Avenue came knocking, seeking a haven from rising domestic production and post-production costs. The facility, meanwhile, had been bought by LaBatt's (yes, the beer brewer) and renamed Sounds Interchange. It grew to five studios doing primarily music recording and mixing, but by the late 1980s had crept into advertising, broadcast and film post-production.

LaBatt's was then purchased by Belgian beer-maker Interbrew, and Canada's legal restrictions on foreign ownership of domestic media industries

kicked in, forcing the new owner to divest its interests in broadcasting. (LaBatt's owned a controlling interest in regional television, as well as a stake in the Toronto Blue Jays major-league baseball franchise and their Skydome home.) The accompanying broadcast and post facilities had been renamed yet again as Dome Productions, and Interbrew spun off its entertainment properties, creating a consortium known as NetStar.

Dubbed DAVE under its present ownership, the facility is a beehive of post work, most of it coming from the U.S. and abroad thanks largely to what's been euphemistically referred to as a "very favorable exchange rate." (That rate, along with certain tax incentives, has prompted an angry response from production companies and unions in the U.S. that

—CONTINUED ON PAGE 160

Theatre One at DAVE, based around a Studer D950S digital console.



—FROM PAGE 148, I HAVE SEEN THE FUTURE
smartest use of the chips.

To try to avoid this chip scramble, we would have reverbs that could be on the newer MIX cards on the top of the sessions, and we would place at the bottom, after all of the tracks, plug-ins such as Dolby Surround Tools, which must be on the older Farm cards. The real tale of the tape is when you open a session: You should already have Allocator open on the side (in the DSP Resources “gas” mode) to tell you the sequence and degree that the chips are filling up.

I would strongly advise that you allow for two separate reverbs for critical needs such as processing source music. You can’t change what is inserted on a track mid-reel, just as you can’t with totally automated consoles without moving patchcords, and maximum flexibility should be a design goal.

When you finally calculate, on paper, the DSP horsepower that you will need for a session, add more. If your numbers, like ours, spell out three new Farm cards and one old Farm card, get another new MIX card for insurance. Virtual mixing requires a more stringent Faustian pact with your computer than you are perhaps used to, and this is part of the price that you’ll have to pay. It’s a price that should be identical on each system; not only should they have the same DSP horsepower, but they should use the same type of drives and have matching sets of plug-ins, system software, Pro Tools versions, etc. When stuff starts to go squirrely, you want to have a minimum amount of variables to wade through.

TEMPLATES

Now that you know the components of the final mix, you need to build a template session so you don’t have to redo hundreds of keystrokes when setting up each reel. You have to insert the EQ and reverb devices that you will be needing, and you should also set up the sends (what goes where and where the send levels are), the aux returns and the groups. It’s wise to “solo safe” items such as master faders, aux faders that are needed to get signals from one machine to another (or from the outside world via analog or digital inputs on the interfaces), and maybe reverb returns. Once you have all of your “outboard gear” set up, you have to enable the automation for the parameters of each insert. This takes a long time, and in the middle of doing this, it will dawn on you why you only want to have to do

this once in template form.

Another important part of your template setup is, of course, the outputs. You might end up having to use the Stereo Mix Outputs mode because of the requirements of some of your plug-ins. Because of this, it is most wise to set up your output bussing in logical AES pairs, so that lefts are always odd numbers, rights are always even and centers are paired either with other centers or with LFE tracks. Even if you’re able to use the Direct Outputs mode, I would still always recommend using this methodology of track layouts because the digital audio world is pair-oriented.

One of the most important tasks in setting up your template is the act of writing the default automation for that reel. I call this the “blacking” of the reel, after the time-honored act of recording timecode, control track and video “black” on a videotape to enable insert editing. In this sense, you are preparing your session for mixing, much as you would “zero” standard console automation.

When blacking your automation, have all of your settings where you would want them to be, all things being equal. The faders should be at the average “correct” level needed for each track; for example, backgrounds will be lowered by about 30 dB. For plug-ins, the default reverb settings would be different for music than for dialog. Your backgrounds might have simple high-pass and lowpass filters, whereas dialog would have what you consider to be the “average” starting point. Of course during premixing and later in finals, all of these will be tweaked, but if you don’t black your session before you start mixing a reel, the first time you write automation, even if it’s at the end of the reel, you will be writing for the *whole* reel. I’m not saying that this is desirable, it’s just the way the system works. Before you actually weld down the automation, remember to auto-enable the fader, pan, plug-in and sends. I don’t like to automate mutes, because I invariably get myself tied into an automation knot.

VOLUME AND MEMORY

Volume mapping of levels within a session has long been one of the most powerful tools of workstation editing. Whether it is done to reduce the amount of fader movement needed to get a mix in shape, or to smooth out dialog with tiny nips and tucks, it can only help make the mix go smoother. The same holds true with mixing on a

control surface, but with one key exception: The moment a re-recording mixer puts his or her hands on the fader while writing automation, any volume mapping created while editing is erased. Uh oh.

The solution around this is simple: Do all of your volume mapping with the TimeAdjuster plug-in inserted in each channel. You can then automate its gain in the same way, except that all of these moves are playing “under” the volume as controlled by the faders, as is the case when you send a work station signal into a console.

Last but not least, memory locations are essential, but not for the reasons you should use them during editing. Regardless of whether you have a HUI with eight faders or a ProControl with 32, you want to be able to instantly reconfigure the console (and screen) to bring each food group to the top immediately. You should be clicking the “Track Heights,” “Track Show/Hide” and “Zoom Settings” boxes. You should also have separate locations for varying degrees of zoom settings to get you in and out of edit modes quickly.

Once you have created a template, remember to save separate versions for each reel number/hour within separate folders so that each session can have its own Fade File folder and so that the Session Start time will be the same. You’re now ready to consolidate your edit sessions into your stage template sessions via Track Transfer, a Pro Tools user’s best friend.

An important part of learning TDM automation is getting into the rhythm of:

- suspending automation, so that you’re hearing what you’re writing and not what had been blacked,
- auto-enabling the parameters that you want to be writing (most probably plug-ins and send levels),
- selecting the area of the tracks you’re working on,
- writing the automation,
- un-suspending automation, and
- enabling the parameters you want to have while playing.

When TDM automation is playing back, note that the individual values are recalled in TDM, and not the file name. Nevertheless, I save each plug-in setting as a named file for easy retrieval later. Saving the settings and getting into a rhythm using the “compare” button is a big help in speedy auditioning, lending confidence that you’re printing what you’re hearing. The list of settings quickly becomes very long, so consistent naming is important. My format is

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simple: (film abbreviation) (food group) (reel) (location) (e.g. KP ADR R4AB 440' or KP MX R2AB 2M1 Strings). All of these are stored in a show-specific folder, with the ones that I might want to re-use in the future copied into a "templates" folder. Whenever I had to go outside the realm of my standard set of plug-ins in the middle of a reel, I would bounce a rendered effect back into the session, keeping the original next to it, muted. Of course, having saved the setting, I could get right back to it to tweak it later on, if necessary.

Folder management, always crucial in standard Pro Tools operation, becomes an essential part of gracious living when you base your whole operation around editing and mixing within your workstation. Everything might seem fine at any given moment, but when you bring backups into the equation, you *will* pay a price for not caring where your files are.

As you might imagine, consistency is a large part of the challenge. Have a top-level folder on each drive that states what food group is contained (e.g. KP Dialog). From the beginning, you should try to adhere to the simple goal of having your audio files contained in

folders on the second-most top level. This way you can quickly get to most material, with items such as fills and bounces in their own folder. You would also have worktracks and sounds that are specific to individual reels (dialog, Foley and music, usually). Sessions should be inside their own folder, each containing, preferably, Fade Files and old sessions folders only, and no Audio Files folders.

With this in mind, I think that the most sensible approach is to view folder management and backups as a multistage process. While you are in the sound editing phase, back up everything as you go without much concern for duplication of files (you'll undoubtedly have multiple copies of worktracks, for example). You will have to re-create Fade Files at some point, like it or not.

BACKUP!

All of the material will hopefully be consolidated on a few key drives on the way to the dub stage. When I finished the premixes on *Kitchen Privileges*, I made a new backup (one for each system) that captured exactly where we were during the final mix. These tapes were updated frequently until the final mix was locked,

and before leaving the show completely, I made another, final set.

This is both the good news and bad news. Good in that I have, on two DLT tapes, everything that led up to the final stems: the original elements, premixes and total automation for the film. You really have to be quite meticulous about these backup tapes because *nothing* else exists of the soundtrack prior to the stems (which will be backed up, as will the printmasters), thereby making them much more precious than standard units or premixes.

Remember to archive onto your backups not only standard audio files and session documents but also plug-in settings. I also document, at the end of each project, the folder on the internal hard drive that contains the backup session documents. (You *do* periodically make copies of your sessions onto the internal hard drive, don't you?) This gives me in one place, compulsive and sentimental fool that I am, an "audit trail" of the mix.

I am not the first to mix a film virtually, and I am NOT claiming that I couldn't have done this film without the neat stuff offered to me by workstation mixing, although I feel that the track is



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better for it. Just as a bad craftsman doesn't blame the tools, a good mixer doesn't give credit to the console. I know my work on this film isn't anything equal to classic sound jobs, such as *Altered States*, that were cut on mag film and mixed without any form of automation in sight.

But it doesn't stop me from saying that I now feel that the act of sending sound out of my Pro Tools into a console—any console—and recording it on any medium prior to having to document the final stems, feels downright barbaric. The whole act of making a film is dependent upon keeping

options and choices open while making decisions, thousands of them, on time and on budget. I have mixed and cut film sound under a wide variety of circumstances, and I know of no better way to accomplish this final stage.

Agree or disagree? Let me know at P.O. Box 24609, New Orleans, LA 70184; fax 504/488-5139; or e-mail swelltone@aol.com. ■

Larry Blake is a sound editor/recording mixer who lives in New Orleans for reasons too numerous to mention, although one of them would have to be that.

—FROM PAGE 149, SCORING FOR THE BIGGEST lar plot," Wood says with a laugh. "But Greg was really into the musical aspect of the film and actually cut the film to the music. We did that film in stereo, too, which, for the time, was quite progressive. He was very interested in the high quality of presentation, even then."

The innovation of IMAX in the early '70s appealed to MacGillivray, who, with Jim Freeman, began MacGillivray Freeman Films, specializing in the large-screen format. When working on *Speed* in 1984, MacGillivray called on Wood, who jumped at the chance for his first large-screen project. It opened new doors and challenges, the orchestra just being one of them.

"If you come from the MIDI world that so many of us come from now, it's difficult to deal with the huge, unwieldy, mammoth-tusked beast that is an orchestra," Wood says. Knowing that he needed help, Wood teamed up with Daniel May, whose doctoral degree in composition from Cornell University complemented Wood's "street" degree perfectly.

"Just the sound of a piano is different," Wood says. "Raised in the pop music field, you're used to a bright, super-close-miked instrument. If you play acoustic piano samples on a synthesizer, it's as bright as all get-out. To this day, they often harden hammers by lacquering them in studio pianos to give them a brightness that cuts through a track. Then you get into orchestral music where the piano has fluffy hammers and is miked at a distance, and it's a real wide, not direct, sound. You're so not used to that sound that you can hardly hear the music. It's the same thing with an orchestra itself. If you've only worked with string samples and synthesizers, and you get into the real room, first of all, you don't know much about the potential for what the instruments can really do. Then they start playing, and they're not totally in tune. If you're used to having a tuning machine and a sample that's in tune, when you start hearing a real orchestra, it's strange. It's like the difference between having a real person and a picture in a magazine—it moves in unpredictable ways, it talks back, and it smells—and it takes you a while to get over that."

For *The Living Sea*, Sting, an avid environmentalist, contributed music in the form of original masters, which were sweetened (often by replacing sampled instruments with real ones) and remixed

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World Radio History

for the surround format by mixmeister Terry Nelson. "Sting also sent some home demos of two ideas that had never reached fruition that I arranged for use in the film," Wood says. "It is very difficult working with the music of someone you respect, utilizing the basic aspects of their music to do something with their music that is pleasing to the director while still maintaining perspective on the sensibility of the original art.

"For this current project, *Dolphins*, Sting has actually written a theme song specifically for the film. He did a demo of it that had a little bit of a country flavor, and then I did a demo of it with a little more of a calypso feel since the film takes place in the Caribbean. Now they're doing an animated sequence in the beginning that is basically locked to that tempo. Then Sting got that demo, and he's going to do another version of it."

George Harrison's music was used in *Everest*, the biggest IMAX film to date, with domestic box office exceeding \$70 million. "We didn't find that the original recordings were appropriate, but some of George's haunting melodies were perfect thematic material," Wood explains. "In fairly typical fashion, Dan and I spotted the film with Greg MacGillivray and co-writer/editor Steve Judsen. Of course they have their ideas of what they wanted the music to convey, and then Daniel and I decided who wanted to tackle a specific cue and

whether it should incorporate a Harrison theme or be an original piece."

Wood writes primarily at a Laguna Beach acoustic recording space designed for him by Chris Pelonis in 1994. "Daniel and I have almost identical equipment in our studios, including the 'I'm cool' tube and analog stuff. But because of the matching Mackie digital 8-buses, Mac-based sequencers, and Roland JV-1080 and Akai S5000 samplers, we were able to make rough sketches alone at one studio, get together and hone them further, and then play them for Greg and make any necessary changes. Daniel did many of the final orchestrations with the remainder covered by Bill Boston. If a cue was heavily ethnic or pop in style, we laid down scratch synth tracks. Otherwise, Daniel conducted the orchestra, while I covered click in the booth. Then I orchestrated the overdubs and did the final mix."

The differences between IMAX theaters and regular movie houses dictate some of the music-making process and recording, Wood has found. First, the room is much larger, which leads into the second big difference—there is a greater distance between speakers. "A regular theater is rectangle-shaped with the narrow side toward the screen," Wood says. "An IMAX theater is sometimes wider than it is deep, so some of the basic things you would tend to do that would sound nice and rhythmic in your studio will sound crippled in IMAX. If you take a rhythmic ostinato and pan it around your room, every eighth or 16th note in a different speaker in a regular near-field setting, it's really cool. You hear it distinctly coming from every speaker, and it doesn't mess with the rhythm. But if you get into an IMAX theater, you could be in the back corner, and you may be 100 feet from one speaker and ten feet from another, which changes everything.

"I found you have to be careful



Climber Araceli Segarra crosses a crevasse in the perilous Khumbu Icefall using an aluminum ladder.

PHOTO: © MACGILLIVRAY FREEMAN FILMS

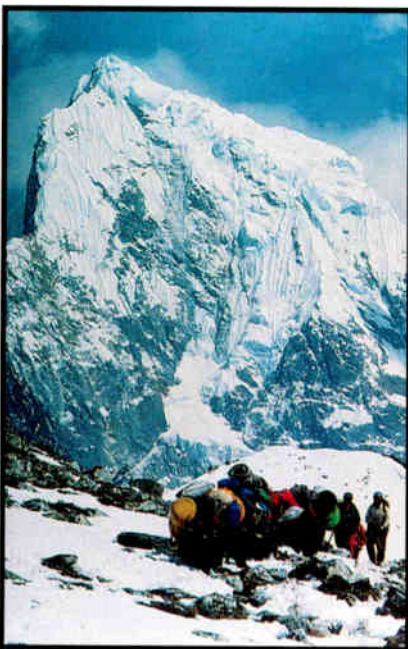


PHOTO: © MACGILLIVRAY FREEMAN FILMS

The expedition team treks for base camp accompanied by heavily laden yaks, which are used to transport gear and supplies through the higher elevations of the Himalaya.

about sustained low end," he continues. "If you really want to give people a feeling of low end, it's better to do it with more percussive elements, like a bass drum, that come and go so if you do have an over-abundance of low end in the theater, it's short-lived and becomes more of an effect. If you do it with sustained bass, it can ruin the whole piece.

"In *Everest*, for example, the only way for the music to not get turned down when the avalanche came down was to not have any low end," he explains, echoing a similar conflict between music and effects that takes place regularly on dub stages in traditional Hollywood. "If you have a lot of low end in the cue, it conflicts with what's really going to be important in the scene, which is the sound of the snow. If you want your music to stay up, you have to think about what aspect of the sound effect is really the crucial element, giving the feeling of what is going on. In that case, it's going to be the tremendous rumbling sound, so I try to do it with cymbals and things that are going to give high-end energy to the scene but won't conflict with the effect."

The final mix for *Everest* (for which Wood, May and Harrison received the Maxi Award for best score) was done in an actual IMAX theater in Irvine, Calif. "It was a large orchestra, which we did in a huge hall—60 feet high, 60 feet wide and 120 feet deep," he says. "Scor-

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ing engineer Steve Smith put mics way back in the room, which I panned to the rear in the final mix, and it really made for beautiful surround sound that you could never achieve with any electronic reverb. They wanted this giant sweep that you could only get from an orchestra to match those beautiful shots of *Everest*. I had ethnic musicians, too—Tibetan monks, who were on tour in Long Beach. Originally, we went into EFX with Ken Teaney, who has done the final mixes on all our films. It's a nice, big room, but it's not an IMAX theater. We did what we call stems where you take your music and make a music stem, which is all the music combined. I'll have a 6-channel mix, and sometimes the music overlaps, so I really need 12 channels for the final mixdown. Then they take that and mix it down to six. The sound effects guys may have 24 channels, and that's mixed down to six. We took the surround stems into the theater and made the final mix of the 6-channel stems—the final blending and EQ."

Again, an IMAX mix is treated differently from a feature film mix. "When you're doing a feature film, everything is front-oriented, toward the screen, and you use the surrounds for an effect or maybe an ambient quality, but you'd never think of featuring things in the back. One of the things I do quite often is a technique called antiphony, which was the rage back in the Middle Ages with monks sitting in the front and rear of a cathedral, conducting question-and-answer type stuff. There have been a few situations where I've recorded the brass and the strings at different times, and I put the strings in front and the brass in the back, and they would do question-and-answer. When you get in a real large theater like that, the location of the speakers is not completely distinct because it's such a big room. You automatically have somewhat of a general reverb on everything because it really does have its own reverb in the room. If you're really aiming for it, though, you can get a pretty distinct front-back image. If the scene is really focused on the front, I won't necessarily use the rears for anything real attention-grabbing.

"In *The Living Sea*, there are jellyfish that have lived in this particular lake in Palau for a million years. They've developed their own genetic form, and they don't sting, because there are no predators in the lake. Every morning they swim across the lake, following the sun, and then at night, they dive back

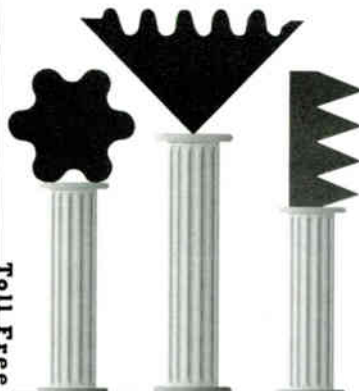
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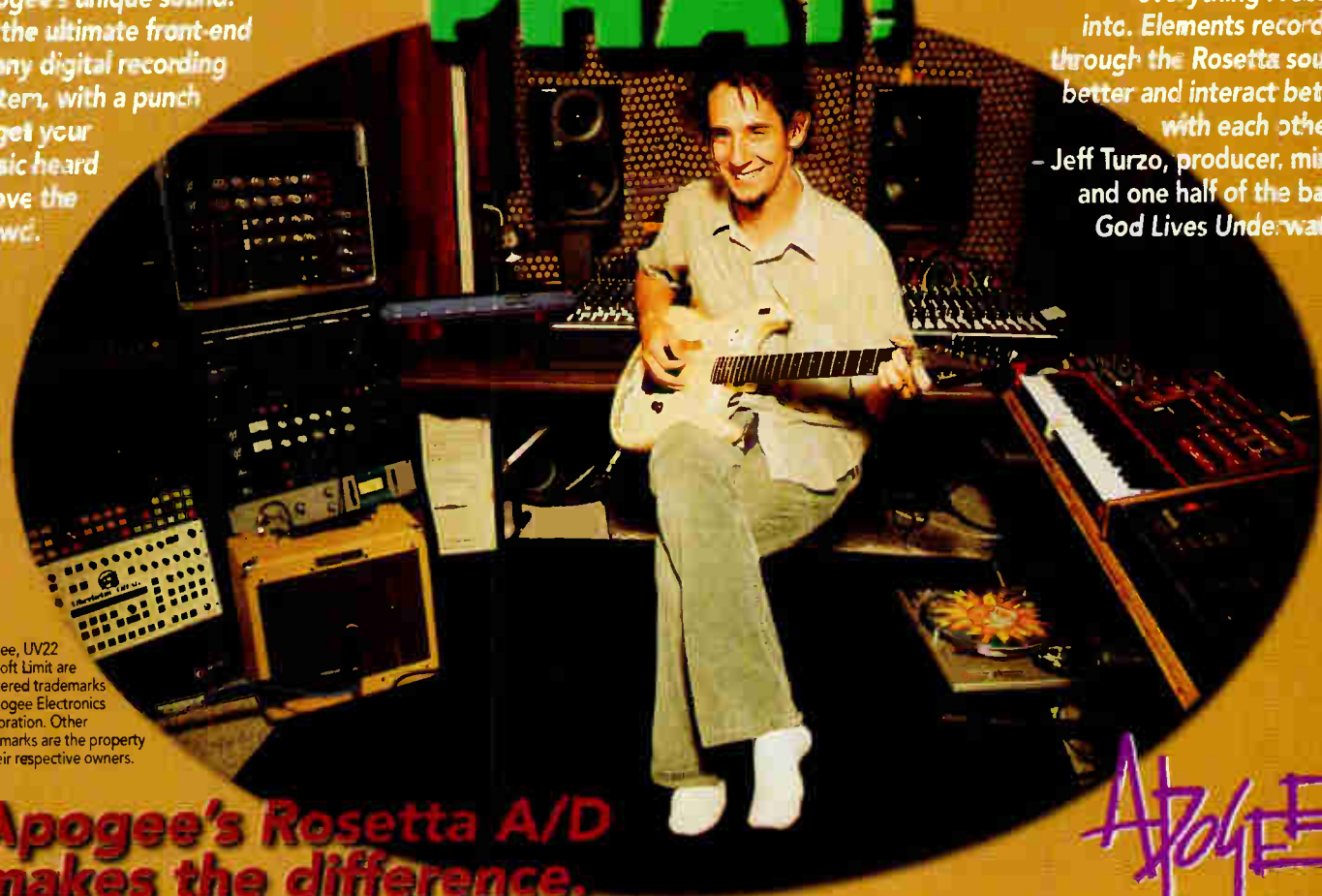
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to the bottom and return to the other side. In one scene, we're underwater and we see them approaching in the distance, but we can't quite figure out what they are, so I focused the music on the front. Then as they start to come into focus, I start throwing a kind of strange, effected delay to the rear that gives us the feeling that they're coming toward us and that there's something a little eerie about something behind us. As the diver starts swimming through them, I make the music an entire surround piece, where we don't know whether it's coming from the front or the back. As soon as they started sur-

rounding us, I had the string players play a con legno pattern, where they take their bows and turn them upside down, and beating on the string; they randomly hit different notes. It created a dense, eerie bristling effect that you can't do with synthesizers.

Project studio technology has changed a great deal since his first IMAX project in 1984. "I didn't have the capability on the first one to actually lock to picture," he recalls. "Some people obviously did at the time, but I was working with a 2-inch 24-track, and I believe I had an old sequencer that ran on a sync tone. I don't know how the

hell it ended up all synching together. I think the biggest change is SMPTE and project studio equipment that all works together, speaking MIDI Time Code and SMPTE. Now having the digital 8-bus is ridiculous as far as flexibility, memory and the potential for what you can do. The ironic thing is you get all these things to save time, and none of them does, because they just give you more options. The time you used to spend just trying to make it work is now spent making it work in different ways. Nothing saves time; it just adds possibilities," he says with a laugh. ■

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—FROM PAGE 149, DAVE DOES IMAX

are seeking federal legislation to implement an import tax, among other options.) Consequently, DAVE has been pulling in foreign film, video and editorial work by the truckload in the last several years including feature films and movies-of-the-week for clients such as Showtime, HBO, Sony and Paramount, and a growing number of productions slated for DVD and other new media. And as many as 10% of all of the films done at DAVE are for the large-screen format IMAX. (It's no coincidence that the company that originated the format is also based in Toronto. The IMAX Corporation now has about 350 screens worldwide and expects to add another 100 by the end of the year.)

THEATRE ONE

DAVE has 16 audio studios—eight of varying size, including a dedicated Foley studio, and another eight digital audio editing suites outfitted with Pro Tools, DAWN and ScreenSound workstations. Recording is either to DA-88, Sony 3348 digital or Studer A827 analog multitrack decks. But the crown jewel is Theatre One, one of a handful of large-format/multiformat sound-to-picture mixing studios in the world and the only one of its type in Canada. The huge room seats 60 on racked stadium-style seats in the rear. In front is a large, curved producer's desk and a 48-rail, 56-frame Studer D950S digital console.

The 17x24-foot screen can be formatted for standard aspect ratios, as well as the approximately 1.5:1 IMAX dimensions. Theatre One was designed by Claude Fortier, who also designed the specified IMAX audio monitoring system, known as SOTA. The SOTA speakers are a low-efficien-

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cy/high-dispersion system, with a single point source radiating out at 160° from four corners and the screen. It requires significant amplification—about 15,000 watts total—to fill the room. The room is also THX-certified, and its THX monitor specification utilizes 10 speakers arrayed in an LCRS front and rear surround configuration, with a top-screen and Voice of God speaker as well.

At DAVE, the IMAX playback system uses an Oxmoor EQ system, which can superimpose up to eight frequency response curves on the otherwise flat monitor chain, creating a full 20 to 20k Hz spectrum. "That's something you don't get in THX, which has a specific EQ curve designed for cinematic use," explains James Porteous, veteran of the facility's many incarnations and now supervisor of its extensive audio operations. "It's not really designed to mix music in, which the SOTA setup, which can actually run 20 to 20 flat, is. If you're mixing music for DVD, for instance, you'd want a flat frequency response monitoring environment in 5.1, which this gives you." As a result, Theatre One is a truly multipurpose room, usable for 5.1 music mixing and music video work, as well as film sound.

In addition to standard projection systems, Theatre One has a DLP projector, a system developed by Texas Instruments that uses as many as a million mirrors to focus light from a halogen bulb through dichromatic filters that refocus through a single aperture so that there is no RGB convergence.

Theatre One's centerpiece is the Studer D950S console, which, at ten layers deep, has a theoretical capacity of 560 inputs, though it is capable of 480 at the moment.

Porteous does not see that as overkill. "IMAX films average 300 to 350 sound sources," he says. "The one we did for Sony—*Across the Sea of Time*—has 450 individual sound sources. And even standard film is using more and more sound in the surround format. So it's really not that huge a number of inputs. The main reason we went with the Studer, though, was that it was highly and quickly configurable. It takes us two hours to configure the SSL 4000 we use in the other surround mixing studio. The 950 takes two minutes. And everybody loves the way it sounds, which doesn't hurt."

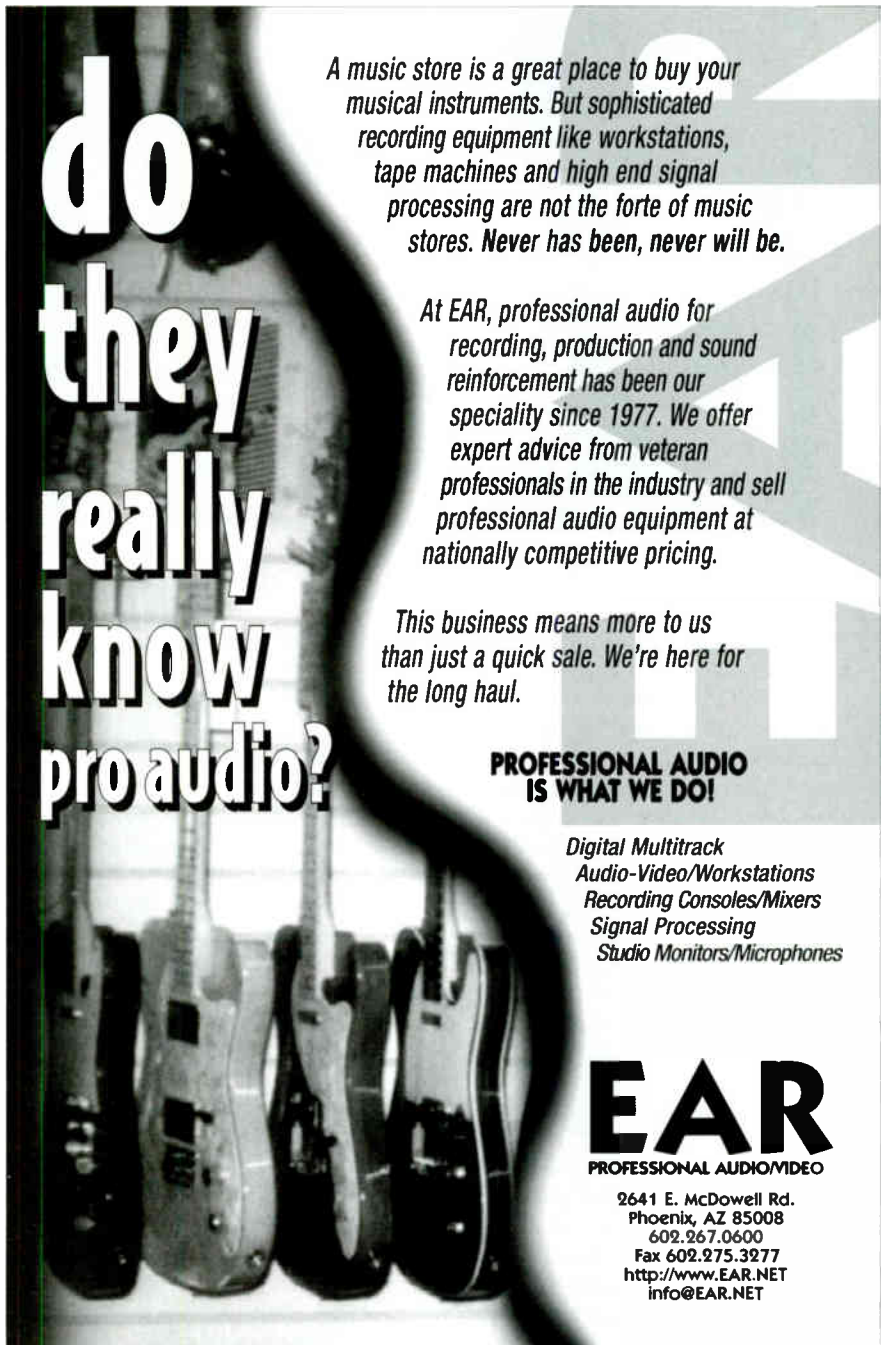
The 950's large input capacity is also useful for the 3-D sound that some IMAX films are using, in conjunction with 3-D picture projection that uses a

pair of the DLP projectors. (The audience wears special IR binaural headsets equipped with electronic viewing filters.)

As complex as its operations are, the business philosophy of DAVE is simple enough: "In the past, the way post worked outside of Hollywood is what I call 'shoot and run,'" says Porteous. "What we're doing here is creating an environment that says 'shoot and stay.'"

DAVE exists in an increasingly rarefied stratum: the ultra-high-end facility that handles a wide range of audio and video chores, from Foley to ADR to dig-

ital editing to scoring to large-format mixing and layback. While such facilities must be able to connect their clients to any point on the globe—DAVE has operated ISDN lines routinely for years and is on the verge of implementing T3 lines—they also must interface with the numerous project studios that now handle more and more of the day-to-day work in audio. "We have Pro Tools, DA-88 and other formats for that," Porteous says. "But we're also getting formats like RADAR in here. It really is a balancing act. And it's tricky. But there's a real thrill to it, too. It's like steering a supertanker." ■



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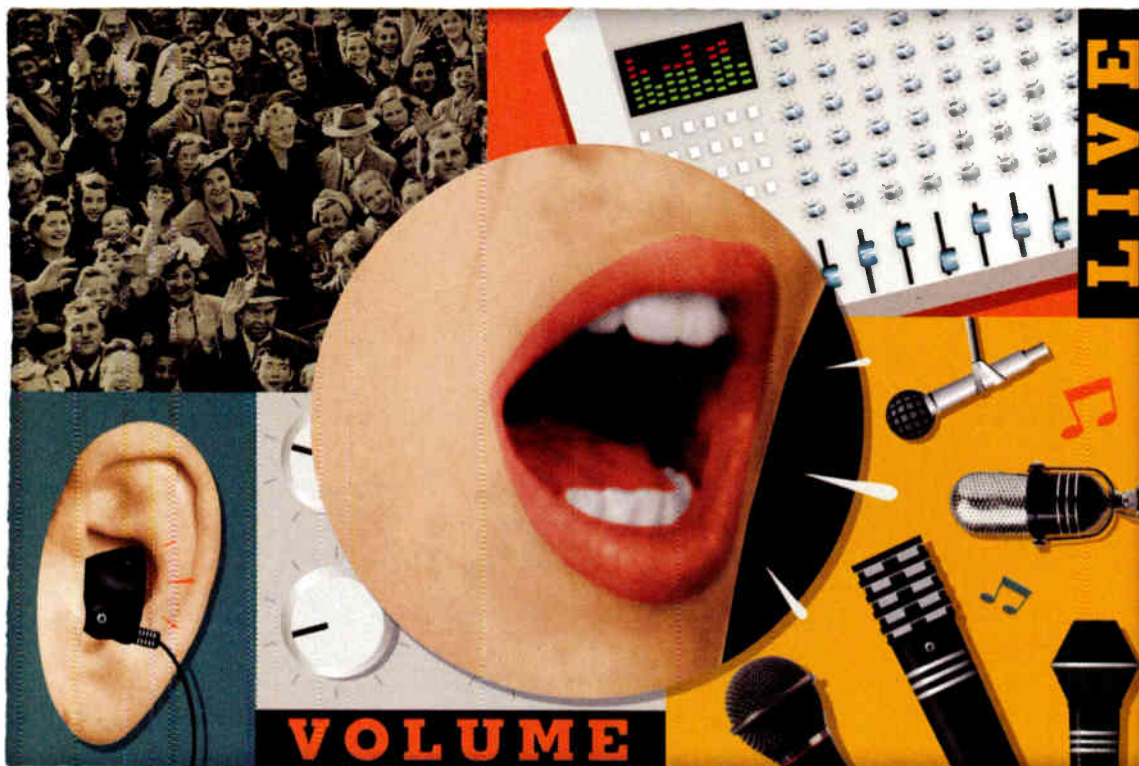


ILLUSTRATION JOHN UELAND

In most live entertainment situations, and almost all of those that feature a singer, the FOH engineer's highest priority is the lead vocal mic. For political speeches and other events that require sound reinforcement, including industrial and theatrical presentations, there is little competition for the listener's attention. But in musical shows, the FOH mixer must often cope with a number of factors that can make it hard to position the lead voice clearly in the mix. Band members who are too loud on stage, complex studio-born arrangements, indifferent acoustics, noisy audiences and inconsistent mic techniques can all conspire to make the FOH engineer's task difficult, if not impossible. To find out more about voice processing techniques and equipment choices in the live environment, *Mix* recently interviewed five leading FOH engineers. Our sincere thanks to Steve Guest, Tim LaMoy,

Dave Lohr, Vance Powell and Laurie Quigley for their time and interest. See the sidebar for further details on our interviewees.

MIC CHOICES

Not surprisingly, most of our interviewees felt that correct microphone choice is critical. Laurie Quigley, whose client list reads like a Who's Who of metal and rock bands, is emphatic about his preference in wireless mics: "The Shure radio mics are the best ones out there," he says. "Most of the vocalists I work for are using radio mics, and I'll go with a Shure because I believe they have the best radio mics. They have the best dynamic range and don't have dropouts. Does it compare to a copper wire out of the back of the microphone? No, it doesn't. But it's as close as I think you can get." For general applications, Quigley favors

Audio-Technica mics, which he uses for vocals when not using wireless systems.

Tim LaMoy, currently mixing FOH for Backstreet Boys, is using Sennheiser 5000 Series wireless mics for the five-man vocal group. "I like the condensers, but they don't work well for the ear-monitor guys," LaMoy explains. "So to make a happy medium, we use the Sennheiser dynamic capsule. Also, the Boys use wireless Crown 311 headset mics, a nice snappy-sounding mic. It's got great low end—I can tune the P.A. with that mic, and everything else sounds good."

Steve Guest, a veteran of David Bowie and Janet Jackson world tours, is pragmatic. "If I have the luxury of working with an artist without a vocal mic preference, or one willing to experiment, I'll absolutely try a few different models to find the one that suits them

BY CHRIS MICHIE

—CONTINUED ON PAGE 170

TOUR PROFILE

CATCHING "UP" WITH R.E.M.

The Original College Rock Band Returns to Center Stage

It was the end of the world as we know it, according to the Aztec calendar, R.E.M. vocalist Michael Stipe announced. But Stipe and the rest of the crowd seemed to feel just fine on a cool summer night at Shoreline Amphitheatre in Mountain View, Calif., a few dates into the North American leg of a summer tour.

R.E.M. were back in the San Francisco Bay Area, where they recorded their latest album, *Up*. It was the band's first large tour of Europe, the U.S. and Canada since 1995. Drummer Bill Berry's departure still haunted their past, and the Y2K and its much-hyped turmoil loomed in the near future. None of that could stop the band that once scoffed in the face of apocalypse.



R.E.M. vocalist Michael Stipe

PHOTOS: STEVE LEVINGS



FOH engineer Joe O'Herlihy and systems engineer Jo Ravitch

All the material on their 12-record repertoire was fair game for Stipe, guitarist Peter Buck, bassist/keyboardist Mike Mills and their touring bandmates, drummer Joey Waronker (Beck, Smashing Pumpkins) and multi-instrumentalists Ken Stringfellow (Posies, Big Star) and Scott McCaughey (Young Fresh Fellows, Robyn Hitchcock). The set list included recent material such as "Lotus," "Suspicion" and "The Apologist" as well as earlier hits like "The One I Love," "Losing My Religion" and "Man on the Moon." And R.E.M. turned in an energetic and intense performance, riddled with wisecracks and off-the-cuff commentary from Stipe ("My middle name is 'Groove-crusher,' according to Peter, Mike and the rest of the guys in the band," he said at one point, apropos of nothing), to an audience dominated by '80s college-rock alums with picnics and young children in tow.



Monitor engineer Don Garber at the ATI Paragon

BACK WITH CLAIR BROTHERS

It was also a college-rock reunion of sorts for R.E.M. and their Clair Brothers Audio crew. *Monster* Tour veterans Joe O'Herlihy (front of house) and Jo Ravitch (systems engineer) were joined by R.E.M. newcomer, monitor engineer Don Garber.

Longtime engineer for U2 and audio design consultant for Woodstock '95, O'Herlihy first met R.E.M. when the band played occasional festival dates with U2. When U2 decided to take a sabbatical in 1993, O'Herlihy had time to take the helm as FOH engineer on the *Monster* Tour. He returned to work with U2 on the *Pop* record and toured with the band from 1997 through 1998. When plans for a large summer *Up* tour coalesced, O'Herlihy joined R.E.M. once more. "They are really a fabulous bunch of people to work

BY KIMBERLY CHUN

—CONTINUED ON PAGE 166

Cher

ALL ACCESS

Now a certifiable entertainment industry legend, Cher is presenting her show in sold-out arenas and amphitheatres throughout the United States and Europe. Featuring at least eight costume changes (we lost count) and non-stop pacing, Cher's aerobically challenging revue of past and current hits is scheduled to appear at the pyramids in Egypt—Cher should fit right in!—before returning Stateside for New Year's Eve 2000 shows in Atlantic City, N.J. "This show is a bit of a rock-show-meets-Cirque du Soleil," says production manager Omar, who oversees the nine-truck, ten-bus tour and a hundred or so technicians and performers. Mix caught the dynamic show at the Key Arena in Seattle.



FOH engineer Mike Keating is using a Yamaha PM4000 to control 60 inputs, including effects returns. Keating praises the board's resilience: "It still shows up for work every day. It can take a beating, and I've never had a problem." Nevertheless, Keating has been using ATI mic preamps for Cher's vocal channels. "The ATI modules are similar to those in the monitor board; they're much warmer sounding than the PM4000's," he notes.

The Clair Bros. P.A. is a 64-cabinet S4 system hung in four "bumpers" including 28 long-throw P-type boxes and 36 S4 Series 2s. Amplifiers are by Carver, which Keating praises for their articulation and bottom end.



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TEXT AND PHOTOS BY STEVE JENNINGS



Monitor engineer Bob Bickelman is using a 56-input ATI Paragon to create 26 outputs. "This is the most extensive in-ear rig I've used," says Bickelman. "It's a state-of-the-art setup, which makes it a lot easier. The ATI console has incredible stereo imaging, and everything's been going really well, so I'm very happy." Stereo in-ear mixes get stereo effect returns via Garwood Radio Stations and Apex Dominators.

Bickelman is using two Eventide UltraHarmonizer H4000s on Cher's vocal and Yamaha SPX990s and SPX1000s on the background vocals. A TC Electronic M5000 provides reverb for the drums. Downstage wedges for the dancers are EQ'ed with TC Electronic's TC 1128 programmable EQs.



Cher's vocal mic is a Sennheiser M5000 SKM. "It's the same vocal mic as I've used with Mariah Carey and Amy Grant," says FOH engineer Mike Keating. "It's still my favorite." Mics for guitar and bass amplifiers are Audio-Technica 4050s (in stereo on the guitar rig). Drum mics are chiefly Shure models, with Shure 81s on the overheads and an AKG 451 on hi-hat.



On tour for the first time in nine years, Cher is new to in-ear monitors. "They really help her to hear herself over the band and ambient noise or reverb of the room," says monitor engineer Bob Bickelman. "She covers that whole stage throughout the show, so it's a blessing to have her on in-ears—we would have to have wedges covering every area up there."



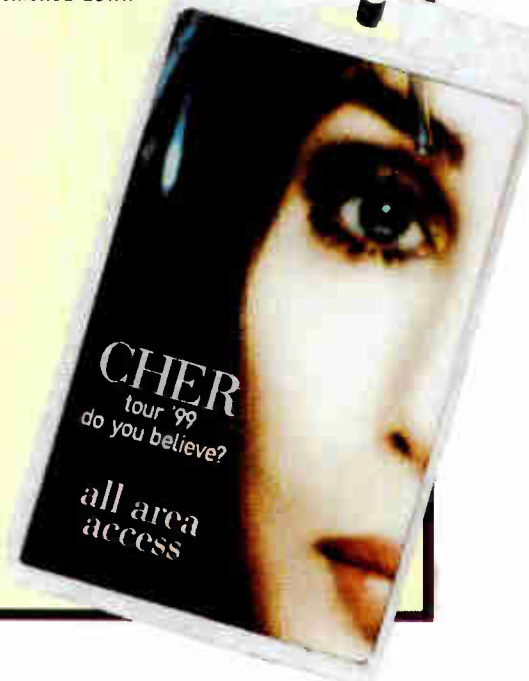
Monitor engineer Bickelman is using a Logitech switcher to cue up the various in-ear mixes. "The Paragon console has the capability—I can cue them up on the board—but this is a lot more user-friendly, at least for me," he explains. "It's a bigger burton. It's lit. I know it now like braille. I can also cue through the console because everything is paralleled."



"Everyone onstage has ear monitors, and everyone has stereo ear mixes," says Bickelman. "We're using four Clair Bros. ML-18s on the stage for some low-end reinforcement; they add a lot more body to the ear mixes, a lot more feel up here on stage." Clair Bros. 12 AM wedges are positioned downstage for the dancers.



Keating's effects rack at FOH includes Lexicon 480L, PCM70, PCM80 and PCM90 reverb/delay units, a TC Electronic 2290 digital delay and an Eventide H3000 Harmonizer. Keating uses Summit limiters on vocal channels, an Empirical Labs Distressor on acoustic guitars, and Aphex gates on the drum kit.



—FROM PAGE 163, R.E.M.

with. I find them very similar to the U2 camp in the philosophies, the way that they believe in what they do," he says.

The *Up* tour—which included Portugal, Spain, the U.K., Germany, Switzerland, Denmark, Belgium, France, Austria, Hungary and Slovenia—was smaller and shorter than the *Monster* Tour, O'Herlihy says, but the band, ironically, had grown larger after Berry's departure. "When Bill left they got three other people to replace him," he says with a laugh, "which is a tribute, pretty much, to him."

The addition of Stringfellow and McCaughey brought a new, ever-shifting element to O'Herlihy's work. "For me it's quite difficult because you'll have three or four different musicians picking up the bass guitar, for instance, and they'll play it quite differently from each other, and everyone swaps and changes. The only people who don't swap and change are the drummer and Michael," he explains. "So you're kept on your toes because everyone plays with a different kind of velocity and tenacity, and you have to watch it all the time because it changes all the time."

SONIC BACKBONE OF THE TOUR

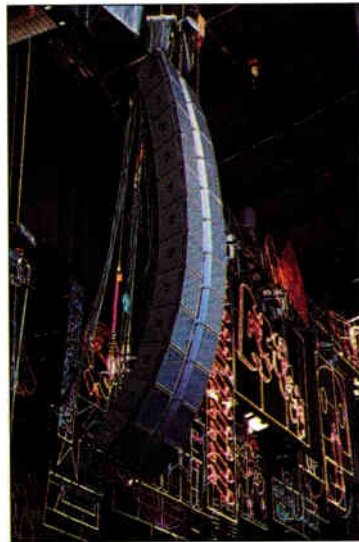
The tour also gave O'Herlihy a chance to try Clair Brothers' new I4 line array system, which he and Ravitch worked on for the past two years during its R&D phase. The system comprises two columns of 12 speaker boxes that resemble human spines and are directly hung from the top of the stage on the left and right. Each box includes one 18-inch, four 10-inch and four 2-inch transducers, plus 12 supertweeters.

"It's quite different from the normal, conventional method of doing stuff where you set speaker after speaker after speaker on top of each other. It's hung like this," says O'Herlihy, curving his arm. "The curvature of the spine is the best description of it. The reason it's hung like that is the top speakers are pointed up to give it a really long, natural dispersion. They go right up into the lawn area here, for instance. When it comes down to the bottom, the bottom speakers are racked to such an extent that the speaker system points directly down onto the floor and the audience that is immediately in front of the stage."

Clair Brothers has had a few of the I4 systems out with Bob Dylan and Paul Simon, Roger Waters and Backstreet

Boys, but hasn't publicized it because of the limited number manufactured, O'Herlihy says. "It's definitely futuristic technology that's going to take the industry right into the year 2000," he raves. "The audio industry has been looking to find something like this for a long, long time. There are many companies that have come up with various systems, but I think that they'll find this one particularly difficult to match."

Ravitch agrees: "We wanted to come up with a system that would fit in less truck space but sounded better and looked better than what was going on now. S4s have been designed and updated continuously over the years, but it's still basically the same rectangular box that it was in the '70s when it was first designed. So it was time for a change, time for something new, and I think so far people have been impressed by it."



Clair Brothers' I4 line array system

PHOTO: STEVE JENNINGS

IT'S ALL IN THE PRE-PRODUCTION

O'Herlihy's work on the *Up* tour began this spring in the band's hometown of Athens, Ga., during two weeks of rehearsals. He familiarized himself with more than 50 songs and programmed them into a Midas XL4 console. "An awful lot of work I do is preparatory, it's put in beforehand," he says. "We rehearsed the best part of 60 songs for this particular show, and at any given time, the set will change quite dramatically from night to night. I had to program those 60 songs into the desk beforehand, and they select a particular set list on a night. They might say we will play these 24 or 25 songs tonight, and there is no particular set order or format to it."

"They play whatever they want to

play. No two sets are the same. You might get maybe eight songs of the 25 songs that might have a pattern, every other night, which are guaranteed, and at least a good 12 of them will be completely different," he says with a chuckle. "It's good to know beforehand because I'll do my recall notes, my computer will recall a particular song, and once I get a set list, I can put it in that particular order so at least I get a chance to reset everything, and you just hit the go button, and the console will set itself up for 'Losing My Religion,' and the faders for each individual instrument will go into a starting position for me. That night, I change it to adapt it if, for instance, Joey isn't hitting the drums as hard as he was the night before."

In "Losing My Religion," for example, O'Herlihy might turn on the backing vocals for Mills or highlight the lead instrument, Buck's mandolin, but otherwise, he says, automation has made his job considerably easier. "I can remember vividly from previous U2 tours and the previous R.E.M. tour, where you would be scrambling left, right and center, and my systems engineer and assistant FOH Jo Ravitch and I would be pushing faders all the time, just to try and keep up with what was happening up there," he says. "The technology has introduced itself quite well. It's very much user-friendly now. Rather than computer-driven, it's computer-assisted, which means that ultimately you make the final decision. It hasn't taken over, and I don't think it will, because by the end of the day, the computer will do things scientifically whereas you have to hear what you hear and make it sound as good as you can."

When the band spontaneously launches into a song that wasn't preprogrammed into the desk, O'Herlihy has to scramble. That happened in Slovenia at the end of this summer's European tour when the crowd burst into a chant for "Stand." "The band just played it. They hadn't rehearsed it, and everyone was kind of looking at everyone else and off they went," O'Herlihy says. "The character of that is fantastic because everything is so processed these days. It's good to see a band can do something like that—just grab a song by the scruff of the neck and play it."

MIKING STIPE (AND BUCK, AND MILLS, ETC.)

Stipe is used to taking things in stride—particularly when it comes to microphones. Introducing "Sad Professor" at the Shoreline show, he joked, "We're



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LIVE SOUND

trying to get a sad professor somewhere to write about how the relationship between me and my mic stand represents destructive elements of my personality. It's a bit of a stretch but..." And after the first of five encores, he revealed that he bashed his lip on his mic earlier in the performance but managed to hide the blood. "This—I do for you," he said in a tone dripping with irony.

The offending mic was a Shure SM58 with a regular wire. On the drum kit, O'Herlihy used a Shure SM91 and beyerdynamic M88 on the kick, with Shure Beta 98s on the toms, Beta 56s on the snare, and two Audio-Technica 4050s and one 4051 on the cymbals. Buck's five Vox SA30 amplifiers got SM57s. The keyboards, a Wurlitzer and a Hammond B-3, were captured with Countryman DIs; O'Herlihy used a Beyer M88 (bottom) and a Beta 56 (top) for the Leslie RB122 cabinet.

O'Herlihy's FOH effects included Yamaha SPX1000s, Lexicon PCM70s and a 480L, and an Eventide H3000. He used a dbx Blue Series 160S for compression and dbx XL166s for gating.

The signal chain for Stipe included the Blue Series 160S compressor, the Eventide H3000SC as the vocal treatment, the Lexicon 480L for reverb and the SPX1000 for a chorusing effect. Waronker's drums were treated with two PCM70s and various reverbs that change from one song to the next. The acoustic instruments received the 480L, the B machine for reverbs and the PCM70 for a few chorusing programs.

WHAT'S THE FREQUENCY, DON?

The majority of the band is on Clair Brothers 12AM Series 1 wedge monitors, says monitor engineer Garber, who works on an ATI Paragon 2 console. Mills and Waronker, however, used Future Sonics earmolds (with Garwood Radio Station transceivers) and Stipe also had in-ear monitors when he was concerned about his pitch on particular songs.

The wedges were placed in stereo pairs at each mic position with no side-fills. "Nothing big and noisy," Garber says. "Just a nice hi-fi sounding monitor rig. It's a pleasure to do, actually. You don't have to make things sound ugly to get heard. It's a nice, smooth sound."

The reason for the simple approach? "R.E.M. is such a vocal-oriented band," Garber explains. "Guitars and bass are as important, but it's more of an arrangement-oriented band, not a loudness-of-volume kind of band. The emphasis

is on balancing everything properly instead of trying to blast everybody as loud as you can blast them."

Garber uses compression on the kick, snare and some of the vocal channels, while the ear monitor mixes have Aphex Dominator protection limiting on them "so we're not blasting anything into their ears by accident," he says. Additional equipment included Crest amps and TC Electronic equalizers.

SOUND CHOICES

The biggest sonic challenge at Shoreline is the roof, O'Herlihy says. "The tent structure causes quite a bit of reflection," he says. "Particularly at soundcheck you will notice it will bounce around a lot, because you have reflection from the roof, and you've also got reflection from the concrete and the plastic seats. The combination of both of those usually gives you quite a difficult and hard soundcheck. But as a seasoned professional, you will know that when the audience comes in a lot of that reflection will be dissipated. So you won't remove a huge amount of the frequencies from the system. The offending frequencies at soundcheck time will be needed and quite necessary by the time the show happens. You're between the devil and the deep blue sea deciding which way to go with it, of course."

O'Herlihy's main concern was to go beyond replicating the more ambient, electronic sounds of the band's new material—or the lo-fi aspects of the older material.

"I just find that once you create something and capture it and have it on record—that has a life and existence all of its own," he says. "But when you come to a concert you want to be taken somewhere else. The band will play the material, and I will do the best I possibly can to create it as close and as decent to the record as I can possibly make it. But I also have to introduce an adrenaline to the proceedings that basically takes you to another place. That's what it's all about: the performance, the connection between the band and the audience. That's what my sole objective is out there—to nurture that energy and introduce the adrenaline aspect so that when somebody goes away from the show they go, 'Wow, that was amazing.'" ■

Mix copy editor Kimberly Chum saw R.E.M. for the first time during their 1985 tour and joined the band's fan club shortly after discovering a small road called Peter Buck Street in her hometown of Honolulu.

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—FROM PAGE 162, MIXING THE MONEY CHANNEL best,” he says. “But most artists I’ve worked with have been using a particular mic they like and prefer. For male vocals I’ll default to a Beta 58—at least they’re consistent and predictable. For female vocals, smooth midrange counts, and they seem better suited to condenser vocal mics.

“In general, the artist is really reluctant to give up something that’s comfortable, especially if he or she has been using it for a while. I have tried to get three different artists away from microphones I thought were less than ideal for them, and I had to give up every time. It’s just not worth it, because the comfort factor is too important—the discomfort that changing the mic causes is greater than any increase in fidelity that I get. I can usually adjust to the singer’s choice of microphone, if it’s any generally accepted good quality vocal mic.

“There’s not too many bizarre microphones you run into,” Guest adds. “But more and more people now are using wireless microphones, which are my least favorite. They still don’t sound as good as a hard-wired microphone—the clarity isn’t there.”

Dave Lohr commends the AKG C-535. “When it came out, the AKG C-535 was, and still is, a very good mic for a lot of vocalists,” says Lohr, who had been using it with Neil Young since 1989. “I know James Taylor does very well with it; it sounds incredibly good on his voice.” Nevertheless, Lohr recently switched Young to the Neumann KFS-150 hypercardioid after hearing him sing through it at the 1999 Bridge School benefit. “I was knocked out by the sound of [Young’s] voice through the mic alone and took the processing out of line,” recalls Lohr. “It sounded really good, and we ended up going with [the KFS-150] for his latest acoustic tour, using just some minor de-essing and minor compression.”

Of course, there are times when the FOH engineer’s first-choice mic may not be best for the artist. “A lot of mics that I’ve found work excellent for FOH don’t work particularly well for the monitors,” says Lohr. Pointing out that rehearsals are the best time to work out any necessary compromise, Lohr says that mic selection “has to be a collaboration between the artist, the monitor engineer and the house engineer. For example, with Carly Simon—she was on in-ear monitors—we were using a microphone that she wasn’t really happy with

because of the raspiness of the sound in her ear monitor. We changed to the AKG Tri-Power 5900, which has a rich, almost ribbon-like low end and midrange, and she was much happier with it. It also seemed to balance really nice with her voice in the P.A., so we solved two problems there.”

If you’re not getting signal, you can’t make it up. You need the initial signal.

—Laurie Quigley

ENTER MR. DYNAMIC

A major factor in microphone choice is the artist’s technique. “With most vocal mics, as long as the guy keeps it close to his mouth, you’re fine,” says Quigley. “If you get a guy who wants to be Mr. Dynamic and is pulling the mic away and trying to make these high notes, then all you’re picking up is snare drum and guitar amps. If the vocalist has reasonable technique and keeps the mic close to his mouth, you’re fine.”

Guest agrees. “The only time I run into a problem is just with the mic techniques, if they’re too far off-mic,” he says. “Generally, a good monitor engineer can take care of that. The biggest danger when you get ear monitors in the mix—which are good, because they clean up the stage so much—is if the ear-monitor engineer is using a lot of compression and lower thresholds, and the artist can crank up his own ear-monitor system to the point where they can hold the mic about two feet away and still hear themselves really well—that’s a problem. The monitor engineer has to be aware that this can be a problem for front of house. It’s great for the artist and the monitor engineer, because the artist thinks the guy is doing such a great job that he can hold the microphone so far back like that and still hear, but it’s actually destructive for the rest of the show.”

“The main thing is you work with the vocalist to get his technique correct,” adds Quigley. “If it’s correct, then you’re getting good signal to the microphone, and you can do what you need to do. If you’re not getting signal, you can’t make it up. You need the initial signal.”

Vance Powell, who has spent the last year and a half mixing FOH for Jars of Clay, is familiar with the problem. “The lead singer for the Jars is one of the

hardest to deal with vocally of anybody I know,” he says of singer Dan Haseltine. “He just doesn’t sing loud. He’s a very low-level, breathy, emotional singer and goes from whispers to screams at any given moment, but mostly his vocal level is quite low. I’ve experimented with a few things, and the only thing I’ve found that really works for his vocal is an Audix OM7 capsule on a Samson wireless.”

Quigley underlines the importance of reliability. “When you’re doing rock bands, you can’t have a microphone that sounds high-fidelity and beautiful but won’t get through the first song,” he notes. “When it comes to vocal mics on cables, your old standards are Shure SM57s and SM58s. They are mics that all ways work. You can beat the living hell out of them, put them in and out of trucks every night, they can go through different humidity levels and still deliver all the time.”

TWEAKING THE MONEY CHANNEL

Asked about his usual vocal processing signal chain, Lohr notes that, with the right artist, it is often hard to improve on the correct microphone choice and an experienced hand on the fader. “The right mic and a little compression, that’ll usually take care of it,” says Lohr. However, he names the Crane Song STC-8 compressor and the discontinued UREI LA-22, a dynamic equalizer often used for de-essing, as his favorite pieces of outboard gear. He also mentions the BSS DPR-901 dynamic equalizer. “I use it occasionally—other people use it with great success—but I tend to shoot more for a mic change and a mic preamp change,” he says.

Quigley’s favorite compressor is the Summit TLA-100 leveling amplifier, followed by the Empirical Labs Distressor. “I also use a BSS 901 as a frequency-dependent limiter,” says Quigley. “I try to keep my vocal channels as flat as possible, maybe adding a hair of high end, taking away a hair of bottom. I think if you set your sound system up correctly, you should be able to run the vocal channel reasonably flat—I don’t really agree with adding or subtracting huge amounts of EQ. Now and then you have to work with a vocal that needs radical things done to it, but in general I don’t like doing that.”

Guest often carries a small rack of outboard gear specifically designed for the lead vocal channel. “I work with a few people who move around the planet quite a bit, and I don’t have the same console every day,” he explains. Guest’s



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setup includes a high-quality preamp, a parametric equalizer and a tube compressor with a sidechain; the line level vocal channel output is then inserted into the board on a fader. "This gives me a sonic consistency," Guest says. "It's amazing how much character the board will impart to a signal every day. This setup really minimizes that to the point that it becomes very predictable." Once Guest has his vocal processing channel set up correctly for the artist, he can use that as a reference for tuning the P.A. "It gives me a level of consistency, and I spend less time monkeying around with that very important part of the show and more time on other things. I can spend more time on the P.A. itself and the rest of the band," he notes.

Guest's setup is designed to cope with a "nonlinear" singing voice. "If you're trying to run a vocal really up in the mix and the singer has a really narrow power band, you need to get control of that," explains Guest. "If you try to take it out too much with EQ, you ruin the tonal quality of the vocal. So I'll go for the sidechain EQ to try to get control over an area instead of trying to use too much EQ. I try not to use any more EQ than I need to make the vocal mic itself sound good."

Though the components in Guest's vocal processing signal chain often change, he has recently been using the ATI Pro6 and Focusrite Red preamps and names Drawmer and Summit models as his favorite tube levelers. "The compression ratio depends on the artist," adds Guest. "If they're really dynamic, I have to compress it a bit, because I like to keep the vocal right up in the mix, and the more you want it in your face the more compression you have to put on it—to a point: then you start robbing too much dynamics. So it really depends on the artists; if they give you a consistent level, then you don't have to use that much."

PRESERVING TONAL QUALITY

Guest prefers "frequency sensitive" compression, triggered via the compressor's sidechain, to "frequency selective" compression or dynamic equalization. "I'd rather preserve the tonal quality of the vocal and just let the compressor do the overall gain reduction adjustments based on the contour of the sidechain and the threshold setting of the compressor," he explains. "You can monitor the sidechain EQ to zero in on problem areas, and it seems smoother and easier

OUT IN FRONT

Mix would like to thank the following FOH engineers for sharing their expertise:

Steve Guest started out in a recording studio in Baltimore, joined Maryland Sound Industries in 1983, and has been an independent since '95. Guest has toured as FOH engineer with Ricky Martin, David Bowie, David Sanborn, Janet Jackson, Bette Midler, Cyndi Lauper and Paula Abdul. Most recently he has been in Japan working with artists Tomoyasu Hotei and Miki Imai.

Tim LaMoy has been a staff engineer with MD Systems (Nashville) since 1993. Currently mixing FOH for Backstreet Boys, he was with Charlie Daniels for six years.

Dave Lohr started his career with Northwest Sound and Quarterflash, then joined Maryland Sound Industries (which absorbed Northwest in 1982). A veteran of Super Bowl and Pink

Floyd shows, Lohr has mixed for Carly Simon, Crosby, Stills & Nash, Hall & Oates, Dan Fogelberg, John Hiatt and George Benson. Lohr is now working with David Sanborn and Neil Young.

Vance Powell is a staff engineer with MD Systems (Nashville), where he handles industrial shows when not mixing FOH for the Grammy Award-winning alternative/contemporary Christian band Jars of Clay. He has also mixed for Tammy Wynette (five years), Nanci Griffith and Martina McBride.

Laurie Quigley started his career with TASC0 in England in 1981 and moved to the U.S. in 1984 with Whitesnake. Originally from Australia, Quigley has since worked with numerous big-name rock bands, including Mötley Crüe (ten years), Ozzy Osbourne, Dio, Cinderella and Tesla. He has been mixing FOH for Aerosmith for the past two-and-a-half years. ■

to control that way. If you find yourself going after specific frequencies with a dynamic EQ, it might be a tuning problem with the P.A. system rather than the vocalist." As for the compressor sidechain equalizer, "any third-octave will work," says Guest. "It doesn't really matter because it's not in the signal path.

"The one parametric EQ that seems to keep popping back in the rack consistently is the Meyer Sound CP-10," Guest continues. "I am insistent about having that, though I'm very flexible in a lot of other areas." Guest points out that the stereo CP-10 allows him to set up identical signal chains for the main and spare vocal channels.

Lohr recalls that he arrived at a similar solution for a singer whose vocal character and delivery would change radically, even within the same song. "It could dramatically change over from a deep, thick, low-end whisper-type voice to a real raspy, upper-midrange, nasal sound," says Lohr. "I had to carry a mic preamp, an EQ, a de-esser and a compressor in a two-space rack so that I could control the voice. However, once it was dialed in, it turned out so well that we went in the studio and did a record with the same setup. It translated well from live performance to the studio." Lohr's voice processing setup at first included API mic preamps and EQs (312 and 550A studio modules), but after changing the vocal mic to the large-diaphragm AKG D-5900, he switched to an Amek 9098 mic pre/EQ

and a UREI LA-22 de-esser.

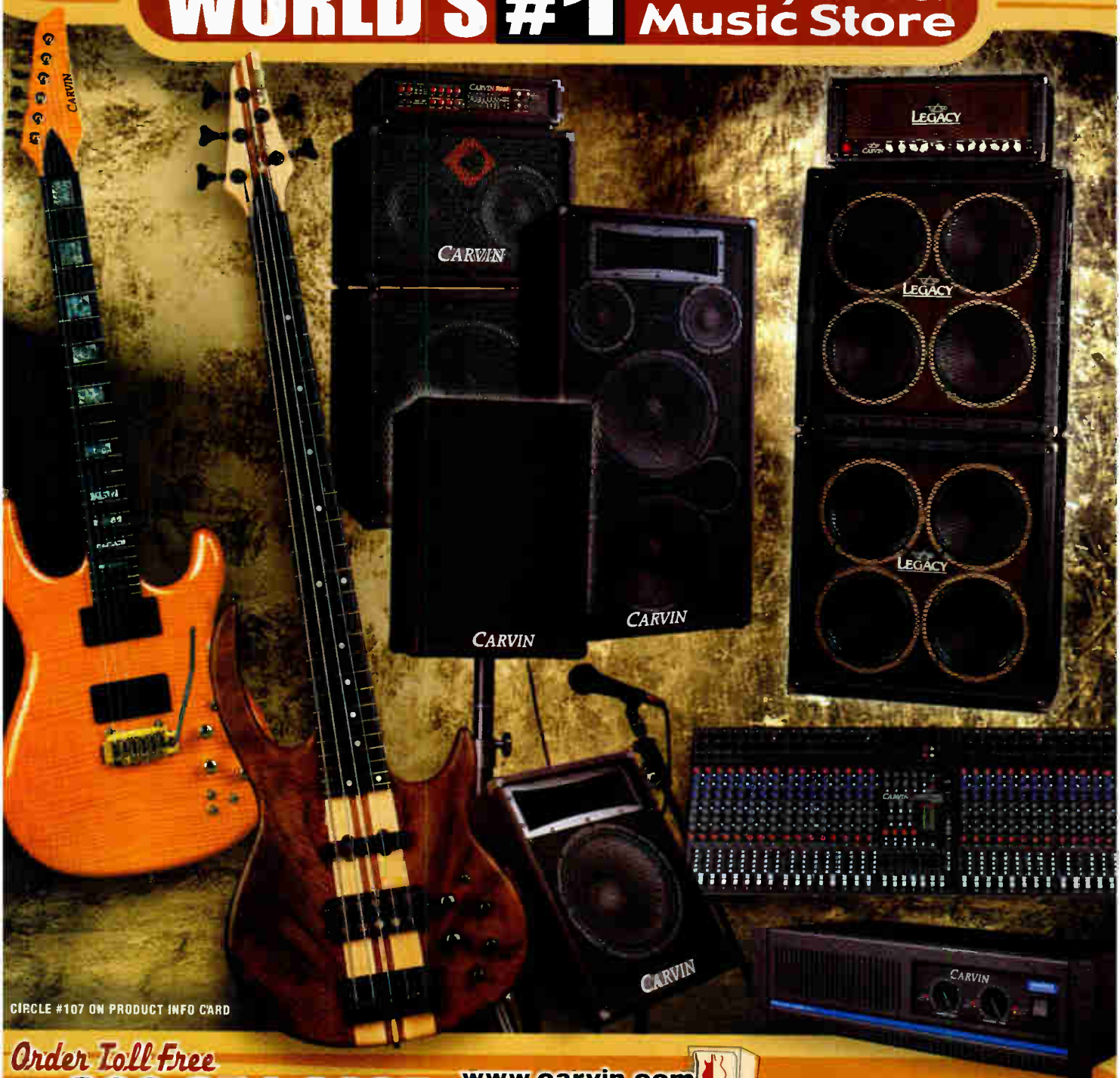
Powell has also arrived at a voice processing solution for Jars of Clay, but in a single unit. He feeds the vocal mic line into an ATI Pro6 preamplifier/vocal processor. "It's basically a single channel out of a Paragon console," explains Powell. "With the Pro6 I get plenty of vocal gain, and even under large amounts of compression it doesn't cloud it up, it doesn't roll the high end off." The Pro6 includes a mic preamplifier, a highpass and lowpass filter section, 4-band fully parametric EQ, a compressor and a gate. "It's a genius piece," says Powell. "It usually fits in my FOH rack, and I always bring it back in the insert return and bypass the board preamp, even on the Midas XL4. Once it's set, I can forget it, and, since I'm always coming back into the desk on the insert, even if we use another desk my gain staging is the same."

To help manage his three background vocal inputs for Jars of Clay, Powell uses the D3 Puresound Mic-Mute™, a phantom-powered infrared gate that switches the mic channel on when a singer approaches. "They're adjustable for distance and have really helped with the stage ambience," says Powell. The keyboard player has two Beyer M700 microphones, one over his Wurlitzer and one over his B-3, which are both run through Mic-Mutes and into a Y cable. "I combine them to one channel," explains Powell. "Because of the gates, I never hear the other mic, so it's a

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simple fix—I only have one channel, and one set of processing, reverbwise.”

PREFERRED REVERBS AND DELAYS

“I have a tendency not to use that much reverb,” says Guest, noting that for live work he prefers to use delay effects. “If it’s a ballad, then I’ll put some reverb on, but I’m not a huge fan of reverb—I get tons of it naturally from the hall or arena, and slathering the vocal with even more of it doesn’t help, except outdoors and in really [acoustically] dead venues. I like an [Eventide] H3000 and a good stereo delay, working together.”

Powell, on the other hand, is a reverb enthusiast. “I think the [Lexicon] PCM80 is the greatest thing since sliced bread,” he says. “My rack on the upcoming tour is going to be three PCM80s and one H3000. With the PCM80s, 90s, 81s, 91s, I think that Lexicon has the market on natural, real-sounding reverbs. The 80 and the 81 are my particular favorites for vocals. With the Jars, I carry my own little rack for ‘fly’ dates—my ATI and a PCM80. The PCM80 has all the wonderful reverbs and has a lot of echo patches under the reverbs, so I

can get by without a delay unit by using the tap tempo function on the PCM80. That helps from time to time when we’re doing a fair or festival and not carrying an FOH rig. I don’t have to go dial up a bunch of other reverbs; I’ve got it all in one box.”

Lohr generally uses “two nice-sounding reverbs, one a chamber and one a plate, and I mix and match the two sets of algorithms together—that seems to give me the most consistency in day-to-day use.” He also uses Lexicon 480Ls or 300s. “They have a warm plate that sounds very, very good,” he notes.

LaMoy has been using TC Electronic M5000s for Backstreet Boys’ vocals and also uses a Lexicon 480, together with a TC Electronic 2000 for delay. “I also love the TC 5000’s GM Hall preset,” says LaMoy. “I go in and doctor the parameters a little bit, and I’ve got a great, really brilliant hall sound. It’s one of my favorites.”

Quigley’s preferred reverbs are all Lexicon models. “I use two 480s and a 224XL,” he explains. “The reason I use the 224 is the plate and a reverb patch called Inverse Room, which is something I really, really like—a very, very tight reverb that gives you an apparent

feeling of more volume. That’s the only Lexicon machine that program came on.” He also uses a TC Electronic 2290 unit for doubling effects on the main vocals and the Eventide H3000 or H3500 for pitch change and doubling effects on harmony and background vocals.

But, as Quigley points out, getting the reverb just right is often the least of the FOH mixer’s concerns. “I’ve worked with acts that are incredibly loud, such as Mötley Crüe, where you’ve just got to work to get over the stage volume,” recalls Quigley. “There’s no point trying to tell a musician to turn down, it ain’t going to work. It never has; it never will. What you try to do is get the stage sound as good as possible so that the P.A. is working with the stage sound. Then you put the vocals over the top of it.

“It has got easier in the past few years because of in-ear monitoring,” notes Quigley. “The majority of hard-rock band vocalists these days are going to in-ears, which makes it a lot easier for the vocalist to pitch and to hear himself. He’s not having to fight against three or four hundred thousand watts of Marshalls, excuse the exaggeration.” ■

Chris Michie is a Mix technical editor.



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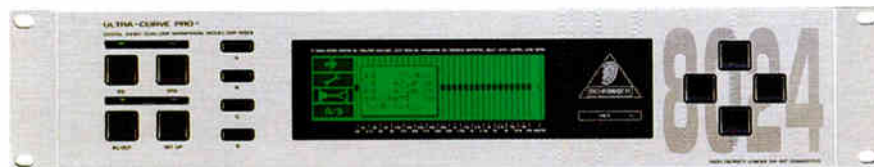
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tomatic 31-band graphic EQ and RTA that offers programmable control via MIDI or included PC software. Offering delay times up to 2.5 seconds, a brick wall limiter, a noise gate and three fully parametric EQs, the Pro DSP8024 includes an automatic feedback-killer circuit that operates six 1/60-octave-wide notch filters. The balanced I/Os are XLR and 1/4-inch TRS jacks; an optional AES/EBU interface allows digital connection with 24-bit resolution. Retail is \$499.

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MTX (Phoenix, AZ) expands its Power Loudspeaker line with the PM210H, a high-output (124dB max. peak SPL), low-profile floor monitor. Dual 10-inch drivers flank a high-frequency compression driver, and the strong and lightweight polyethylene enclosure includes a passive crossover. The PM210H offers two floor angles, and a front-mounted "Vocal Contour Control" allows the user to boost or attenuate the vocals in the mix by modifying midrange response. Power handling is 200W RMS, and there is a five-year warranty. Price is \$449.95.

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Chevin Research (distributed by Sennheiser USA, Old Lyme, CT) offers the M Series amplifiers, four models of

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2.0 ^{HV}	650	1000	nr
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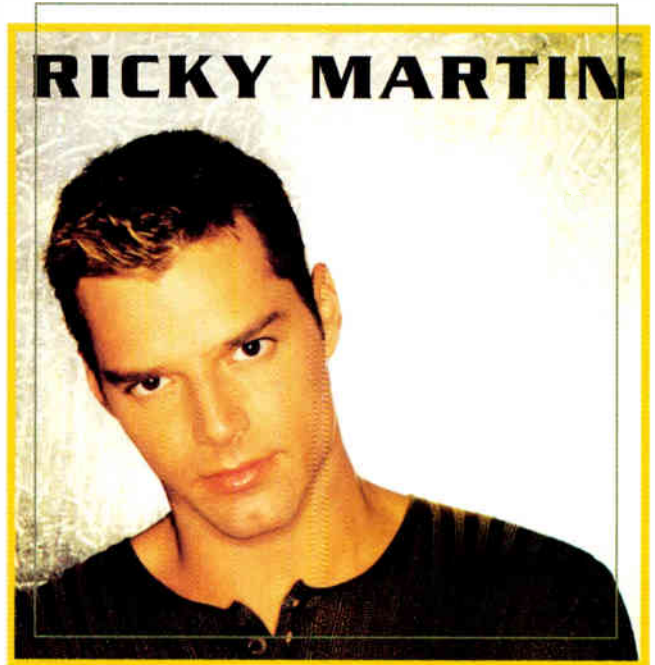
THE MAKING OF
A HARD DISK HIT

by Dan Daley

Ricky Martin has been stopping traffic lately. Literally. Performances on the streets of New York, Los Angeles, Toronto and elsewhere, on the heels of the wildly successful "Livin' La Vida Loca," have drawn riotous but adoring mobs smitten by the doe-eyed 27-year-old's good looks and winning style. And while Martin stops traffic, the only thing that finally stopped "La Vida" on the charts was the top. That, and the fact that there are simply a finite number of countries in the world with radio stations.

This record, which catapulted Martin onto the covers of magazines ranging from *People* to *Time*, is significant in a number of ways. For starters, it may herald a new wave of Latino influence on mainstream pop music, in much the same way that Garth Brooks and other members of the so-called "Class of '89" put country music's imprint onto the larger pop track—an influence still visible in crossovers like Shania Twain and Faith Hill.

Unlike another shooting-star recording, 1996's novelty hit, "La Macarena," Martin's "Livin' La Vida Loca" is the payoff for a long career of hard work. After a stint in the adolescent sensation Menudo in the 1980s, Martin embarked on a carefully plotted and arduous path toward stardom, building an acting career in New York and Los



Angeles by playing a running character on *General Hospital* and appearing as Marius in the Broadway play *Les Miserables*. Along the way, he made records for the Latino market, selling 15 million units before "La Vida" ever hit the airwaves. This is not the resume of your typical one-hit wonder.

On a completely different level, "La Vida" is a milestone of technology: the first Number One record to be done completely within a hard disk system. In addition to changing the course of mainstream pop music, "La Vida" may also turn out to be a pivot point in how records are made.

"Livin' La Vida Loca" was recorded in Miami, at The Gentlemen's Club (profiled in the February 1999 issue of *Mix*), the three-room, all-Pro Tools personal recording facility of Desmond Child. The musical auteur's ineffable knack for crafting perfect pop songs that often sell in Platinum increments has made him a producer in very high demand. Child's tracks include most of Bon Jovi's *Slippery When Wet*, a landmark in big-hair rock with anthems like "Livin' on a Prayer," through cuts for Aerosmith ("Angel," "Dude

Looks Like a Lady"), Joan Jett, Cher, Megadeth, Trisha Yearwood and Alice Cooper. Child now writes with production in mind.

So it was with Ricky Martin, with whom Child began working in early 1997 at the behest of Martin's manager, Angelo Medina. "From the very beginning, the demo was the record," says Charles Dye, at the time the staff engineer at The Gentlemen's Club and the primary recording and mix engineer on Martin's debut English-language album. "It's not even fair to call what Desmond did a demo, since we don't think of it as that. All the recording that went on, even as the song was being written, was considered part of the final recording, because when you're working in the digital domain, you don't have to redo tracks."

"La Vida" was written sometime in the last half of 1998, by Child and Robi Rosa, another Menudo veteran who co-wrote most of the songs with Child and also co-produced much of the album. If success has many fathers, this album is a paternity suit. Child is listed as producer on eight of the CD's 14 tracks. Eleven pro-

—CONTINUED ON PAGE 183

SAVAGE GARDEN FIND "AFFIRMATION" AT WALLY WORLD

By David John Farinella
Mixer Dave Way is standing in front of an SSL 9000E listening to the mix he finished the night before. Next to him, producer Walter Afanasieff is hopping along in his chair, grooving to the song. Behind them, Savage Garden singer Darren Hayes is listening intently, but looking a bit depressed. A couple of minutes later, in the lounge of Afanasieff's Wally World studio in San Rafael, Calif., he quietly admits, "I couldn't finish the vocals on this song; it took me almost a week. I think I was drawing it out because I love being here so much."

Half a world away, in their native Australia, the musical brains behind Savage Garden, Daniel Jones, echoes his partner's fondness for Wally World. "It was one of the best environments I've ever been in to record or to write music," he says. "It was so relaxed."

The team of Savage Garden and Afanasieff first joined forces when the lads recorded "Animal Song" for the soundtrack to *The Other Sister*, but Afanasieff admits he was a bit surprised they wanted to work with him in the first place. "After the initial surprise of them wanting to work with me, I sort of



PHOTO: STEPHANE SEDNAOUI

Daniel Jones (L) and Darren Hayes of Savage Garden

took what I do and what they do and mashed it together," he says. "That's what we've been doing." Part of what Afanasieff brought to the table was a heavier sound, which he says was what the band was looking for. "They thought that their first album

was a little too light, a little too thin-sounding. I just wanted to add thickness and girth without taking away from their songwriting and their sound. They definitely have a very unique, very particular songwriting style, and

—CONTINUED ON PAGE 186

ROCKING IN L.A. WITH 311

by Robyn Flans

Time should not be a luxury in the recording process, yet so often it is. Sometimes time is short due to budget, and other times it's because the band gets caught up in the merry-go-round of needing to be on the road to promote an album, which short-changes them when another project comes due. According to 311's drummer Chad Sexton, time had been the missing piece of their musical puzzle, made particularly evident by the recording experience of their current project, *Soundsystem*.

"On our last record, *Tran-*



PHOTO: MARINA CHAVEZ

sistor, we would make a song, learn it, record it, and it was on the record," Sexton says. "With this album it was more like, 'Make a song, go

away from it for two months, come back to it, see how you like it, something's not right so change the chorus,

or add a part, or get rid of the song altogether.' We tried not to force anything with the attitude of, 'Oh, we can make this song great.' If we weren't feeling it, we didn't even mess with it. Time really gave us perspective, and we were able to make the right judgments."

—CONTINUED ON PAGE 188



RICKIE LEE JONES' "CHUCK E.'S IN LOVE"

by Tim Morse

In the spring of 1979, Rickie Lee Jones' "Chuck E.'s in Love" appeared like an oasis in a desert of disco and arena rock. Over Steve Gadd's shuffle beat and a bed of bluesy acoustic guitars, Jones told a young woman's tale of how friendship can be changed by love. She sang with passionate honesty, delving into places deep inside herself, and using a beat poet's vocabulary, she populated her songs with heartfelt vignettes of colorful characters. Her music was a melting pot of her influences. Blues, country, folk, jazz, soul and show tunes were seamlessly blended together by the cream of L.A.'s studio musicians on her exquisitely crafted songs. At the time, there was no one making music like Jones, but her influence on many singers who came after her—from Edie Brickell to Sheryl Crow to Jewel—is clear.

Rickie Lee Jones was born on November 8, 1954, in Chicago. Her father moved the family frequently, but the majority of Jones' early years were spent in Phoenix, Ariz., and Olympia, Wash. Mr. Jones had show business ambitions of his own and started teaching Rickie to sing and play music at an early age. She soon found that her music and poetry offered her solace from her parents' turbulent relationship. In school, Jones was an insubordinate troublemaker: "I was a smart ass. I had a big mouth with teachers who I thought were wasting my time," she has said.

She started running away from home at the age of 14, and began using drugs and alcohol and living a bohemian lifestyle. Eventually she worked her way down through California, arriving in L.A. in 1973. She worked as a waitress, and on her off-duty hours performed spoken-word pieces and music at local clubs. During this period she wrote many of the songs—such as "Last Chance Texaco" and "Easy Money"—that would appear on her eponymous debut album. "Chuck E.'s in Love" was among those written in the fall of 1977, and it reflects the time Jones spent with friends Tom Waits and Chuck E. Weiss. As Jones remembers, "[Weiss was in love with] his cousin...there was a telephone call from Denver one day and it



PHOTO: CRAIG DIETZ

was Chuck E. And Waits hung up the phone and said, 'Chuck E.'s in love!' I just made the rest of the song up."

Her first big break came when Lowell George recorded "Easy Money" on his solo album *Thanks I'll Eat It Here*. Shortly thereafter, her demo tape came to the attention of Lenny Waronker of Warner Brothers Records, who in turn contacted Russ Titelman. As Titelman recalls, "Lenny called me in England and said, 'There's this buzz on this girl. I'm going to send you a tape. I think it's something we should do.' So he sent it to me, and 'Chuck E.'s in Love', 'Easy Money' and 'Company' were on it. I went crazy for the original demo of 'Company.' I was in tears when I heard the vocal performance on the thing. I listened to it over and over and over again. And I called Lenny back and said, 'Who is this? This girl sings as good as Roberta Flack. Who is she?' He said, 'I was more interested in the songs! I wasn't paying attention to the performances.'" As soon as Titelman was back in the States, a meeting was arranged with Jones, and she signed with the label. Waronker and Titelman became the producers of her debut album.

"Chuck E.'s in Love" embodies a crisp, clean production, with separation that allows the listener to hear each instrument distinctly. Yet the song sounds remarkably full given the relative sparseness of the instrumentation. The key to this production is that the arrangement of the song was considered nearly as important as the recording of it. As Waronker states, "The arrangement often has a lot to do with how a record sounds. People have the

tendency to want to get a certain sound based on technology and electronics, and my experience is that it's way more than that. The album is really as much about trying to capture Rickie's personality. And the more involved she became, our sense is, the better it would be. She was very much involved with the arranging."

"Chuck E.'s in Love" was one of the first songs recorded for the project. It was recorded at Warner's Amigo Studios, in Studio A. Amigo was equipped with a 24-track 3M79 with Dolby A and a customized API board. Westlake monitors were used with TAD drivers (additionally, "Little Davids" were used for reference). Lee Herschberg, who engineered the album, recalls Amigo as "an exceptionally good studio and fairly live acoustically. Most of the studios like the Record Plant were very dead." He also says the album was free of gimmicks and that he didn't use a lot of outboard gear at the time. A Neumann U87 was used to record Jones' vocal. Her acoustic guitar was also miked with a U87 in conjunction with a Shure SM57. The mic placement was determined by the guitar and its timbre. Jones herself was responsible for the distinctive finger-snapping on the record.

Waronker and Titelman spared no expense in hiring the best L.A. session players. Victor Feldman played a Fender Rhodes part (with the live backing tracks of bass and drums) that they decided wasn't quite right; they later wiped it and replaced it with a new one by Neil Larsen. Herschberg took the Rhodes stereo direct out and put one side through a Harmonizer and would

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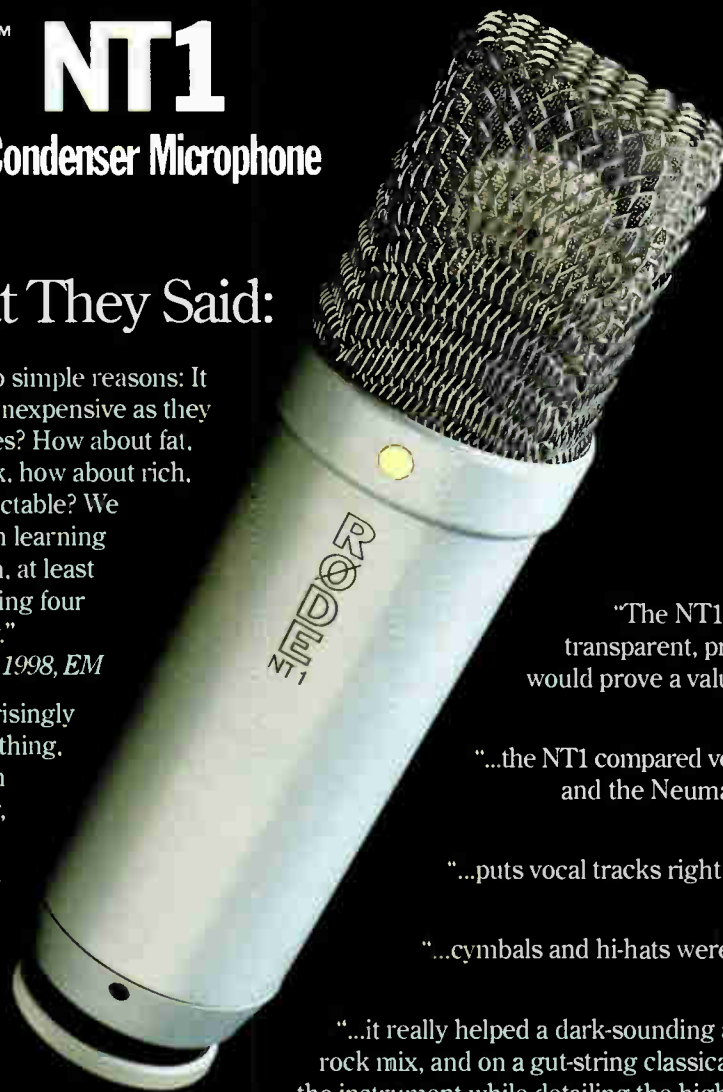
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—Brian Knave, April 1998, EM



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drop or up the pitch just slightly to give it a little delay, fattening the sound a bit. Feldman ended up participating on the session by playing vibes. Buzzy Feiten played the main acoustic guitar that doubled Larsen's electric piano parts (Jones played the guitar accompaniment on the bridge of the song). The bass played by Willie Weeks was recorded using a combination of DI and miking his amplifier with a U87 and an SM57. Since the room at Amigo was so live, it wasn't necessary to put the mics (no more than two) too close to the horn section (consisting of Ernie Watts and Tom Scott on sax and Chuck Findley on trumpet). Herschberg would set the mics further back in the studio and let the sound blend in the air a bit.

Russ Titelman observes: "The horn parts were Rickie's conception. She would sing the parts pretty much, and they'd write them down and play them. And then she'd direct them to get them to play a, you know, little more sort of peculiar." Drummer Gadd was placed in the middle of the room behind a baffle, and there was an umbrella above the drums that could be raised or lowered as needed. To mike the kit they used a 414 overhead, KM 84 on the snare, and a Sennheiser 421 on the kick drum.

Gadd made quite an impression with his performance. Herschberg says, "He always got such good sounds. It's not a chore to mike him at all. He often sounded like two drummers sometimes. It was hard to believe, you had to look out to see if there was a separate guy sitting next to him. He played such great stuff." Titelman concurs: "I remember when we did that song and he played that crazy fill—I went nuts! I just laughed, I'm in heaven, you know? The whole thing breaks down. It was so unusual, that record. It's going along like a simple little record, and then all of sudden there's this crazy bridge, and then it stops, and then an insane fill from a crazy drummer, but it worked. It

was so fresh sounding, so different."

Herschberg fondly remembers the sessions as being naturally smooth and spontaneous, and everyone connected with the project reflected on the fun and easygoing vibe in the studio, which translated into the finished product. One of Waronker's favorite memories of the session was "when we were listening to it back, the musicians were truly amused by the sense of humor and the fun that was involved with that track. It was a great feeling, when you hear musicians laugh in the right spots and are taken by what they've just done. A rare unanimity occurred."

The laughter stopped, however, when Herschberg went to master the

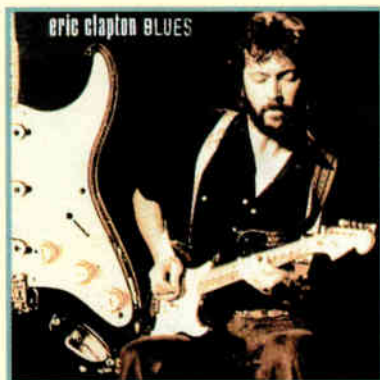
recording at Amigo. As is often the case, too much choice caused consternation on all parties concerned until a decision was finally reached. Titelman agrees, "There were many different versions of it, and it used to drive me crazy! A little bass added here, a little bit of limiting, 'No, I need a version without it.' We'd drive everybody crazy. Eventually it would come out and be its best, the best it could be. But you'd go crazy meanwhile." When the album was finally completed, Waronker and Titelman saw the potential for tremendous success in Jones' musical vision. Titelman recalls, "I called Lenny after we had finished, and I said, 'Lenny, I think that people are going to go crazy when

Cool Spins

The Mix Staff Members Pick Their Current Favorites

Eric Clapton: *Blues* (Polydor/UMG)

This latest two-CD repackaging of Eric Clapton's back catalog is an enjoyable, if



less than essential, collection of blues tunes recorded between 1970 and 1980. The first CD consists of studio outtakes, a few standout tracks from the otherwise disappointing *There's One in Every Crowd*, *No Reason to Cry* and *Another Ticket*, and a couple of more familiar songs; the second CD is essentially a condensed version of the exhaustive *Crossroads 2: Live in the Seventies* four-CD box set, plus two tracks from 1980's live-at-Budokan *Just One Night* and a hard-to-find version of "Further on Up the Road" with Freddie King. Four previously unreleased studio tracks might tempt the Clapton completist, but the chief attractions of this thoughtfully sequenced compilation are the choice of material and the exuberant guitar-slinging on the live cuts. Clapton's

singing voice is still under development, and the laid-back "Tulsa shuffle" of his '70s bands now sounds a bit pedestrian—the inexplicably included live version of "Wonderful Tonight" is particularly soporific—but Clapton's fluid and sure-footed soloing is a constant marvel.

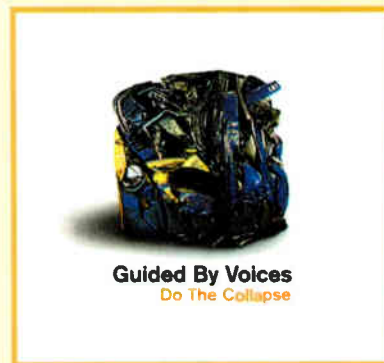
Compilation producer: Bill Levenson. Producers: Glyn Johns, Tom Dowd, The Dominos, Rob Fraboni (in association with Eric Clapton and Carl Dean Radle), Jon Astley, Jon Astley and Andy MacPherson, and Bill Oakes. Studios: Olympic (London), Criteria Studios (Miami), Dynamic Sounds Studio (Kingston, Jamaica), Shangri-la Studios (Malibu, CA) and Compass Point Studios (Bahamas). Live recordings: Ronnie Lane, The Rolling Stones, Wally Heider and Record Plant Mobile Units, and Showco Inc.

—Chris Michie

Guided By Voices: *Do the Collapse* (TVT Records)

Guided By Voices is to '80s Album-Oriented Rock as Will Smith is to the federal government in *Men in Black*. They make it look good. The band's first TVT CD opens with a re-recording of an early

—CONTINUED ON PAGE 190



they hear this record. It is so unusual and so real and passionate. Beautiful singing and all of these great songs. For a first album it was an unbelievable debut. I think there's going to be a lot of little girls with berets on their heads."

It turns out that Titelman was prophetic about Jones' career. "Chuck E.'s in Love" became a Top 10 single in May 1979 (its highest position was Number 4, and it lasted 12 weeks on the chart), and Jones was a critics' darling and a public sensation. Her performance on *Saturday Night Live* helped push the song through the roof, and she went on to collect a Grammy for Best New Artist of the Year. *Rickie Lee Jones* went multi-Platinum and was considered by many to be one of the best debut albums of all time. Herschberg sums up the experience by relating the best compliment an engineer can hear. "I've had more people say that's one of the best-sounding records they'd ever heard." ■

—FROM PAGE 178, RECORDING "LA VIDA LOCA" ducers, including Walter Afanasieff, Jon Secada and Madonna, are listed, and 28 primary recording and mixing technicians are listed in various roles on assorted songs, with at least an equal number of assistant engineers.

Child and Rosa worked out the song in Child's writing room on keyboards, with a decidedly low-tech boom box cassette recorder running constantly to document the composing process. Once the structure was worked out, Child handed the song over to programmer Randy Cantor, who set about creating sequenced drum, percussion and synthesizer parts, which would become the basis of the recording. Those parts were recorded through a Mackie 32+24•8 console to a 64-channel Pro Tools system. Rosa penciled in a rough vocal for the purposes of showing the song to Martin, his management and record-label executives. But even here, the expectation was that the song would fly, and all the parts were done with a final version in mind. Rosa also added some acoustic rhythm guitar parts, recorded directly to Pro Tools.

The tracks were then turned over to Dye for additional recording. The horn parts, some of which were used to augment layered synthesized horn parts and others for riffs, were played on flugelhorn and trombone by Tony Concepcion. All of the recording was done direct, without a console; Dye miked the horns with an AKG C-12VR, placing



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it rather close in on the bell. "I wanted a very in-your-face sort of sound," he explains. "Other [horn] tracks on the record have that sort of mariachi/cantina sound to them at times, but for this song we wanted it brash and sharp." The rest of the signal chain was a Focusrite Red preamp, an Empirical Labs Distressor for compression, and Pultec EQP-1A and Neve 1031 equalizers. The same signal chain was used for live percussion parts.

Not all percussion was created live. Some unexpected instruments were enhanced with Pro Tools plug-ins. "We wanted a gong at the downbeat of verse two when the band comes back in, but Rafael Solano, the percussionist, didn't have one with him. So we had to figure out how to make one," Dye says. "What we did was have Rafael hit the largest cymbal he had with a soft mallet. Then using a Pro Tools AudioSuite, plug-in I pitched it down two octaves, and with the time correction off, it made the length of the cymbal longer as well. Now it was deep enough but it had no sheen, so by then adding back in the original cymbal, we ended up with what sounded like a very realistic gong."

The benefits of a purely random-

access recording system were particularly evident in situations like this, where the producers are also the composers, says Dye. "It operates in a bars-and-beats mode, which means you can keep to the musical form while you're editing—you can think musically, which is what Desmond likes to do," he says. "He gets to experiment with the structure of the song and still use the parts that will be on the final record."

The tag chorus is a perfect example. Each chorus repeats the title line of the song three times before heading back into the next section. On the tag, Child felt that it robbed the track of some of its momentum as the song built to a climax. Dye edited out the additional two hook lines in between the two outro choruses—the equivalent of a 2-inch across-the-tape edit on analog multi-track tape—a decision that was made after listening to a final mix.

Martin also sang to the C-12, with no equalization but with careful compression, which Dye believes is critical as word-length resolution increases. "If you record without compression in a 24-bit environment, when you bring up the quieter parts of the vocal later you're actually bringing up lower-

resolution data, like eight bits, because there's less information there," he explains. "It's not using the full word length. It sounds grainy. If you compress that later, you're just compressing that. So you want to compress going in." To compensate, Dye used a Distressor set at a 6:1 ratio.

Martin's vocals also showed off how deep the pool of third-party plug-in modules for the Pro Tools system has become. Dye used a split Harmonizer-like effect from a DSP plug-in to add depth to the vocals: He split and hardpanned the effected signal with one side tuned up nine cents and delayed 18 milliseconds, and the other down the same value and delayed at 24 milliseconds, and then put a lowpass filter at 16 kHz to make the effect less obvious. "It's a trick I learned from Bob Clearmountain—I read it in a magazine years ago," he says. Dye makes liberal use of plug-ins such as Waves' Renaissance EQ and compression. But don't overdo it, he cautions. "You can't auto-tune horn ensembles. It just sounds terrible. What makes horns sound great together are the dissonances from their overtones and harmonics. It gives you a warm chorusing effect. If you try to auto-tune

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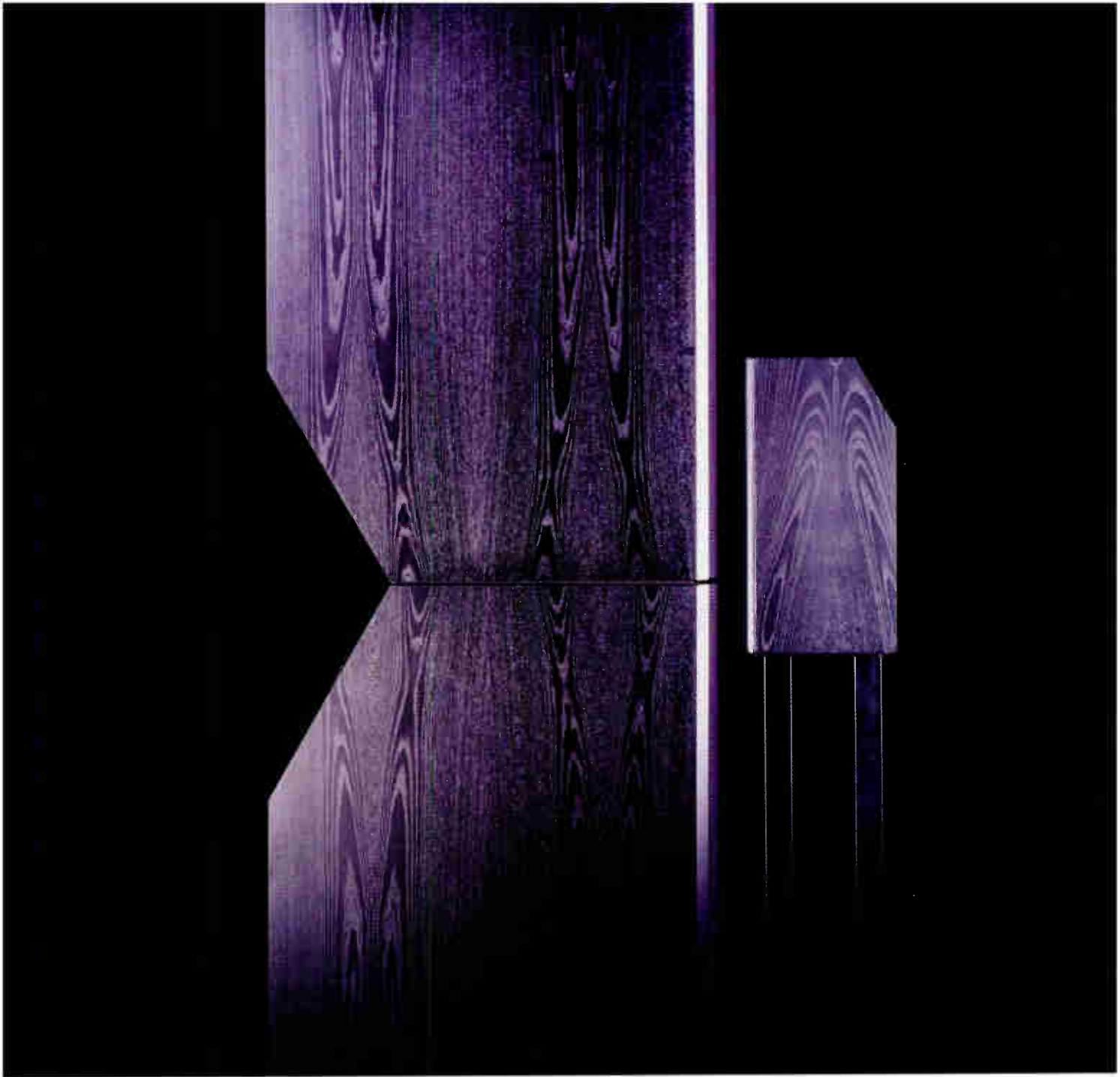
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them, it sounds like sampled horns.”

But it is the non-technical aspects of the vocal that illustrate what the song is about. Child is known for his ability to coax great vocals out of singers, and in the process, he works more like a film director than a music producer. “We wanted it fun, like the song itself was,” says Child. “When we were writing it, Sinatra had just passed away, and as we listened to a lot of his stuff, we incorporated a Rat Pack-era style to it, a kind of *Pulp Fiction* vibe, and that comes through in the vocal. The song worked well with Ricky’s mischievous side.”

Child says that Martin did several passes at the vocal, and the final take was comped from them. The *noir*-ish vocal approach is buttressed throughout the song with small but telling accoutrements, notably the surf-like guitar part (one of Rosa’s production inspirations, performed by Los Angeles-based session player Rusty Anderson to an ADAT tape with a slaved two-mix from the Pro Tools).

Martin’s career may be watched as a barometer of Latino influences on mainstream pop music, but “Livin’ La Vida Loca” was written by a master tunesmith whose *métier* is decidedly Anglo, linguistically speaking; the only Spanish words in the song are its title, and they’re easily decipherable by anyone with even a passing knowledge of the language. Dye concurs, and acknowledges that he was asked, at certain points in the recording of *Ricky Martin*, to “tone down” some of Latin elements, such as some of the percussion. “There are some songs on the record that wear their Latin nature on their sleeve,” he says. “But that’s not really the case with ‘La Vida.’ It’s designed to move Ricky into the mainstream. ‘La Vida’ was definitely trying to be a pop song. That’s clear. But at the same time, I’ve read in interviews that people like [Sony label executives] Jimmy Ienner and Tommy Mottola don’t want to alienate his core Hispanic audience. And that’s understandable.” (A Spanish-language vocal was recorded at the same time.)

The final mix kept the project completely in the digital domain, done to a Panasonic 3800 DAT deck, with no analog backup. “The thing about analog is that you know the sound is going to come back warmer, with a rounder, fatter low-end sound and smoother top-end transients,” says Dye. “But recording in an all-digital domain, the sound you get out is the sound you put in. You have to make sure that whatever

the sound is, it’s what you want it to be, because that’s what digital is going to give you back.”

Child also enjoys working in the hard disk realm, and feels a certain vindication for having supported it for a long time. “We made recording history in this room, doing the entire song on Pro Tools,” he says. “I was committed to Pro Tools long before I met Charles Dye, and I suffered all of the develop-

There are some songs on the record that wear their Latin nature on their sleeve. But that’s not really the case with ‘Livin’ La Vida Loca.’ It’s designed to move Ricky into the mainstream. ‘La Vida Loca’ was definitely trying to be a pop song.

—Charles Dye

ment processes of that format for years. Making Billie Myers’ record was frustrating because the system used to crash nine or ten times a day. And every new upgrade has some kind of bug. But with the 24-bit version, it works now as a way to make records. And we feel like trailblazers because we were with it from the beginning.” ■

—FROM PAGE 179, SAVAGE GARDEN

if you write a song like they do, you can’t really change so much of it.”

Savage Garden had made their first album themselves, but they turned to Afanasieff for help on about four of the 12 songs found on *Affirmation*. According to Jones, they take their demos to near-completion for one simple reason: “We just want to make sure there was that Savage Garden element before we went in to hand these songs over to a third party. We didn’t want to be taken away from where we started and come from. We wanted to make sure we had

our sound in the demos at the early point, so it would hopefully continue through to the finished album, which it did quite well.”

Indeed, Afanasieff was sensitive to the fact that their songwriting process includes polished demos. “I took the songs and I simply put it into a full-scale production process in the studio,” he says. “So it doesn’t matter if Daniel already had a drum sequence on his demo or there was a keyboard part sequence or there was a bass line going. To me, that’s the essence of the song and how they wrote the song, and all I do is take it a step further.”

Though he doesn’t have any particular keyboard favorites, Jones found himself turning to a Korg Trinity to write, as well as Roland’s S-760 sampler and its libraries. He also recorded some tracks into a Roland VS-1680 digital workstation. Rather than having to bring a ton of keyboards and other instruments into Wally World, however, Jones merely brought a half-dozen Zip disks, a couple of DATs for referencing demos, and the guitar tracks on the VS-1680 disks. He brought the VS-1680’s CD burner as well, because he heard there wasn’t one to be found in the States.

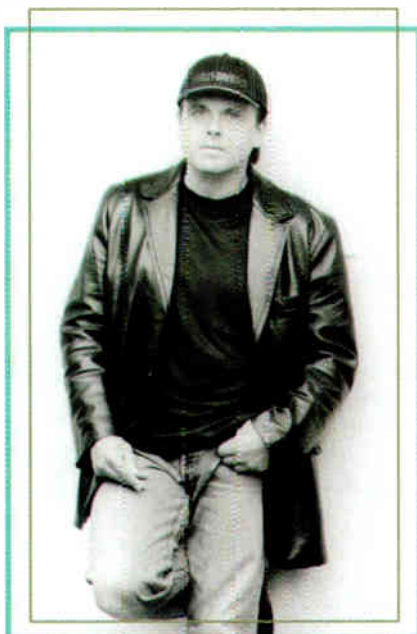
If that were true, the CD burner would have been the only electronic bit of gear that wasn’t actually at Wally World when the band walked in to start working. With a laugh, Afanasieff admits, “I kind of wanted to show off before they got here, so I went and literally got everything new and even some things that were prototypes and things they were beta testing. I wanted to kick their butts when they got here with everything that I had. When they walked in, it was like, we have anything and everything you could possibly want, from the old to the most new. I mean there’s a hundred boxes that we bought just to have Savage Garden go, ‘Oooo, what’s that?’”

“You plugged it in and it wasn’t connected or anything, so you could tell it was acting like a prop rather than an instrument,” Jones laughs. “It was just there to impress us, I think. But we finally made use of most of it. It was great.”

A number of Jones’ original files were re-recorded at Wally World, some with live players. Afanasieff explains that by playing on some of the tracks himself and using drummer Steve Smith, bassist Nathan East, and session guitarists Michael Landau, Michael Thompson and Dean Parks, he was trying to lighten Jones’ load. “The reason I’m playing keyboards is because he didn’t

want to leave it all up to himself to do that," Afanasieff says. "The same thing applied to guitars—he did what he wanted to do on his guitar part, but we thought that there's a little bit more to do. Rather than have him think of it all and try it all and get equipment to cover it all and different amps and guitars and parts and stuff like that, we just opted to get help." The vocal duties, on the other hand, were pure Hayes. They may have doubled and quadrupled some parts, but everything from the lead to the backgrounds were done by him.

No matter what instrument the team was recording, the goal was to stay in the digital domain throughout, which they accomplished right up to the mix phase when they dumped everything down to a pair of Sony PCM-3348HRs. For the recording dates they used a combination of ProTools 124 and a Fairlight MFX-3plus (a hometown nod for the Australian-based band). The Fairlight came into play while they tracked vocals, piano and acoustic guitar. "Fairlight to me is probably the best piece of recording equipment for those instruments," Jones says. Though it has some of the same ingredients as a lot of other digital recorders, Jones says it is



Walter Afanasieff

the unit's playback quality that impressed him. "It just seemed to have much more of a high definition," he notes. "It was a little warmer than the average digital recording. It was just overall a much clearer, better sound for those instruments."

Pro Tools came in handy while they

were tracking electric guitars and building sequences with Logic Audio. Line 6's Amp Farm was used for the guitar dates, and Lo-Fi was used on some loops. That's not to say that was the only way they effected the signal. "I think everyone was more of a fan in using outboard gear or trying to find the right sound to begin with that had some sort of effect to it, rather than trying to reproduce something that wasn't there through a plug-in," he explains. "Especially delays. We used outboard delays a hell of a lot." The trade-off is that all this technology burns tracks—up to 96 on a few songs.

For Afanasieff, working with Savage Garden was a nice stylistic departure from his usual fare—after all, this is the producer who has worked with Whitney, Mariah, and was completing a Kenny G album in the middle of the Savage Garden project. "You don't make a Kenny G record like this. Nothing against Kenny, but you just don't make records like this where you sit around and say, 'Oh, man, let's come up with something that doesn't sound like anything you've ever heard before.' And then do it again and again and then do 80 tracks of stuff like that,"



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Afanasieff says. "Then it all gets covered up by rock guitars, but you know that underneath those rock guitars there are 80 tracks of digitized, Pro Tools-looped, sliced up, cut up, Logic-ed up, total filter-sweetened sounds."

The man responsible for smoothing those stacked sounds was Way, who gushes over the music. "There was not one song on here that I didn't care for or didn't get excited about when I was mixing it," he says in the control



room. "Every song was like, 'Wow, we can do *this* on this.' The vocal performances are great on every song, there's cool guitar parts and amazing keyboards and drum programming and sounds."

Although the plethora of tracks occasionally became a problem, Way reports that "within an hour I would usually have a basic balance that I thought was the general shape, because a lot of these sounds from the keyboards in particular, and the guitars, are printed with these great effects on them, and it gives you all this versatility to use that or develop on top of that," he says. He adds that the number of tracks is a bit deceiving because there are many drum and keyboard parts that were recorded in stereo. Outboard gear that Way used on the mix included the DSP 4000, dbx 165s, Avalon EQs and the TC Electronic FireworX reverb package.

While Hayes, Afanasieff and Way finish the last mixes, instrumentalist Jones is back in Australia working with a touring band. Looking back, he can see how important it was for the group to work with Afanasieff. "We would constantly play around until something was right. Walter had the patience of a god, he was so patient," Jones says. "He was so into the project and didn't want to settle for anything less, which lifted our standards up quite a lot. Darren and I are pretty quick to say, 'Yeah, that'll do. We'll throw that down.' But when we came to work

with Walter, he said, 'Are you sure that will do? Do you think we can find something better for that?' So, he was the perfect producer and he would challenge us just to go to that next level to find something that would work that little bit more."

And as Afanasieff and Way are hunched over the console, looking for that "thing" to make the song better, Hayes smiles and shrugs his shoulders. "Listen, I don't want to go backstage at the magic show," he says with a smile. "I just want you to make magic." ■

—FROM PAGE 179, ROCKING IN L.A. WITH 311

In June 1998, 311 leased the building that housed L.A.'s Kendun Recorders in the '70s. They brought in their equipment and created a stable comfort zone in which to rehearse and then record. Back at the helm was Scotch Ralston, whom they had met as an assistant engineer on their Capricorn debut, *Music*.

As the "young 'uns" of the studio corps, 311 members and Ralston had bonded, so they called him up out of the blue in '93 during the recording of *Grassroots*. They had had a falling out with producer Eddy Offord and wanted to know if Ralston would finish the record with them.

"They had a whole bunch of tracks on ADAT, so we had to take all the ADATs and lock them to a tape," Ralston explains. "They had already done all the music—all the guitars, vocals, percussion, everything—and then they wanted to redo the drums. So we did the drums last on that record, which is kinda weird. But they had done everything to a click, and Chad is pretty much a rhythm machine, so we came in and knocked it out, and it turned out all right."

Ralston and the group then lost track of each other until the band parted ways with their live sound engineer and called Ralston to bail them out again. "They said, 'We just need you to finish this tour, it's only a couple of months,'" Ralston recalls. "And it turned out to be four years!"

311, or what they call "the Blue Album," followed. There was another tour, and then it came time to record again. "After the Blue Album I think we felt invincible," Ralston admits. "We came up with all these songs, and everyone had a little bit of affection for every song, so we didn't want to cut out any of them. We wrote and recorded 30 songs in three months, so it was every day, all day—a lot of work. It was a lit-

tle hectic, and I think maybe we should have refined it a little. *Transistor* lacked focus, which is a lesson we learned for this album. On this album we really took the time to refine the songs, and we concentrated on a small number of songs so they could have our attention, which I think will benefit the album in the long run."

Ralston also considers producer Hugh Padgham's involvement in the initial sessions invaluable. "At the beginning of the project it was mostly Hugh, and we were consulting with each other to make sure we were consistent with the other albums and that we were getting good sounds. Hugh's approach to recording is that a sound really starts at the source. You can't polish a turd, so we really concentrated on getting the drum tuned right and made sure it sounded good without any mics before we put a mic on it. I think it was really a good thing to do because sometimes you put a mic up and start EQ'ing stuff right away to make it sound better. He listened to everything totally flat for the longest time, and at first I was going, 'Come on, EQ it a little.' But then he'd say, 'Okay, let's try moving the mic a little bit over this way,' and we would move it, and it would make so much of a difference.

"After he left, I continued that method of recording for the rest of the instruments and even the vocals. We'd put them in a room and if it didn't sound good, we'd try them somewhere else, and if that didn't sound right, we'd put them somewhere else. We had a little booth that we tried, which was pretty tight and dry, and it sounded good. Some songs sounded good out in the main room, which had a little more air, and then other songs we did in the control room," says Ralston, adding that for guitarist/vocalist Nick Hexum they used an AKG C-12 and for vocalist S.A. Martinez they favored the Neumann M49.

"The main concern about the vocals on this album was that the guys were comfortable with the mix in their surroundings," Ralston explains. "On *Transistor*, we had them out in the studio with the headphones and the whole deal, and I think they felt isolated, like they were far away from the music. They would do two or three takes, and then it would be, 'I don't want to sing anymore, that's it.' On this album we made sure they were feeling good with everything around them before they tried for takes. They put a lot of work into it and got good performances.

"Also, one of the comments about *Transistor* was that the vocals were a lit-

tle too effected, so one thing Hugh mentioned after he had listened to the other albums was that maybe we should try to dry up the vocals a little more and present them more in front," Ralston continues. "I tried to do that on the mix and not double every vocal. I think it was a good idea, and the vocals sound really strong."

Padgham also insisted on recording the bass *sans* EQ, which raised some eyebrows. "I'd heard P-Nut's bass a million times so I knew the frequencies that sounded good to push and pull out," Ralston says with a laugh. "I was just going to say, 'Hugh, watch this,' and go *boom, pou*, there's the sound; thinking he'd be amazed. Instead it was, 'What's all this EQ on here, sonny boy? Let's experiment with the knobs.' So we tried the knobs and different pickups and active and non-active stuff that we never really thought about that much. We got the bass to sound really good with no EQ whatsoever, and I was totally amazed. When it came down to the amp sound, we decided to mike the amp. We went through a bunch of different mics and mic placements and different bass amps and cabinets and finally came up with the one we used throughout most of the album. It's just a DI and a mic signal. Hugh said, 'If you EQ the bass when you record it, when you go to mix it, you'll probably EQ it a little bit more and there's going to be a massive phase shift.' So just for a goof I decided to record the bass the old way on a couple of spare tracks. When we got to the mix, I had almost forgotten about it, but I put them on and EQ'd them and man, he was so right—I couldn't believe it. It sounded like it was in a beer can or something." The result of Padgham's production tactic was that they used very little EQ on the entire album, and, Ralston says, they even avoided going through the Yamaha O2R.

"Not because we don't love the O2R," he says with a laugh, "But we had a bunch of Neve modules and we went right from the mic into the module, right from the module XLR into the back of the machine. It was interesting. I haven't done that in a long time. So we really just monitored through the O2R, and it was cool."

On the drums, Ralston insisted on using a bottom snare mic, which at first Padgham resisted. "When Hugh first set up the drums, he didn't have one on there, and we had to poke him in the ribs a little to get him to put one on," Ralston says. "Even though he was reluctant, I think after a while he thought,

we're not the experts... you are.



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'This isn't too bad.' We used it a lot in the mix, so we were glad we had it.

"I think one of the best things you can do for drum recording is to get a good room sound. First you have to have a good kick and snare sound, then a good room sound. You just experiment with mic placement and move them around until it sounds good, which, of course, is subjective. This is going to sound amateur, but for some reason I've really gotten to like a Shure SM91 on a kick drum. It's a flat mic, kind of PZM style, and I just lay it in the bottom on a towel, and it sounds great. I use it live, and we ended up using it for many songs on this album after many mic comparisons." (Incidentally, Ralston has decided not to resume his road duties with 311 on their upcoming tour, so he can concentrate more on his recording career.)

Ralston mentions "Evolution" as one of his favorite songs on the new album, as well as "Leaving Babylon." "We had originally recorded 'Leaving Babylon' for a Bad Brains tribute album, and then we found out Bad Brains had nothing to do with the album. So we saved the track and put it on this album instead. I really think this is a strong album," he concludes. "The one song I didn't like got cut. I seriously like every single song, and that's a good sign." ■

—FROM PAGE 182, COOL SPINS

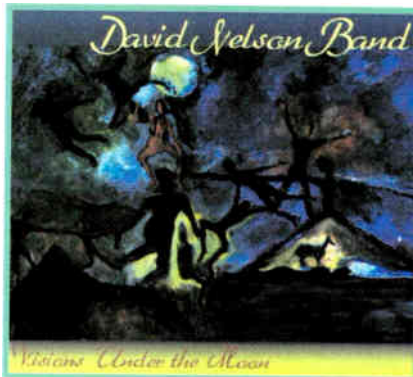
single, "Teenage FBI," now slick and symphonic—complete with Cars-like keyboard flourishes courtesy of producer Ric Ocasek and engineer Brian Sperber. It's a far cry from the abbreviated, rough gems of British Invasion-style rock/psychedelia that got vocalist and songwriter Robert Pollard branded a savant in indie rock circles in the first place. So he's not so indie anymore. A former school teacher like Pollard knows his '70s mainstream/arena rock history, and, in the end, he can't be ashamed of wanting to be as radio-friendly and larger-than-life as his role models. So the band tries a power ballad with "Hold on Hope," incisive pop/rock in "Surgical Focus" and an off-kilter anthem with "Strumpet Eye." Ocasek even adds his own sleek signature sounds: effects-laden ethereal vocals mixed with crunchy guitar, and robotic rhythms that seem as deliciously inevitable as a classic pop song. A star-making vehicle worth taking for repeated spins.

Producer: Ric Ocasek. Engineer: Brian Sperber. Second engineer: Mike Tocci. Studio: Electric Lady Studios (NYC). Mastering: George Marino, Sterling Sound (NYC).

—Kimberly Chun

David Nelson Band: *Visions Under the Moon* (High Adventure)

All of a sudden jam bands are everywhere, fueled by a new generation of fans weaned on The Grateful Dead, Phish and other leading proponents of improvisational rock. David Nelson's musical lineage goes back to Jerry Garcia's folk days and includes a stint as co-leader of the New Riders of the Purple Sage (which originally featured Garcia on pedal steel), and now he fronts a group that is possibly the closest in sound and spirit to The Grateful Dead of any of the current crop of jam bands. The DNB are masters of the simmering, slowly building, melodic jam, and on this disc, recorded on the stage of the Aladdin Theater in Portland, Ore., the band artfully explores the outer reaches of some of the group's fine original tunes, extending them well beyond conventional limits. In Barry Sless, the DNB has an extraordinary guitarist and steel player capable of eliciting many moods from his axes, and Nelson himself provides mean, Bakersfield-style guitar support. There's



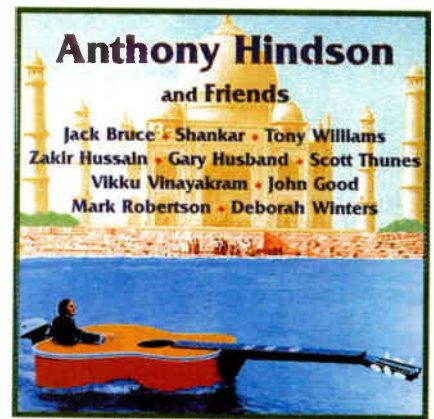
a wonderful cover of Dylan's "Absolutely Sweet Marie," but the real revelation is the strength of Nelson's country-flavored writing, alone and in collaboration with others (including the Dead's Robert Hunter). Nelson's voice is a somewhat limited instrument, but he writes well for it and everything that surrounds it on this disc is pure gold. An album that delivers more with each listening.

Producers: Aaron Hurwitz and the DNB. Engineers: Aaron Hurwitz and Steve Harris. Additional engineering: Jeff Gruber. Recorded at the Aladdin Theater (Portland, OR); additional recording at Knightstar (San Rafael, CA), Sheffield (Baltimore), and Blue House (Silver Spring, MD). Mastering: Michael Romanowski/Rocket Lab (San Francisco).

—Blair Jackson

Anthony Hindson & Friends: *It's a Curious Life* (Wind in Hare)

A British composer and guitarist who has spent much time in Northern California, Hindson has created a fascinating fusion of Eastern and Western sounds on this years-in-the-making CD, calling on an interesting group of "friends," including violinist Shankar, tabla mas-



ter Zakir Hussain, the late drummer Tony Williams, former Zappa bassist Scott Thunes and singer/bassist Jack Bruce, among others. Heavily influenced by the raga form and, quite obviously, by sitar and sarod players, Hindson blends his own playing beautifully with that of his illustrious cohorts, and his flowing compositions manage to let all the musicians soar without calling excessive attention to their virtuosity. My favorite cuts are the most Indian-sounding ones. I'm less entranced by Jack Bruce's two lead vocals, which break the mood of the otherwise all-instrumental offering, though I must add he is in excellent voice on both tracks.

Producers: David Hentschel and Anthony Hindson. Engineers: Tom Luekens, Neil Douglas and Gordon Lyons. Mixed by David Hentschel, Anthony Hindson and Tom Luekens. Studios: Tarpan, The Plant, The Huge Shed, Tiki Town (all in Marin County, CA), and The Strongroom (London).

—Blair Jackson

Orbital: *The Middle of Nowhere* (FFRR)

Starting with the Spectorish chimes of "Way Out" and concluding with the disembodied synthesizer blips of "Style," this most recent CD release from electronica veterans Orbital takes the listener on an entertaining hour-long tour of techno's mild side. Sounding cool and sophisticated throughout, if not particularly innovative, *The Middle of Nowhere* blends the throbbing pulse of Kraftwerk's "Autobahn" and "Trans-Europe Express" with snappy soundscapes reminiscent of Thomas Dolby and Yello. Apart from guitars and bass on the Brian Eno/David Byrne-flavored "I Don't Know You People," the eight tunes are driven by simple and repetitive synthesizer sequences (real drums are credited but largely undetectable), occasionally enhanced by wordless female vocals and trumpets(!). Featuring a delightfully enigmatic sleeve design, this cleanly presented package places few demands on either listener or sound system, and should appeal to anyone in need of some upbeat but not too frenetic walk-in or environmental music (e.g. boutiques, galleries, architects' dance parties).

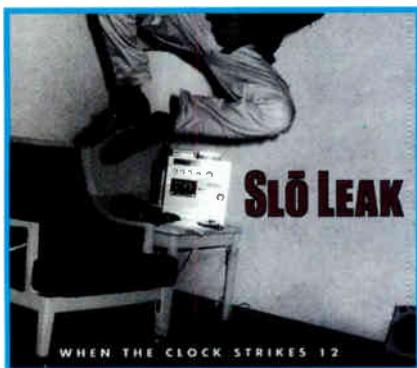
Producers: P & P Hartnoll. Mixing and additional production by Micky Mann. Live



drums recorded at The Strongroom (London). Mastering: Kevin Metcalf/Sound Masters.
—Chris Michie

Slō Leak: When the Clock Strikes 12 (United Producers)

Slō Leak isn't exactly a group—it's just singer/guitarist Charlie Karp and noted guitarist/producer/programmer Danny "Kootch" Kortchmar—but these two boys make a helluva racket on the first album to come from the new United Producers/TVT imprint. Karp sounds like the mutant love child of Howlin' Wolf and Cab Calloway, and Kootch provides alternately slinky and rasty guitar accompaniment and some bold programming moves. It's a crude and funky outing, where every "drum" hit sounds like a stick on a trash can, and you can practically see the cigarette smoke wafting around Karp's head as he growls down-and-dirty blues and upbeat jump jazz tunes. The disc as a whole sounds like a particularly hot night in the coolest dive you've ever been in. Karp and Kootch's new songs sound old, and they make the couple of old songs sound new in a sort of Tom Waits-ish, retro kind of way, where the effect is lo-



tech but you know that it probably took the latest technology to make it sound that way. All that's left to do after listening to this is to wipe the sawdust and beer off the bottom of your shoes and pass out on the couch.

Producers and engineers: Danny Kortchmar and Charlie Karp. Mixed by Peter Denenberg. Studios: Hit Me! (Harrison, NY), Acme (mixing; Mamaroneck, NY). Mastering: Ted Jensen/Sterling Sound (NYC).

—Blair Jackson ■

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COAST TO

L.A. GRAPEVINE

by Maureen Droney

Can-Am hosted sessions for CBS's *Shake, Rattle & Roll*, the two-part 1950s- and '60s-era rockudrama set to air November 9 and 11. The program is the brainchild of veteran record producer/music executive Spencer Proffer and CBS Television exec Michael Wright, with music produced and arranged by Proffer and engineered by Francis Buckley.

Musical artists of today appear as both legends of the past and fictional characters. Dicky Barrett of the Mighty Mighty Bosstones is cast as Bill Haley. Terence Trent D'Arby (go 'head on, girls, swoon) plays Jackie Wilson. B.B. King is the fictional Blues Master. K-Ci & JoJo appear as half of a doowop quartet. Hit songstress

Chanté Moore sings a Carole King original, and members of Blink-182 channel Jan and Dean. Original songs by Lamont Dozier, Bob Dylan, Graham Nash and Leiber & Stoller are also featured.

I stopped in to chat about the recording with Buckley, whose credits include Alanis Morissette, Black Flag and Paula Abdul, as well as the 1997 Best Engineered Album Grammy for Quincy Jones' *Q's Jook Joint*. Buckley informed me that tracking for the project, in Can-Am's large and ambient Studio B, was mostly done live to (only!) 24-track analog. The stellar crew of musicians included drummer Jim Keltner, bassist Jerry Scheff, pianist Jim Cox and the triple threat of guitarists Tim Pierce, Andrew Rollins and Steve Plunkett.

"We tracked for a week and a half and cut about 40 pieces of music—28 songs,

—CONTINUED ON PAGE 194



L to R: Avatar owner Voikurathanath Kanamori and general manager Zoe Thrall

NY METRO REPORT

by Gary Eskow

Checked in with two major New York studios recently, and the view from the top looks very promising as we motor out of the 20th century. Zoe Thrall, general manager of Avatar Recording Studios, says that "business is booming." I asked Zoe for an in-depth analysis of why the recording market is on the upswing, and she answered, with her typical forthrightness, "Why? I have no idea. But we're not complaining!"

Recent Avatar clients include The Black Crowes, who worked extensively on their last record, *By Your Side*, at the studio, and a host of jazz artists, including John Scofield, Diana Krall and McCoy Tyner. Feeling the strength of a fully booked schedule, Avatar recently purchased an SSL Axiom-MT console and rewired Studio B to accommodate the board. We spoke on the day the stu-

dio was scheduled to take delivery of the MT. "We feel very strongly that digital consoles are the next wave," she says. "SSL has plenty of talented competitors, and we gave serious consideration to several other boards. However, we have a strong relationship with SSL, and we like the fact that they manufacture nothing else but consoles. They're concentrating on making this board the best it can be, and we found that attractive."

Thrall believes, as many do, that most engineers who have logged time on SSL's 9000 Series find the transition to the Axiom-MT relatively painless. "We've scheduled group training sessions with SSL—up to five engineers on the first day, individual four-hour sessions after that, and then our engineers will go in on their own and do some remixing," she explains. "SSL designed a surface that's similar to the 9000; the automation requires a bit of learning, but engineers in New York are programmed to expect to have to deal with new technology on a yearly basis, so

—CONTINUED ON PAGE 197



PHOTO: TRAVIS SMITH

CBS's *Shake, Rattle & Roll* came together in Can-Am's Studio B with, L to R in back, vocalist Peter Beckett, pianist Jim Cox, producer Spencer Proffer, guitarist Andrew Rollins, bassist Jerry Scheff and guitarist Steve Plunkett. In front, L to R, are engineer Francis Buckley, guitarist Tim Pierce and drummer Jim Keltner.

COAST

NASHVILLE SKYLINE

by Dan Daley

The game of musical chairs continues, although the pace thankfully slackened as the summer drew to a close. But the drought that hit the South's agriculture in the last few months certainly didn't carry over to its studio business.

In September, Emerald Studios added another block in the multi-site empire they started building in January with the acquisition of Masterfonics. Hot on the heels of its purchase of The Workstation in August, Emerald owner Dale Moore inked an agreement with publisher Larry Sheridan to co-venture the studio that Sheridan is building on Music Row. Sheridan is already renting office space to Moore and Emerald staffers, who were squeezed out of the Masterfonics building as it underwent renovations on its three mastering suites and an extension of a post-production venture to the building's Studio 6.

Sheridan purchased the 16th Avenue building (a 1920s bungalow of the type common on the Row), which had been used by singer Randy Travis as storage space. Sheridan is constructing an 800-square-foot tracking space; his original intent was to install the Yamaha 02R console and ADATs that he had been using for publishing demos in the new control room. Now that the Emerald deal has been finalized, it's possible that the SSL 4000 that had been in Studio

6 may be moved there, to make way for an SSL G Plus console that was part of the assets of the Workstation purchase. (Several Pro Tools systems that also came with that deal may also be set up in Masterfonics to serve the relocated broadcast post division.) Sheridan told me that while his original business plan called for his new studio to be a hybrid, serving his publishing interests and occasional outside rentals, in the framework of the Emerald co-venture the studio will become an affordable overdub and tracking location within the Emerald system.

That system, which already has multiple studios in three locations, is based on a combined horizontal and ver-

—CONTINUED ON PAGE 198

SESSIONS & STUDIO NEWS

NORTH CENTRAL

Brian Deck, drummer of Red Red Meat, recently set up shop in Chicago: The plaster was still wet on the walls of Deck's Clava Studio when buzz-besieged, very un-mously indie-rock trio Modest Mouse hunkered down to record their first major-label CD for Epic... At The Tempermill (Ferndale, MI), Stewart Francke recorded *Swimming in Mercury*, his fifth Blue Boundary release of contemporary Americana, co-produced with studio owner/producer/engineer David Feeny. Matador band Demoli-

tion Doll Rods also zoomed in to record their latest self-produced CD with Feeny engineering... Detroit saxophonist/producer Dave McMurray recorded his recent CD, *Peace of Mind*, with pianist Bob James at Remidi Studio in New York. Another track, "Chow Main Street," reunited Was (Not Was) alumni David and Don Was, Randy Jacobs, Sweet Pea Atkinson and McMurray at Ocean Way in L.A.... Moline, IL, band Einstein's Sister (which includes former members of Tripmaster Mon-



Dave McMurray

—CONTINUED ON PAGE 198

REGIONAL STUDIO SPOTLIGHT

GRAVITY STUDIOS CHICAGO FACILITY BUILDS A B ROOM FOR ALT-ROCK CLIENTELE

by Kimberly Chun

The down-to-earth vibe and vintage gear at Gravity Studios in Chicago draw demo work from local alternative rockers such as Smashing Pumpkins. But how does a studio keep a band—and their major-label project—grounded in the Windy City when Los Angeles or New York beckon?

A second room might do the trick, according to Gravity owner Doug McBride. The six-year-old Wicker Park facility (

Gravity Studios' vintage Neve 8058

studios.com) is adding a Pro Tools-driven B Room designed by Luis Martinez and Associates. McBride says it will be devoted to editing and overdubbing and completed this winter.

Primarily, McBride says, "we do demos that help

bands get signed to major labels, and when they get signed we'll be in the position, because of reputation and their need, to get the record and produce it, rather than always being the bridesmaid and never the bride."

—CONTINUED ON PAGE 200

—FROM PAGE 192, L.A. GRAPEVINE

small pieces and cues,” Buckley explains. “Studio B’s concrete floor and live sound proved a real asset because, except for vocals and a few miscellaneous overdubs, the tracks were cut live. We put the piano and drums in the main room along with the baffled-off stand-up bass, and since there are a lot of little extra rooms at Can-Am, we put the guitar amps in them.

“We recorded quickly so that we could get the right spirit, and the philosophy was to use as little modern equipment as we could. The necessities were the board and the tape machine. As far as setup and mic choice went, we tried to stay true to what it was like in the ’50s. I used all old mics except for one from RØDE, and the vocals were mostly done with a 47 to an LA-2A straight to tape. The only modern thing about the setup was that we used a few more mics on the drums than they would have in those days.”

Buckley says they worked the mics instead of introducing EQ. “We had a 2-track slap echo running, and the only reverbs we used were plates. You won’t hear chorus or digital delay, because in those days they just had chambers, plates and slap echo,” he says. “There were a few spring reverbs around, and the effects we generally used on guitars are the spring reverbs in their amplifiers. We listened to the old recordings and tried to emulate them—the premise, though, was not to re-create the records.”

The plot of *Shake, Rattle & Roll* is based on the evolution of a band called The HartAches. Their hit song, “Baby, Here I Am,” is followed musically from the songwriter’s first strummed inspiration through the process of teaching it to the band, playing it badly at an audition, and, finally, recording at a re-creation of Memphis’ Sun Studios.

“Spencer and Michael Wright were involved with casting; they made sure they got not only actors, but actors who were musicians,” Buckley says. “Nothing drives Spencer more crazy than to watch a movie and see inaccurate musical details. His company, Morling Manor Media, went to Fender, Gretsch and Gibson to get period guitars. They also found a drum historian and got drum sets from him. You won’t see a camera pan to a musician with his hands in the wrong place, and there won’t be some guy playing a 1975 model guitar.”

Proffer—known for his work with



PHOTO: MAUREN DRONEY

In the midst of all the changes at Sony Music Studios, l to r, country singer Collin Raye kicks back with chief engineer Peter Barker, producer John Hobbs, assistant engineer Jenny Knotts and engineer Ben Fowler.

artists as diverse as Tina Turner, Stevie Wonder, and Quiet Riot—has always been a multifaceted personality. He’s a songwriter and arranger, has owned a commercial recording studio and has been a record company president and publishing entrepreneur. He’s also served as supervising music producer on more than 70 films and television programs.

“Both sonically and visually, an enormous amount of care and love went into *Shake, Rattle & Roll*,” Proffer comments. “I’ve spent my life writing, arranging and producing music, so being one of the driving forces on the project, I felt it was my responsibility to be true to the art form. Most music for television is off the rack—it’s licensed stuff that preexists...here we actually crafted both the music and the sound to be congruent with the essence of the project. I worked very closely with Mike Robe, the writer and director, and CBS VP Michael Wright to create the dramatic beats to be punctuated, so that the music drives the drama, and the drama drives the music.”

Proffer also chose actor/musicians who were inspired by the characters. “I went to people who were truly influenced by, and wanted to play the role of, musical figures who had an impact on their lives. When I went to Terence and offered him the role of Jackie Wilson, it was a very natural thing—he loved and revered Jackie. It wasn’t a hard sell, nor was it to K-Ci & JoJo, to play part of a doo-wop group singing ‘Tears on My Pillow.’ I assured them that everyone in this project was coming from the real place and that they’d be in good hands.”

Big changes at Sony Music Studios in Santa Monica: the installation of a Neve

8078 console, the hiring of Roger White as studio manager and the promotion of Phil Kaye to vice president of studio operations. White, who was previously with Studio Referral Service, and chief engineer Peter Barker gave me the tour. The new desk, which replaces a Sony/API, was originally built in 1971 for Ronnie Milsap, and was most recently housed in Sony New York’s Studio D. Now highly customized for the L.A. facility, it features 40 31105 input channels, 32 32425 monitor channels, four Shep compressors, and 72 channels of Flying Faders. For those who might miss that API console, also installed in-board are eight API mic pre’s and 16 API 550-S EQs, along with Lynx controls and a 5.1 monitoring matrix. The board also includes eight Neve 10 series mic pre-amp/EQ modules mounted above the monitor section.

“We heavily modified the monitor section,” Barker notes. “In most of these consoles, the monitor section clips at plus-18. Ours now clips at plus-26 like the rest of the board, so the headroom isn’t compromised anywhere. We also added a balanced output driver so you can go to tape from the monitor section if you want to. The 5.1 monitoring is built in, and everything necessary for it comes up to the patch bay. If someone needs a 5.1 mix, we can set up the Gen-elects and get the whole thing going in ten minutes or so.”

It’s obvious that some loving restoration went into this classic Neve. Besides the added components, panels have been re-silk-screened, and it’s finished in solid oak with a leather bolster. New outboard in the already well-stocked control room includes a pair each of


—CONTINUED ON PAGE 196

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World Radio History

PEAVEY

48 WINDOWS OPENS IN SANTA MONICA

by Roger Maycock

Promising a fresh perspective with a creative approach, 48 Windows officially opened its doors this summer with a gala celebration attended by several hundred invited guests and clients. Focusing on music production and post-production for TV, film and advertising, the four-studio, state-of-the-art complex is housed in the same building as the recently opened Margarita Mix de Santa Monica and Hollywood Digital West.

During the eight months that 48 Windows has been operational, the creative team—president Eric Garcia, sound designer/mixer “Dr. Dave” Marcus, mixers Sonia Castro and Jim Baldree, along with composer Andreas Straub and studio manager Ziv Fisher—have accumulated an impressive client roster, including Columbia Tri-Star, Ogilvy & Mather, Sony Music, ABC-TV and MCA Records.

According to Garcia, “48 Windows is a different concept in the way a recording studio works. Rather than having a group of engineers, we are a consortium of artists that have come together to integrate artistic as well as engineering chops into the projects we take on—whether for music, sound effects or mixing. We strive to take what we’ve learned in terms of sound design, musicianship and visual conceptualization and incorporate our experience to achieve another

level beyond the art of mixing itself.”

Garcia and his creative team have assembled a studio environment that is highly efficient and flexible, while also being aesthetically and ergonomically pleasing. The control room stations are ovals, with iso booths and the live room within straight visual range. Equipment includes Mackie Digital 8 Bus recording consoles, three Digidesign Pro Tools|24 MIX systems tied to Mackie HUI control surfaces, Tascam DA-88 digital multitracks and DA-60 MkII timecode DATs, Panasonic SV-3800 DATs and Avalon Design VT-737SP tube preamps. ISDN lines connect all studios, and the DGS MPEG encoder distribution system ties the studio to the radio and TV world. 48 Windows also has a direct link to Hollywood Digital West’s machine room.

Music production and advertising work constitute the bulk of the work. But the studio also recently completed projects with Butch Vig and Korn, handled numerous surround mixing assignments, and is building a solid reputation for its sound design work.

Being in the heart of L.A.’s advertising community, Marcus offers his perspective on 48 Windows’ success: “In our various disciplines, we bring to the advertising community an extensive level of experience that has been cultivated over years. We are also very fortunate to have at our disposal some truly wonderful equipment that you wouldn’t necessarily find in a conventional post facility. These factors, combined with our obsession to achieve the highest artistic levels in everything we do, enable us to bring about a fresh approach to all our projects.” ■



48 Windows opened with help from (back, L to R) composer Andreas Straub, studio manager Ziv Fisher, studio rep Chris Grim, technician Chip Mullaney, studio owner Eric Garcia, (front, L to R), mixer Sonia Castro, mixer Jim Baldree and engineer “Dr. Dave” Marcus.

—FROM PAGE 194, L.A. GRAPEVINE

Distressors and LA-3As; two Studer 827s and a Sony 3348 now reside in the machine room.

“We’ve been putting the board through its paces with a wide variety of sessions,” White comments. “From orchestral dates to techno, the feedback from clients about the new board has been uniformly great.” Clients in working on the Neve include Donny Osmond with Erik Zobler engineering, Faith Hill with producer Byron Gallimore and engineer Michael Dy, Collin Raye with producer John Hobbs and engineer Ben Fowler, and ad agency Elias & Associates scoring an orchestra for a Mercedes-Benz spot with Bill Smith engineering.

Other improvements include a homey redecoration of the lounge, now equipped with a wide-screen TV and DVD system. The mastering room, staffed by engineers David Mitson and Stephen Marsh, has also received upgrades: It now features a Dunlavy SC V monitor system coupled with Dunlavy subwoofers, and a new “floating” design for the console. The desk, built by Sony in conjunction with Matchless Woodworking, was constructed to alleviate low-end buildup in the room by allowing the sound to “breathe.”

Either analog or digital processing is, of course, available in the mastering room, with Weiss compression and EQ, and vintage Sontec, GML and Tube-Tech processing. A new favorite is the Maselec MLA 2 stereo compressor, which Barker describes as “very quiet and transparent.”

Recent mastering projects have included work for Barbara Striesand and *The Blair Witch Project* soundtrack.

Also on the premises: ISDN capability, a CD-R duplicating room and an Avid video editing suite. The busy CD-R room, equipped with a Rimage Perfect Image Producer and Sonic Foundry for assembly and level matching, is capable of burning four CDs at a time from any 2-track source.

Kaye sums it up: “Our facility is unique in that we’re able to provide our clients with not only the features of our world-class recording studio and mastering room but also special services including EDNet lines, video duplication, CD replication and broadcast-quality Avid editing. Our staff and facility are second to none, and that’s how we always treat our clients.” ■

Fax your L.A. news to 818-346-3062 or e-mail MsMDK@aol.com.

—FROM PAGE 192, NY METRO REPORT

they're used to it. We feel very strongly that the more engineers mix on powerful digital consoles like the MT, the less likely they'll be to ever want to return to analog mixing."

Intelligent interfacing with project studios is critical to the success of a major room in the metropolitan area—a fact not lost on Thrall. "Clients can drop all of their synth and drum programming parts to any format in their studios— analog or digital tape, hard disk recorders—and transfer to any format here effortlessly. Many of our clients these days like to drop to 2-inch to get the tape saturation and immediately transfer to digital tape or hard drive to mix," she says. "We book solidly because our rooms sound so good. Generally that translates into a situation where a producer or artist will transfer tracks cut in the project studio, add guitars and vocals at our place, and mix here."

The former Studio B, now Studio D, is also being equipped with new outboard gear, including an Eventide Orville, TC M5000, and Lexicon PCM91 and 480L. "Most of these are digitally normaled to our board, so the signal path is exceptionally clean," she says. "Studio B was originally a surround room where we executed a lot of film mixes. It's being upgraded to handle 7.1 mixing—we've still got to make a decision on the integrated speaker line we'll be using, but we know that a pair of custom Kinoshita monitors will be our mains. We really like the Kinoshitas that we currently have."

Over on West 54th, Sony Studios has essentially turned itself into a megaboutique operation—an oxymoron if there ever was one. Catering to its own elite clientele while opening its doors in a more publicized manner than ever before to outside bookings, Sony is now a place where artists can conceive of their work, record it and master their final product without ever leaving the building—time off to walk around Central Park is permitted. I spoke with Ian Huckabee, vice president of audio operations and marketing.

"Here in New York the production process is becoming more seamless as a project moves through its various stages," he says. "Many projects start off as writing sessions in a home studio—on either Pro Tools, ADATs or DA-88s or even an MPC 3000—and move into a more professional environment when it's time to record vocals and live tracks. By the time mixing begins, it's not uncommon for a project to consolidate

everything down to a 3348 or Pro Tools—we're even mastering off of Pro Tools in some cases.

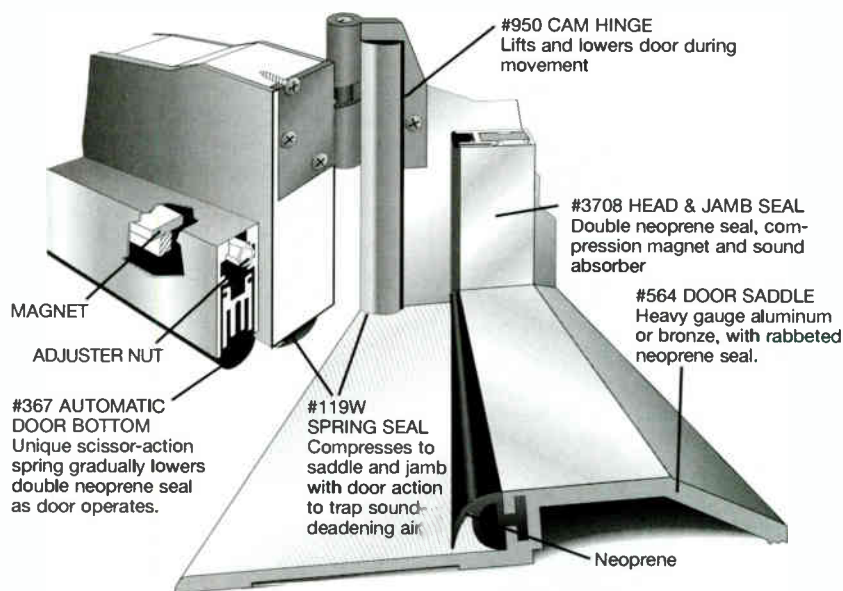
"In order to stay competitive in this business you must give the recording community the tools to push the envelope of recording, engineering and mastering beyond its current limits," he continues. "Sony Music Studios has six Pro Tools systems in-house and 15 Sonic Solutions, and we stay on top of all upgrades. We can interface with any technology our clients come up with—and we come up with a few of our own."

Sony is a prime example of a major facility that has integrated a variety of

services under one roof, and I asked Huckabee what benefits this consolidation brings to clients. "It creates a unity that makes for fluid transitions of talent and technology, and ultimately this translates into a better product," he says. "Whether it's audio, video, mastering or graphics, Sony Music Studios is committed to giving its customers the services they want."

Recent projects at SMS include mastering albums from the Red Hot Chili Peppers, Savage Garden, Donna Summer and Barbra Streisand, plus tracking and mixing on the new Walt Disney Pictures film directed by Martin Scors-

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ese, *Bringing Out the Dead*. Marc Anthony, Hall & Oates, Eve, The Outsiders and Natalie Merchant have also mixed at SMS recently, and the studio handles audio post work on the TV series *Hard Rock Live* and *Sessions at West 54th*. ■

E-mail your New York news to Gary Eiskow at scribeny@aol.com.

—FROM PAGE 193, NASHVILLE SKYLINE

tical model in which clients can choose the levels and types of rooms they want for various aspects of projects, and are given progressive rate incentives to keep more of the project within the Emerald system. In addition, plans are under way to link all of Emerald's sites fiber-optically.

Sheridan's studio, called The Parlor, is expected to be finished and online by November, with acoustical design by Michael Cronin, who also redid the rooms at Masterfonics.

Meanwhile, Sound Stage has purchased Nashville's first SSL Axiom-MT digital console, which was installed in late August in the facility's Back Stage studio in a joint-venture with engineer Chuck Ainlay. The nature of that venture, according to Sound Stage studio manager Michael Koreiba, is the creation of a new entity, called Sound Stage Surround, owned jointly by Ainlay and Sound Stage owner Ron Kerr. Sound Stage Surround purchased the MT and leases the Back Stage space from Sound Stage. "I do want to stress, though, that Chuck is free to do work elsewhere, and that Back Stage will be booked like any of the other studios at the facility," Koreiba adds.

In one of the more ironic situations surrounding the rapidly changing Nashville studio business, The Workstation, whose assets are now owned by Emerald, is located within the Sound Stage facility, thus producing a physical overlap between two major competitors. It's a situation not uncommon in a real estate market like Manhattan, where numerous studios occupy the same buildings, but rare in a market like Nashville. When asked about that, Koreiba laughed and replied, "Interesting, isn't it?"

In other news, the annual studio business numbers came in at *Music Row*, the city's music business biweekly trade magazine, and they reflect what Nashville has been going through since the heady days of the early '90s. The numbers are based on questionnaires the magazine sent to area studios—40 of which partic-



Lou Reed, L front, warms up to studio owner Walter Sear during the recording of his new Reprise CD at Sear Sound's Studio C in NYC. Taking a back seat at the love-in, L to R: assistant Dave Fisher, producer Hal Willner, engineer Tim Latham and bassist Mike Rathke.

ipated—and the most striking statistic involves overall business growth, which the report pegs at 10%. That's down from 13% last year and the tail end of a steady decline that peaked at 26% in 1994, the last year of rising numbers. This parallels the highwater mark of country music and confirms that, as much as Nashville has been a major music-making center for decades, its fortunes are still tied tightly to that of country music.

However, despite the simultaneous declines in both country music sales and Nashville studio business growth, the facilities reporting indicate that country music now accounts for less than half—48%, to be exact—of their revenues. Music Row's tally shows that rock and pop music account for a quarter of reporting studios' revenues (which are down from 28% the year before), with Christian music accounting for 17%, down from 20% in 1998. The only area to show an increase is the catchall category of "other," which accounts for 9%, and it could be an indication that Nashville's long-suffering alternative music component is becoming more active.

Another statistic, tucked away in the body of the lead article, is that reporting studios have seen an increase—35%, up from 32% last year—in the amount of work coming from outside Nashville. And despite a steady increase in the number of personal recording studios, demos still account for between a quarter and a third of the work coming into reporting studios—an indication that, even with significant cutbacks at publishing companies in town, writers' demos are still a force to be reckoned with in Nashville. ■

Send Nashville news to Dan Daley at danwriter@aol.com or fax 615/646-0102.

—FROM PAGE 193, SESSIONS & STUDIO NEWS

key) recorded a track for a tribute to The Byrds at Catamount Recording in Cedar Falls, IA. Douglas and Tucker and owner Tom Tatman produced with Tatman engineering and mixing. The Bob Washut Trio also recorded their first jazz album on Sea Breeze. The pianist/composer produced with engineer/mixer Tatman...Daryl Stuermer, Milwaukee native and guitarist for Phil Collins and Genesis, completed co-producing duties, with Don Murray, on the Phil Collins Big Band's debut CD, *A Hot Night in Paris*. Stuermer also played lead guitar...

NORTHEAST

Lots of searing sessions at Sear Sound in NYC, including an appearance by Lou Reed (see photo). After mixing her last Grammy Award-winning release at Sear, Shawn Colvin began her new Columbia/Sony record there with producer John Leventhal and Sear engineer Tom Schick. Systems of a Down worked with producer Dave Sardy and engineer Greg Gordon on a Sony American CD. Medeski Martin & Wood and Ron Carter recorded songs for a new Red, Hot benefit/compilation CD. Andreas Levine produced; Sear's own Fred Kevorkian engineered...Wynton Marsalis was at Sony Music Studios in NYC for post-session work on *Mr. Jelly Lord*, which will be included in Columbia Records' multi-CD jazz project *Swinging Into the 21st Century*...RSM Studio (NYC), the original Stones mobile recording studio, was hired to record Matador's 10th an-



Wynton Marsalis

niversary celebration at Irving Plaza. Scheduled artists included Pavement, Cornelius, Yo La Tengo, Mogwai, Cat Power, Come, Solex, and Guitar Wolf...At Indre Studios (Philadelphia), Beth Orton performed songs from her latest Arista album, *Central Reservation*, with guitar player Ted Barnes for a select few at an 88.5 WXPN Members Only event...

SOUTHEAST

At Tree Sound Studios (Norcross, GA), Matchbox 20 has been striking while they're hot. The band worked on their next release for several months with producer Matt Serletic. Noel Golden engineered, and Shawn Grove assisted. Dean Deleo from the Stone Temple Pilots was also in, producing *Laughter Train*...Faith Hill overdubbed



Billy Gibbons of ZZ Top

at Emerald Sound (Nashville) with producer Byron Gallimore, engineer J. King and assistant J. Piske... ZZ Top mixed two songs at Ardent Studios (Memphis) with producer/engineer Joe Hardy and assistant Pete Matthews. Blues guitarist/vocalist Coco Montoya mixed his new Alligator album with Jim Gaines producing, Jay Newland engineering and Jason Latshaw assisting...At Bias Recording Company (Springfield, VA), Jim Robeson mixed a recording by Al Petteway and Amy White, a Blix Street project by Celtic vocalist Grace Griffith, and a Rounder record, *Pillow Full of Wishes*, by Cathy Fink and Marcy Marxer...JamSync in Hendersonville, TN, turned the audio of Tim McGraw's "Something Like That" from his CD *A Place in the Sun* into a live concert performance soundtrack for a new video...At The Warehouse (North Miami), Latin rap/metal band Molotov lit a fire under their next Universal CD, tracking and mixing with producer Cachorro Lopez, engineers John Thomas and Cesar Sogbe and assistant Norman Smith. Comedian Jamie Foxx also tracked and mixed for the upcoming Warner Bros. film *Any Given Sunday*. Thomas and Smith lent a hand...Synchronized Sound in Atlanta hosted WNNX 99.7's series of intimate live performances featuring Cake, Dido, Joydrop, Remy Zero, Better Than Ezra, Train and Ben Folds Five. Tom Race engineered the shows with help from assistant Karl Gentner and producer James Klotz. Race also mastered and edited

the upcoming anthology CD of the shows...Ty Herndon recorded his next Sony release at Ocean Way Nashville's Neve Room. Producers Joe Scaife and Jim Cotton and engineers Steve Marcantonio and Greg Fogie were on hand...At House of Blues Recording Studio in Memphis, SkaFace Al Kapone tracked for a fall Sik Wit It/Jive release in Studio B with producers E-40, Nil Jones and DJ Squeeky and engineer Jeff Will-



SkaFace Al Kapone

banks...At Catalyst Recording (Charlotte, NC), power pop threesome Slo tracked with producer/engineer Rob Tavaglione and mastered with Dr. Strangelove...Band legend/producer Robbie Robertson tracked and mixed a song for DreamWorks artist Nicky Love at Patchwerk Studio in Atlanta. Mike Wilson contributed guitar tracks as well as engineering and mixing assistance...

SOUTHWEST

The folks at SAE Mastering in Phoenix have been hopping. Chief engineer Roger Seibel worked on a new Rounder CD by Merle Travis and cut vinyl for

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The Arsonists

several Matador artists, including a 12-inch single, "Backdraft"/"Halloween," for The Arsonists and a release for Khan. Engineer Matt Murman mastered jazz trumpeter Malachi Thompson's Delmark release, *Rising Day Star*, as well as recordings by two Scooch Pooch bands—Syrup's *Solid Gold Astro Soul* and The Hookers' *Black Visions of Crimson Wisdom*...

SOUTHERN CALIFORNIA

Dwight Yoakam recently made tracks to



Dwight Yoakam

Track Record in North Hollywood. It was something of a reunion for Yoakam and studio owner Tom Murphy—the hill-billy hep cat's first recording session was at Murphy's stu-

dio in Columbus, OH, in the early '70s. At Track, Yoakam recorded songs for his next Warner Bros. release with producer Pete Anderson, engineer Judy Clapp and assistants Sally Browder and Ai Fujisaki. Yoakam and Anderson also returned to track a song for the *Daddy & Them* soundtrack with Marty Stewart and Sheryl Crow. Also at Track, The Ink Spots, with Harold Jackson, Demetrius Greene, Jimmy Waters, Richard Mosely and guest vocalist Lou Rawls, recorded with producer Alan Abrahams, engineer Dean Burt and assistant Darrell Thorp ...At Signet Soundelux Studios (L.A.), engineer Joel Moss overdubbed and mixed Kenny Rankin's Christmas album with assistant Brian Dixon

...Give the guy a cookie: Garbage man/producer Butch Vig and engineer Billy Bush recently stopped by NRG Recording Services (North Hollywood) to



Butch Vig

remix Limp Bizkit's "Nookie"...

NORTHWEST

ATR Music Group in San Francisco recently kicked off full Webcast performances. In a less virtual vein, Lenny Williams from Tower of Power was also in with producer/engineer Jay LaRue... Jack Endino mixed an album for Brazilian rockers Titas at Studio X in Seattle...



Jack Endino

Scott Ross was busy at Hanzsek Audio (Seattle) working with the Whole Bolivian Army and Lane Myer... Graig Markel of the Recovery Room (Seattle) was frantic with New Sweet Breath, Tagging Satellites and Bend Sinister... Josh White, former front man of Mercury band Man Ray, was at Paradise Sound (Index, WA) with producer/mixer R. Chris Murphy finishing tracks for his first solo release... Pat Kearns from Studio 13 (Portland, OR) worked with David Reeves (of the Goddamn Gentlemen), Land of Locusts and David Zwart's solo project called Hudson Carter's Clock (which includes members of Harvey Milk)...

STUDIO NEWS

Ron Rose Productions Ltd., an audio post facility with 14 studios in three locations in Detroit, acquired an AMS Neve Logic 2 console and upgraded all three of its Logic 1s and nine of its AudioFile editors... Studio 2 at Future Disc Systems in Hollywood, CA, recently got a major facelift. Changes include a new acoustical treatment... Quad Teck Digital (L.A.) has added a second 4-channel surround sound mastering suite. Owner Hank Warning said another studio will be updated soon with a new mastering system... Two Crookwood mastering consoles, pre-wired for 5.1 work, have been sold to Mayfield Mastering in Nashville and South Design in Baltimore... Sweetwater Sound (Fort Wayne, IN) donated computers and monitors, assisted in the design and specification, and installed Kurzweil K2VP keyboards at a new nine-station MIDI lab in the music department at the Fort Wayne branch of Indiana University/Purdue University. ■

Send your Sessions & Studio News to Kimberly Chun. Phone 510/985-3239, fax 510/653-5142 or e-mail Kim_Chun@intertec.com.

—FROM PAGE 193, GRAVITY STUDIOS

By the looks of their schedule, it might work. Veruca Salt recently were in, tracking their new CD with producer Brian Liesegang and engineer Chad Adams. Nash Kato of Urge Overkill recorded with producer Eric Rosse. Producer Brad Wood mixed a new Sony/5055 record for Verbow.

A major Gravity attraction is the 1976 Neve 8058 console, which, McBride says, is the only one in Chicago. L.A. Neve technician Pat Schneider installed and modified the 28-channel in-line console, which has 60 inputs and 32 channels of Uptown 990 moving fader automation. The board spent the late '70s at Automated Sound in New York, recording Steely Dan's *Aja*, among other classic albums.

McBride also attributes Gravity's rise to the studio's ability to stay in touch with recording trends and the Chicago alt-rock scene. "The day I finished building the studio, I saw Veruca Salt's first show," McBride says. "And the first song we recorded was the demo of 'Seether,' which got them signed and became a big hit. Through that involvement with Veruca, the studio got booked."

Media attention was also turning to Chicago. "Two months after we started, *Billboard* proclaimed Chicago 'cutting edge's capital.' Urge Overkill, Smashing Pumpkins, Liz Phair and Ministry were breaking out of Chicago, and they ordained Chicago the successor to Seattle," McBride recalls. "We did demos for eight bands [including Smashing Pumpkins] that got signed in major label deals in what they called the 'Chicago signing frenzy of 1994 and 1995.'"

The studio acquired Chicago's first Mackie 32x8 console when it began, McBride says, and later an Amek desk. He records on a Studer A800 24-track 2-inch recorder, Sony 2600 and Panasonic 3700 DATs and an HHB CD recorder. Monitors include a Genelec 1031a, Yamaha NS-10Ms and Auratones. As a result, producers like Peter Mokran have worked on records for Sinead O'Connor and Angelique Kidjo at the studio, and McBride has a chance to produce Columbia/C2 band Frogpond, who first came to the studio to do their demos. "I hope that's a trend that continues." ■

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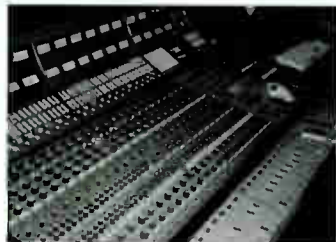


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109	071	AKG (C3000B)
IFC	001	Alesis (M1)
137	085	Alesis (M20)
77	048	AlterMedia
11	006	AMS Neve
73	044	Antares
63	035	Aphex Systems
103	068	Apogee Electronics (UV22)
159	104	Apogee Electronics (Rosetta)
138	087	Argosy
135	033	Ashly
174	113	Audio Composite Engineering
62	034	Audio Networks
121	•	Audio-Technica
201	129	Audix
87	059	Avalon Design
204-7	130	B & H Photo-Video
98	064	Bellari
113	073	beyerdynamic
185	120	Bryston
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173	107	Carvin
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111	072	DAR
86	057	The DAT Store
93	061	DataViz
14-15	008	dbx Professional Products
78	050	Digibid
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144	091	Disc Makers
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76	047	DPA Microphones
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40-41	023	Duracell USA
28	015	Dynaudio Acoustics
161	106	EAR Professional Audio/Video

PAGE	PRODUCT INFO NUMBER	ADVERTISER
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160	105	Europadisk
57	031	Event Electronics (PS5)
181	116	Event Electronics (Røde NT1)
79	051	Eventide
101	066	Focusrite
22-23	012	Fuji Photo Film U.S.A.
143	090	Full Sail
38	021	Furman Sound
71	041	Genelec
189	123	Gecco
44	025	Glyph Technologies
189	122	Grandma's Music & Sound
183	118	Guitar Center's Rhythm City
191	124	The Hollywood Edge
72	042	Hot House Professional Audio
102	067	ILIO Entertainments
134	084	Institute of Audio Research
BC	139	JBL Professional
74	045	Joemeek/PMI
58-59	032	Johnson Amplification
133	083	Klark Teknik
6-7	004	Lexicon
104	•	Los Angeles Recording Workshop
139	088	Lucid Technology
26-27	014	Mackie (D8B)
18C	138	Mackie (HR824)
2	002	Manley Laboratories
21	011	Mark of the Unicorn
168	109	Marshall Electronics
152	097	MediaFORM
184	119	Microboards Technology
122	079	Mitsui Advanced Media
211	132	Mix en Español
191	125	Mix Online
231	•	MixVideo
154	099	mSoft
118	076	Musician's Friend
13	007	Neumann/USA
54-55	030	Otari
175	110	P. Audio Systems
195	126	Peavey
210	131	QCA
177	115	QSC Audio

PAGE	PRODUCT INFO NUMBER	ADVERTISER
9	005	Quantegy
115	074	Quested
117	075	Rane
213	•	Recording Industry Sourcebook
183	117	The Recording Workshop
42-43	024	Rocket Network
30-31	017	Roland (VS)
119	077	Roland (SRV-3030)
92	060	Sabine
75	046	SAE Institute of Technology
168	108	SEK'D
105	070	Sennheiser
146	094	Signal Transport
199	128	Simon Systems Engineering
1	•	Solid State Logic
34-35	019	Sonic Foundry (Vegas Pro)
123	080	Sonic Foundry (ACID)
61	•	Sony (Oxford)
146	•	Sony (PCM-R500)
171	111	Soundcraft
83	053	SpirIt
155	100	Studio Audio Digital Equipment (SADIE)
84	055	Studio Consultants
72	043	Studio Technologies
33	018	Sweetwater Sound #1
232-3	134	Sweetwater Sound #2
234-5	135	Sweetwater Sound #3
236-7	136	Sweetwater Sound #4
238-9	137	Sweetwater Sound #5
153	098	Switchcraft
3	003	Tannoy
48-49	028	Tascam (MX-2424)
95	062	Tascam (MMR-8)
141	095	Tascam/WaveFrame
67	040	TC Electronic
47	027	TC Works
45	026	TDK
104	069	Wave Digital Systems
141	095	WaveFrame/Tascam
29	016	Waves
86	058	Wenger
77	049	Westlake Audio
127	081	Whirlwind
138	086	Whisper Room
25	013	Yamaha (Analog Console)
145	093	Yamaha (02R)
197	127	Zero International
157	101	Z Systems

—FROM PAGE 20, TAKE THE MUSIC OUT

verters! Listen to their noise floors with 16 tracks or more open. Play with their summing, get to know what their meters show you compared to what you hear. Turn on loads of effects and see if they happily cruise along or slow down and get psychotic. And then listen to something simple yet so revealing—their EQs. Some DAWs have ridiculously bad EQs. What they do and what the knobs and numbers *say* they are doing are so far apart that it's criminal. They can sound very harsh, buzzy, cold or mushy. Their skirt shapes are often distorted and unstable, changing wildly (without showing you) as you alter the amount of boost or cut. Others are acceptable, but still an unfortunate step back from the analog beauties we have come to trust. But some are good. Some are *very* good now.

You simply cannot trust the hype. You must judge for yourself.

But there is a huge silver lining in today's cloud of hype: Unlike the old days of physical multitrack recorders and 12-foot-wide European consoles, *price does not reflect quality!* In the old days, the high-quality components and precision machining necessary to produce truly exceptional recording gear dictated high selling prices. It cost a lot to make good gear. Simple enough, and we all understood it. Few owners/engineers bought a mediocre machine because they actually *wanted* to; they did it strictly because the better gear was out of their financial reach. Damn, but life was simple then.

But not now. Do not make the assumption that the more expensive DAWs have better conversion or sweeter EQs. Don't assume that the older top-dollar systems must be superior because they cost so much. Today there is absolutely NO correlation between price, brand name or advertising budget and what these things actually sound like once you've unpacked them. You must listen, preferably in a direct A/B situation. Even their feature lists don't correlate to their prices! After all, which do you trust more, a carload of salesmen, or your ears?

You owe it to yourself to go to the trouble of really trying, say, three DAWs before you commit to the one you are going to live with. You pick which three, but *please* pick at least three!

Don't dread this. It will be fun, and you will be pleasantly surprised. Why? I'll give you a hint. If you thought you

had to spend ten, 20 or 30 grand or more for a fully expanded hardware-based 128-track DAW, you are going to be *real* happy. Today you can get into an excellent hardware-based system for just a few grand! And there are several companies to choose from.

As the market shakes down over the next two years, DAW prices may eventually (loosely) reflect actual audio quality and accuracy. In fact, it has already started. One of the most expensive dinosaurs has recently undergone a little price restructuring in response to the threat of the newer, more powerful systems that have recently appeared in the marketplace. Such is the wonderful power of Capitalism.

As you read this month's column, you must keep in mind that one of my companies actually makes a popular DAW, so I would *love* to tell you exactly which three to compare, but alas, 'twould be far too bogus for me to suggest (by the way, I really mean this, and will not respond to e-mail requesting my suggestions on the subject).

BEHAVIOR MODIFICATION

Second, and this one we all know already, analog and digital recorders *act* differently. You simply don't record digitally the same way you did analog. The rules are different. There is NO digital headroom. Anything above zero is absolute garbage, as there is no "above zero" anymore. No friendly tape squish, no fat harmonic distortion, no "character," just crap. And the very low levels are almost as bad. As you lower digital print levels, you throw away bits, the ultimate crime (next to your system *altering* bits without your permission). Low levels are accompanied by inharmonic sample rate sideband artifacts—truly nasty stuff. *Never* print any audio for any reason at any level lower than the maximum possible before clipping. There is never a scenario that justifies trying this.

So on to the primary issues. Back in the mid-Rust Age, multitrack recorders changed the way musicians, producers and engineers dealt with making records, both conceptually and physically. But the NLA change will be even more profound.

Sure, there are the obvious features. True random access audio is certainly the single most profound liberation. All the music, all the time, any time, in any order. No waiting, no fast forward or rewind. Instant looping. The ultimate speed trick.

And punching or replacing takes or sections? Each DAW has different sys-

tems for dealing with punching, and again, some are much better than others. The better-thought-out ones allow you to easily insert replacement verses, lines, words or even syllables. Some even allow infinite alternate takes that can be rapidly auditioned and combined to produce a perfect composite vocal or musical performance without the need for cutting and assembling any segments at all. And I assure those of you who may not have yet experienced this that any moral questions about building an artificial performance that could never have been achieved in the real world totally vanish when you hear your first perfect track.

Have some alternate ideas that you are curious about? Today's DAWs are the answer. A couple of them use clever track and grouping management concepts coupled with total automation to allow instant A/B comparison of things from simple alternate guitar leads or vocals to entire orchestration approaches or even several totally different mixes. Can you see what this could do for your creativity?

The list goes on and on, and the point emerges: Today's newer hardware DAWs are approaching the ultimate dream of music being limited *only* by your mind, not by your gear or your deadline...or even your budget. What a deal!

So *don't* think of your new DAW as a replacement for your multitrack and console. If you do, you will probably end up *using* it as just that—a replacement. Accept that they are virtually a new type of musical instrument, one that you have to not merely use, but truly *master* to move ahead. Practice. Experiment. Build alternate mixes. Edit the hell out of five vocal takes and create the perfect composite take. Let go of what you know, embrace what you can learn.

Certainly those of us who produce and mix for a living will find such a basic transition difficult and frustrating, and at first we will face the temptation to fall back on what we know, to revert to the primal warmth of tape. But you must dedicate yourself to mastering this technology. Those who cannot will be crushed. Natural digital selection, you know. ■

SSC now records directly into his PowerBook on the road, then brings it in and dumps the tracks into the big DAW at home to be used not as scratch, but as finals. He wrote this column while waiting for a friend to bring back that PowerBook that he forgot at her house.

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INSIDER AUDIO

—FROM PAGE 28, *IT'S A LARGE WORLD*

ally understood what I said, I would be assaulted by a flood of idioms, contractions and regional accents that were way too fast for me. I would then reply, "Pardon?" and they would act just like Americans: They'd say it again, louder, making me feel like an idiot.

I realized what my mother must have felt when she arrived in America as a child. In fact, I felt more like a Martian who had just landed in Dubuque. The lessons of that online discussion came back to me hard: We were now the strangers in a strange land. In fact, in French, the word for foreigners is just that: "*étrangers*." Here was a country

**He tried to warn us
that we were about
to enter la France
profonde—
the real France—
and profonde it was.**

that could be just as linguistically arrogant as the U.S., only this time we were the victims.

So I thought about those poor Japanese PR writers struggling to make themselves understood in a foreign tongue. Did I suddenly feel sorry for them? Did I now sympathize with people trying to do business in lands where the languages were different from their own? Did I achieve a new level of international tolerance and understanding?

Not on your life. What I realized was that if I ever wanted to do any serious business in France or any other country where they don't speak English, I had damn well better know the language a whole lot better than I already did or else hire somebody who did. No way I would try to do it myself, with the tools in my possession. And it made me even more resentful of companies that try to enter foreign markets without making a proper effort to know the language, or the people, it is trying to sell to.

The audio industry is more international than it's ever been. Our equipment comes from Germany, the Netherlands, Japan, Korea, England, Singapore and even Russia, to name a few. Our studios are doing work for clients

and audiences who speak dozens of languages, to be distributed on CD or DVD, over cable, satellite or the Internet, to billions of people in hundreds of countries. If we make equipment, we're trying to sell it not just to Americans but to facilities in Israel, the Arab world, South Africa, India and, potentially the biggest market of all, China.

The globalization of the banking system, along with the Internet and cheap phone rates, has made it easier than ever to do business overseas. But the communications revolution hasn't had one particular effect that Americans seemed to expect—although English is more widespread than it's been since the heyday of the British Empire, it hasn't become the universal tongue. Language differences are surviving the age of the Internet and, in some ways, are thriving.

America itself, always a nation of immigrants, is perhaps today even more linguistically diverse than ever, as new waves of the economically or politically disadvantaged people arrive. In spite of California's efforts to outlaw them, Spanish speakers are increasing in number. In some areas of New York, you can walk for miles and never hear English spoken. And it's not just along the coasts—there are large enclaves of Haitians, Southeast Asians, Latinos and Eastern Europeans to be found all over the U.S.

On the other side of the Big Ditch, the European Union's adoption of a single currency, the Euro—while it promises to make the arcane arithmetic of converting between francs, marks and pesetas a thing of the past—doesn't mean that the language barriers are coming down. If anything, in the face of economic internationalism, cultural nationalism is being encouraged. In France, for example, regional dialects such as Catalan, Provençal and Breton are being taught in the schools again, as a way of maintaining or restoring a sense of cultural pride.

As more nations are joining the world economic and cultural community, awareness of language differences is more important, not less. And if we want to succeed in the international marketplace—whether we make or sell goods and run studios or work in them—we ignore these differences at our peril.

What is the solution? One word: empathy. Think of yourself as the *étranger*. Make the first step so that your customers and clients feel comfortable with you and don't have to fight to make themselves understood. That means hav-

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INSIDER AUDIO

ing people on staff who can speak the language of your clients or, if you are trying to run an overseas operation, having people on the ground who know the local culture and language well.

When manufacturers are not successful selling in other countries, it's these cultural and language issues that are very often to blame. Some companies don't trust their foreign reps and don't let them make their own business decisions, or don't give them the freedom and the budgets to let them create the support materials that will allow them to do their jobs. It's hard to convince customers to take seriously a company that

**When manufacturers
are not successful selling
in other countries,
it's cultural and
language issues that are
very often to blame.**

prints its press releases and product brochures in pidgin English, or French, or Japanese. User manuals that are not translated (or even better, written) by native speakers are a great source of frustration—and sometimes hilarity. On my wall, I have a copy of a page from a manual for an electronic keyboard made in Asia. In it, the user is instructed to attach the legs to the bottom in a highly unusual and creative, not to say somewhat painful, manner. Some poor writer in the home office was apparently searching for the English equivalent of the word "screw"—and the verb he came up with is still considered unprintable in many English-language publications, including this one.

Companies that are penetrating (sorry!) foreign markets have, besides good products, marketing organizations in place that understand the needs of local customers. And most often those organizations are headed up by people who are native speakers.

One fellow I spent some time with in France, Gérard, runs a medium-sized audio hardware and software manufacturing company and recently decided it was time to take on the American market in a big way. His English is good (that is, it's a heck of a lot better than

my French), but he knows that he could never handle the entire American operation with it. The way he sees it, his American office needs to be able to communicate with the customers first and the home office second. So he's staffing it with Americans who know the local market and talk the talk and can learn the products. But he is also bringing his new American employees to France for several weeks at a time, not just to become familiar with the company, but to immerse themselves in the language so that they can communicate better with the home office. I applaud his sense of priorities, and I wish him well—and not just because of the absolutely amazing Catalan restaurant he took me to for lunch.

Studios that work extensively with non-English-speaking clients know the value of having someone on staff who can talk the client's language. And if you are dealing with dialog or voice-overs in a language you don't know, running the finished product by someone who does know it can save a lot of trouble down the road—like when you find that a little edit you did trying to snip a second from the track radically changed the meaning of a sentence.

When you've been on planes and other forms of transit for 14 hours, and you find yourself in a supermarket dying for something to eat, but it takes you 20 minutes and four intensely frustrating conversations to figure out where and how to get a shopping cart—which was how our first day in Perpignan began—you get a certain helpless feeling. And let me tell you, it's something you don't ever want your customers or clients to feel.

Despite the initial difficulties, we really did have a wonderful trip, with many magic moments. One of the best happened when Gérard's 6-year-old daughter met my wife, who entertains children professionally. They bonded instantly—even though the girl didn't speak a word of English. Their fascination with each other transcended the language barrier. After we came home, my wife was inspired to write a story for the girl, with her as the star, in the girl's own language. But before she sends it to her, my wife is going to be sure to run it past someone who really speaks French. ■

Paul D. Lehrman—composer, educator, writer, and editorial director of Mix Online—is glad to be home. He welcomes you to visit his latest insane project, www.antheil.org.

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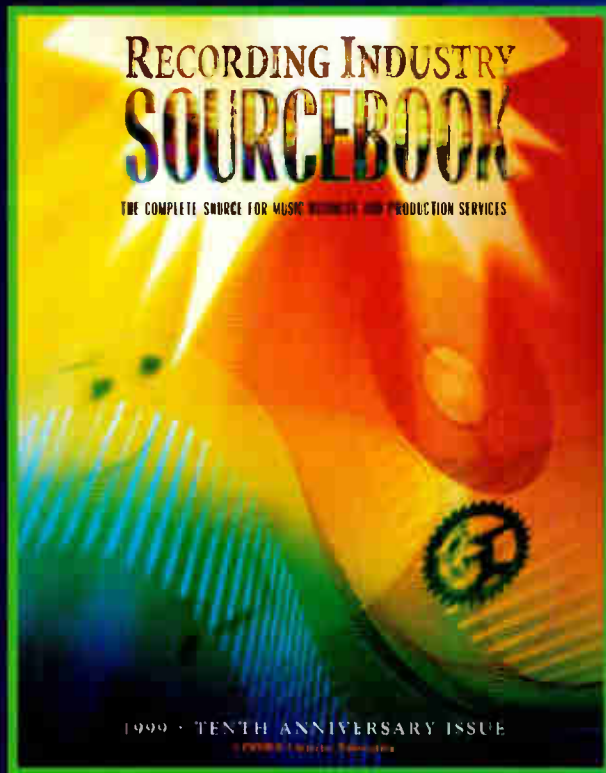
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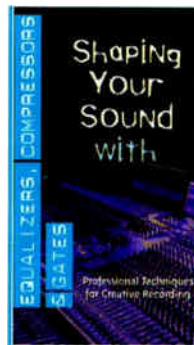


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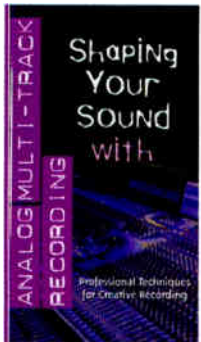


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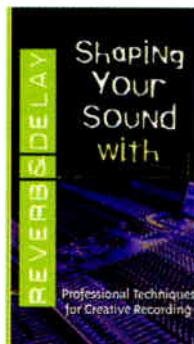


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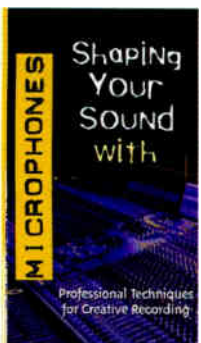


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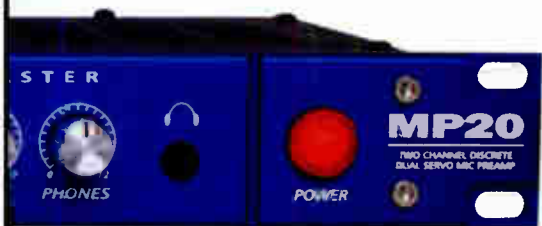
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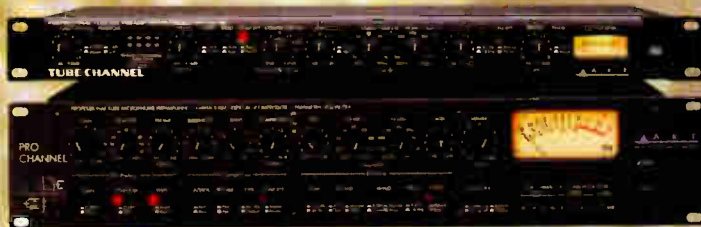
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What do tours by the Dave Matthews band, Lenny Kravitz and Beauty & The Beast have in common? Their secret weapon: the award winning SpectraFoo audio metering & analysis software. RTA tools like 2 channel differential FFT help you quickly get the most from any PA. You get level meters, phase scopes, oscilloscopes, spectrum analyzers, a 24 bit signal generator and much, much more! SpectraFoo runs stand-alone on MacOS®, or as a TDM or MAS plug-in. Pop it on a PowerBook®, feed it from a pair of Earthworks M30 mics and you've got more metering power than a dozen traditional devices at a fraction of the investment!

Why not enjoy the extraordinary sound and exceptional convenience of these powerful performance tools at your very next gig? Call us today!

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Sweetwater MUSIC TECHNOLOGY REPORT:

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SHURE

EXCLUSIVE "ENSEMBLE SYSTEM!": You get 1 Transmitter and 4 Receiver/Earphone sets at a special discount — only from Sweetwater! Now your entire ensemble can enjoy the benefits of this advanced system!



TASCAM

TASCAM "PERFORMANCE BUNDLE": Another Sweetwater Exclusive! This offer upgrades your TM-D1000 Digital Mixer to deliver 12 Mic Preamps and double the DSP at an amazing Sweetwater "ProNet" discount! Call for details!



PROFESSIONAL LOUDSPEAKERS

CHOOSE THE "XLT POWER TRIO" FOR SUPERB SOUND AND PORTABILITY: Thanks to the XLT41E's compact 12" and the XLT51E's powerful 15" driver, you get an incredibly convenient and easy-to-carry PA that really kicks! The XLT41E even works great as a floor monitor! Call for your special Sweetwater discount on this Power Trio!



MUSIC TECHNOLOGY DIRECT — and the Best Value, Guaranteed!

World Radio History

LIVE PERFORMANCE TOOLS

Why Upgrade to SHURE PSM® 700 Stereo Wireless In-Ear Monitors?

- You have the best possible **protection** for your **hearing**.
- Your monitors **sound great every night**, regardless of the venue.
- You have **tremendous freedom of movement** on stage - without losing your monitors.
- You save money as multi-user systems are actually **more economical** than traditional, multi-speaker monitor systems.
- You drastically **reduce the weight and size** of your monitor system.

Why does Shure Dominate the In-Ear Wireless Monitor Category?

- **Sound:** Shure's unique Low Mass/High Energy E5 dual-driver earphones deliver stunning audio quality.
- **Flexibility:** Each transmitter delivers your choice of one stereo mix or two user-selectable mono mixes.

Use any number of receivers with a single transmitter. Everyone on stage can enjoy a clear, safe mix — all for a lot less per band member than most floor monitor rigs! Add up to 16 base transmitters for a total of 16 stereo or 32 mono mixes.

Mark of the Unicorn — the Choice for Powerful Live MIDI & Audio

Live sequencing? It's not just for keyboards and drums anymore! Automate a mix, reset effects and EQs, run your lights, even play complete audio tracks with real-time plug-in DSP effects! **Digital Performer** sequencing software has proven reliability with hundreds of live touring acts and innumerable concert performances. The **MTP AV** patches your live MIDI rig with on-the-fly setup changes — indispensable for keyboards and FOH control of effects processors. The **2408** gives you tremendous audio playback and recording capabilities and the **1224** lets you record your performances in stellar, 24 bit resolution. This combo has quickly become the standard on pro tours, both for audio "sweetening" and live location recording.

Automated Digital Mixing for Live Gigs? The Tascam TM-D1000 Performance Bundle is Here — A Sweetwater Exclusive!

No soundman? No problem! Tascam's amazing TM-D1000 Digital Mixer is perfect for the small ensemble, keyboard player or electronic percussionist that wants great sound and extensive control, without a lot of complicated headaches. Easily create preset mixer "scenes" for each song. Set all mixing functions plus built-in digital effects with a single button push! Or enjoy real-time automation when you control the TM-D1000 from a MIDI sequencer such as Digital Performer.

Sweetwater's Performance Bundle adds Tascam's MA-AD8 8-channel mic preamp/A-to-D converter and FX1000 DSP expander. You get a total of 12 balanced, XLR inputs with 20-Bit D to A conversion, enough for full band. DSP horsepower is dynamically allocatable for up to 8 dynamics processors and 4 channels of digital effects. Save all settings with scenes or automate! Why settle for manual mixing? Call us here at Sweetwater Sound today for our special "ProNet" discount on this great bundle! We'll even **pay you top dollar for your old board when you upgrade** to a Tascam Performance Bundle.

Power and Grace! A Truly Compact PA that Smokes!

What if your club PA had more volume, cleaner sound and less weight? For solo artists and small ensembles, the Community XLT41E two-way cabinet is the perfect choice, balancing top sound quality, pro durability and remarkable portability. Add an XLT51E 15" subwoofer and you've got a full range rig that really kicks, without breaking your back! From the titanium, high-dispersion tweeters to the indestructible construction, Community has taken all of their knowledge and experience with arena and stadium systems and packed it into these little giants!

Enhance your live shows with these advanced tools. What's the best approach for your unique needs? Call us now to talk it over!

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Recording audio with your Mac or PC?



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No other system gives you all this

24-bit recording **With today's latest converters**

Just a few years ago, this level of audio quality would have cost you thousands per channel.

116 dB dynamic range **With our new 1224 analog interface**

The 1224 gives you stunning audio specs that rival today's most expensive interfaces.

Balanced I/O **With the 1224's eight analog inputs and ten outputs**

All of the 1224's analog connectors are balanced +4 TRS or XLR for pro-grade I/O.

Tons of ADAT Optical I/O **24 channels of ADAT optical expandable to 72**

The 2408 delivers all the ADAT optical you need for today's digital mixers, FX processors and other gear.

Loads of Tascam digital I/O **24 channels of Tascam TDIF expandable to 72**

If you're in the Tascam world of digital I/O, no other system even comes close.

S/PDIF and AES/EBU I/O **The new 308 gives you AES/EBU and two flavors of S/PDIF**

8 channels each of optical "TOSlink" S/PDIF, RCA "coax" S/PDIF and AES/EBU — all in 24-bit glory.



Expansion **With the flexible PCI-324 card — the core of the system**

Connect up to three 1224, 2408 and 308 interfaces for as many as 72 inputs/outputs.

Sample-accurate sync **With digital transfers between your Mac and MDM's**

Say goodbye to worrisome phase issues and other digital audio sync problems.



Broad compatibility **With all major audio software for Mac and Windows**

Use your favorite audio software with your favorite native plug-ins.

Audio format conversion **Up to 24 channels at a time**

Own the most flexible format converters out there — without paying extra!

Sample-accurate software **with AudioDesk™, the workstation software for Mac OS**

Make sample-accurate transfers with ADATs. Edit tracks with sample-accuracy.

Super-easy setup **with our step-by-step Setup Wizard**

You'll be up and running in no time.

Industry buzz **Why is everyone is talking about the 2408?**

Keyboard Magazine says it best: "Is the 2408 the audio interface system we've all been waiting for?...the answer is yes."

Price, price and price **Did we say price?**

A core 2408 system with 24 channels of input/output is only \$995. Add a 1224 24-bit analog expander for only \$995 — or a 308 for only \$695. Mix and match them any way you like. At these prices, you can own just the right combination.



MOTU 2408 / 1224 / 308 hard disk recording

CIRCLE #137 ON PRODUCT INFO CARD

World Radio History

PANASONIC DA7

CREATING BIG SOUNDS WITH THIS COMPACT DIGITAL MIXER

Panasonic's DA7 digital mixer offers a great deal of functionality at an affordable price and in a small package. However, to achieve those qualities, the user has to accept some trade-offs in ease of use. The features are there, but you may have to dig around to find them.

By and large, the DA7's mixer functions are intuitive and quick to master. The area of automation is where the most helpful hints can be given. Here are a few tips to help you get the best that the DA7 has to offer.

WITHIN YOU, WITHOUT YOU

To store a mix or do event-list editing of a mix, you must first exit automation mode. In fact, the event edit page is not even available for display while automation is on. The fastest way to exit automation is with the Automation/Aux button just to the left of the EQ controls. When you're ready to store (or event edit), press the button so that it turns green, indicating Automation is off, then proceed with your store or edit.

You will probably be in MIDI Machine Control mode much of the time that you're automating. Exiting MMC mode by pressing the Cursor/MMC button makes it much easier to move the cursor and use the dial for editing. Don't forget to turn MMC and automation back on before trying another mix pass!

A PRESET SAVED IS A PRESET EARNED

Although most people get basic sounds before they turn automation on, tonal and settings changes often need to be done while mix automation is in process. The DA7 does not provide an easy way to propagate changes in dynamics, EQ or other channel settings through scene changes. Making such adjustments while automation is on is dicey because the next

scene change or parameter move will erase the EQ you labored over the last time through.

Turn off automation to make the tweaks you need. Once you have things the way you like them, store the settings as an appropriate library preset. EQ and dynamics presets will be the most common, but sometimes you'll need to store a channel preset. Note that you must be in the appropriate edit screen (EQ, dynamics, channel) BEFORE pressing the Library Store button.

Once you have stored the new settings, recall the first scene change (i.e. snapshot) in the mix, then select the appropriate chan-

You may also wish to deselect fader levels from the list of parameters stored in a scene change, for all but the Start Scene (which is always memory 00). This prevents the automation from grabbing the fader if a scene change is recalled while you're recording fader moves.

THE PHANTOM MENACE

The DA7 will dump its entire contents via MIDI system exclusive data to any program that can receive and store sys ex. But there's a hidden "gotcha." Although sys ex data does not, by definition, carry a channel number, some manufacturers implement one



nel for the new settings and recall the library preset you just made. Now store the scene change again (you may want to name it differently in order to differentiate it from the old version). For each scene change in the mix follow the same process: recall the scene change, select the channel, recall the library preset, and store the scene change. If you store the scene change under a new name, don't forget to update the old scene wherever it appears.

anyway. In the DA7, what this means is that a dump cannot be restored unless the DA7 is set to the same MIDI channel as when the dump was made! Even if you never change the DA7's MIDI channel, it is prudent to make a note in the file name or some document as to the MIDI channel of each dump.

Larry the O has spent the summer keeping vampire hours in order to contribute sound design to the upcoming anime feature, Vampire Hunter D.

BY LARRY THE O

NO WONDER THE HR824 HAS THE BEST BASS RESPONSE OF ANY 8" MONITOR. IT'S REALLY A 12" MONITOR IN DISGUISE.



TIGHT, RESPONSIVE BASS FLAT DOWN TO 39HZ.

Reviewers and owner's warranty card responses are unanimous: The HR824 has the most accurate bass they've ever heard from an 8-inch monitor. And bass

quality is as astonishing as the quantity. Fast low frequency transients like kick drum slaps and electric bass notes have a crisp, articulation that makes other monitors sound like mush.

ANOTHER TRANSDUCER INSTEAD OF A PORT.

The more LF transducer cone area a speaker has, the more bass it can produce. But a huge low frequency transducer isn't an option on a compact near field monitor.



A transducer and a port can't equal the LF output of the HR824's two transducers.

To augment primary bass output, other monitors resort to using ducted ports that can convert cone movement into extra low frequency air movement. But for optimal output, a ducted port needs to have the same area as the low frequency transducer — an 8-inch near field monitor would need an 8-inch vent. Needless to say, you haven't seen any vents this big on other near field monitors. When vent size is reduced, bass output is compromised. And, forcing a lot of energy out of small ports can create audible wheezing and whooshing.

Instead, the HR824 adds a large passive transducer with the cone area of another 8-inch woofer. This ultra-rigid, honeycomb laminate piston tightly couples with the HR824's active bass transducer. With a combined cone area greater than a single 12-inch woofer, you get exceptionally extended bass without port noise complaint.

MASSIVE POWER THAT WOULD PROBABLY POP A PASSIVE MONITOR.

Punching out crisp bass requires a lotta watts. The FR Series™ high-current bass amplifier module inside the HR824 delivers a solid 150 watts of power with peak output in excess of 250 watts (plus another 100 watts for mid and treble). That's significantly more than any other 8-inch active monitor. Moreover, the HR824's servo coupling and ultra-short signal path put that power to work far more effectively than a passive monitor and a 250-watt stereo amp could.

PART OF A TIGHTLY-INTEGRATED SYSTEM.

Our servo bass system is only one contributing factor to the HR824's amazing accuracy.

Internal power amplifiers are "fed" by phase-accurate, low distortion electronic circuitry instead of a crude coil-and-capacitor passive crossover. The HR824's proprietary logarithmic wave guide not only widens treble dispersion but also smooths the midrange transition between high and low-frequency transducers. Thanks to the wave guide's flaring design, the HF transducer's output is acoustically the same diameter as the LF transducer's at the critical 3500Hz crossover point.

The HR824's LF transducer even contributes to midrange accuracy. In many monitors, woofer cone harmonic vibrations bounce around inside the enclosure and then exit through the thin woofer cone. The result: smeared imaging and muddled details. Instead of a chintzy chunk of fluff, the HR824's enclosure is utterly packed with high-density absorbent foam. Cone vibrations go in, but they don't come back out.



DON'T SKIMP. It's amazing how many studio owners will mortgage the farm for money-is-no-object, esoteric microphones... and then monitor on cheap, passive loudspeakers. If you aren't using *some* brand of ACTIVE near field monitors you're seriously compromising your creative product.

HEARING IS BELIEVING. We urge you to visit your nearest Mackie Designs Dealer and carefully audition all of their active monitors with some demanding, bass-rich program material. Judge our claims (and those of our competitors) for yourself. We think you'll agree that the HR824 is truly the best of the best.



Rear view: The HR824's electronics conceal an ultra-rigid, honeycomb composite passive transducer.



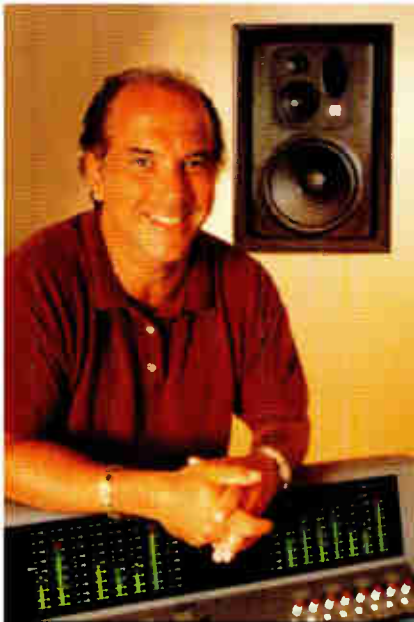
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Last fall we won the pro audio industry's coveted TEC Award for best near field monitor. Modesty prevents us from listing the impressive field of competitors but you'll probably encounter their ads in this very magazine.

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Neil Karsh is the Vice President of Audio Services for New York Media Group. Recently, Karsh selected LSR monitoring systems for two of his Manhattan facilities, *Lower East Side* and *East Side Audio*.

“We’ve installed the first of our LSR 5.1 surround systems at East Side Audio and it’s a great addition. The sound is extremely clear and is enjoyed by our mixers and our clients. Everyone is very pleased with the result.”

New York

LSR. Profiles

The world’s most noted recording professionals discuss the world’s most advanced monitoring systems.

NO.1: New York / Los Angeles

The World’s Best Performing THX® Monitoring Systems Are Also The World’s Most Applauded.

Since its introduction in 1997, the system-engineered JBL LSR Series has become a favorite choice of engineers, producers and performers, many of whom have also become its most loyal advocates. More important, this acceptance is found in every major geographic area of the recording industry; from Los Angeles and New York to Nashville and London.



LSR 32

LSR 28P

LSR 12P

Monitors Whose Performance Profile Was Determined By Science, Not Opinion.

During a half century of building the most technically advanced studio monitors, JBL has developed a long list of working relationships with key recording professionals around the globe. As a direct result of this unique collaboration, these industry leaders have chosen JBL monitors more often than any other brand. Not once or twice, but consistently for decades. In fact, JBL monitors are a part of the history of recording itself. Consider as examples, the now fabled JBL 4200 and 4400 Series that, at their launch, actually defined an entirely new standard and new category of monitor. Such is the case now with the entire LSR line.

CIRCLE #139 ON PRODUCT INFO CARD



David Kershenbaum is a Grammy Award winner who has been on the cutting-edge of music production for decades. His discography is a remarkable ‘who’s who’ of popular recording.

“Speakers have always been important to me and I’ve had many systems that I have really loved. When Kevin Smith told me about LSRs, I tried them and was amazed at the accurate, flat response and how the mixes translated so well compared to other monitoring systems. Now we’re using them to track our new records and we’ll use them to mix, as well.”

Los Angeles



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