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PROFESSIONAL AUDIO AND MUSIC PRODUCTION

SOUND FOR PICTURE

- The Sounds of Baseball
- Music Libraries Online
- Billy Bob Thornton Interview

Vocal Recording Tips From Top Engineers

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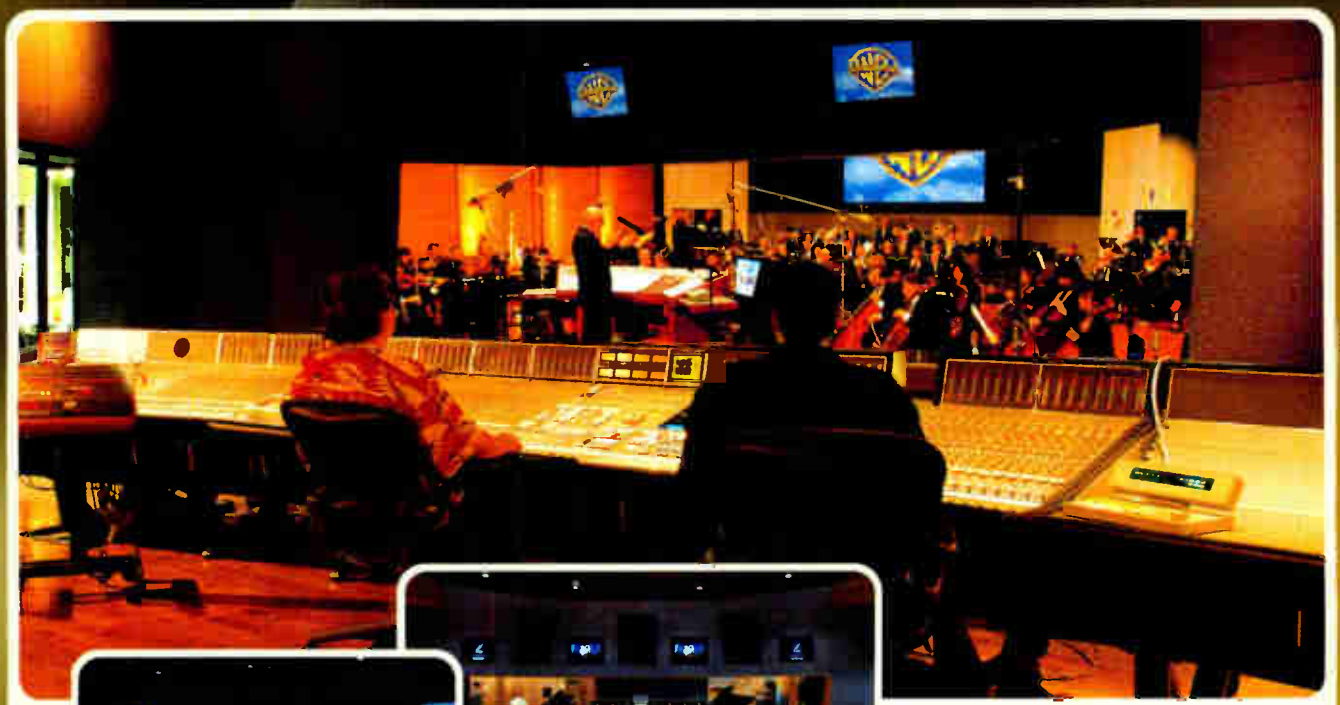

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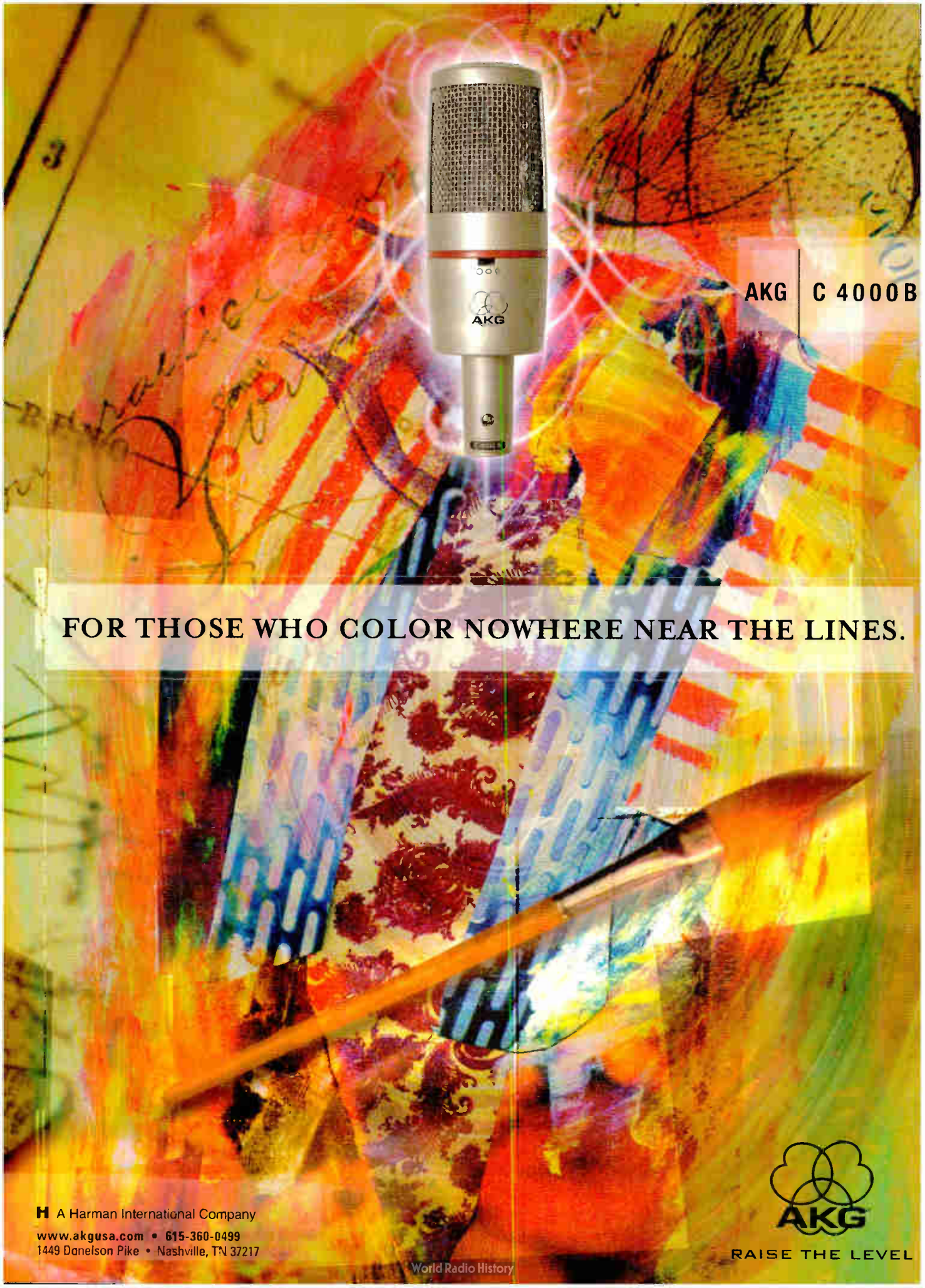
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MIX

PROFESSIONAL AUDIO AND MUSIC PRODUCTION

September 2001, VOLUME 25, NUMBER 9

FEATURES

26 The Human Element: Top Engineers on Recording Vocals

For the music listener, lead vocals are the human element. No other instrument has the same power to convey emotion, and to make or break a recording. Michael Cooper talks shop with three engineers to find out the gear and the approaches they take to vocal recording sessions.

40 Hits From Summer NAMM

There were some big surprises at the Summer NAMM show in Nashville. The *Mix* editors reveal all the new products and technologies.

56 The Sixth Annual Mix L.A. Open

Photos and highlights from our annual golf tournament, which benefits hearing health outreach programs and audio education scholarships.

61 Right Track Sets a New Course, Part 1

Right Track Recording is building a tremendous new ground-up facility on the West Side of Manhattan. Dan Daley takes a walk through the under-construction studio with owner Simon Andrews. Next month: the finished rooms.

152 Large-Format Touring Consoles: Mix Surveys the Over-40 Set

In-ear monitors, multilevel and "B" stages, frequent set and costume changes, prerecorded material...all affect the choice of equipment for today's live sound productions. As a result, console manufacturers are offering increasingly sophisticated and flexible designs. Randy Alberts surveys the current crop of large-format touring consoles.

On the Cover: The Cary Grant Theatre, the flagship of the Sony Pictures Post-Production Facility, was completely renovated in 2000, and now features a 288 full-channel Harrison MPC2 console with the much-talked-about digital engine. For more, see page 14. **Photo:** Tom Bonner. **Screen Photo:** "His Girl Friday," courtesy of Sony Pictures. **Inset photo:** Steve Jennings.

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

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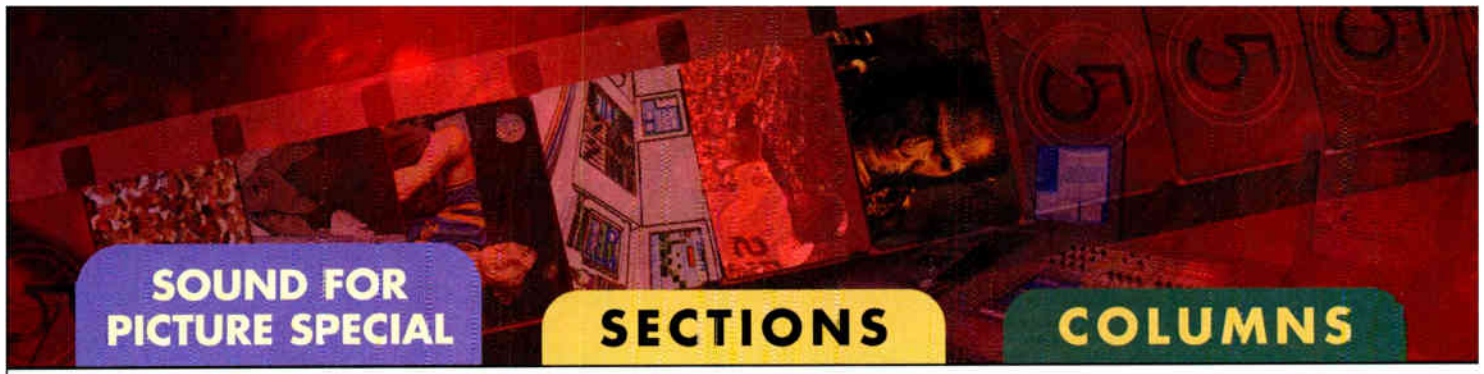


SOUND FOR PICTURE SPECIAL

SECTIONS

COLUMNS

A Special Advertorial Supplement, "The Best of New York," starts on page 161.

LIVE MIX

RECORDING NOTES


Page 181

COAST TO COAST

DEPARTMENTS


Page 16

TECHNOLOGY

It does more than burn. It sizzles.

Introducing the new Korg D1600 Digital Recording Studio, the most complete and affordable solution for home and project recording. This 16-track digital recorder packs recording, mixing and final CD mastering into a professional quality all-in-one unit. With even more features and capabilities, the D1600 has everything for your music-making needs.

The D1600 comes with a massive 20 GB hard drive for more recording time and less worry about running out of time or space. And thanks to its unique user-swappable design you can easily change drives from session to session using standard IDE mechanisms. The D1600 supports the largest drives possible, so say goodbye to making backups and clearing your drive for the next project. Simply swap it!

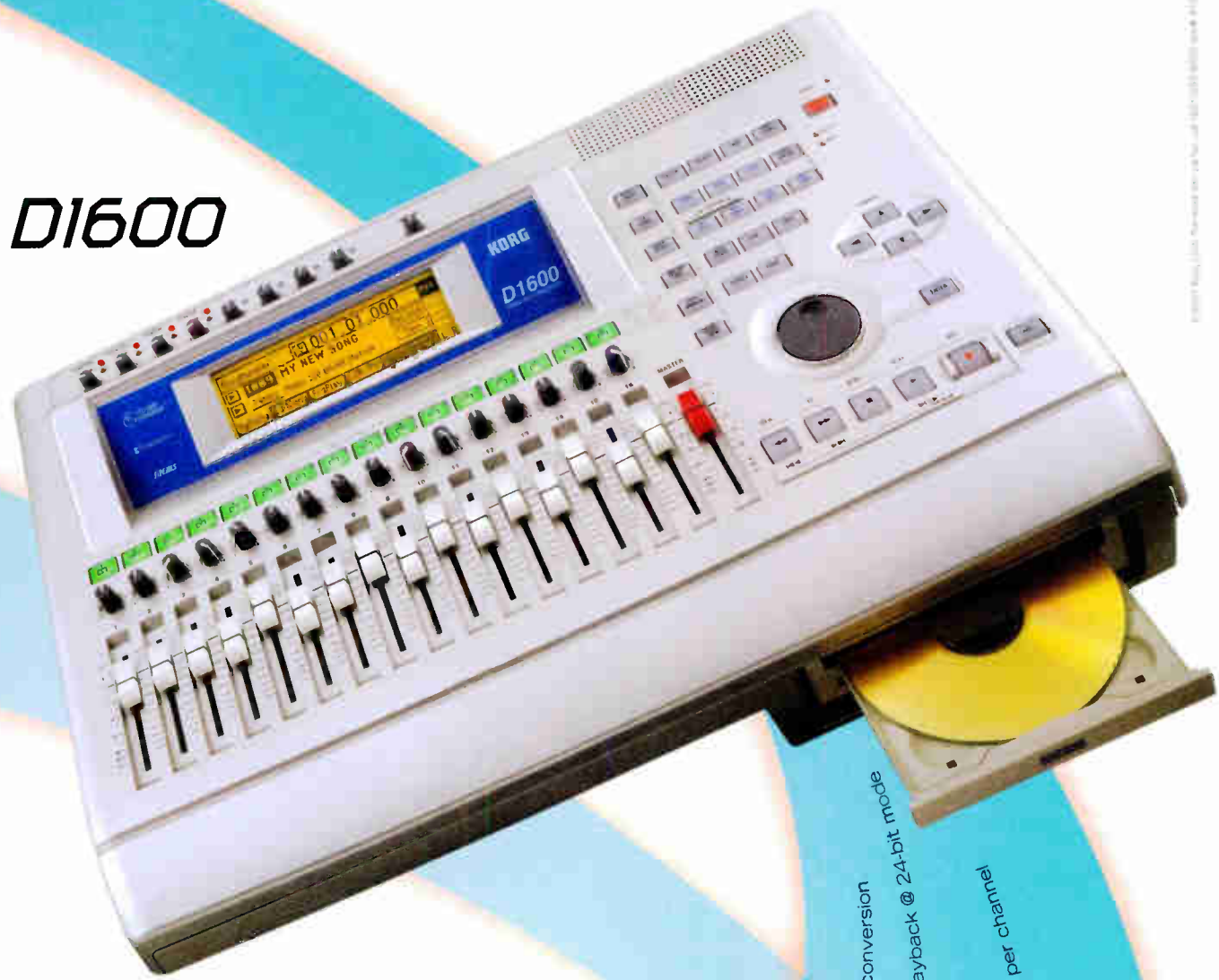
When it comes time to master or backup a project to CD you'll appreciate the D1600's internal CD-RW drive bay. (The Korg model CDRW-2 and many ATAPI-compatible devices can be used.) No cables. No additional power supplies. You can even record audio directly from the internal CD-RW drive. Try doing that with an external unit!

The effects power of the D1600 really shines when recording and mixing. Have up to eight Insert effects configured any way you like, plus two Master and one Final effect. It's like having a professional rack of high-quality effects processors with everything from reverbs and delays to compressors, limiters and EQs. Plus, our special REMS™ models of mics, guitar amps and speaker cabinets.

With its user-friendly TouchView graphic display and intuitive operating system, the D1600 is just begging to be touched. Lay your hands on it and let your creativity take over. Once you heat things up, there's no telling what you'll be able to burn.

KORG

D1600



- Recording Format: 24-bit/16-bit uncompressed, 44.1 kHz
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- 24-bit A/D, D/A conversion
- 4 track recording/8 track playback @ 24-bit mode
- 100 scenes/4 locate points per song
- 106 effects algorithms
- 3-band EQ per channel
- Built-in tuner
- 24-bit optical S/PDIF I/O

Taking the "R" Out of Audio!

Economists have an old joke about defining the difference between a recession and a depression. If someone else gets downsized, sacked, canned or laid off, then the action is simply a bump in the road of a slow economy—a recession. However, if *you* lose your job or your business fails, then we're obviously in a depression and the financial world needs to take emergency action—and soon. Whatever your viewpoint, today's economy definitely ain't what it used to be—even a year ago—and we're in the Grinch-like clutches of the "R" word: r-e-c-e-s-s-i-o-n.

In corporate America, layoffs and downsizing are usually accompanied by the tired, old cliche of, "We've got to work smarter." Yet there might be a glimmer of validity in that advice. Previously, no one was actually "working stupider," but those halcyon days when seemingly any new business venture (dotcom or otherwise) had customers and investors lined up around the block are little more than memories. These days—particularly in the pro audio market—owner/operators find themselves wearing a lot of hats and working harder for more hours to avoid losing market share.

One way to increase your slice of the pie is to increase the visibility of your company. Whether you're an engineer, producer, studio, sound company or equipment manufacturer, chances are you'd like to tell the world about your creative endeavors. Regardless of the size of your budget (or lack thereof), a well-thought-out PR effort can help get your message out—at minimal cost—and there's nothing wrong with a little "free press." Sometimes it's as simple as studio managers who circle the 15th of each month on their calendars, when they fax or e-mail their session information to *Mix*'s Robert Hanson, who coordinates our Coast To Coast section. An angle for manufacturers to consider is creating some news releases for distribution in the press room at audio conventions—i.e., NAMM, NAB, NSCA or this month's AES in New York.

During the recession—er, slowdown—10 years ago, a popular catch-phrase was "diversify or die." Soon, live sound companies were doing more industrials to accompany their rock concerts, and studios expanded into the video duplication business or audio post-production. But with all this diversity, and everybody doing everything, the overall market share soon dwindled.

Perhaps a more appropriate adage for today's market is "specialize and survive"—finding a niche market where you can thrive. During lean times in my studio, we turned to lucrative voice-over markets, offering package deals producing English-language radio documentaries for the overseas broadcast market and industrial safety-training courses. It wasn't glamorous, but we got a lot of personal satisfaction from billing $175/hour for a room with a vintage Soundcraft console and an analog 2-track, when nearby studios with big-ticket leases on $400,000 boards were lucky to get half that amount.

Probably one of the biggest growth areas in media right now is DVD authoring. Here's a huge—and growing—market, and it's an offshoot where audio plays a major role in the end product, whether for surround mixes of existing product, foreign language dubs, alternative soundtracks (i.e., directors/artists' comments) and more. Certainly, there is a mother lode of niche markets to be discovered, and by taking some time to identify these, perhaps we can take the "R" out of audio.

See you at AES!

George Petersen

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Letters to Mix

HEART OF THE MATTER

This is regarding the Selected Credits in your May 2001 "Mix Masters" interview with Armin Steiner. The album *Dog and Butterfly* by Heart was engineered by Mike Flicker and Rick Keefer, and recorded and mixed at Sea-West Recording Studios in Seattle. Mike and I certainly recorded 98% of this album.

I remember when Mike took one of the 2-inch reels to Los Angeles and recorded a live string section on one of the songs at Capitol Studios with Armin Steiner as string engineer.

I've been a fan of Armin's work for many decades, but I want to make sure the record is straight on the credits. Mike and I are both very proud of *Dog and Butterfly*.

Rick Asher Keefer
Sea-West Studios Hawaii
rick@seaweststudios.com

INTERNET AUDIO?

Paul Lehrman is right on about the problems we face with Internet music delivery. I would add that we should forget about music delivery on the Internet completely and use it for the kind of low-bandwidth stuff for which it's appropriate, like advertising or maybe music teasers.

I'm appalled at the horrible excuse the audio industry has given us for music on the Internet, particularly when artists must depend on it to introduce their work to listeners who have no basis for comparison, and who may end up thinking that the artist is bad because the art is heard through the lens of all that distortion and degradation.

A computer guru (and home recordist) I know was recently asked by Sony Development about Internet music distribution, and in his frank, inimitable way, he told the executives that "[the most widely used streaming audio format] is unacceptable for any purpose at any time." I agree. It's okay for pull-string toys, but not for my art.

The first 100 years of the audio industry was distinguished by the pursuit of better audio—an attempt to re-create live musical performances accurately. The past dozen years or so have sadly been dominated by financial interests, and have seen a steady degradation of a once-proud engineering march toward improvement.

Audio engineers now work for the bean counters and have been stripped of their freedom to pursue audio quality. Never in the history of the world has an industry capitulated so completely to a financial model. It seems to me, at least, like some surreal nightmare that the more fancy digital magic hits the market, the more unmitigated audio excrement hits the consumer.

Of course, the obvious answer could be for people to go out and hear live music, except for the sad fact that so much of it sucks even worse than mono MP3. In short, music in general is suffering from bad products, bad product literature, deceitful advertising and the complete abandonment of consumer education by audio manufacturers.

Education is expensive and returns little or no direct income. Music clubs across America are filled with groups who carry abominations they call "P.A. systems." Musical instrument amplifiers are still medieval torture devices that do more harm than good. Clubs that hire $10 soundmen get what they pay for. And while we're at it, let's lay a massive helping of blame on the lack of music education in our schools, thanks to the short-sighted politicians who think standardized tests define preparation for the job market. You want fries with that?

Drew Daniels
Via e-mail

BRING BACK JINGLES

It was only a very short time ago that any hot band or artist who allowed their music to be used in a commercial was considered to be an artistic sellout. Today, commercials with recognizable popular songs (some of whose lyrics have no relevance to the commercial!) populate TV and films at a rate that is alarming to jingle companies and composers looking to score the next BMW TV spot.

The major music companies, distracted by the likes of Napster, continue to protect and fortify their musical gold with better barbed wire. Faced with the fact that the big pot of money is now lots of little pots, the Big Guys have opened their vast catalogs to ad agencies and film houses for licensing into ads and movies.

Licensing has historically been a painful, expensive and time-consuming headache, with lawyers mucking up the process in their wonderfully time-consuming way. Now, with the use of the Internet, the process is faster, simpler and cheaper for licensees.

Let's add to the licensing pot every minor label and publisher with their hopeful artists and obscure tunes. Throw in online music distribution dot-coms and music brokers, stock music (needle-drop) companies, and stir vigorously. What we get is a lot more product than demand. More music than there are commercials or productions.

What I see happening is a race for distribution at the expense of musical content, both creatively and in terms of audio quality, and in the sheer weight of tons of tracks.

With commercials so much a part of today's culture, why are they so easily forgettable? I believe it's because music and song lyrics are now just an afterthought in the creation of spots. Back in the '60s and '70s, hot lyricists and composers created music for memorable, award-winning national commercials, and then became stars and major music talent in their own right. Some examples are Paul Williams, Barry Manilow and The Carpenters.

We've got to rejuvenate original commercial music. It is a comment on our creativity and our profession that so many spots are using tired old standards. Have we lost the magic of solid lyrics and melody, and been covered up by a Wall of Sound Design? Have time, money and fear of taking risk in our industry driven the great jingle singers to boring but steady gigs in Vegas and Branson?

It's time to re-introduce the most powerful form of commercial music—the Jingle—with multitracked vocals with tight harmonies backing up a really hot solo singer. Seven singers, a choir, the Peruvian High School Marching Band...I don't care! Bring back the spontaneity of live, human voices and don't throw them into the Pro Tools blender when they've left the studio.

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ALLEN & HEATH LEAVE HARMAN INTERNATIONAL

Clink, clink! Pictured from left: Glenn Rogers, Tony Williams, Dave Jones, Bob Goleniowski

In early July, the Cornwall, England-based mixer manufacturer announced a £9 million management buyout, with lead investment coming from 3I, a European venture capital company. This announcement marks the end of Allen & Heath's 10-year run as a division of Harman International Industries Inc. (Allen & Heath was acquired by Harman International in 1991.)

Allen & Heath's new board will consist of the four current directors (managing director Glenn Rogers, sales and marketing director Bob Goleniowski, finance director David Jones and operations director Tony Williams), plus two non-executive directors from the company's investment partners.

"We have become very successful in the 10 years that we have been with Harman International, but the time has now come to pursue our own independent goals," said Rogers.

The company will remain at its recently expanded factory in Penryn, Cornwall, and will retain all of its current employees. For more, visit www.allen-heath.com.

NOTES FROM THE NET

In the latest legal proceeding, a federal appeals court ruled that **Napster** can resume its song-swapping operations over the Internet. The decision by the Ninth U.S. Circuit Court of Appeals overturned U.S. District Judge Marilyn Hall Patel's order that demanded that Napster remain offline until it fully complied with an injunction to remove all copyrighted music. The service is currently up and running. In other Napster news, the file-swapping service struck a worldwide licensing deal with the UK's **Association of Independent Music** and the **Independent Music Companies Association** on behalf of the UK and European independent record sectors.

Yahoo! Inc. purchased **Launch Media Inc.** for an approximate $12 million. The acquisition supports Yahoo!'s overall strategy to deliver online entertainment, including Launch's music content. Yahoo! was recently chosen as the distribution platform for Universal Vivendi's and Sony's subscription service, **pressplay**. In other Launch Media news, **Universal Music Group** has settled with Launch in their copyright infringement suit in connection with Launch's Internet radio service, Launchcast. A U.S. District Court confirmed that Launchcast is eligible for a statutory license for the transmission of sound recordings over the Web.

Tagging along the Internet buzz, **MP3.com** has become an affiliate of Universal Vivendi/Sony's pressplay service, situating it on the other side from Napster, which has signed on with AOL Time Warner, Bertelsmann, EMI and RealNetworks's Musicnet service.

NOW PRESENTING...

THE NEW MEMBERS OF THE COUNTRY MUSIC HALL OF FAME

The CMA announced the 12 newest inductees to the Country Music Hall of Fame, who will be honored at a special dinner on October 4 in Nashville and during the 35th Annual CMA Awards on November 7, 2001.

The 12 honorees include 10 special inductees selected earlier this year and two new members normally scheduled to be inducted for 2001. The special inductees include the Delmore Brothers, the Everly Brothers, Don Gibson, Homer and Jethro, Waylon Jennings, The Jordanaires, Don Law, the Louvin Brothers, Ken Nelson and Webb Pierce. Bill Anderson is the 2001 inductee in the Open category, and Sam Phillips is being honored in the Non-Performer category.

TEC AWARDS NEARLY SOLD OUT

A limited number of seats are still available for the 17th annual Technical Excellence & Creativity Awards to be held Saturday, September 22, at the Marriott Marquis in New York City. The ceremony will be hosted by the always-hilarious Father Guido Sarducci, and Phil Ramone will present this year's Hall of Fame Award to legendary engineer/producer Roy Halee. The prestigious Les Paul Award will be presented to Steely Dan. In related news, Gibson, sponsor of the Les Paul Award, will be rolling out a breakthrough technology at the AES Show. Please see next month's "New Products Guide" or visit www.gibson.com.

For ticket information, contact Karen Dunn at 925/939-6149 or visit www.tecawards.org.

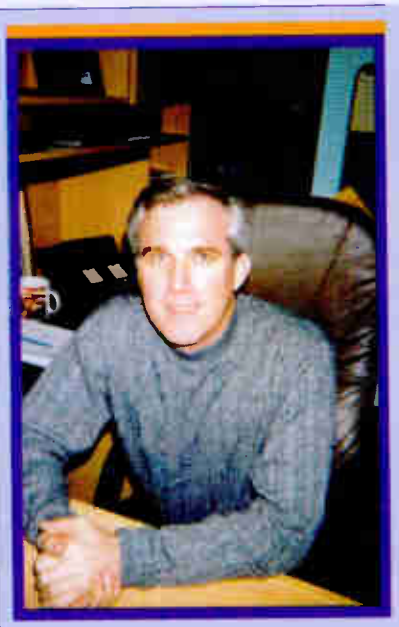
HITTING THE ROAD

"**Rocket in My Pocket Road Tour**" (September 4-14, 2001)—Sponsored by Fits & Starts Productions, LLC, and Apple computers, this first in a series of five 5.1 Surround Sound Road Tours will visit 30 cities, beginning at Omega Recording in Rockville, Md.

Featuring recording engineer, author and surround expert Mike Sokol, "Rocket in My Pocket Road Tour" will present new surround technology with seminars covering the history of alternative surround formats for the studio, home and cinema; DVD, DTS, Dolby Digital and PCM formats and requirements; speaker selection; bass management systems; miking techniques; and more.

Log on to www.ModernRecording.com to find a seminar near you.

ON THE MOVE



Who: James Cowan
What: President of Neutrik USA
Main Responsibilities: Marketing, sales, distribution, technical support, finances of Neutrik USA.
Previous Lives:
•Neutrik VP, October 1991 to present
•Neutrik USA general manager, December 1987 to October 1991
•Marketing manager with Dialight-Kulka-Smith, February 1985 to December 1987
•Product manager with Dialight-Kulka-Smith, December 1983 to February 1985
•Regional manager with Dialight-Kulka-Smith, June 1983 to December 1983
•Outside sales for Panduit Corp., June 1981 to June 1983
•Inside sales for Texas Instruments, February 1979 to June 1981

Feelings on once being the first employee at Neutrik and now the president... "The greatest satisfaction is the growth of the business and the success of the customer trusting you and your product. You become the company to your customers. They have to trust and believe in your word as much as, if not more, than in the product itself. Now, as president, and as the company has grown, the growth and addition of key people are more important. You have to realize that you have to delegate, that other people can do functions better than you can, and you have to trust their judgment."

Currently in my CD changer... "I have 200 in the changer from classic rock, jazz, pop, classical, techno and easy listening. But the last one I played was Jimmy Buffet, *Barometer Soup*. It is summer at the Jersey shore!"

Last great book I read... "George Day *Wharton Dynamic Competitive Strategy*. George is one of the best marketing consultants in the country, and his insight into marketing is excellent. But I am also a big Clive Cussler and Dale Brown fan."

Last great movie I saw... "I just saw *Jurassic Park* and *Tomb Raider*, more because of the kids. But the last one I enjoyed was *Pearl Harbor*."

When I'm not at work, I'm usually off... "Watching or coaching my children's sports, which have become almost year-round. I am also the player agent for the Toms River LL, for which I am responsible for 840 children. This summer, I have finally been able to see a few concerts like Rod Stewart, Aerosmith, Chicago, The Monkees, Tim McGraw and James Taylor. I also enjoy planting flowers, bushes, etc., when I can get a chance."

Some rewarding tidbits... "Meeting and having one-on-one conversations over the years with industry leaders and pioneers such as Hartley and Melia Peavey, Greg Mackie, Phil Hart, Charlie Wicks, Michael Liaconia, to name just a few. I have been fortunate to have met some of the most talented artists, engineers, installers and designers in the industry. The most rewarding product launch was getting SPEAKON accepted by manufacturers, users, installers, roadies, etc. It was a big challenge for Neutrik to create something totally new and to get the industry to like it, believe in it and support it."

Industry News

NTI AG (Montreal) welcomed **Susan Imeson** as its new managing director, North American operations...**Leslie Lewis** has been named director of the **Recording Academy's Producers and Engineers Wing** (Santa Monica, CA)...Santa Clara, Calif.-based **Portal- Player** hired **Dennis Mahoney** for the position of CFO...**MXL Microphones'** (El Segundo, CA) MXL range of pro mics will be distributed throughout the UK by **Yamaha-Kemble Music** (Keynes, England)...**Xytech Systems** (Burbank, CA) opened a New York office that can be reached at PO Box 133, Cragsmoor, NY 12420; 866/647-1553...**Level Control Systems** appointed **Strategic Manufacturers Group Inc.** (Chicago) as its representative in Illinois, Wisconsin, Minnesota, and North and South Dakotas, while **Audio Gear** (Huntington Beach, CA) will cover Las Vegas and Southern California...**The Harry Fox Agency** (New York City), the licensing subsidiary of the National Music Publishers Association, welcomed **Philip Teplitzky** as the new senior VP and CIO...**Skip Bensley** joins **Mass Audio Visual** (Burlington, MA) in the position of account executive...**Genelec** products will be represented in the Southeast, Indiana and Kentucky by **TechRep Marketing** (Antioch, TN)...The new director at **Full Compass Systems** (Middleton, WI) is **Joel Brazy**...**Wilson Audio Sales** (Nashville) is the new independent representative for **Rane** (Mukilteo, WA) products in North and South Carolinas, Tennessee, Georgia, Alabama and Mississippi...**Matthew Miller** joins **QSC's** (Costa Mesa, CA) marketing team as the new in-house marketing communications editor...Designer and manufacturer of MPEG-encoding products **Zapex Technologies** (Mountain View, CA) named **Rob Goodson** as digital broadcast market sales manager...Former president of Musiktech Advisors Inc. **Ed Outwater** joins **DTS Entertainment** (Amsterdam) in the VP of music operations position...**D.A.S. Audio** (Valencia, Spain) named **Dancetronics** (Allentown, PA) as its 2000 dealer of the year...**HHB** announced these new rep firms: **Right Track Marketing** (Kinnelon, NJ), New York metro area; **James Fox Music Company** (Seattle), Northern California and parts of northern Nevada; and **Sehi Marketing** (North Lauderdale, FL), Florida and Puerto Rico.

SURFIN' AROUND

www.akgusa.com: **AKG Acoustics'** official U.S. Website, with links to product info, customer service, corporate and breaking news, and dealer locator.
www.thefaro.com: Visit **Trimordial Studio**'s new page.
www.cmsalter.com: Acoustician/designer **Charles M. Salter Associates Inc.**'s new site.
www.songwritersdirectory.com: database of songwriters and resources for songwriters, record labels, publishers and recording artists.

Sony Pictures' Cary Grant Theatre

By Maureen Droney

The largest of Sony Pictures' 10 re-recording stages, the 367-seat Cary Grant Theatre strives to meld the future with the best of the past. Remodeled in 2000 with an art deco motif, the theater now features a 288 full-channel Harrison MPC2 digital mixing console, along with an all-digital machine room.

As the flagship of a massive 10-year, studiowide renovation, the theater received aesthetic improvements and a technological overhaul. Over a three-month period, the room was completely stripped, and with the help of acoustic designer Ray Van Den Broeck and architects HLW International, the ceiling, walls and floor were redesigned, with an extensive use of granite and mood lighting. The stage area was enlarged to accommodate a larger console and workstations to each side, and a kitchen, two offices and new lounge were added.

Sony Pictures Post-Production Facilities president Michael J. Kohut has a special affinity for the Cary Grant Theatre; as a mixer, he has called it home for over nine years. Working on such films as *Basic Instinct*, *Dead Poet's Society* and *The Prince of Tides*, and going back to *War Games*, *Fame* and *Total Recall*, Kohut garnered seven Best Sound Oscar nominations. He was the facility's director of sound in 1989 when Sony Corp. purchased the studio.

"When Sony purchased the facility, we went on a 10-year program to renovate, establish new rooms and become all-digital," Kohut explains. "We also wanted to develop new technologies that we could incorporate into the facility. Our plan was to renovate and to grow the business at the same time, which is difficult. We did it in small pockets of projects, and it worked very well. We are now in our eleventh year, and we are building our fifth new dubbing stage, which will come online in November."

Recognizing that digital mixing was imminent, Kohut and his team collaborated with Harrison to create the MPC. "Since we needed to modernize the entire facility and put consoles in all of our stages, we ended up with eight Harrison analog MPCs," Kohut says. "We didn't want to have to go back to Sony Corp. in 10 years, after spending millions of dollars, and say, 'Digital is right around the corner—now we're going to have to put in all new consoles.' Instead, with Harrison we developed the first console where the mixing surface was separated from the audio processing. We did it very successfully, and then Harrison worked on designing the digital aspect."

PHOTO: LONG PHOTOGRAPHY, INC.

The sound department at Sony Pictures Post-Production Facilities, outside the Thalberg Building

The Cary Grant Theatre's MPC2 features an 1120x1340 digital router, full digital metering, a 64x8 monitor matrix and 56 channels of PEC/direct switching, together with three sets of Harrison's patented dual-motorized joysticks. The three-operator console stretches to almost 26 feet.

In addition to the MPC upgrade, additional control surface elements were added to the console, including four-layer-deep fader panels, digital meters and Harrison's new I toys panel—a dedicated control panel with eight small motorized faders and other automation controls that function as a hardware controller for digital devices.

"A great feature of this console," notes Mark A. Koffman, VP of engineering, "is that the console has been fully automated from inception. Now, with the digital engine, there's no learning curve. Mixers can sit right down at it, and it works just like it did before."

As part of the original plan to take the entire facility digital, Sony developed its own hard disk recorders, which in 2001 were honored with a Scientific and Engineering Academy Award. "We saw a need for digital recorders and reproducers when there wasn't anything available," says Koffman, "and we developed our own Sony DADR-5000 way back in 1994. Now we have something like 400 of them in our facilities. We have adopted the Pro Tools file format, so we have total interchangeability with any player at any facility in the world."

Along with achieving the ultimate in state-of-the-art equipment, another equally important goal for the Sony post-production team has been to attract the highest level of mixing talent, including Kevin O'Connell, Greg P. Russell, Rick Kline, Scott Millan, Bob Beemer, Greg Watkins, Jeff Haboush, Gary Bourgeois, Greg Orloff and Bill Benton.

"We look for people who are both technically superior and who are very client-oriented," says senior VP of sound, projection and video operations Richard Branca. "We have also been very instrumental in putting together teams. We try to promote from within, and then to create combinations with outside mixers who enhance our already wide client base."

"We built the facility to be client-friendly," concludes Kohut. "We range from 50 to 70 percent outside clients, and we've been fortunate to have the opportunity to do some of the biggest pictures in town. We've continued to grow every year, and we are enormously proud of our facility, our crews and our entire organization." ■

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THE ULTIMATE

WELL, IT AIN'T MEMOREX

ILLUSTRATION: ROBERT MEGANCK

This is the second part of a two-part column. I trust that all of you read the first part last month. But as there might be readers who have not read part one, I will do what they do on TV—rewind a bit. Now, don't take this as an insult. We know that the networks do it because they know there is little chance that viewers have any discernible memory of events that they saw one week before on television, but not me. I am recapping as a convenience to those of you who are working far too hard to bother with remembering one of many columns you read last month.

And so, the closing lines of part one:

"But this only works in the United States, and I suspect that by the time you read my column next month, this bizarre federal statute will be taken off the books, or at least rewritten."

Even so, this is *exactly* how to make, *and keep,* between 1 and 1.5 million bucks, in less than three months! It certainly worked for me. Clean and legal, and, in my case, I was even invited to join the chamber of commerce. I give this little detailed tidbit to you, my readers, as a reward for tolerating a two-part column. Now you can't say I never made you no money.

AND NOW, PART TWO

So now that you have all the money you will ever need, I assume you will be staying in audio for the sheer love of it, like me. With that in mind, I will get back to the point of this two-month odyssey. Of all the types of art that we examined last month, both in and out of time, why *is* music so unique? And why does one kind of music stand alone in our world as the ultimate expression of art?

Music is, of course, available in two flavors—canned and fresh. Canned music may be played and absorbed by the listener whenever he or she wishes, as many times as they want. You can tell any modern CD player to skip the lame songs on a CD, and it will remember and skip them every time it

BY STEPHEN ST.CROIX

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sees that CD, so that you soon forget that there even were songs you didn't like. (I have a *lot* of short three- to six-song CDs these days.)

You can change the order of the songs, or randomize them. You can put 100 CDs in your changer and randomly play the songs you like from all of them together. You can boost the bass until every song has a glorious, booming, nondescript mush for a bottom. You can boost 12 k until your ears bleed and your dog runs away. Or you can rip to MP3 and have Xtreme control over your playlists. But, you will still listen to each song from start to finish, at the playback rate that the creator intended (clocking errors notwithstanding).

And the point is that the *creator* determines the rate at which the story unfolds, not the listener.

Plays are not widely available on DVDs, and though movies are, movies are never performed live. This leaves music alone as the art form you can get fresh or canned. This is no minor thing. Yet, as special as music is straight from the can, it ain't nothin' compared to music fresh from the performer.

AND FRESH

I spent almost half my life touring, and for any of you who may not have gone out for a year at a time, here are a few observations. You are never alone, but always lonely. You live in one world with 50 friends (sorta), and those that you make in each city you play. Everybody else lives in some other world—they are the citizens, the audience. They make you, they break you. You never quite figure out if they are there for you, or if you are there for them. You don't know if they give you more than you give them, or the other way around. You don't know who uses whom. Neither do they.

As special as music is straight from the can, it ain't nothin' compared to music fresh from the performer.

But one thing you do know: Your job is to walk out there and play. Your *life* is to walk out there and play. When you do it right, the audience takes every ounce of life from you. And they give you a new life...every night.

They judge you ruthlessly, relentlessly and immediately. If you *are* what they came for, you *own* them, and they will follow you anywhere (literally). If you don't hit it, they own you, and they will tear you apart right there and a hundred more times when they tell their friends over the next weeks. Every single night you put your ego, your skills, your personality and your career on the line. This ain't for wimps.

But it is this very thing, the risk and reward, the musician needing the audience while the audience needs the musician, that makes live music the most powerful and unique art form in the world.

TWELVE BARS BLUES

There was a time in my life when I was playing blues in 12 bars at the same time. I don't mean I stayed in 4/4, I mean in 12 different sleazy blues bars a week. Well...actually I was working 10 bars, but that just doesn't work as a joke.

—CONTINUED ON PAGE 245

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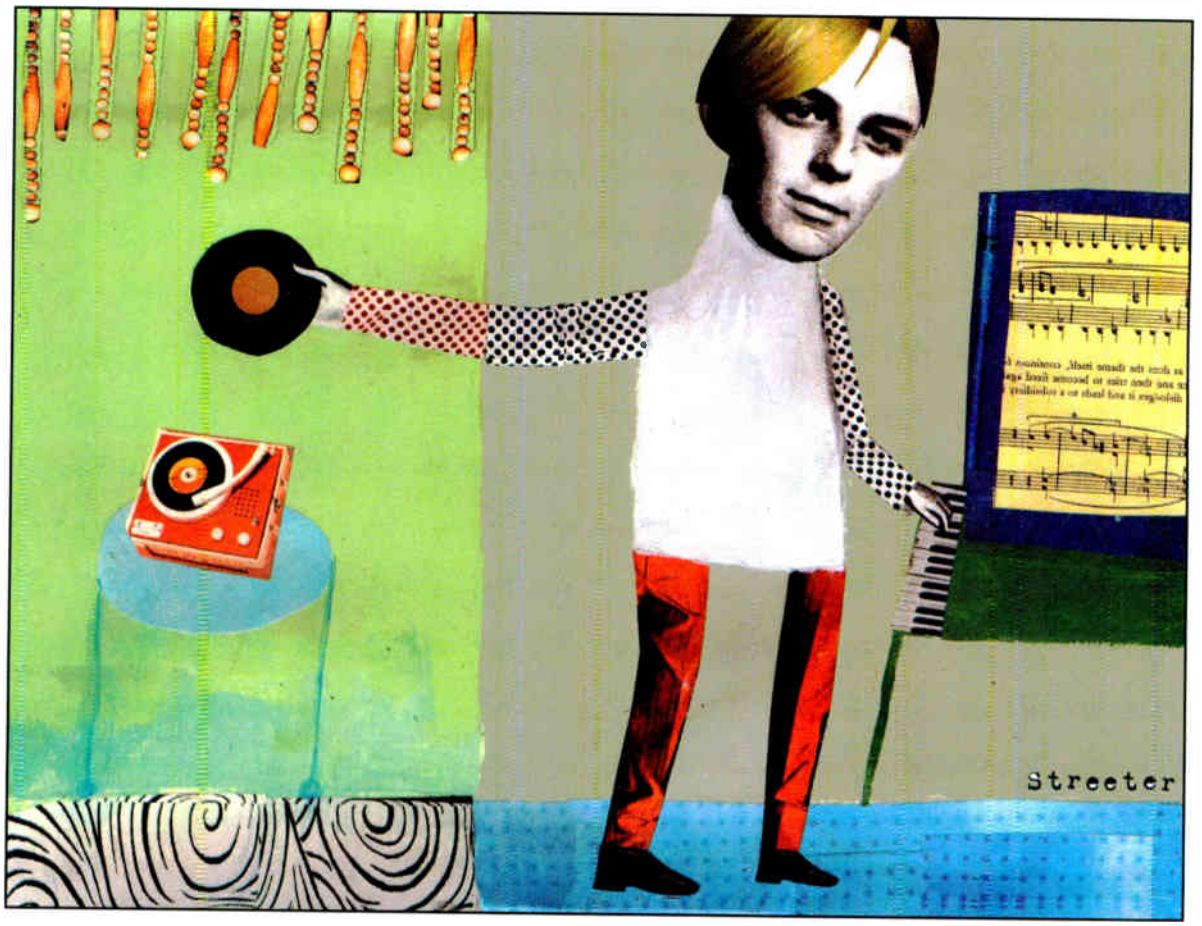

ILLUSTRATION: KATHERINE STREETER

In one recent week, I could have seen the following shows within 10 miles of my home:

- A Beatles tribute band who sold out two nights at one of the hottest clubs in town, in the first half-hour after tickets went on sale.
- "Bob Dylan" nights starring the cream of local folk and rock performers, at two different venues.
- A band who plays nothing but the repertoire of John McLaughlin's early '70s Mahavishnu Orchestra.
- A folk festival featuring the offspring of Arlo Guthrie, Harry Chapin and Loudon Wainwright.
- A group of sons and brothers of the original Parliament/Funkadelic who call themselves "Funk-Kin."
- Stage musicals based on songs by Ellie Greenwich ("Leader of the Pack," etc.) and (God help us) ABBA.
- And a sold-out concert by Robert Plant, who performed not only Led Zeppelin tunes, but also songs by The Youngbloods, Donovan, Moby Grape, Tim Rose and Arthur Lee & Love.

Not long ago, I walked into one of the funkiest little record stores in one of the hippest areas of Boston. You can't even get through the door of this shop unless you have at least five pieces of metal in your face (I passed because I'm old), and coming out of the speakers, I heard the Blues Project's 1966 "Flute Thing."

The latest Arbitron book shows that in my metropolitan broadcast market, three of the Top 10 radio stations are oldies or "classic hits," stations that differentiate themselves from each other by only the finest of hairs: One won't play anything recorded after 1972, another won't play anything post-1979, and the other won't play anything from before 1966. On a local public station, the most popular new show is called "Highway 61 Revisited," which features obscure and not-so-obscure folk-rock from the psychedelic era. The announcer barely has time to talk between all the phone requests.

What's going on here?

That "Flute Thing" I heard wasn't the Blues Project, it was the Beastie Boys sampling the Blues Project (and according to co-composer Al Kooper, making more money for him than the original ever did). It's one of thou-

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sands of old songs and riffs that are getting new life thanks to sampling, the Internet and Napster, sometimes to the benefit of the original creator, and more often not. The music of today doesn't just *sound* like the music of my youth, in an awful lot of cases, it *is* the music of my youth.

There are many possible explanations for why this is happening. One is, of course, the "baby-boom bulge." As that big bump on the population charts of people born in the 15 or so years after the end of World War II becomes firmly ensconced in middle age, we are taking our music with us, and—especially as cool new media come on the scene—we'll keep shelling out for re-issues, new/old material and compilations of the favorite artists of our youth.

A university colleague of mine has a theory about this, which says that people most strongly identify with the music they hear between the ages of 13 and 19, and that identification stays with them forever. So it seems that the market for Jimi Hendrix, the Four Seasons, Three Dog Night and other icons of the '60s and '70s won't die out until we do.

Another explanation is that the '60s through the early '80s were the peak years for real "mass" media. After that, broadcasting became so fragmented that there were no longer any points of reference that *everyone* understood, no songs that *everybody* knew. A track from Radiohead, Ben Folds Five or REM behind a commercial geared at a large general audience doesn't have nearly the recognition power—even among those who were born long after the songs came out—of tunes like "Everyday People" (Toyota), "Rocket Man" (AT&T), "Can't Explain" (Ford), "Our House" (Chase Bank Mortgage), "Brown Sugar" (Pepsi), and perhaps the most recognizable of all great sell-outs, The Beatles' "Revolution" in that series of Nike ads.

As media outlets have become larger in size and fewer in number, the audience has become ever more Balkanized. Radio stations today are geared toward very specific demographics in terms of gender, age, race and economic status, with each station delivering a particular section of the audience to the corporate mothership. When I was growing up in New York, there were three stations that every kid listened to: the WMCA Good Guys, Bob Ingram and Cousin Brucie on WABC, and Murray the K on 1010-WINS. There were heated arguments in the schoolyard over which station was better, but the music they played was exactly the same. But today, if you listen to only one station, whether it's urban, new country, hot adult contemporary, alternative rock, or any of the 40 other categories in Arbitron's ratings book, you will never hear what anyone else is playing.

Technology has simply made it too easy, and too tempting, to steal from the past. And stealing is now, as we all know, an art form.

Television, too, is looking less at drawing huge numbers and more at targeting particular groups: Witness the rise of the WB and UPN networks, which are making plenty of money despite ratings that just a few years ago would have put their programming executives out on the street.

—*CONTINUED ON PAGE 222*

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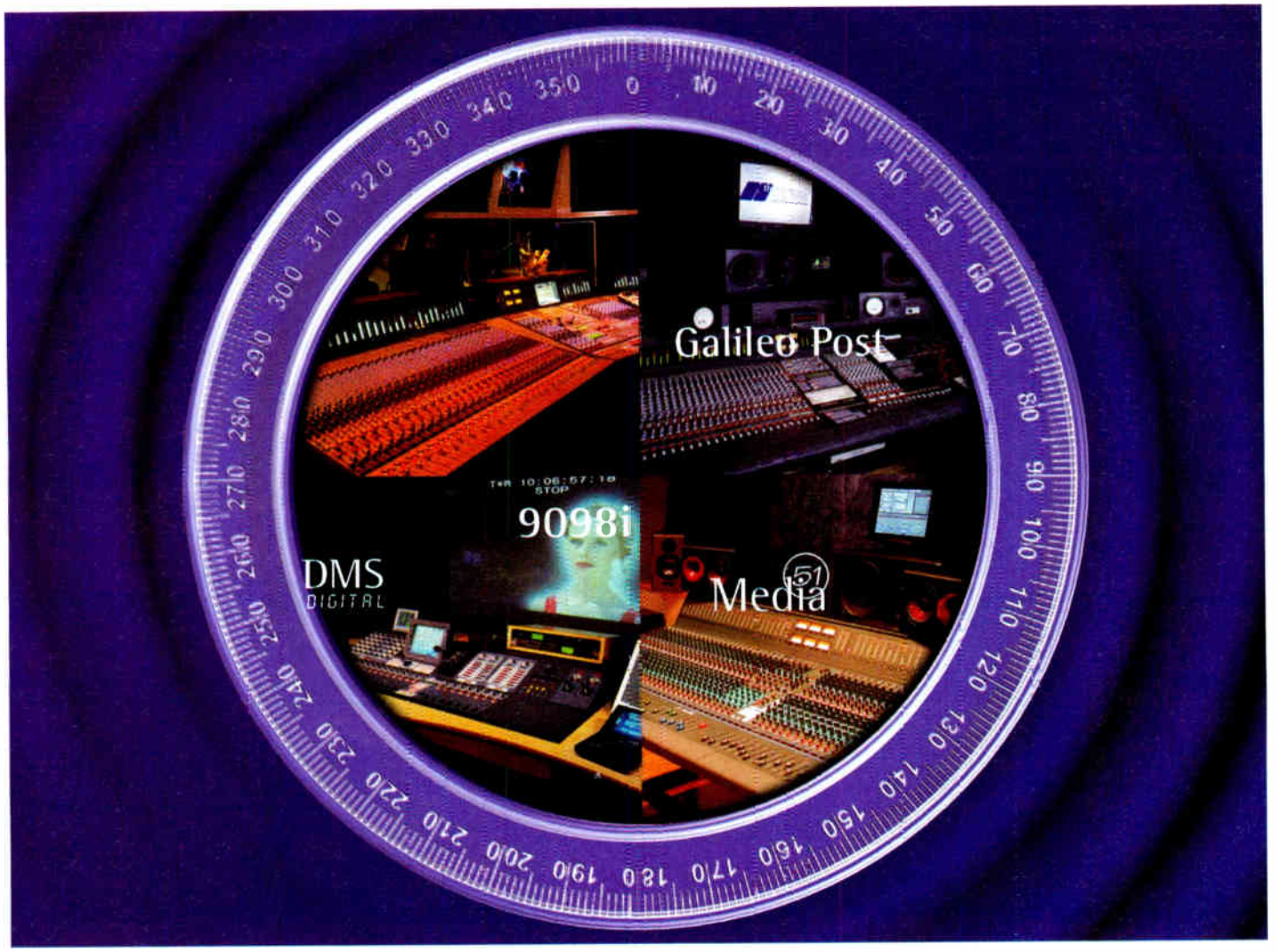

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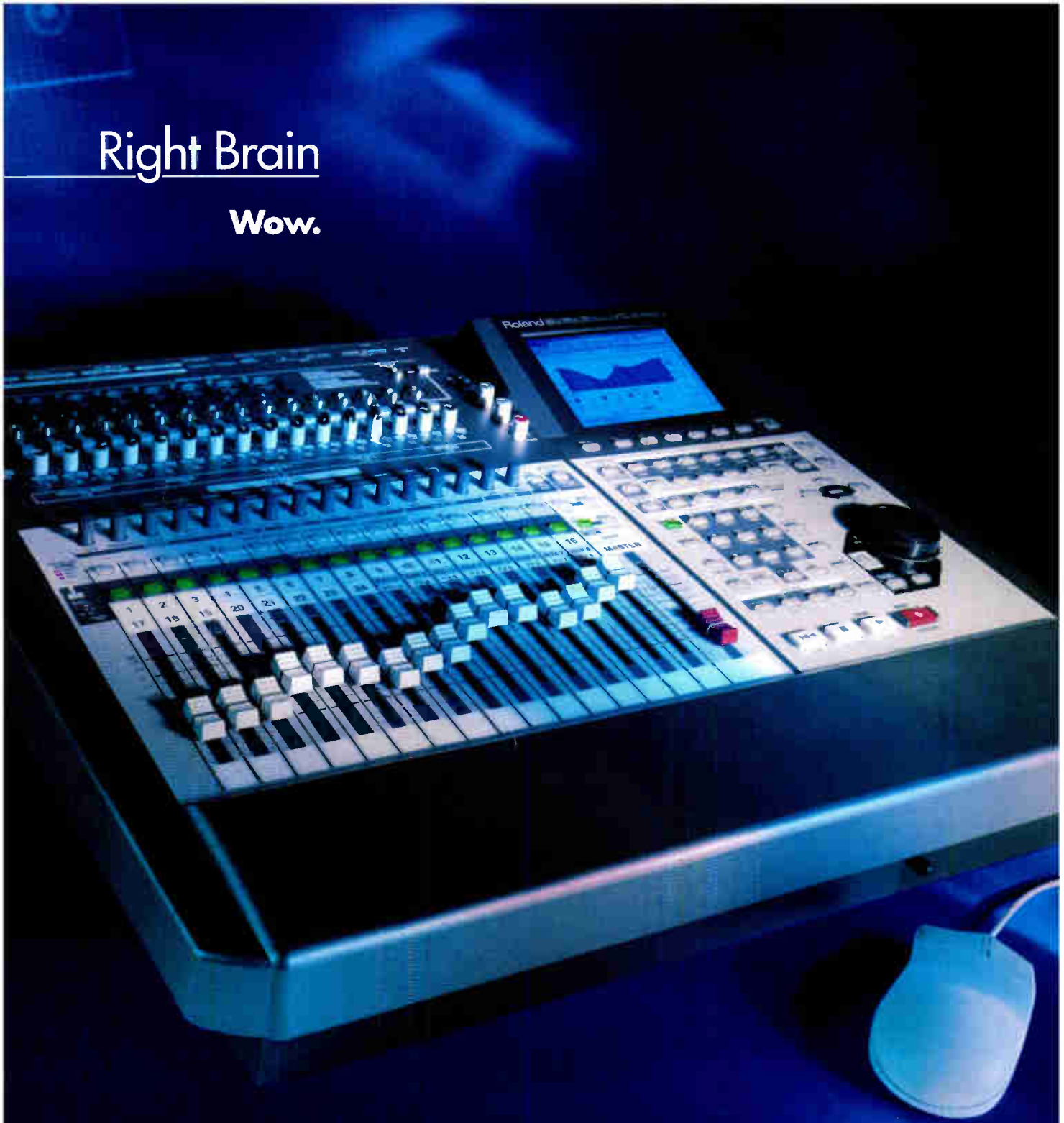

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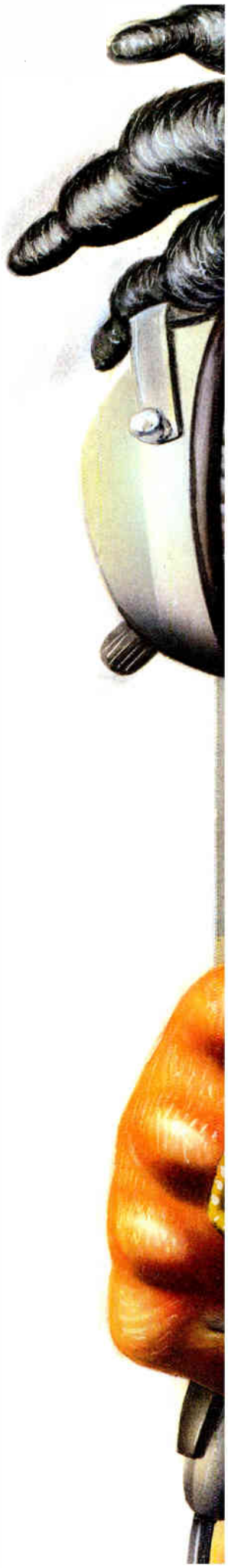
The Human Element

TOP ENGINEERS ON RECORDING VOCALS



For the music listener, lead vocals are the human element. The voice is like no other instrument in its ability to convey emotion, and to make or break a recording. If the vocal track is mediocre, then your project is doomed to failure; when it rocks, you've got a potential hit.

Of course, much of what makes recorded vocals really sing is intangible. The performer's talent, mood and comfort level, and the strength and suitability of the song are essential to an effective vocal track, as any successful engineer or producer will acknowledge.

We talked some serious shop with three top recording engineers to find out about their approaches to recording vocals. While their techniques occasionally meet on common ground, there are surprising divergences in their approaches, too.

By Michael Cooper

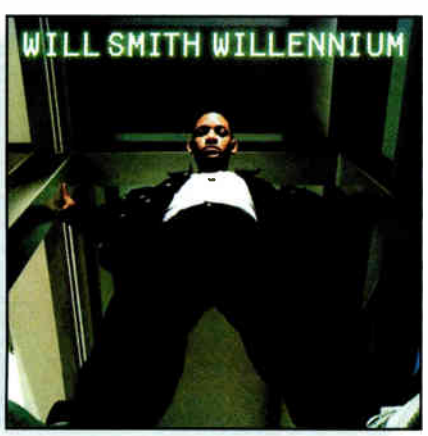
Illustration: Bill Cigliano

EARL COHEN

Earl Cohen has been recording and mixing music for more than 30 years, since he was a teenager back in the '70s. His impressive discography includes releases by Tina Turner, Joe, Will Smith, Olivia, Willa Ford, John B and Changing Faces. He also has several Platinum and multi-Platinum albums to his credit, including Will Smith's *Willennium* double-Platinum record for Columbia, Joe's triple-Platinum *My Name Is Joe* (Jive) and Anita Baker's double-Platinum *Rhythm of Love* (Elektra). Cohen was behind the board for Baker's "I Apologize," which won a Grammy Award for Best R&B Female Vocal Performance, and for The Temptations' Grammy-winning "It's Alright To Be Wrong" on their *Ear-Resistible* album. We caught up with Cohen at Sound on Sound (New York City), where he had recently recorded a Destiny's Child single, "Bootylicious."

Cohen expressed an affection for using vintage mics such as the Neumann U47, Telefunken 251 and AKG C-12 for recording vocals, preferring those that have had Bill Bradley modifications. But if he's working with an artist for the first time and needs a "sure thing," then he'll typically head straight for a Sony C-800G tube condenser.

"I also like the [AKG] 414 TLII," Cohen adds. "If you listen to any of the Joe



records I worked on, that's all TLII. I like the extra warmth of that mic on backgrounds. I also have certain cables I use, and certain mic pre's I really like. The whole chain is what helps the microphone really speak. I'm very aware of, when a singer gets in the mic, what tone is working and what isn't, and I start working around it from there."

Does that mean he'll make the singer back up a bit from the mic if he hears too much bass proximity effect? "No, actually I really like them in the mic," Cohen insists. "The only time I like them off the mic is when they're really belting out. I work everything in Pro Tools these days, so you have 'X' amount of headroom to go, and once you go over, man, it's distortion."

Cohen is not squeamish about adding EQ while tracking: "I'll do a little tweaking, but I don't go too crazy on it. I'll add a little top usually. There are not many mics that don't need a little top, especially because I really get the singer into the mic, so there's always plenty of bottom. I usually keep a file on the settings; you can always come back to it, and at least you have the same EQ that you started with.

As far as working in the digital domain, I never track with a compressor on the vocals. Everyone's always like, um, how do you do that? And I find the art really is getting the singer and the mic right.

—*Earl Cohen*

"As far as working in the digital domain," Cohen continues, "I never track with a compressor on the vocals. Everyone's always like, um, how do you do that? And I find the art really is getting the singer and the mic right. The dynamics won't be as dramatic as you think they'll be. But I want as much range as I possibly can [have].

"I'm very aware of not smacking the top," he says. "I'll definitely ride the gain to tape. I'm constantly checking out the gain."

When it comes time to mix, Cohen will sometimes put a limiter on a vocal track's channel insert to color the sound, but never simply to control the dynamics. "When I mix records, I've got a couple of limiters across the stereo bus, which controls the vocal totally. It never gives me trouble."

That's because Cohen goes over the vocal track with a fine-tooth comb long before mixdown. "I'll go in there and dB lines and words up and down in Pro Tools, so when I'm done, my fader sits there. I'll spend hours on it if I have to. It could be five or six hours that I just work on the vocal."

He takes the same meticulous approach with equalization. "I like vocals to have a lot of air and a lot of presence, but big body. You can really *feel* the voice. I get a sound on the vocal, and then all the parts that get too dull or just don't come across, those are the ones that I'll go in and start working on. I have automated EQs going *crazy*. 'Cause sometimes the singer just got in the mic weird, you know, or sometimes they are too close and they bottom out on a certain thing. Or it's not present enough. I'll re-EQ that section and just re-record it right on the track. I check it and make sure it's working. Then when I get to mix mode, I'm always hearing something I have to fix."

Cohen prefers using AKG K-141M and Sennheiser HD-250 headphones for a singer's cue mix. "They seem to stick pretty tight to the person's head," he explains, "so it really keeps the leakage way down. And they're really strong in the midrange, so the singer really can hear their full voice inside there. But I do make them always take one ear off—placing the cup against their head—so they can sing more in-tune."

Unless a singer specifically requests something more elaborate, Cohen tends to keep lead vocals rather dry in the headphone mix. "I used to [add] a lot of effects on the vocals to give them a lot to work with, and some singers want it. But in the past year or so, I'm doing less with the vocal and leaving it pretty raw. This way, they really can hear their vocal performance."

To build up a background vocal bed using one vocalist, Cohen might record up to 32 passes on separate tracks, sub-

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Ty Ford – Mix Magazine
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mixing them down only after they've all been recorded. He has a specific method of working to avoid taking off-pitch BVs. "I'll play the very first track and the new track I'm doing, but not all the tracks I recorded [in between]. It comes out way better. You can get fooled if you leave everything on. And I'll definitely do a little compression and a lot more EQ'ing, because when you start stacking, you can get a buildup of mud."

DOUG OBERKIRCHER

Doug Oberkircher started recording and mixing records in 1985, after serving as chief tech at The Hit Factory in New York City for a few years. He's worked his magic behind the board for Spyro Gyra, Vanessa Williams, Dream Theater, Unspun, David Clayton Thomas, Jason Miles, Night Ranger, Arcade, Firehouse, Diving

Pearls and Sting. Oberkircher's deft engineering was part of the winning formula that garnered a Grammy (for Best Male Pop Vocal) for Sting's "She Walks This Earth," off the album *A Love Affair—The Music of Ivan Lins.*

Oberkircher is quick to praise both vintage and modern mics for recording vocals, citing the tube and FET Neumann U47s, the AKG C-12, and the AKG C-414 and B-TLII as favorite mics. "I'm also using this new Studio Projects tube mic, the T3 [distributed by PMI Audio]," he adds. "I really like it, and it's very reasonably priced."

A large-diaphragm mic can sound too dark on some singers, in which case Oberkircher won't hesitate to use a small-diaphragm model. "Occasionally, I'll use an AKG 451 with a cardioid capsule on it

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when I want a really bright, present sound. That's kind of, like, an off-base [choice]. You won't find so many people doing that, but I've had some success with it. I put it up against U87s and things like that, and it always turns out to be one of the ones that people like when initially hearing it."

Time permitting, Oberkircher will A/B a couple of mics on a singer before making a choice. When recording, he usually prefers to have the artist stand very close to the mic. "I like to have the capsule pretty much right dead center, and I keep [the singer] about three or four inches away to begin. I'll probably put a pop screen in front, depending on the singer and the style."

If pops persist, then he'll position the mic lower or use two Popper Stoppers. "If it's getting to a point where you can't do anything about it, then I'll do something in the actual processing of the vocal later. I may go into a digital editor and just edit that stuff out. You can use a de-esser on a full-range-type setting, and sometimes that'll catch some of it, but it doesn't [completely] do it. I find if you get down on a pretty small scale in a digital editor, you can cut almost half the 'P' away, and it still doesn't sound like it [was edited]."

"I pretty much always track with compression," he continues, "because I feel it actually helps get the dynamic range on tape. And it also helps the singer by giving them a little more punch and presence in their headphone."

We talked about how getting the level just one or two dB hotter in the digital realm can make a tremendous difference in the resolution of the sound. "It sure does, yeah. And, again, unless you've got a wonderful singer who has a great, even tone, I don't think you're gonna find that you can get away without compression. And, in fact, I'm a big fan of compression on vocals. My all-time favorite would be the LA-2A. It gives a lot of control, and, unless you really slam it, you won't really hear it too much. It's a beautiful thing. I've also been using the Millennia Media TCL-2. I find that it doesn't add any coloration. It's just a very high-quality signal path. I usually start around 2:1, 3:1 at the most, on the compression [ratio] and keep it to around 3 dB of gain reduction or so, unless I really need more."

RAY BARDANI AND LUTHER VANDROSS

By Gary Eskow

It's hard to believe that 20 years have passed since a busy New York jingle singer named Luther Vandross shook up the recording industry with his first album, *Never Too Much*. Since then, 13 consecutive albums by Vandross have reached double- or triple-Platinum status, and he routinely sells out concert venues around the world.

Vandross' next album will be his first on Clive Davis' new J Records label. In addition to writing and producing material for the record with longtime collaborators Nat Adderly Jr. and Marcus Miller, Vandross has chosen to bring in a new team of producers and songwriters, including Jimmy Jam and Terry Lewis, Warryn Campbell, Ron Lawrence, R.L. (of the J Records group Next), Shep Crawford, Harvey Mason Jr. and Damon Thoms, and Soulshock and Karlin.

A familiar face in Vandross' production team is his longtime engineer, Ray Bardani. "Ray has worked with me for almost 20 years," says Vandross. "I'm totally hands-on with the recording process, from the very first hi-hat to the last echo put on in the mix. Ray generally spends a day alone with a track. He'll give me his first take on a mix, and I'll make notes. Then we go into the studio together and tweak, then tweak some more and then go to tape."

Vandross, who brings his own Sony 800G microphone to recording sessions, prefers recording to tape, but Pro Tools was used on the current project, largely because different production people were working on different songs, and many of them work in Pro Tools. "But all of my vocals went to tape," Vandross says. "By the way, I used to use an AKG 414, but my voice has an airiness and sibilance that the 800 brings out."

Bardani notes that, "We used to use a 414 because Luther liked its presence. We also had a Neve mic pre and a dbx 160 compressor in the chain. We tracked him this way for the first six or seven albums. Then I heard about the Sony 800G mic, and I wanted to try it out on him. He absolutely loved it. We've used it on every album since the Christmas album. That was recorded five or so years ago. We also changed over to the Focusrite Red mic pre, which has a beautiful sound. As far as the dbx 160A, which we now use, it has an over-easy compression function that works well with Luther's voice. He goes from very soft to louder tones. If the 160A is set properly, it makes the compression kick in slowly, almost

like a crossfade. There's no brick wall effect, and the sound is smoother. We also incorporate a Massenburg EQ into the chain."

All of the new album's vocals were tracked by Bardani on a Sony 3348HR at New York's Hit Factory. "Over the years, we've gone from straight analog recording to analog with Dolby, and as the technology has changed, to 48-track digital tape," Bardani says. "The 3348HR is now my favorite-sounding machine. It's a 24-bit, 48kHz machine, and it sounds amazing. We used Pro Tools to fly things around, but Luther generally goes for a whole performance rather than take snippets and fix things later. Whether he's dealing with musicians or singers, he cares about the entire performance, how it's executed in the studio.

"Luther's mic technique is phenomenal. He knows how to work the mic better than anyone I've ever worked with. He likes a headphone mix that sounds like the record, with ambiances and delays along the lines of what I'll be going for in the final mix added in. He wants to hear his voice in the mix. That way, he's better able to gauge how he sits in the track. I've learned a lot from Luther about how the tone of a voice makes a big difference in the way it sits in a track. Certain tones sound dissonant, others consonant."

Vandross says that recording live with a band improves his vocal performance. "There's a rising to the occasion that you feel put upon to achieve when you track live with musicians," he observes, "and I do that as much as possible. When you go into the studio at 3 o'clock in the afternoon to overdub a vocal, it's different; I might sing four lines and only like the third one. Pasting a 'perfect' performance together seems to take longer than recording live with musicians. I basically spend the length of the song getting things right between all of us. My batting average is pretty high in this area." ■

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Ever conscious of preserving signal clarity, Oberkircher is cautious about daisy-chaining two or more tube processors together. "If I'm gonna use a tube compressor, I might choose to stay away from a tube preamp stage," he explains, "'cause I find that sometimes when you use them both, it starts to darken things a little much. You can get too much of that tube sweetness, and it turns into a little bit of distortion. There are exceptions to the rule. But, generally, if you're gonna use a nice tube compressor, my choice would be to go to a Neve module or a Focusrite module—something solid-state—on the front end." Oberkircher says he especially prefers the Neve 1093 and 1071.

"Unless I really have to, I'll stay away from EQ while recording," says Oberkircher. He's really careful not to introduce any phase shift in the sound unless it becomes obvious that EQ is needed at mixdown. His one exception to the rule is he might EQ out a bass bump in the room's frequency response while tracking.

> Unless you've got a wonderful singer who has a great, even tone, I don't think you're gonna find that you can get away without compression.
>
> —*Doug Oberkircher*

Oberkircher is equally reluctant to deess vocals while tracking, fearing that too much sibilance could irreversibly be removed. He's also careful not to derail the creative process by endlessly tweaking the sound while the performer is trying to lay down good takes.

For the same reason, he'll sometimes use the same mix he's hearing in the control room for the vocalist's cue mix. This helps him focus on getting a great vocal track, without being diverted by the need to monitor alternate mixes. When a separate cue mix is required, he'll tend to emphasize traps, bass and a chordal instrument (the latter for pitch reference) in the headphones. "I think that [including] bass is important," he adds, "because it helps people really set the foundation for their tuning. But I try to keep all the solo stuff out of there. That's just going to get in the way."

For miking background vocals, Oberkircher likes to use a Neumann U47 FET or U87. He'll typically record a group of vocalists singing a unison part with a single omni mic. "If I'm doing a group of harmonies, say only three or four people, I might give them individual mics in a semicircle so that they face each other. I'll probably add some compression on the individual channels for a little bit more control."

When miking a choir, he'll often use a separate cardioid mic on each section, supplementing with an ambient X-Y pair. Small-diaphragm B&K 4011s or AKG 451s are his first choice for use in X-Y setups.

L-R: Doug Oberkircher, Sting, Jason Miles, producer, Bob Currie, business manager

ALLEN SIDES

The owner of the world-renowned Ocean Way Recording (Hollywood), Ocean Way Nashville and Record One Studios, Allen Sides is also in constant demand for his pre-eminent engineering skills. His discography reads like a who's who of modern recording history, spanning an incredibly diverse range of musical styles. From Frank Sinatra to Green Day, Sides has done it all. The Grammy-winning engineer began his career recording jazz and R&B luminaries, such as Ella Fitzgerald, Duke Ellington, Count Basie, Ray Charles, and Earth, Wind & Fire. Recent album projects include the Goo Goo Dolls and Phil Collins. Sides' engineering chops can also be heard on numerous soundtracks, including *City of Angels* and the first *Star Trek* movie. A consummate perfectionist in his choice of recording gear, Sides is an engineer's engineer.

When asked what his favorite mics are for recording vocals, Sides is unequivocal. "I keep coming back to the [Neumann] U67. What works on one singer doesn't necessarily work on another, but I would say that if I put up a 67, generally speaking, it's going to work reasonably well on everybody. If I want something a bit more pop, I like the sound of the Sony C-800G."

Sides usually picks around three mics that he thinks will work for a singer and A/Bs them to choose the one he'll use, but he makes sure he works fast so as not to lose momentum. For a harsh-sounding singer with a huge dynamic range, "I'm very fond of the C-12A, because it has tremendous proximity effect in cardioid. You can put it a foot and a half to two feet away, and it still has rich low end."

On the subject of favorite mic pre-

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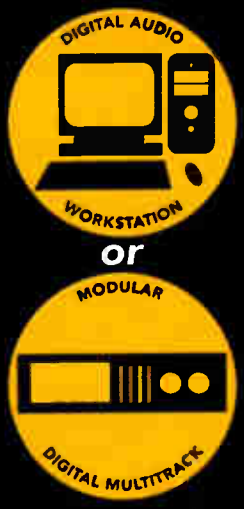

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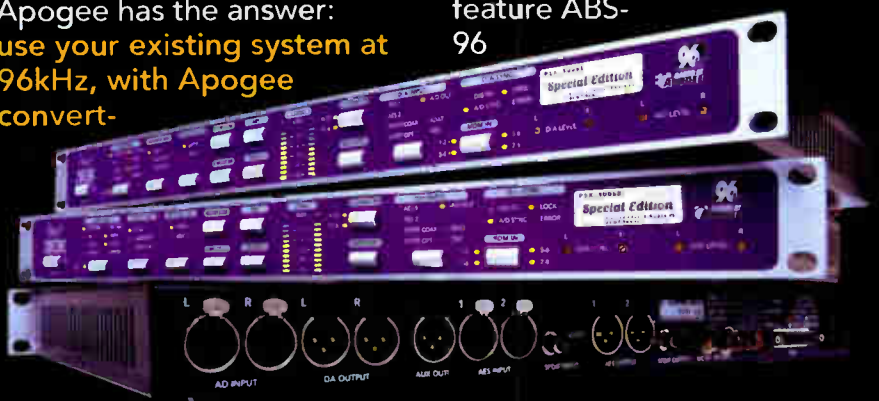

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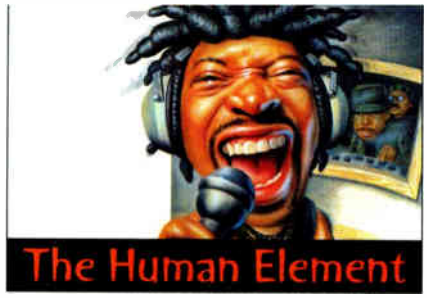

The Human Element

amps, Sides excitedly recalls hooking up an original UA 2610 module (recently reissued, with slight modifications, by Universal Audio in a stand-alone, rack-mount unit) to track Kenny Loggins' vocals. "I was just floored by how rich, how amazing it sounded...I'm also fond of the Neve 1073, but mostly we're using the in-house preamps in our consoles, which are our own creation."

Sides will always give an experienced singer free rein to work the mic as he or she sees fit. If singers require some direction, however, then he'll typically place them four to six inches away from the mic to begin with and will use a nylon windscreen to control pops.

He's a firm believer in compressing vocals while tracking. "These days I'm recording most everything straight to Pro Tools," he explains, "and using every bit of resolution makes a huge difference as to how the vocal sounds. I'm a big fan of the dbx 160—the original one—and I like the old 1176 with the Class-A output. I also like the LA-2A."

Sides notes that compressing a vocal can sometimes change its character such that some of its original, pristine nature can be lost. To make absolutely sure he captures the magic, he'll sometimes take a two-pronged approach. "Sometimes what I'll do is I'll record the vocal uncompressed and I'll record a compressed version simultaneously, using two different tracks. Then I can combine those things, and all the low-level stuff comes up on one side and the high-level stuff is unaffected. It's a way to get lots of sustain."

Sides likes to record background vocals with one mic, if possible. "But sometimes if I have six singers, I'll take two C-12s and put three singers in front of each mic, and do double-mono passes. Or I'll do a mono pass, another mono pass and a stereo pass. Sometimes I like to have as many stereo passes as I can. That allows me to have something to fool with later when I do 5.1." He'll often forego using compression on BVs, preferring to ride faders.

PHOTO: DAVID GOGGIN

Eric Clapton is seen at Ocean Way/Record One, where he sang and played guitar on the Diane Warren song "Blue Eyes Blue." Pictured are (foreground, L-R) Rob Cavallo, producer; Nathan East, bass; Clapton; and Kathy Nelson, who is now president of film music for Universal Pictures and the Universal Music Group. (Rear, L-R) Greg Curtis, senior staff producer for Hollywood Records; and Allen Sides, engineer and studio owner.

When asked about how he approaches the singer's headphone mix, Sides becomes animated and answers with conviction. "I want it to sound like a finished record in the phones. To me, that's everything. I'll go out there, before they ever get there, have the headphones on, the reverbs, everything set, so that when they sing, it's a finished record. They walk out there, put the headphones on and get excited. If they walk in and they put those headphones on, and they're just knocked out, they're gonna love you. I can't say enough about it." ■

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

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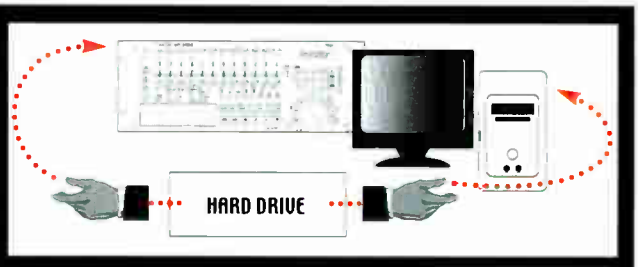

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PRODUCT HITS OF Summer NAMM

LITTLE SHOW, BIG SURPRISES

By George Petersen

You've heard it all a thousand times about Summer NAMM: "That *little* show?" or "Not much high-tech—it's mostly acoustic guitars." Well, compared to the monstrous winter show, Summer NAMM 2001 may have been small in space—but this "little" show was definitely *big* on technology, boasting plenty of cool new products. Here are a few that caught our attention...

The talk of the show was **Tascam's** (www.tascam.com) acquisition of **NemeSys Music Technology**. NemeSys is known for its acclaimed GigaSampler and GigaStudio product lines, which will now be distributed under the Tascam name, marking Tascam's entry into the field of software-based music production tools. The new Tascam line features NemeSys' current products, including GigaStudio 160, GigaStudio 96, GigaSampler 64, GigaSampler LE and NemeSys sound libraries. The technology enables streaming samples directly from a computer's hard disk, allowing for huge sample file sizes—up to 4.3 GB! NemeSys—a small operation with great ideas—gets a major financial boost and Tascam's marketing/distribution clout, a classic example of a win-win situation.

Yamaha's Motif (www.yamaha.com; www.motifator.com) was the *synth du show*. It is available in 61-key ($2,250), 76-key ($2,750) and weighted-action 88-key ($3,250) versions with 62-note polyphony. Motif combines state-of-the-art AWM2 tone generation and an impressive 85 MB of Wave ROM (when converted to 16-bit linear format), with the hands-on immediacy of a groove box and a 200,000-note Integrated Sampling Sequencer (ISS) function with 16 tracks of MIDI or stereo audio phrase playback. In addition to 16 channels of onboard digital mixing, its four sliders and soft knobs become 16 virtual pots and faders for quick fingertip control of any track or parameter, or as a control surface (with templates) for Cubase VST, Logic Audio, Cakewalk and Pro Tools. Motif also includes USB (for Mac or PC connects), SCSI port, SmartMedia card slot and mLAN network interfacing.

WORKSTATIONS: POWER GOES UP, PRICES GO DOWN

Workstations keep getting better and more affordable. **Yamaha's** (www.yamaha.com) AW2816 takes the approach of the company's popular and powerful AW4416 and puts it into a more affordable ($2,399 list) package that provides 16 tracks of 24-bit digital audio recording with 28 inputs, automated digital mixing, moving faders, built-in 32-bit DSP effects, CD-RW drive, 20GB hard disk and MIDI remote—all in a single compact unit.

The **Zoom** (www.samsontech.com) MRS 1044 is a grab-and-go system that offers 10 recording tracks—plus three more channels for its onboard bass and stereo drum machines—along with integrated mixing, 24-bit DSP effects and a 15GB hard disk for storing up to 15 hours of uncompressed 16-bit/44.1kHz recording. Retail is $1,199 retail ($799 street).

Tone Works (distributed by Korg, www.korg.com) blew us away with its $500 Pandora PXR4 Pocket Studio: the ultimate sketchpad recorder. This 4x4-inch system crams four tracks—plus eight virtual tracks per channel—of 32kHz MPEG-

format recording with up to 270 track-minutes onto removable SmartMedia cards. Due out in November, the PXR4 also includes 77 studio-quality modeling effects, 55 onboard PCM rhythm patterns (including house, reggae, rock, funk, hip hop and more), full editing capability, three selectable audio inputs (guitar, line or built-in condenser mic), stereo analog outs, and a USB port for transferring mixes to a PC or workstation.

Now owned by Numark, **Alesis** (www.alesis.com) showed a full line of products, including its HD24 rackmount 24-track hard disk recorder, which, according to a company representative, is set to ship this month. Retail is $2,495; street price is expected to be around $1,995.

In order to ensure that recording is accessible to musicians at any level, **Fostex** (www.fostex.com) has slashed the price of its best-selling X-12 Multitracker analog cassette 4-track recorder/mixer to a street price of only $99. It's a great gift idea for that future Les Paul or George Martin on your block.

MICROPHONES!

Ten years ago, **Audio-Technica** (www.audio-technica.com) changed the studio mic market with its AT4033, a low-cost/high-performance cardioid condenser that became a popular choice among top producers and engineers. At NAMM, A-T marked the mic's anniversary by issuing

the AT4033/SE, offering the same sound as the original, but in a special edition model with an improved shockmount, custom mic dust cover and wooden case. Retail is $529. A-T also expanded its 30 Series line of cost-effective, high-performance mics with the AT3031 cardioid and AT3032 omni, two low-profile condenser mics with wide 30-20k Hz response, low 12dBA noise specs and a retail of $259.

Peavey (www.peavey.com) entered the low-cost/large-diaphragm studio mic market with its StudioPro mic line. The $369 M2 is a dual-diaphragm, multipattern (omni, cardioid and figure-8) model; the $249 M1 is a cardioid-only model.

SIGNAL PROCESSING

Coming between its MPX100 and MPX500 models, the new MPX200 from **Lexicon** (www.lexicon.com) is a true stereo, 24-bit, dual-channel processor offering a newly designed digital compressor in addition to 240 presets of classic Lexicon reverb and effects—with up to eight adjustable parameters per program. Analog I/O is via 24-bit ADCs and DACs; S/PDIF digital I/O is also standard.

Peavey (www.peavey.com) shook things up with Kosmos, a single-rack-space processor designed to enhance LF energy, HF articulation and stereo image enhancement on recorded or live tracks. Essentially, Kosmos generates bass sub-

harmonics combined with an Xpanse control that simultaneously adjusts HF boost and stereo width. A separate crossover feeds a subwoofer output, or the unit can be switched to operate in standard 2-speaker mode. All I/Os are balanced XLR or TRS, but with controls marked as Seismic Activity, Quake and Subterranean, I gotta check this one out myself! Retail is $300.

The Studio Modeler series of rack processors from **Line 6** (www.line6.com) include the Echo Pro (delay effects), Mod Pro (modulation effects) and Filter Pro (filter effects) that offer the sound of classic analog effects with the programming ease of digital presets and MIDI or real-time, hands-on control. All ship this fall/winter, and are $699/each.

THINGS THAT GO UP TO 12...

NAMM just wouldn't be NAMM without some cool guitar products, and this year it was innovative new amps. **Vox** (www.voxamps.co.uk) teamed up with Korg to create Valvetronix, a modeling amp worthy of the Vox name. Available next month, Valvetronix combines Korg's acclaimed REMS modeling algorithms in the preamp, a wide palette of delay, reverb and modulation effects, and Vox's new Valve Reactor tube power amp section, which actually modifies its circuit topology to match the amp being modeled. Two models are available—the 60-watt, single-12 AD60VT is ($899); and the dual-12, 120-watt AD120VT is $1,199. Options include matching extension speakers, a full-function footswitch remote and chrome stands (of course!).

No stranger to modeling amp technology, **Line 6** (www.line6.com) countered with Vetta, a no-compromise amp system combining a state-of-the-art modeling amp with enough built-in stompbox and studio effects to fill two stadiums and The Power Station. Vetta is available as a 50-

watt/side, dual-12 combo amp (perfect for the studio player) or as a 100-watt/side head (either is $2,399), and a foot controller and various matching speaker cabinets are optional.

In terms of sheer amp coolness, you couldn't beat Wiggy™, a collaboration of **Peavey** (www.peavey.com) and **Dweezil Zappa**. Styled like the dashboard of a '50s racecar, Wiggy features "high and low octane" input jacks, MPH (master volume) and RPM (gain) controls, and a 3-band EQ labeled BATT, OIL and TEMP (low, mid and high). Best of all—it sounded as good as it looked!

There was plenty of other hip stuff at NAMM and we'll present some of these in our regular new products columns in the months to come. Meanwhile, we're packing our bags for the AES show later this month in New York. See you there! ■

SLICK PICKS YOU MAY HAVE MISSED

At any show, there are always some cool products that you may have overlooked. Here are a few to check out:

Everybody knows the old live sound trick of putting a strip of colored tape around a handheld mic, so you can tell which mic is which, especially in festivals or gigs where multiple singers pass mics around. One of those "why didn't I think of this first?" ideas, **Peavey** (www.peavey.com) showed a prototype of its new patent-pending mic cables that include a lighted yellow, red, green or blue band on the female XLR to easily ID mics in dark performance spaces. It's phantom-powered (no batteries) and works with any dynamic or condenser mic.

Sensaphonics (www.sensaphonics.com) showed ProPhonic 2X-S, the first custom-molded dual-driver in-ear monitor that is made of soft silicone. Not only does it appear nearly invisible onstage and seal well (even during excessive jaw movement), but it's far more comfortable than the usual plastic models.

A huge line of low-cost/high-performance USB, MIDI and digital recording peripherals for the studio, priced from $49 to $1,195, are available from **Edirol**. There are way too many to detail here, so visit www.edirol.com and check them out.

The MicroMeek MQ1 from **Joemeek** (www.joemeek.com) packs a pro mic preamp, direct box, compressor and 3-band EQ into a compact chassis that slides into an empty drive bay on your PC or Mac. Powered from your computer, the MQ1 includes a connector board that plugs into an empty expansion slot with ¼-inch line inputs/outputs, phantom power switch and breakout cable with XLR mic input. Price: only $249! ■

DAVE "HARD DRIVE" PENSADO

KEEPING IT FRESH

Overnight success almost never is. It's true that, suddenly, David Pensado's name seems to be everywhere, and people who haven't been paying attention might surmise that all his recent recognition has come out of the blue. The truth is, this talented mixer has labored in the trenches for years, turning out a steady stream of Top 10 records for the likes of Brian McKnight, K-Ci and Jo-Jo, Warren G, Sisqo, Bel Biv Devoe, and many others, along with soundtrack album cuts for films such as *White Men Can't Jump, Hurricane, Nutty Professor II: The Klumps* and *Men of Honor*. It's just that, lately, Pensado's records have garnered new attention, thanks in part to the high-profile mix he did for Christina Aguilera, Mya, Li'l Kim and Pink—the four young divas who graced the hit remake of "Lady Marmalade." Featured on the *Moulin Rouge* soundtrack, "Lady Marmalade" charted Number One on *Billboard*'s Hot 100, Top 40 Tracks and Hot 100 Airplay.

Meanwhile, Pensado is hardly breaking stride in the six- or seven-days-a-week studio schedule that he has maintained for many years.

There's no doubt that this guy is a hard worker. He's also highly well-read on subjects that range from geology, in which he has a degree, to painting, mathematics and poetry. He's also an accomplished photographer whose work has been purchased by the High Museum of Art in Atlanta.

Dave Pensado (pictured at the SSL 9000 J at The Enterprise) mixed four songs on Destiny's Child's Survivor.

For several years, this Renaissance man's mix room of choice has been Studio C at The Enterprise in Burbank, Calif. We met there early one June afternoon for a chat before he started the day's work: a mix for new RCA artist Mercy Street.

Where did your nickname "Hard Drive" come from?

Richard Wolf, who was part of the production team of Wolf & Epic, gave it to me. I like to work hard, and I tend to push real hard in the studio. Richard who was always fascinated by my Southern accent, heard me say "hard drive" and liked the way it sounded. Then the guys from Bell Biv Devoe, who were always complaining that we were pushing them too hard on the sessions, picked up on it and put "Hard Drive" in my album credits. In the hip hop community, of course, everyone had a nickname, and since no one could remember Pensado, people started calling for that "hard drive engineer." And, of course, from the day that they came out, I was heavily into computers for recording, so the name had a double meaning.

How long have you been engineering?

I started in the late '70s, in Atlanta.

How did that happen?

When I was really young, my mom taught me guitar, and I played with a lot of groups. After a while, I started looking around at the state that these musicians, who were 15 years older than me, were in. They had less than I did—which was nothing. And I started thinking, "Man, I gotta figure out some other way to do this." I didn't want to be 50 years old with nothing, but I still wanted to do music.

And just by the hand of God, I met Paul Davis and Phil Benton, who had a studio in Atlanta called Monarch Sound. They'd heard some live stuff I'd done and really liked it. Phil was an engineer who had become a producer and was looking to get out of the engineering elements. Paul was a singer and songwriter who'd had a lot of big records, like "I Go Crazy" and "Cool Night." The first project I worked on at their studio was a group called Brick, and we had a successful record.

BY MAUREEN DRONEY

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DIGITAL

They taught you how to be a recording engineer?

Yeah. As a musician, I was always the guy in my band to set up for the live stuff…

You mean the P.A. equipment?

Yes, and a big chunk of that translates over to recording. Particularly the need for speed, the need to avoid panic, the need to work well under pressure—those are all good assets to have when you start on this side of the recording world.

It's funny, though; before that, it had never dawned on me that I could be an engineer. I always thought that was something for those revered, special geniuses I'd read about in magazines. I didn't realize that all it required was a little taste, a decent personality and a willingness to learn. I was lucky; at Monarch, I had a one-on-one classroom. Phil was a great engineer, and he and Paul were both very patient with me.

Paul was a pop and country artist, but he also loved technology. We had one of the first drum machines, we got the first Synclavier, we were always the first with new equipment.

How did you end up in L.A.?

If you want to be a sailor, you don't move to Kansas, you move someplace with an ocean. I think if you want to be a recording engineer, your options would be, in descending order: Los Angeles, New York, Nashville and London.

Being originally from Tampa, Florida, the thought of snow didn't appeal to me.

I try every day to remember the things that got me going, the things that I liked, when I was a kid buying records.

Country music didn't appeal to me, and the thought of gray skies didn't appeal to me. That left Los Angeles. But there was a fear factor in moving to Los Angeles, where I'd have to compete against guys who were legends to me—guys like Jon Gass, that quality of engineer. But I got frustrated, and felt I couldn't go any further in Atlanta. Finally, that frustration surpassed my fear.

Luckily, I met Herb Trawick, who introduced me to Kevin Fleming, the VP at Island Records, and then Kevin introduced me to Wolf & Epic. Three months later, we had a Number One song, BBD's "Do Me Baby." It was pretty easy after that.

Wait a minute. That's too simple. It's not that easy for an engineer to keep getting work.

Well, you've got to remember that, at that time, there weren't a lot of engineers who stood up and proudly proclaimed that they wanted to do hip hop. But that's where my head was at; it's what I wanted to do.

When we made "Do Me Baby," we made a record that didn't sound like anything else. It was a function of Wolf & Epic's vision. And it was a function of the fact that I had just come out of the club scene in Atlanta. I had 10 years of hip hop sensibility—making loops and stuff like that. Big bottom was everything there, even though at that time there was no bottom end on the radio. Also, I was a Quincy Jones and Earth, Wind & Fire fanatic. I loved that sparkly kind of top end.

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Where did you mix that?

I mixed that particular song at Alpha Studios. They had a Calrec console, but I am such a fan of SSL automation that I actually talked Denny, the owner, into installing SSL automation on that console.

SSL has treated me really well over the years; I can't say enough good things about them. I love other consoles, too, but I have to say that SSL has always been my favorite. Especially the 9000 J Series. I think it's the last great analog console.

Were you an instant convert to the J Series?

Yeah. I've got a mentality that likes new. I mean, I will use new things that don't work just because they're new!

You were also an instant convert to drum machines and sampling.

The first time that I heard a drum machine, it was, "Wow, I like this!" I'd been doing live music, which I still enjoy to do, but there was something about the control that machines gave that was really appealing to me right from the start. And at that time, of course, drummers were not very humble. [Laughs.] Since then, a lot of live players have become more humble.

I worked on my first rap record in the late '70s, and I'm not going to pretend that I could understand it—I'm from a different culture. But the music got me right away. It was an eye-opener. The idea of taking a record, putting it on a turntable and creating something new out of that was captivating to me.

I truly see no difference in the skill in doing that and the skill in sitting down on piano and playing Mozart. Of course, one requires a massive commitment and dedication to training and study; I respect anyone who can spend the bulk of their life mastering a craft. But in terms of the talent and creativity, I see no difference.

It's amazing what some of the producers I've worked with can create. And obviously, I'm not alone in liking it—look at how the general public responds. There was a time when I was the only guy doing hip hop in Atlanta—no one else wanted to. I got work not necessarily because I was good, but because I was the only one willing to do it! Now, it's to the point where if you took R&B and hip hop out of the recording business, there are not many studios that could sustain an income.

It takes a certain personality to successfully do hip hop and rap sessions. For one thing, it requires a lot of patience. You have to be pretty relaxed, and you have to be comfortable with having a lot of people around you almost all the time.

I approach it somewhat like I do the live thing—the more, the merrier. There's definitely something fun about doing something good and having a roomful of people get excited about it. Look at it this way: If I've got 50 people in my control room watching what I'm doing and one of those is my client, I've got 49 new clients next week.

I grew up in a Spanish family; there were always a lot of people around. The ability to concentrate in the face of all those people and all that Latin noise was something that I got as a child. It doesn't bother me. In fact, I enjoy it. I hate working alone.

I don't know about other mixers, but for me, if my clients don't show up, I mix a lot more conservatively. When they're there, I can try anything, look over at them and say "What do you think?" Nine times out of 10, they'll go, "That's cool, but what if…" and then take my idea to another level. Multiply that times a day's worth of ideas, and you have a completely different mix than you would if you were working alone.

I don't want to belabor the point, but I will leave you with this thought: I've got engineer friends who consider the client a nuisance. I mean, would you go to a doctor who considered you a nuisance? Like you were only there to further his research?

In our profession, when you get so far on the technical side, it's sometimes easy to lose track of who is buying our records. I try every day to remember the things that got me going, the things that I liked, when I was a kid buying records.

I've always wondered how it is that engineers, who traditionally don't dance, are able to make records that make people want to dance.

Actually, I do dance. And if more engineers would get out to a club and dance once in a while, maybe we would have some better records! Look, I am who I am. I don't try to dress like my clients. I don't try to talk like my clients. But, we're making records for 14- to 24-year-olds. At the end of the day, it's about some groove and hook. You used to be able to say groove and melody, but now it's groove and hook. That's what people buy. If you don't hit them over the head with a great groove and hooks, you are not doing your job. One of the reasons rap has been so successful is that it's reduced that concept to its barest minimum.

I think for popular music to work for kids, you need to have something that strokes their hormones—something that gets them going. It needs to be kind of angry about something. Not politically

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CONNECTING THE WORLD

angry, necessarily, but just pissed that your girlfriend left you, pissed that the police hassle you all the time, or pissed about this or that. When it's bitter angry, it doesn't really appeal to the masses, it appeals to a smaller group of people. That's okay, but we're talking in terms of appealing to a lot of people. And thirdly, I think it needs to be naughty without being vulgar. Naughty changes from generation to generation—what was considered vulgar in the '50s is not even considered naughty now. If you get those three elements, you've got good pop music. And rap music has done that brilliantly. It's reduced music to those elements, the basic groove and hook.

Working as much as you do, when do you find time to check out other people's music?

I listen a lot to radio. I live about 30 minutes from the studio, so I get in about an hour a day listening to radio. And I leave MTV and MTV2 and BET on my TV screen while I'm working. If something catches my eye, I'll turn the sound up.

To be successful as a mixer, you have to be competitive. To sustain a career, you really have to grow and reinvent yourself. You have to love music so much that without knowing it, you search out the new things, and then you have to have an attitude that allows you to turn loose of your old ideas very quickly and easily.

One of the many cool things about hip hop is, we've got the only fans in the world where, if you use a snare sound that you used three months ago on some hit, they'll call you on it. They'll go, "That's the snare from OPP, man. Why couldn't you think of a better snare?" The only time our fans will give you any slack is if you use something that they recognize, but you use it in a more creative way. They'll go, "Man, I give you points for that."

One sentence you'll never hear in a hip hop session is, "You can't do that—this is hip hop!" If you pull out an MPC3000 and go to program the drums on a rock session, you're going to hear, "It's a rock band. You can't do that." Hip hop, you can bring in Slash. You can bring in live drummers and dead drummers—whatever you want to do is fine. Not only is it fine, you are considered a genius for doing it!

You love computers but you still mix to half-inch analog tape on a Studer machine.

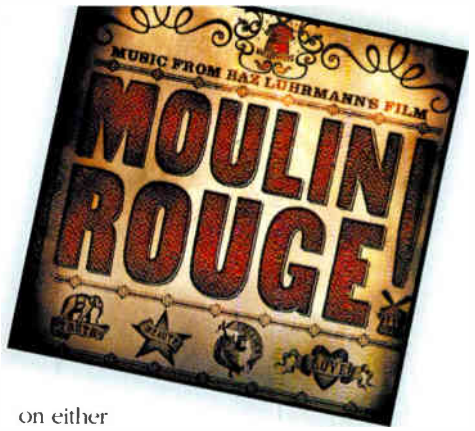
I love Quantegy GP9. What I do is, I listen to the output of the 2-track machine while I'm printing to tape. There is always a sweet spot somewhere between plus 6 and plus 20, where as you increase the level to tape, the signal saturates the tape and it gives you this wonderful tape compression. It takes that digital Pro Tools sound and gives it another quality. So I take the master fader on my console and just crank it up, while I'm listening to the output of the 2-track, until I go, "That's it."

I mean, meters are useless if you've got ears. There were times that the guys who taught me wouldn't let me use meters. I'd go, "How do I tell if it's too hot?" "Well, you hear distortion!" "How do I tell if the level is too low?" "You hear tape hiss!" Anything in between is fine!

Do you have any tricks for coping with over-the-top numbers of tracks?

I study the rough mix, and then I visually try to locate the meat and potatoes of the mix. I find the kick, snare, bass, the pads, lead vocal, background vocals...and I try to construct a mix with that small number of elements.

My 9000 is so big, part of it is in another ZIP code, so I set it up with 50 channels



on either side of me. I put my important tracks near the center of the console, because when I get off-axis, my monitoring isn't as accurate. Drums and percussion go to the left and vocals to the right. Things that don't play very often end up out in the nether regions. Luckily, with Pro Tools you can set up a lot of that visually, because you can look at a track and see that it only plays once in a song.

Do you use the board dynamics on the 9k much?

There are some things that you can't find any better compressor for. I don't like gating, so I rarely use the gates, unless I am going for a special effect like getting a little tick on the kick drum. But I use the compressor on a lot of synthesizers and other instruments. Because I have so much outboard gear, I don't use it on vocals or drums.

Let's talk about vocals. What are some of your favorite vocal compressors?

I use my Gates Sta-Level on almost all my vocals. There are some singers I work with that it just loves—Brian McKnight, Christina Aguilera. Because it was designed to control the output of a mono radio station, it was more a "set it and forget it"-type piece of gear, with a lot of the controls on the inside. But my friend Kevin Mills, who owns Larrabee Studios, had one of his staff modify it for me. So the internal parameters I don't need to change too much, and on the front, the controls are almost identical to an LA-2A's.

I love the Tube-Tech on vocals. And I like the CompressorBank, a plug-in by McDsp—especially the 670 presets that emulate the Fairchild. And I love the Waves C4 plug-ins. I use the plug-in called C4 a lot. It's a 4-band parametric with an incredible compressor on each band. So, not only do I get to choose my frequency, my bandwidth on four different bands and my level, but I get to choose all my compression parameters with a compressor that's designed to emulate not one, but all of the great classics.

The way I use it is, when a singer is singing kind of low, I'll have it take some of the mud out. But when they're

DAVE PENSADO

Selected Mixing Credits

Christina Aguilera: "When You Put Your Hands on Me" and "Somebody's Somebody" on *Christina Aguilera*

Christina Aguilera, Lil' Kim, Mya, Missy Elliot & Pink: "Lady Marmalade" (first single from *Moulin Rouge* soundtrack)

Black Men United: "U Will Know" (on *Jason's Lyric* soundtrack—introduced D'Angelo to the music world)

Destiny's Child: *Survivor* (four tracks including "Emotion," their next single)

Macy Gray: "Why Didn't You Call Me" Remix

Enrique Iglesias: "Alabao" (*Enrique*)

K-Ci & JoJo: *X* (seven tracks)

Brian McKnight: "Win" (on *Men Of Honor* soundtrack)

Mya: "Where The Dream Takes You" (on *Atlantis* soundtrack)

Sisqo: "Enchantment Passing Through" (on *Unleash the Dragon)*

Take 6: "Biggest Part of Me" Remix

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singing harder in the vamp and it gets more midrange-y, I'll set it to automatically dip out that 3k for me. It saves me time in mixing because that compressor catches a lot of it.

You often split your vocal tracks as they come into the console, so that you can use both a vintage, tube-processing chain and a high-tech, modern processing chain. That probably explains why the vocals on your mixes avoid that unfortunate "rip your head off" sound and, instead, seem to have more body to them.

Thank you for the compliment! Usually, I'll have anywhere from two to four faders—mults of the lead vocal—with each of those faders receiving the same vocal information. On one fader, I'll have my low-tech analog chain. I'll use the Gates, or an LA-2A, something with tube processing. I'll also maybe use a Neve 1073 on that fader. On the fader next to it, I'll go with a high-tech chain, maybe FilterBank, maybe CompressorBank or the Waves C4. I might use an Avalon 2055 on that chain, or if we go to three faders, I might have an all-Avalon chain. As the song progresses, generally the verses are sung kind of low and breathy, so we'll go to the high-tech chain a little more for that. In the parts where they're singing louder, and maybe getting a little screechy, then I'll go to the tube part of the chain for some nice, rich harmonics. Or maybe not. You listen and see what you like best, because now you've got different options for different phrases.

As a mixer, you have to have a mindset now that says, "I can fix anything." Because with all the tools we have today, you really can.

I just sit there and move the faders. In some places, all the faders might be up on one phrase—you just try different combinations. The more you do it, the faster you'll get. The first time you try it, you'll add another two hours to your mix! But then it becomes almost like second nature, because as you are setting up each chain, you're listening and thinking about it.

The same with drums. You can have the main kick drum fader, and another fader where you compress the dogsnot out of the kick and add a lot of top end to it. Then, maybe in the chorus you add in a little bit of that second chain. It gives a tiny bit more attack to that programmed kick drum, as if the drummer was hitting it harder.

You can expand the concept into any piece of information. [Laughs.] I'm lucky because I've got 104 inputs on my 9k. If you don't, you'll have to use that technique more judiciously.

What about the dilemma of level control vs. intelligibility of lyrics? There are a lot of hip hop-type songs these days where lyrics seem to get lost in overcompression.

What you're hearing is not necessarily bad compression, but just overall bad engineering. I have to say that I think our profession is heading in a new direction. When I first started out, the stuff I was given to mix was pristine. Mixing was a different occupation back then. You basically had 24 tracks—sometimes a little more—that were pretty much perfect, and you spent a few hours with a very small amount of gear to mix them. Nowa-

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days, I would say that 80 percent of the producers I work with have a home studio. They engineer their songs themselves, and their skills vary, in terms of engineering, from horrible to incredibly amazing.

Mixing is now a different profession, in that we have to do a lot of repair work. We have to straighten out a lot of problems—from overcompression to where everybody and their mother went out and bought the Avalon 737, took that right-hand knob and cranked it up 1,800 dB. We get these incredibly bright vocals.

Now, I happen to think that the 737 is one of the best pieces of equipment ever made, and it's one of my first recommendations when anybody asks me what to buy for a home studio. But, the problem is that a lot of the young producers I work with don't have the monitoring capability to hear how much top end or how much compression—or whatever—that they're adding. So a lot of the time, what you're hearing when vocals are unintelligible is lack of skill on the mixer's part to straighten out problems they were given by an overzealous producer recording his own tracks.

As a mixer, you have to have a mindset now that says, "I can fix anything." Because with all the tools we have today, you really can.

You can fix overcompression?

Yes. I go into Pro Tools and I type in the level on every syllable. I uncompress what the compressor did. And I automate the EQ on every syllable. I've got FilterBank sitting there, and I automate the top end back into just that syllable. On a four-minute song, to fix a lead vocal with just the most horrible compression takes me about two hours. The average is about 45 minutes.

I think any engineer who complains about having to do that will probably be an engineer who is not working in a few years. Because that's the future. If you develop that skill set, of being able to fix anything and then mixing it, you'll be working a lot.

The upside about all this is that these are the best times for creative people, because you can just turn on a computer and get your ideas down. I encourage my producers not to worry about the sonics. Just bring me anything that's creative and I'll fix it.

You're a brave man.

I would rather have a great song and poor engineering than the best-engineered crappy song any day.

Okay, enough of fixing, and back to mixing. What are some of your favorite vocal effects?

I love the Eventide Orville. I used the Orville on all of the vocals on "Lady Marmalade." I like to chain a lot of effects together—a Harmonizer with a delay, with a reverb unit—I almost always have effects on my effects. With the Orville, I can do it all within the unit. And their harmonizing presets are the best ever for vocals.

What's that Roland Dimension D in your rack for?

Dave Pensado with Rodney Jerkins

I use it on bass and on rap vocals. It's one of my favorite pieces of gear. I loved "C'Est la Vie," by Robbie Nevil, and what I got from that record is a hundred ways to use the Dimension D.

What about background vocals? Any tricks there?

I've got this little box, a BOSS EH-50, that an engineer named Ed Seay hipped me to. I paid 50 dollars for it, and I use it on my backgrounds. It's like an enhancer. It gives you just the top end, like an Aphex Aural Exciter. So rather than put a chorus on the whole vocal, I just chorus the EH-50 signal so my chorus isn't getting all the mud. There's only one setting to use though—you can't use any of the other buttons.

And that would be?

The last button on the right—Expander 2. Super glue it in and make sure that nobody hits any other button.

What are some things you use to get all those big bass sounds?

I use the Moog parametric, which you don't see too much on bass. Also, I use API 550s, the Pultec EQP-1A and a plug-in made by Waves called MaxxBass, which saves my butt a lot of times. If you get a pure sine wave sound, you can create enough upper harmonics to actually hear it on a 3-inch speaker. And if you get a sound that's all upper-frequency range, the MaxxBass will give you the sub stuff. For the sub stuff, I also like to use a dbx 120XDS, a boom box we used to use in the clubs.

What are some of your current favorite reverbs and effects?

I use the Eventide 2016, like Mick Guzauski does—the "Stereo Room." On toms, I use the "Room" program, but there's something about the stereo room that's great on some vocalists.

I use the DP4 Plus a lot. The presets I like are called "Big Acoustic Guitar" and "Electric Tines."

The Korg A1 is great for guitar effects. It's a chained effect, not unlike the Roland DEP-5, where on a particular preset, you've got distortion, an EQ, a compressor, a delay and a spring reverb, and you have control over all of them. I use a setting called "Blues Vibe," and I love "Wankadelic."

I use the Roland SDE-330 a lot; Dexter Simmons turned me on to it. Dexter also gave me a Spatializer, which is incredible. I love putting things outside the speaker plane. I've got several pieces of gear that will let me do that. One of them is the Behringer Edison stereo image processor—the best $200 you'll ever spend. Also the Ultrafex II, an enhancer/exciter that also has the spatial component.

And the Forat F16 is my little secret weapon. Ben and Bruce at Forat are two of the brightest guys on earth.

As hard as you work, and as long as you've been doing it, do you still feel lucky to be an engineer?

The profession of engineering is unique in that you have to be technical and creative at the same time. It's hard to imagine Picasso designing the first computer. It's also hard to imagine Bill Gates painting "Guernica." And as a mixer you have to be Bill Gates for 30 seconds, then Picasso for 30 seconds. You're constantly shifting back and forth.

That's why there are not that many really great mixers—God didn't create too many people with that particular ability. In another culture, in another time, people who have it would be doomed to be freaks! The gift of equal left brain/right brain power in any other time would probably be an undesirable quality. But, at this point in time and place, it's a good freak of nature to be. Because, luckily, there's a profession called mixing...

Dave says he'll answer questions from readers. If you've got one for him, then send it via e-mail to fdpen@ix.netcom.com. ■

Maureen Droney is Mix's L.A. editor.

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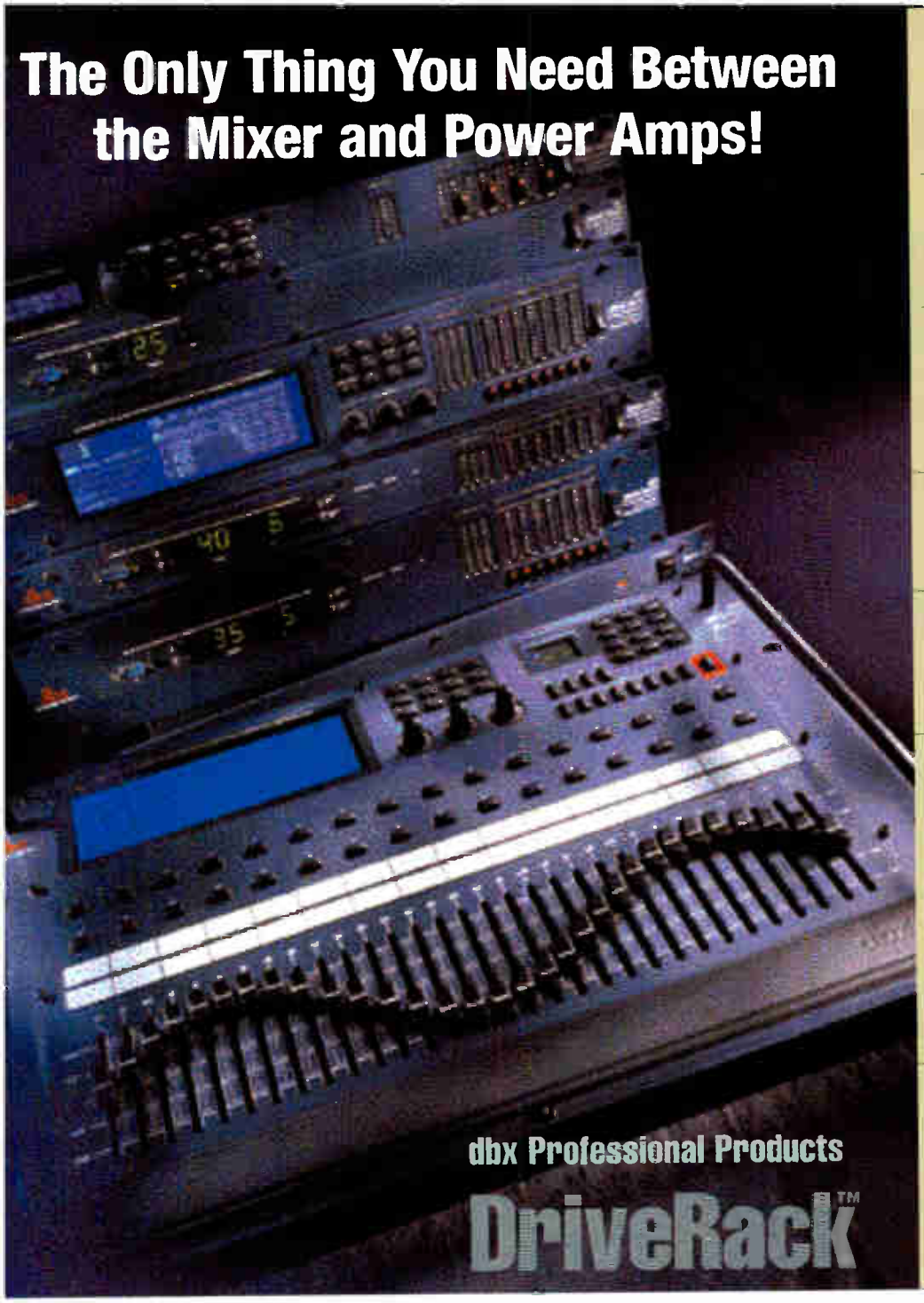

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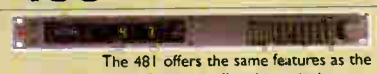

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MAX GRAHAM

CUTTING PROGRESSIVE HOUSE NORTH OF THE BORDER

Max Graham has quietly spent the last several years as Canada's premier ambassador of dance music. Often compared to other progressive house acts like Underworld and Sasha and Digweed, Graham has been enjoying residencies at countless north-of-the-border and European clubs. For this reason, he was recently tapped to compile and mix *Transport 4*, the fourth installment of the highly successful compilation series that helped launch the Stateside careers of Paul Oakenfeld, Dave Ralph and Sandra Collins. Now, as Graham is poised to become the flavour du jour on the U.S. DJ scene, he's taking the logical step from DJ to producer, following much the same path taken by BT and Paul Van Dyk.

Working out of his Montreal home, Graham has assembled a modest studio setup and has begun his first album of original material. "I realized that as a DJ, the only way to go international with my career and to grow beyond the Canadian and North American markets was to produce," he explains. "That's the only way to really get noticed at this point.

"I rented a loft in Montreal that was big enough for a proper studio space," he continues. "It's really a very rough setup, but it seems to be working very well for me from the reactions and the reviews that I've gotten. My whole thing is to show that you can make real quality with a shoestring budget."

His studio is based around a PC running Cubase and Sound Forge through a simple Echo Gina interface. Graham also uses a modest Behringer 24-channel mixer. His only two outboard synths are an Access Virus and a Roland JV-2080. And, he has recently upgraded to Mackie HR24 monitors.

"When I'm writing, I'll usually start out with a one-bar drum loop," he continues. "And I'll usually pull up a sort of 'elctro' loop or breaks in Sound Forge and pitch them to match the loop. And then start adding a little bit of percussion and putting a bit of delay on it and getting a sort of a rhythm going. And then I'll usually add a bass line. And out of that, I'll start to hear some melodies coming out. Then I'll add some strings from the JV-2080. All I own are the 2080 and the Virus. The 2080 is used for all my strings and top-end sounds and the Virus for all my bass lines. I'm not really using a desk anymore. Everything is pretty much inside the PC. I'm mixing everything inside the PC and using loads of plug-ins.

"Then, once I get something that sounds kind of chunky, like a loop, I'll start to spread it out and arrange it. I'll usually build the arrangement up to a point where it needs a turning point in the song, either a breakdown

or a sound comes in that is what the song is all about. And it's usually like a one- or two-day process building up to that. Then I have to find something that's going to make that song stand out, like a vocal or a big chord progression or a melody. And that can take anywhere from an hour to two or three days to come up with."

As a DJ who tours constantly around the world, Graham has begun to bring a similarly outfitted laptop on the road, allowing him to compose and test out new material. "I travel with a laptop with Cubase and Sound Forge," he says. "I've been getting more involved in laptop-based production while I'm touring. It's really hard because I don't use an engineer, and a lot of DJs have an engineer who stays home. I try and balance the two out and be home two or three days a week and get a mix finished and get something out there and be able to tour as a DJ. I don't really want to rely on my name as a DJ selling someone else's engineering work, which I find is something that happens a lot in this business.

PHOTO: TINA PAUL

"I'm also trying to think of ways of incorporating the laptop in the live show. I burn a lot of CD-Rs from the PC and play them out that night. I'll bring out drum tracks and bass lines and see how they work. Sometimes I'll bring like a four-minute drum track just to hear how the kicks relate to the percussion out in the club. If I come up with a sub-bass kick that I'm really into, I'll just drop it underneath another track in the club and see how it sounds and go back to the studio and rework it."

Currently, Graham is making the rounds on the international DJ circuit. *Transport 4* was released last May, and his first album is slated for release early next year on Kinetic Records. For samples of Graham's recent work, in RealAudio format, visit www.maxgraham.com. ■

BY ROBERT HANSON

Robert Hanson, Mix's editorial assistant, is a musician/producer living in San Francisco.

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Mix Sixth Annual Open

PHOTOS AND TEXT BY MAUREEN DRONEY

The fog lifted as scheduled by 9:00 a.m. on Monday, June, 11. at the Malibu Country Club, and the Sixth Annual Mix L.A. Open got under way. This year's sold-out event included 37 foursomes, who vied for glory and prizes, including a brand-new BMW roadster earmarked for the player who could make a hole in one.

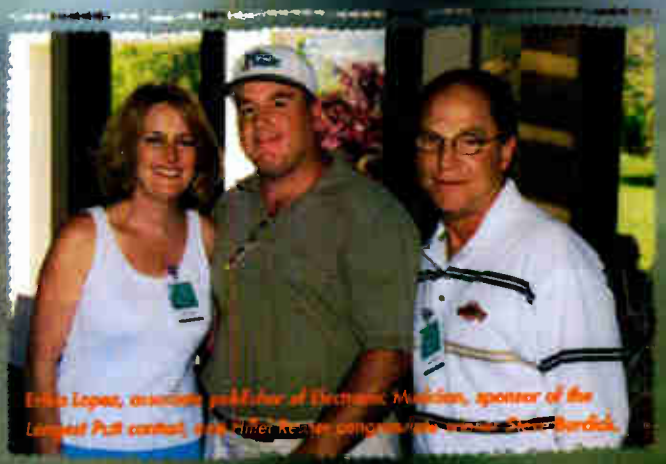
A breakfast buffet, practice swings, a putting contest and a silent auction started off the day. The auction, a new addition to the tournament, included a Les Paul Junior guitar, a DVD player, CD and DVD collections. and a Club Nautique sailing package.

At 10 a.m., golfcarts were fired up, and the participants careened onto the course, where tournament sponsors supplied refreshments, good cheer and an abundance of tasteful swag. While Livewire Audio grilled wieners and Design FX Audio offered Haagen Daas, the 13th Hole, staffed by the lively BASF/Emtec contingent, supplied candy, cigars and welcome cold beverages. Other sponsors provided T-shirts, caps, golfballs, golf carts, moral support and assorted memorabilia.

By 4 p.m., the clubhouse was packed, and the players enjoyed chicken and burgers, compliments of Ocean Way Recording and Sony, as they eagerly awaited the winning scores. First-prize

Defending champions, the Recording Academy, do it again. Taking first place for the second consecutive year were (from left) Skip Gillette, Andy Greene, Michael Greene and Will Greene.

Second place went to newcomers Steve Thomas BMW, sponsors of the Hole-in-One car (L-R): Dan Gallagher, Steve Frye, Steve Thomas and Tom Manchester.



Mix Sixth Annual L.A. Open

From left, Dave [illegible], Alan [illegible], Gus [illegible] and Clay Griggs golfed for CE Pickup, new sponsor of the Mix L.A. Open.

trophies were awarded, for the second year in a row, to The Recording Academy's team, comprising Michael Greene, sons Andy and Will Greene, and Skip Gillette, who scored 58, 14 under par. Second-place statues, for the score of 59, went to Steve Thomas, Tom Manchester, Steve Frye and Dan Gallagher of Steve Thomas BMW (who also left with their BMW—no hole in one this year). Sony Music Studios' Peter Barker, Peter Follett, Lance Hornung and LeRoy Richman took home the bronze with a 60.

As always, proceeds from the tournament go to a great cause: the hearing health outreach programs of the House Ear Institute and H.E.A.R. organizations that provide help and information for music and sound professionals with hearing disorders. ■

Candy, chips, cigars and beverages were available from Emtec's [illegible] Teresa [illegible], Sean [illegible] and Natalie Stocker at Hole 13.

Design FX, now famous for their special Dove Bars, was headed up by (l-r) Gary [illegible], Gary Skarding, Tom Wermor and Tom Kelly.

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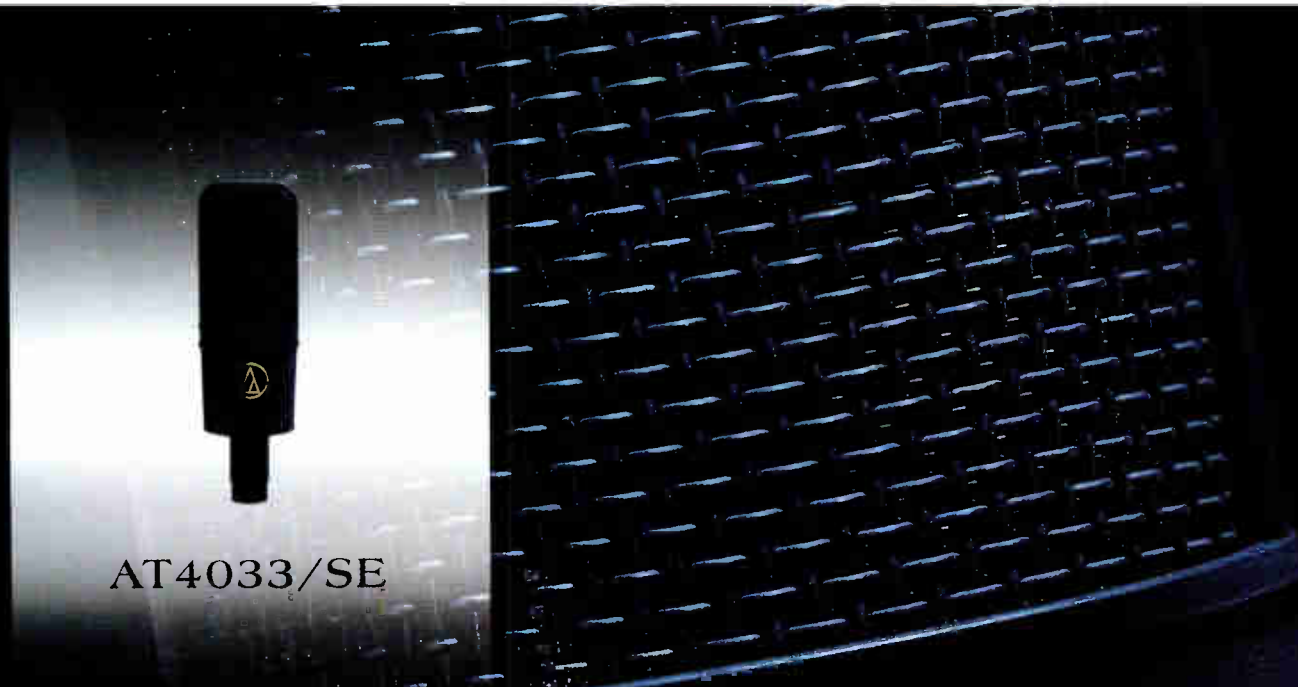

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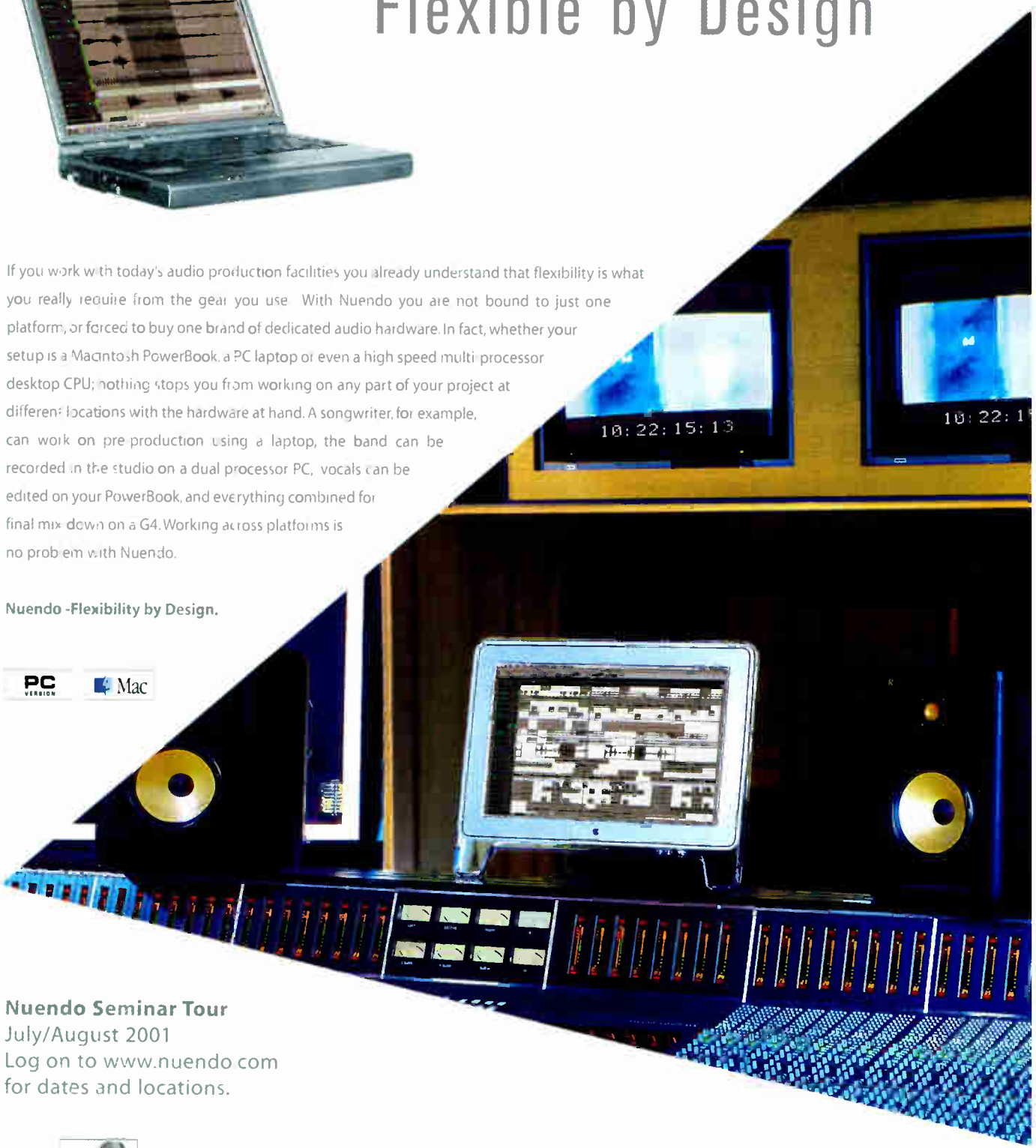

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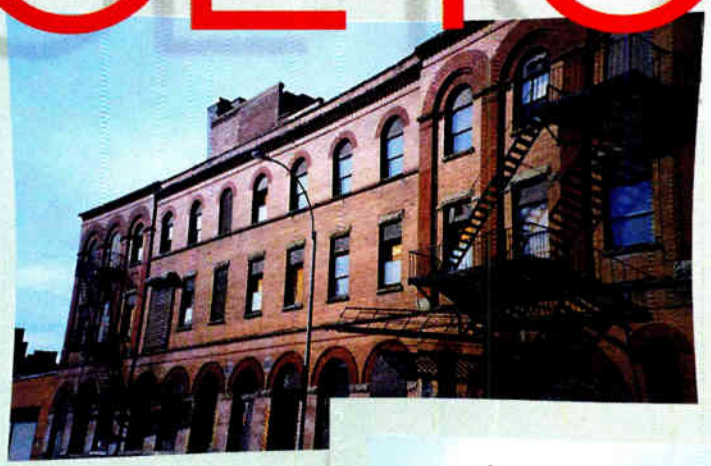

BY DAN DALEY

"He's doing what?!" That was the reaction from the owner of one major Manhattan studio to the news that Simon Andrews, principal owner of Right Track Recording, had embarked on an ambitious venture to build a massive new music studio complex on the city's extreme West Side.

Surprise, amazement and the suggestion of a lapse of sanity are all understandable reactions, given the circumstances. New York music facilities have, on average, been reporting at least decent returns in the past two years. But in that time, the music studio business has become much more challenging. New technology and Internet distribution schemes have brought radical changes to the music and entertainment industries, and the relentless proliferation of project studios has only added to the pressures on larger facilities.

RIGHT TRACK SETS A NEW COURSE

But seen through the eyes of Simon Andrews, these forces only underline the timeliness of his new vision. "This is the perfect plan at the perfect time," says Andrews as we tour the 100-year-old warehouse building that will house Right Track's newest facility—a 10,000-square-foot orchestral recording studio. The idea for the studio germinated nearly six years ago, in 1995, when Andrews noticed that the demand for large-scale tracking and orchestral sessions was on the rise. "We'd always done orchestra dates and Broadway show recordings," he explains. "But there really hadn't been a studio in Manhattan that could accommodate truly large orchestral sessions since the great label-owned orchestral rooms, like Columbia's old church or Decca Studios or RCA Studios, the last of them had been closed over a decade ago." With plans in place for a huge new production facility at the Brooklyn Navy Yard, and expansions slated for the Kaufman-Astoria and Silvercup Studios production facilities in Queens, it seemed inevitable that film and television work in New York would increase. "It seemed logical that New York needed a studio that could do for orchestral music what those grand old rooms did," says Andrews.

IT'S ALL ABOUT LOCALE

Starting in 1996, Andrews spent three years scouring Manhattan for the right location, a task complicated by a soaring real estate market. Property values rocketed during what turned out to be the longest economic boom in U.S. history, and luxury residential construction and rehab effectively removed millions of square feet from the commercial pool. Eventually, in February 1999, Andrews found a 35,000-square-foot building on the last block on West 38th Street, in sight of the Hudson River. The low-rise neighborhood's anonymity helped shield it from gentrification during the '90s, though the brick warehouses and turn-of-the-century stables were rapidly becoming home to outposts of the New Economy—the Starrett-Leigh Building, a former warehouse, is now home to Martha Stewart's *Living* and print/online media phenom Inside.com.

The building that Andrews found also had an important and increasingly rare asset—an "enlightened" landlord who offered (after five months of negotiations) a multidecade lease with future options that Andrews had been seeking. Andrews' Right Track team—technical director Dominick Costanzo, producer/engineer Frank Filipetti, and general manager and director of operations Barry Bongiovi—swung into action and developed a collaborative facility and acoustical design, which was realized by studio design architect Denis Janson, of the New York-based Janson Design Group. Janson devised a new system of steel trusses to replace the numerous interior posts that supported each floor, and demolition began in August 2000, with actual construction starting in October. (The original Right Track, founded in 1976, and in its present West 48th Street location since 1980, will continue to operate its existing three studios indefinitely.)

At the time of writing, work crews were still welding steel and pouring concrete. Girders sprang skyward from the building's third and uppermost floor, destined to support a new ceiling that rises 37 feet above the studio. According to the designs, the control room will retain the original 16-foot ceiling height but, at 1,000 square feet, will be as large as some recording studios. It will be equipped with a 96-input SSL 9000 J analog console fitted with a modified and removable center section, specifically designed for Right Track by SSL to allow the board to be seamlessly reconfigured for film scoring/mixing as needed. A large plasma video screen above the center section will serve in place of the CRT in the console itself. Monitors will include fully soffited Genelec 1035B speakers and 1094 subs in a 5.1 multichannel array designed to be upgraded to a 7.1 configuration.

The main orchestral room will be massive (4,400 square feet), with two dedicated iso booths (380 square feet and 300 square feet, respectively), the larger

The control room will retain its original 16-foot ceiling height and will be as large as 1,000 square feet. The design also includes the studio's main orchestral room (4,400 square feet, with 37-foot ceiling, plus two large dedicated iso booths), a 200-square-foot airlock that can serve as an iso, and a dedicated 120-square-foot vocal iso in front and to the side of the control room.

Digital Audio Essentials

from the digital audio interface experts

NEW! ADAT ⟷ S/PDIF conversion

z-8.8a Lightpipe Detangler is a Lightpipe patch bay and also converts bidirectionally between ADAT Lightpipe format and S/PDIF (AES/EBU optional). S/PDIF inputs also feature defeatable sample rate conversion, allowing four asynchronous stereo digital sources to feed an eight-channel Lightpipe destination.

Digital Detangler automated digital audio patchbay

Available with 8x8 or 16x16 inputs and outputs. Supports AES/EBU, S/PDIF optical & coaxial, ADAT Lightpipe optical (no format conversion to and from ADAT format). Mix and match port configurations to build the perfect solution for your studio (standard configurations also available).

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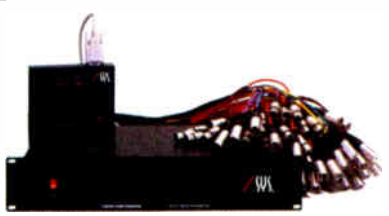

Digital Detangler Pro automated digital audio patchbay

Available in 8x8, 16x16, 32x32, and 64x64 configurations. Can be controlled from dedicated remote controller, Mac, or PC software (network versions available).

NEW! 24/96 miniature sample rate converters

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RIGHT TRACK SETS A NEW COURSE

of which may be bisected by folding glass doors. An additional 200-square-foot airlock will serve as an iso booth, and there will be a dedicated 120-square-foot vocal booth just in front and to the side of the control room. Machine room, lounges and producers' offices will occupy a further 10,000 square feet.

The acoustical design of the orchestral room was refined in part by Bongiovi, who visited large scoring stages and orchestral studios in Hollywood and London to find out what makes them work. "There was one time when Frank [Filipetti] and I walked from one end of the room to the other and noticed the change in the sound," recalls Bongiovi, a New York studio veteran who previously worked at Power Station, The Hit Factory and Sony Classical before coming to Right Track in 1995. "We pulled up an access cover and were able to see that different types of construction were actually used in different parts of the studio itself." For the new Right Track facility, a system of separate floated concrete slabs will provide such a high degree of isolation that "a basketball game could be played in the room while a vocal was being done in the booth," says Costanzo.

LOGISTICALLY SPEAKING...

Andrews estimates that accommodating New York City's myriad and often mystifying building codes added nearly three quarters of a million dollars to the approximately $5 million overall cost of the project. Easements, facade setbacks and other structural elements actually varied within the building itself, depending on what had been grandfathered in during previous incarnations of the structure. The first floor facade can extend to the lot line, for instance, but the upper levels had to be set back. New codes required that all new support steel be coated in fireproofed material. New stairways and firewalls had to be built to comply with fire codes. The new structural addition on the top floor, which gives the orchestral room its defining height, had to be cantilevered, rather than supported directly from below. Despite these requirements, the

Simon Andrews, principal owner of Right Track Recording

Right Track team felt it was important to make the most of the decorative and aesthetic characteristics of the building. The arches over the front doors and windows have been retained, as well as the exposed brick walls that give character to interior common areas such as offices and lounges.

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RIGHT TRACK SETS A NEW COURSE

"For some of the [structural matters], we might have been able to get variances," says Bongiovi. "But that would have taken six to nine months, if it happened at all. We had to stay on a schedule because every day the studio isn't up and running, it's not returning on its investment."

Which brings up the subject of rates, an almost existential subject in the studio business. On the one hand, Andrews promises that the new facility's rates will be "comparable and competitive," but he acknowledges that the film and music industries have widely differing rate structures, and that rates for similar facilities can be as much as $8,000 per day. "We've dedicated 10,000 square feet of space for one studio, enough to hold four music studios," he points out. "The rate should be commensurate with that."

> [THE ORCHESTRAL STUDIO] IS JUST THE BEGINNING OF A LARGER AND WHAT WE BELIEVE WILL BE A VERY PROFITABLE VENTURE THAT REFLECTS THE WAY THE ENTERTAINMENT INDUSTRY WILL BE, NOT THE WAY IT HAS BEEN.
>
> —Barry Bongio

WORKING WITHIN THE WALLS

But rates are just part of the overall economic projections for what is planned to be an even larger facility in the future. The building's second design phase, which has not yet been scheduled, calls for a large part of the second floor to be removed to create a two-story-high second studio, estimated at 40x45x25 feet, with an 800-square-foot control room. Intended mainly for music tracking, the "phase two" studio will have its own large control room, up against the south side of the building. Looking even further down the road, Bongiovi says that the remaining square footage—which will still be substantial even after two studios and their offices and lounges are built—is part of a still-evolving plan for various multimedia purposes. While this part of the vision is not yet completely defined, Bongiovi stresses that flexibility and the ability to adapt quickly to changing market and technology requirements will be paramount.

"What we realized in the last few years is that studios had to become much more flexible to deal with the way the music business was changing," he explains. "Scheduling has to be able to turn on a dime, and you have to be able to deal with multiple formats. Also, with [personal] studios on the rise, for a [conventional] facility to be successful, you have to be able to interface with them easily, and at the same time offer services and capabilities that no personal studio could ever dream of.

"[The orchestral studio] is just the beginning of a larger and what we believe will be a very profitable venture that reflects the way the entertainment industry will be, not the way it has been," Bongiovi continues. "Studios used to with a record label called Warners; we're dealing with a multimedia a ternet company named AOL Time er. Sony Music is talking about putt entire catalog online. [Audio] maste becoming authoring. The challenge build a large facility that is also a adapt itself quickly to change, an keep the same level of service that Right Track as successful as it has I think we've got that here."

"The real economic bottom line i the need for large, well-designed acous cal spaces will never disappear, because they fulfill a unique need that cannot be duplicated electronically," concludes A drews. "As the studio business itself h had to deal with all sorts of issues past 10 years or so, remaking itself t with the harsh realities of home s and the like, the grand orchestral have been able to float above all And that's where this facility picks legacy and brings it back to New

Dan Daley is Mix's East Coast edit

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Large 800 x 600 pixel display. Intuitive "user friendly" software. External VGA Out.

"Virtual" Output Channel. Programmable and recallable for all master section outputs. 6-band parametric EQ, programmable COMPRESSOR and 0 to 1,000 milliseconds of programmable DELAY.

Flexible meter bridge selectable to monitor MIX or MATRIX buses. Dedicated meters for STEREO A and B and CUE signals. TIME CODE and SCENE MEMORY display.

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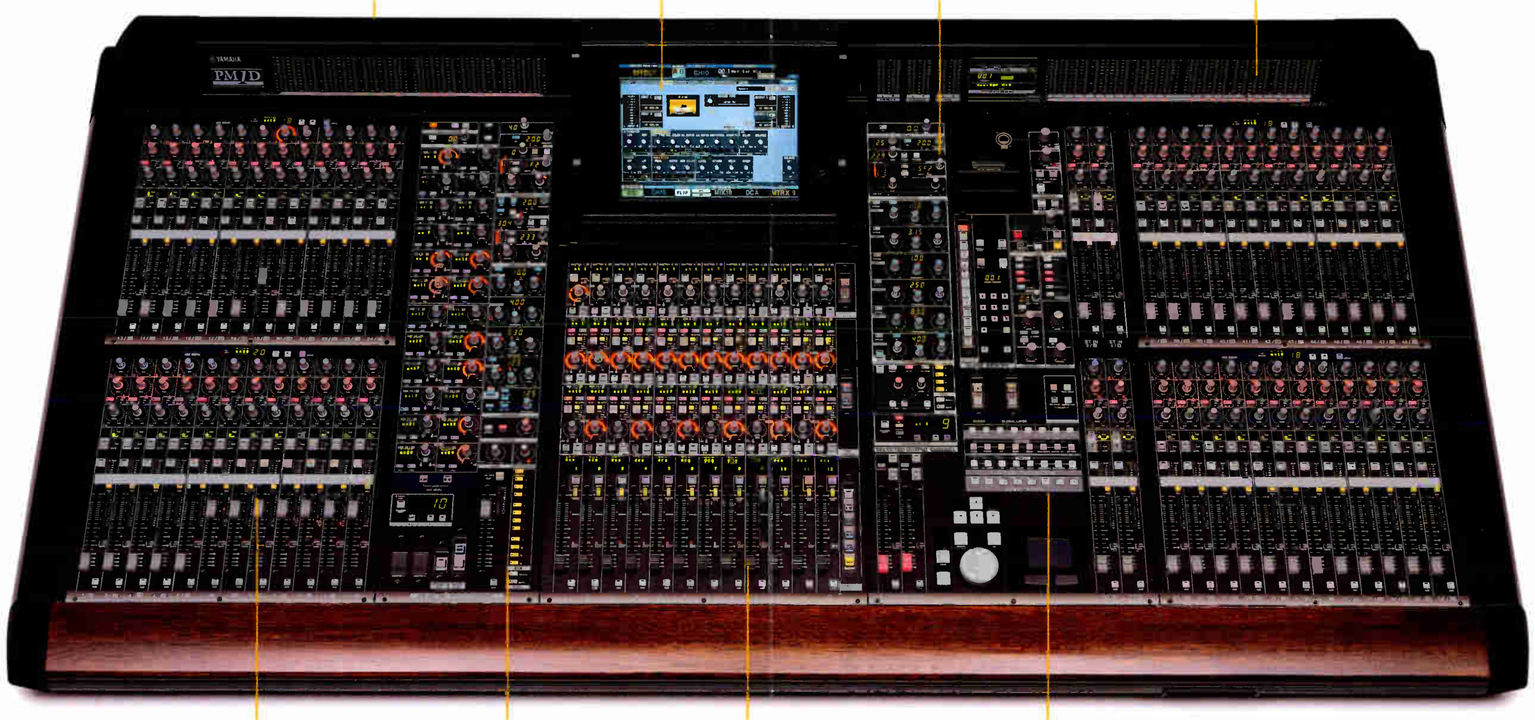

Basic input channel includes MIX SEND selection, Input MIX, Input PAN and GAIN encoders, TO STEREO, Input DCA, CUE and ON switches and Input A/B, COMPRESSOR, GATE, METER, Input DCA, RECALL and MUTE SAFE LEDs along with a high quality 100mm motorized fader and 4-character LED channel labeling display.

"Virtual" Input Channel. Programmable and recallable for all input channels. Includes COMPRESSOR and GATE, 4-band parametric EQ with HPF, 0 to 250 milliseconds of Input DELAY, 48V/PHASE/INSERT section, encoders for MIX bus levels, digital ATTENUTATION, switches for DCA Assign, CHANNEL SAFE, CHANNEL SELECT, metering or LED displays for all functions and 100mm motorized fader.

Master section includes encoders, 100mm motorized faders and LCD displays for MIX and MATRIX Outputs and DCA Groups as well as switches for fader "flip" functions and MIX and MATRIX layers.

Utility section includes scene memory controls and displays, computer interface and controls such as track pad, keypad, PCMCIA card slots, MONITOR A and B controls, delay control for monitors (0 to 750 milliseconds), and quick access keys for instant function recall. Software can be programmed off-line on a PC. Computer can run software in parallel with console for redundancy.

Rack contains analog and digital I/O, audio processing DSP/CPU engine. Complete digital audio path post A/D conversion. Can be remotely located up to 200 meters from work surface. Digital audio interface on 68-pin half-pitch d-sub connector, control via ethernet BNC connector.

Practice.

PM1D General Specifications

Number of Input Channels	48 mono + 4 stereo (DSP1D) 96 mono + 8 stereo (DSP1D-EX)
Number of Output Channels	48 Mix, Stereo A, Stereo B, 24 Matrix
Number of Scene Memories	990
Sampling Frequency	Internal: 48kHz/44.1kHz External: 44.1kHz -10% ~ 48kHz +6%
Fader	67 x 100mm motorized
Total Harmonic Distortion	Less than 0.02% 20Hz ~ 20kHz @ +24dB into 600Ω Less than 0.007% 1kHz @+24dB into 600Ω CH IN to STEREO OUT
AD Converter	28bit 128 times over sampling (Signal Delay 1.5msec @ Fs = 48kHz)
DA Converter	27bit 128 times over sampling (Signal Delay 1.2msec @ Fs = 48kHz)
Frequency Response	+1, -2dB 20Hz ~ 20kHz @ +10dB into 600Ω
Dynamic Range (maximum level to noise level)	120dB typ. AD+DA ("LMY-" AD card to DA card)
Hum & Noise (Rs = 150Ω) (Input Gain = Max.)	-128dB typ. Equivalent Input Noise. (20Hz ~ 20KHz)

Input Section CH1-96, ST IN1-8

De-emphasis/DC cut	
Phase	Normal/Reverse
Patch	Input, Direct Out (pre-eq/pre-fader/post-fader/post-on). Insert In/Out (pre-eq/post-eq/ pre-comp/pre-delay/pre-fader)
Attenuation	-96 ~ 0dB (1dB step)
High Pass Filter	20Hz - 600Hz (60 point) slope -6dB / -12dB / -18dB/oct
Equalizer	4 band PEQ (Low/shelving, Low-mid, High-mid, High/shelving/LPF) F: 20Hz-20kHz (120 point), Gain: + - 18dB (0.5 dB step), Q: 0.1-10 (41 point)
Gate	Gate/Ducking selectable 4 key-in bus
Comp	Comp/Expander/Compander selectable 4 key-in bus
Delay	Delay time (0 ~ 250 ms, 0.02 msec step)
Fader	100mm motorized, -∞,-90 – +10dB (128 step/100mm), Interpolation 24bit (16.777,216 steps)
On/Off	
Cue/Solo	On/Off (PFL/AFL)
Pan	127 positions (L=1 - 63, center, R=1 - 63)
Stereo/Group Assign	STEREO/ MIX 1-48 (FIX/ VARI selectable)
Metering	pre-att peak, comp/gate gain reduction, pre-att/pre-gate/pre-fader/post-fader/ post-on selectable with Peak-Hold

Output Section STEREO A, B, MIX 1-48, MATRIX 1-24

Patch	Output, Insert In/Out
Equalizer	6 band PEQ (Sub Low/HPF/Shelving, Low, Low-mid, Mid, High-mid High/ LPF/Shelving) (Bypass switch for each band) (Parameters are same as input EQ)
Comp	Comp/Expander/Compander selectable, 4 key-in bus
Delay	Delay time (0 ~ 1000 ms, 0.02 msec step)
On/Off	
Cue/Solo	On/Off (PFL/AFL)
Balance	Stereo A, B, Paired Mix & Matrix
Mono	Stereo B
To Stereo Assign	from Mix output
To Matrix Assign	from Mix 1-48/stereo A, B
Metering	comp gain reduction, pre-eq/pre-fader/ post-fader/post-on selectable with Peak-Hold
Dither	On/Off, Word length 16 ~ 24bit (DIO8 only)

Other Mixer Section

Effects	Eight internal patchable multi-effects units
Graphic equalizer	Twenty-four internal patchable 31-band graphic equalizers, each with 4 notch filters
Oscillator	sine/pink/burst noise
Talk back	From console 1 & 2
Communication In	Includes ducking control
12 DCA	with DCA mute, DCA cue/solo, 9-12 are selectable for output
12 Direct Memory Recall/Mute Group	
Monitor A	2Tr In 1, 2, ST A, B, user define selectable with delay (max 750msec)
Monitor B	2Tr In, 2, ST A, B, Monitor A, user define selectable
2Tr In 1-6	1 & 2: Analog/Coaxial/AES/EBU selectable, 3-6: AES/EBU (with Sampling Rate Converter for digital inputs)

Libraries

PATCH Libraries	Number of user libraries:	99
NAME Libraries	Number of user libraries:	99
INPUT UNIT Libraries	Number of user libraries:	99
OUTPUT UNIT Libraries	Number of user libraries:	99
INPUT EQ Libraries	Number of factory presets:	37
	Number of user libraries:	62
OUTPUT EQ Libraries	Number of factory presets:	3
	Number of user libraries:	96
INPUT GATE Libraries	Number of factory presets:	4
	Number of user libraries:	95
INPUT COMP Libraries	Number of factory presets:	34
	Number of user libraries:	65
OUTPUT COMP Libraries	Number of factory presets:	9
	Number of user libraries:	90
INPUT CH Libraries	Number of user libraries:	99
OUTPUT CH Libraries	Number of user libraries:	99
EFFECT Libraries	Number of factory presets:	70
	Number of user libraries:	129
GEQ Libraries	Number of user libraries:	99

DIO8: Digital I/O Box

Slot	8 mini-YGDAI slots
Digital connector	68-pin digital signal connector 4 (in A, B, out A, B) Port B selector for slots 5-8

Optional Cards: Mini-YGDAI Cards

MY8-TD	TASCAM Format
MY8-AT	ADAT Format
MY8-AE	AES/EBU Format
MY8-AD	ANALOG 8in Format
MY4-AD	ANALOG 4in Format
MY4-DA	ANALOG 4out Format

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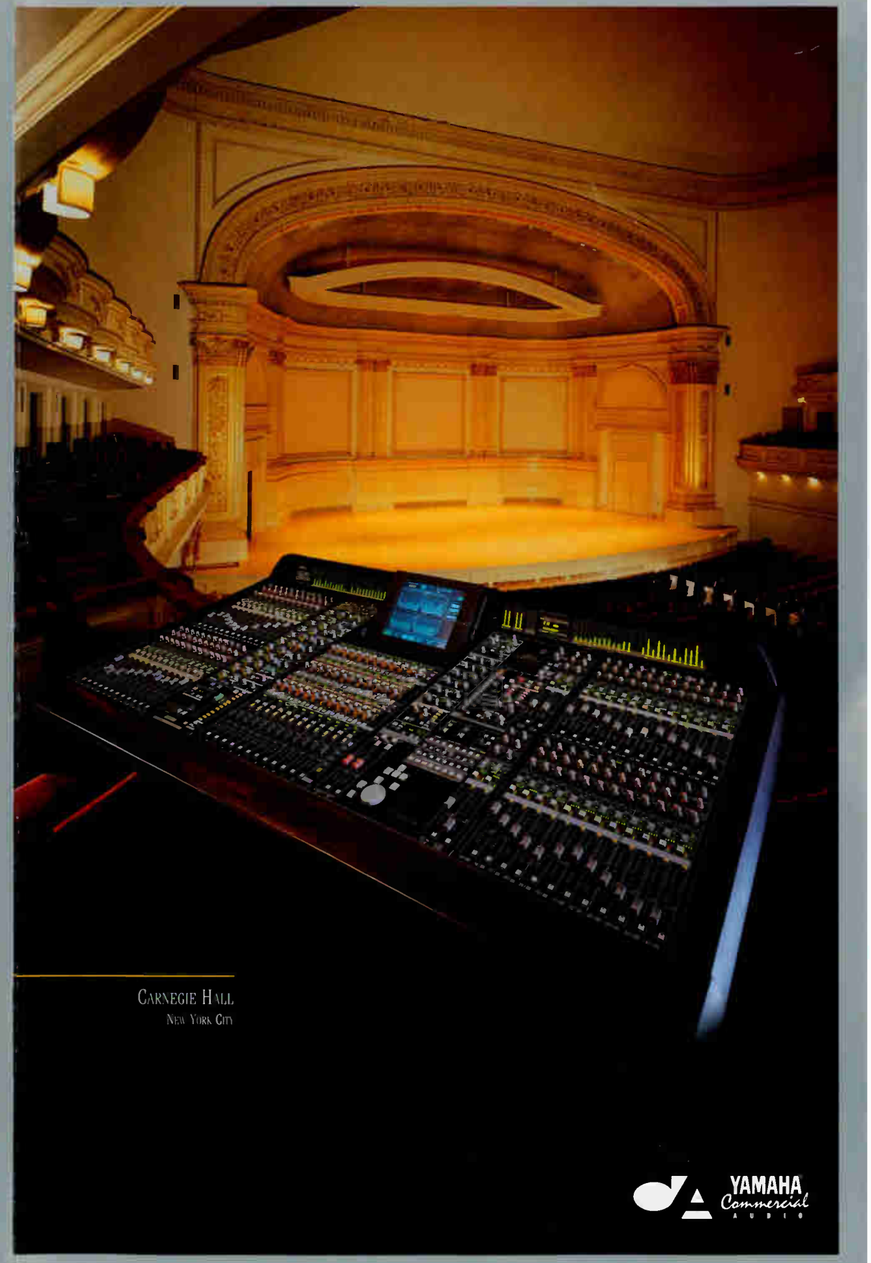

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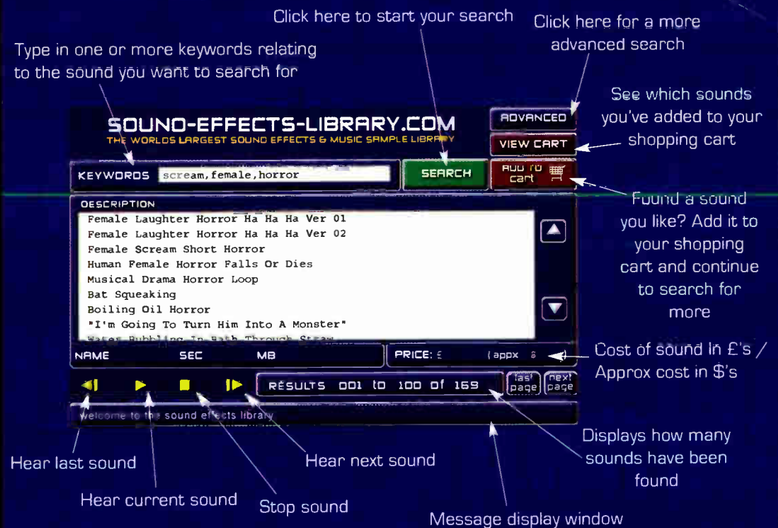

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Audio Interactive Includes thousands of human sounds from screams, gasps, grunts and groans. The library also includes a great selection of useful phrases and sayings.

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Digital Toy Cupboard A comprehensive library which includes drum loops, breaks, beats and music samples, atmosphere and percussion sound effects.

Enn Reitel A unique collection of human vocals and TV backgrounds including styles such as weathermen, sports, commentators, soaps and game shows.

John Lundsten A huge collection of digitally recorded general atmospheres, cars, industrial, crowds, animals, domestic, footsteps and weather.

John Woods A fantastic library of great sounding cars including Formula I, dragster and general atmospheres.

Location Recorders An expertly recorded library produced by sound recordist Dave Losko including general atmospheres, animals, cars, fireworks, industrial and human voices.

One Stop Digital A comprehensive collection of digitally recorded general atmospheres, transport, engines, sea, animals, machinery, footsteps, running, waterfalls and crowds.

Optifex Thousands of amazing general sound effects and atmospheres from automobiles to zoos.

Post Audio Media A fantastic music samples library containing some of the hottest contemporary sounds around including pianos, bells, handoleons, concertinas, accordions, guitars, flutes, clarinets, cornets, horns and gongs.

Prosonus Masters in digital sampling, the library includes:

- Vol I Strings, Woodwind & Orchestrals.
- Vol II Percussion
- Vol III Guitars, Keyboards and Synths
- Vol IV Foley Sound Effects and Vocals
- [Music Bytes] Music Tracks, Various Styles

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Juan Sanchez One of the most respected sound recordists in Spain has produced this fantastic music samples library which includes ambient, jazz, techno, drum & bass, atmospheric, electro, progressive house, trance, synth, orchestral synth, and vintage synth.

Sound Resolution Amazing ambient recordings including numerous animals, birds and atmospherics from around the world.

Peter Steinbach A comprehensive digitally recorded collection of atmospheric sounds including, birds, water, transport and crowds.

Strapko Recorders A truly unique collection of general atmospheric, synths, transport and domestic sound effects.

The Sound Experience A large, comprehensive, digitally recorded collection of domestic, animals & insects, electronic, war, atmospheric, weather, transport, sport, crowds, machinery, sea and music samples.

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Valentino Thousands of exceptional sounds for television, radio, feature films, audio/video programming, education and industry TV.

Virtual Reality Sound Corp A unique collection of industrial, planes, domestic, transport and alien sound effects.

Zero-G The ultimate in music sample libraries Zero-G are world renowned for having a unique collection which includes rhythm guitar, percussion, brass, dance vocals, electric, trance, ambient, house & garage, hip hop, swing, jungle, breaks, drums, ethnic, reggae, techno, funk, synth, keyboards, african vocals and string.

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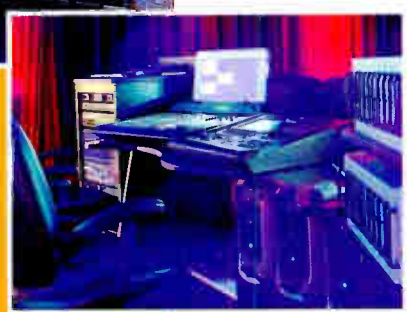
StorCase InfoStation
Behind the Scenes

NAB 2001
Las Vegas

The making of a "real-world" cinema



This year at the National Association of Broadcasters (NAB) Conference and Trade Show, Waskul Entertainment, a leading content creation company based in Southern California, created a high-definition electronic cinema that received rave reviews. The theater was packed with standing room only during all performances. When it came to choosing a storage solution for the cinema, Waskul Entertainment relied on the StorCase InfoStation™, a rugged and versatile 9-bay back-plane RAID-ready enclosure.

"We wanted to show the NAB audience a truly affordable high-definition production solution that they could depend on in the real-world.

– Steve Waskul
Waskul Entertainment

"We wanted to show the NAB audience a truly affordable, high-definition production solution that they could depend on in the real-world. With a performance scheduled every hour, reliable storage was a must. Throughout the NAB show, the InfoStation performed flawlessly and provided the sustained data rates that we needed to play back our high-definition content. It's a great product that can be easily integrated into today's demanding production environments", said Steve Waskul, President of Waskul Entertainment.

"When you're as serious as we are about creating exciting content that will entertain and inspire an audience, you want the best tools available for the job – tools that give you an edge in expressing yourself creatively while making the most of the finite amount of time available. You also want cost-effective solutions that provide an excellent return on your investment. We found the StorCase InfoStation to meet all of these criteria," added Waskul.

For more information regarding the InfoStation, log onto the StorCase Web site at www.storcase.com and take the virtual InfoStation tour, or contact StorCase at **(800) 435-0068**.

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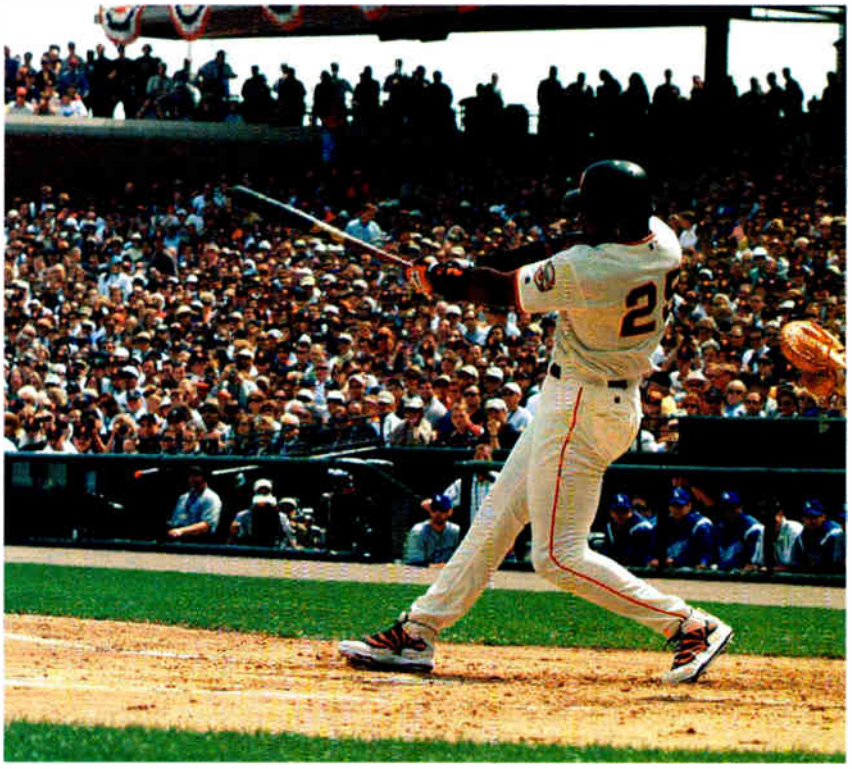
Broadcasting Major League Baseball



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Baseball fans can check out Barry Bonds' career year on ESPN and Fox.

By David John Farinella

You are not sitting on your couch. You are at the ballpark. That was a bat crack, a slide into second base, an outfielder crashing into the wall that you just heard. At least that's what the ESPN and Fox Sports mixers want you to think.

Flash back to the way Major League Baseball sounded 20 years ago. Back then, Brian Shannon, who now handles mixing for ESPN's *Sunday Night Baseball* broadcast, was working in a truck with a 16-input console and had plenty of empty channels left. "Now, I've got 60 inputs, and I'm trying to figure Fout where I'm going to put this, that and the other," says Shannon. He's seen the evolution first hand. From the shotgun mics behind home plate to mics on cameras to static effects mics on the first base side of the infield to the setup he uses today, which includes 25 effects mics.

Jerry Steinberg, Fox Sports VP of technical operations, is still amazed by the innovations that have come around just since Fox started broadcasting baseball in 1996. "Listen, when we got the contract five years ago, if I had told people we were going to mic some coaches and managers, we were going to put mics in the bases and on the outfield walls, they would have called 911 and carted me off to Bellevue," he says with a laugh.

Fox Sports mixer Peteris Saltans faces the challenge of corralling sound from 31 on-field microphones (and twice that number during the postseason) that are scattered around the outfield, infield bases, behind the plate and on foul poles. "We're trying to put the viewer closer," says Saltans. "We've put microphones everywhere. We've even put up gimmick mics that cater to each stadium specifically. Like in Cleveland, they have this big drum out in left field, so you see it but you don't hear it. We put an RF mic out there to enhance the actual picture." Fox Sports has also placed microphones on peanut vendors, ball boys, fans and celebrities.

The Fox broadcast philosophy is simple: If you can see it, then you want to hear it. "That's why we put so many microphones out there, to capture as much as we can," explains Saltans. "Eventually, something is going to hit near a microphone. Sometimes, the philosophy of less is more may not work in this application. You've got to go with the odds."

ESPN, which has been broadcasting Major League Baseball for 12 years, is just as aggressive in finding new and innovative places to drop microphones. It was ESPN that convinced Major League Baseball it would be a nifty idea to put microphones in the bases. At the beginning of the season, the ESPN team

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receives three sets of bases, and Shannon modifies them with Sennheiser MKE-2 lavalier microphones and Sennheiser SK-250 miniature, tunable bodypack transmitters. The bases go with the ESPN crew wherever they travel. "Those provide us with some great replay action or even some live action if somebody is stealing second base and sliding in," says Wendell Grigely, director of remote operations for ESPN. "It gives a little bit of an extra feel, and it's an added attraction."

Tim Scanlan, ESPN's coordinating producer for remote baseball productions, thinks the base mics are a bonus for a simple reason. "People have [called] baseball

Tim Scanlan, ESPN coordinating producer

a slow-moving game, but when you actually hear them turning second and going to third, it takes a very exciting game and lifts it," he says.

The Fox Sports team also uses Sennheiser MKE-2 microphones and SK-250 transmitters in the bases. The MKE-2s also get work in the outfield, because the ESPN team places them in Crystal Partners Big Ear parabolic dishes and locates them in right, center and left-center fields. "Exactly where they go depends on what you have for a stadium," Grigely points out. Most of the time, the parabolics are manned so the microphone can move with the action. The exception is the Green Monster at Fenway Park in Boston. "You can't put a guy on top of that with a parabolic," Grigely admits with a laugh. "So, we will place a mic probably in two separate locations on the Green Monster. If a ball happens to hit off the scoreboard, it resonates a little bit out there, too." Typically, he explains, mics are placed off the foul pole and on the center field side of the Green Monster.

Fox Baseball will run between 12 and 16 microphones throughout the outfield, ranging from Sennheiser MKH-416 shotgun microphones to DPA 4061s with Crystal Partners Big Ear parabolic microphones to Crown Audio PCC160 plate microphones. "We'll probably put a shotgun on the foul pole," explains Saltans. "We may even augment that with a contact microphone on the actual foul pole to get a real good gong if that ball hits the foul pole. It's pretty shattering." Outfield mic placement is geared to suit each stadium, he adds. "Some stadiums may have better places to mount a PCC microphone vs. a parabolic, or there might be Plexiglas out in the outfield that we might put a PCC on there as well to capture a ball hitting into the glass or a player making a jump into the padding."

Fox also puts two PCC160 microphones at the tarps in foul territory to capture game sounds. "A lot of times, a ball gets hit into a foul area, and you get fans who are reaching over for a ball and there's a player trying to catch a ball," Saltans says. "The fans love it, and it gives the viewers the sensation of being there."

In addition to the base microphones, both ESPN and Fox have manned parabolic microphones at first base and third base. The goal there is to catch pick-off throws, foul-territory plays and even shallow outfield action. Each of the sound teams recently put microphones in the bullpens in order to pick up the catcher and pitcher mitt pops.

The microphones scattered around the infield and outfield are crucial for capturing game sounds, but home plate is the main attraction. "I like hearing the crack of the bat and mitt sounds, and any reaction going on around home plate," says Saltans. ESPN's Shannon agrees. "I like a good, solid bat crack," he says. "That's a good basis to tell where the ball is going to go, how hard he hit the ball. It's a great start to a sequence of events, if you get an idea of how hard that ball was smacked or you can hear the difference between a hit and a broken bat. There's subtle differences to everything."

ESPN's approach is similar to Fox Sports': two parabolics behind the plate set at 45° angles to left and right, and a third parabolic set up straight behind the umpire. ESPN again turns to the MKE-2s, though they are wired. Fox uses DPA 4061s with Crystal Partners Big Ear parabs. "I can capture all the bat sounds and the throw backs to the pitcher with a center parab right behind home plate, and the other two parabs are somewhere left and

right of home plate, depending on stadium and placement," Saltans says.

Shannon also uses a stereo Crown SASS-P for general crowd sounds. Saltans uses the PCC160 and a Sennheiser 416.

Where do all these mic inputs go? The chief mixers' job is made easier by a submix engineer, typically situated next to the broadcast booth. Alex Gavula, who handles the submix responsibilities at ESPN, takes care of the field effects with a Yamaha 01V digital 16-input board. More than anything, Gavula works as Shannon's on-field eyes. "He's as big a part of this as I am," Shannon says. "We keep an open channel between us, so we're talking back and forth between the entire game. He'll spot for me; because he's got that position upstairs, he can really see where the ball is going, so he can get to those particular microphones."

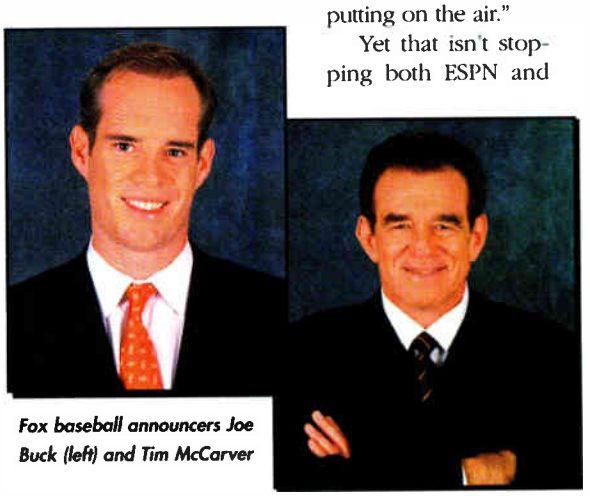
Gavula sends two mix components, one from the outfield and one from the infield, to the truck where Shannon is stationed. "I treat those pretty much as two inputs, so I'll open them when I need them or I'll keep them cracked when I need them," Shannon explains. "He handles the mix on them." It's a team project for sure. "Absolutely," Shannon says. "There's four of us on the crew, including the two audio assistants who do all the work on the field. It's really a group effort. When I started out in 1980, it was just me—boy, do I appreciate the help now!"

Saltans relies on Joe Carpenter, who uses a Mackie 1604 VLZ for submixing the outfield and infield microphones. Much like Gavula, Carpenter serves as Saltans' eyes in the stadium. "If the director takes the picture of the ball going into the foul area, and if he's ready with one of those tarp mics, he's right on it. Or if there's a fly ball in the outfield, he's able to see the trajectory of the ball going to a certain point of the outfield," Saltans says. "If he has a microphone in that area, he will be ready to open that up or supplement another microphone in that area to capture the sound of that player catching the ball or running into the padding." In addition to Carpenter, Saltans' crew includes technical producer Dave Hill and three audio assistants.

As for his own board, Saltans uses a SSL 8000 Series GB. The board's recall feature comes in handy when they return to a park, because much time is spent programming the board during the first broadcast. "A lot of time is saved when you come back to that particular venue and your whole console set up is stored and ready to go," says Saltans. "I still have all my EQ settings; all my aux feeds are left intact from the previous show. From that aspect, it's been great, and the sound quality has been amazing. The flexibility of having a digital console is amazing."

Shannon relies on a Calrec Q2 analog console, though he's curious about the new digital boards on the market. "It's like a guy buying a car and picking between Ford and Chrysler," he explains. "They're both great pieces of equipment, it just happens what you're most comfortable with. I've mixed on both of them. I'm happiest with what I have now."

Thanks to his experience in just about every Major League ballpark and his habit of watching broadcasts from around the League, Shannon has a good idea of how his show should sound. As for specific EQ settings, he'll sit down during batting practice and twist knobs until he finds what he likes. "I tend to try to accentuate some of the high end," he reports. "A lot of times in humid air, especially during the summer, you can get the actual sound of the ball coming through the air. I'm not sure it translates across the satellite into your home, but I can sure hear it in the truck at times. It's almost the right combination of moon, sun, stars, tides. If the guy is throwing heat, a good 97-mile-an-hour fastball, you'll start hearing it."



Fox baseball announcers Joe Buck (left) and Tim McCarver

Saltans uses EQ sparingly to eliminate some crowd and wind noise. "Sometimes you want to boost some things on-the-fly, because when you're doing something live, you don't have the option of moving the microphone to the right place," he says.

Fox has been broadcasting in surround since the first season of Fox Sports broadcasting the NFL in 1994. ESPN has remained in stereo. "I think the fans demand [surround] now with the amount of home theater systems that are sold throughout the country," Saltans says. "Why not deliver that with television?"

The ESPN crew isn't so sure, though they've been discussing the surround possibility. "I think it's been talked about with the whole digital convergence and whether or not we're at a point where we should do surround," Grigely says. "So it has been talked about, but we haven't gotten into it. What we've found is that in nine times out of 10, people at home were probably listening to the stuff in mono. Our stereo setup is a good one."

Not all of the networks' sonic advances have worked out great, however. For example, none of those involved is completely sold on the idea of putting microphones on managers or coaches. "The goal there is to bring strategy and insight to the telecast, and I think there's a reticence by a lot of the managers to wear that or [if they do] to say anything meaningful," says ESPN's Scanlan. "Sometimes, you have a coach wearing a microphone and you're just not getting much enhancement—they're just not saying anything that's worth putting on the air."

Yet that isn't stopping both ESPN and Fox on pushing for umpire microphones and even players wearing microphones during a game. "Placing mics on the players would be amazing," says Saltans. "That way, you could bring the sound and the intimacy of the game right there."

Currently, players are wearing lav mics during batting practice, and Scanlan thinks that brings an interesting angle to the broadcast. "It brings some of what happens around the game to life, and [you can] hear the communication and camaraderie before a game," he says. "The next step is in-game. We have managers and coaches miked during the game. We feel like that is only going to go forward." He thinks that miking players may begin within five years.

Grigely admits that not a lot of people are ready for the umpire mics, but he is optimistic. "I wouldn't say never, but right now there are some issues the umpires have, and rightfully so," he says. "In other sports, there have been issues, too. In the NHL, we gave them on/off switches. One step at a time." ■

David John Farinella is a San Francisco Bay Area-based freelance writer and a frequent contributor to Mix.

Billy Bob Thornton

Filmmaker, Recording Artist

PHOTO: KAREN WILL ROGERS PHOTOGRAPHY

By Rick Clark

A critically acclaimed actor, screenwriter and director, Billy Bob Thornton is one of Hollywood's most unique and engaging talents. Thornton has acted in numerous films that range from big-budget blockbusters to smaller independents; his acting credits include *A Simple Plan*, *Primary Colors*, *Dead Man*, *Indecent Proposal*, *One False Move*, *Pushing Tin*, *Armageddon*, and Robert Duvall's personal triumph, *The Apostle*.

Thornton's best known work, however, is still his masterful 1996 indie release *Sling Blade*, in which he wrote, directed and starred. *Sling Blade* earned Thornton the Best Adapted Screenplay Oscar, as well as a Best Actor nomination.

This past year, Thornton directed a film adaptation of Cormac McCarthy's National Book Award-winning novel *All the Pretty Horses*, which earned him praise for his directorial instincts and the film's portrayal of McCarthy's subtly complex novel.

Thornton's other screenplay credits include *One False Move*, *Don't Look Back*, *A Family Thing* and, most recently, *Daddy and Them*, in which, like *Sling Blade*, Thornton also directed and starred. *Daddy and Them* is due out this fall through Miramax, and like Thornton's best work, it richly depicts Southern characters with believable dimensionality.

This fall, Thornton will also release his debut effort as a recording artist. The album *Private Radio* draws from the same Southern culture that informs his best cinematic work. It might surprise many to learn that before making a name for himself in Hollywood, Thornton spent many years writing and performing music in the South. *Private Radio* ranges musically from traditional country to blues and R&B-influenced Americana. In addition to a number of original songs, Thornton performs strong versions of The Byrds' "He Was a Friend Of Mine" and Hank Williams' "Lost Highway."

In the following interview, Thornton discusses his recording work, shares his thoughts on music in film, and tells some great stories along the way.

You're working on a couple of films in Louisiana. How are things going?

I'm doing fine, but I'm working 18 hours a day. About two weeks ago, my allergies had me down and I got something that felt like the flu. The people around here just told me to take some local honey, which is loaded with the pollen from the area and it creates an immunity. I did it, and it worked. These Cajuns got some Mojo don't they?

The film I'm working on right now is called *Behind The Sun*. I play a Louisiana cop who is investigating the murder of a transsexual. He is not exactly open to the idea of transsexuals, but it is the story of his journey through learning he's a human being and that everybody is. The movie stars Patricia Arquette and myself.

Last night, I did some scenes with some transvestites in a club. It was pretty wild. One of them came up to me and asked, "Do I look better than the rest of the girls?" I said, "Well I don't know. I might not be the right guy to ask. But as far as I can tell, I think you are." [Laughs]

I'm doing another film here in Louisiana, after this one, called *The Monster's Ball*. In it, I play an executioner in Angola penitentiary. That is really heavy. In fact, it may be the heav-

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iest script I have ever read.

Angola doesn't look like a prison to me. There are all these crops in the fields, and it is a beautiful place, yet there are these cellblocks, which is a very odd thing. It was such a weird place. We were working on death row, so that can put you in a pretty dark mood.

Normally, you get maybe one script a year that you really get excited about. I was fortunate enough, for the last year or so, to be able to do movies with really great scripts. There are three movies coming out right in a row in September, October and November. On September 21 is *Waking Up In Reno*, and October 12 is *Bandits*, which Bruce Willis and Cate Blanchet and I did for Barry Levinson. Then November 9 is the Coen Brothers' movie [*The Man From Nowhere*]. So it is going to be a busy fall.

As if that hasn't been enough activity, you've just released your debut album, Private Radio, ***on Lost Highway Records.***

We wanted the first record to be like *Sling Blade* was, which was my first movie as a director. What turned out was really what is me. We didn't do a whole lot of monkey business on this album. I don't have any guest stars. It's basically Marty Stuart's band and Barry Beckett and me.

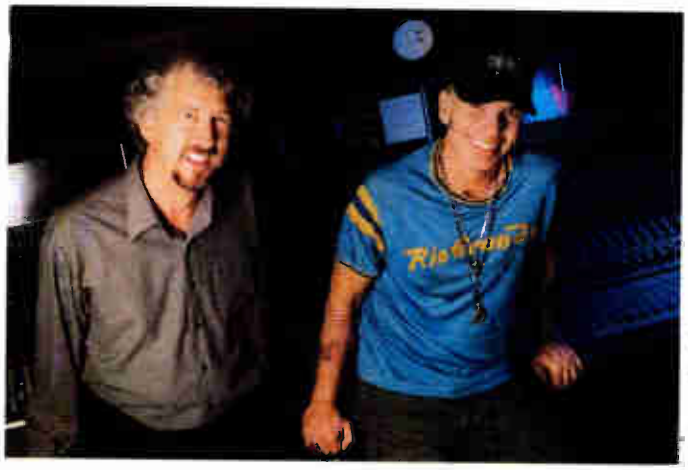


PHOTO KAREN WILL ROGERS PHOTOGRAPHY

Thornton (right) with Mix interviewer Rick Clark.

For most of the songs on the album, Marty and I first laid down the tracks with me singing and him on the acoustic guitar, and then he added the bass and I would play the drums. Then the band would come in and they would have to play to that. Most of it worked out. We have two songs on the record where we ended up keeping the tracks that Marty and I first laid down, because we just couldn't beat the original feel of those first demo tracks.

I thought about playing acoustic guitar on one of the songs, but I didn't. I'm one of those guys who can start every Neil Young song. I can't necessarily finish them, but I can start all of them. [Laughs]

I understand that you recorded the entire album in your home studio. The previous owner of your house was Slash of Guns N' Roses, and your studio was once known as Slash's Snake Pit.

Yeah. In fact, Jim Mitchell, who engineered and mixed my album, toured with and worked on Guns N' Roses' records and did Slash's record. Jim is the guy who designed our studio. One of the best things we inherited with the house was

him, when we bought the house from Slash. Angie and I only looked at one house, and we said, "Let's buy this one!" It had a recording studio in the basement and a kitchen by the bedroom. We thought, "Shit, what else do you need?"

I'm telling you, I'm so in love with our place and it is where I want to always record. We found that when we tried to go to other places and studios, at the end of the day, the home studio was where our sound was born, and it is the best sound. We mixed at A&M, but three of the songs were mixed at our place, because we could never beat the mix that we got there. Those songs were "Private Radio," "He Was a Friend of Mine" and "Lost Highway."

On "Lost Highway," which originally was a Hank Williams song, we were fortunate to have Don Helms come play steel guitar. Don is the only surviving member of Hank Williams' band, and he played steel guitar with him back then. He hasn't had his guitar out since he played all those gigs with Hank Williams in the '40s and '50s. He brought it out from under his bed to do our record. When the steel comes in, it is like a ghost is in the room, because it is so familiar. It sounds so much like something from a Hank Williams record that it is insane.

I have one spoken word thing on my album called "Beauty at the Back Door." It is something that Marty and I did at my house one night. Marty told me, "Talk to me about that house you grew up in that was out in the country in Alpine [Arkansas]." Marty started playing this acoustic guitar, and I started talking about the South. The story that came out was totally ad-libbed, and what is on the record is exactly what we did in one take.

What was it like working with Marty Stuart as a producer for your album?

I sound a certain way and write certain kinds of songs and have my own thing. Marty Stuart knows what that is, and he knows when I get outside of that. He helped me stay true to myself all the time, which I will never forget him for. If I started wanting to be slicker, or if I got lazy or thought I couldn't do something, Marty knew and kept me being real, which is what a good director does in a movie. Essentially, the producer on a record is like a director on a movie.

We got Joe Gastwirt to master this record, and he did a great job. He did the Grateful Dead stuff like *American Beauty* and the first Garcia solo record, which is one of my favorite records. I'm really hoping that I can find a way to have a vinyl version of my record released. I really love the sound of records.

One thing I can say about this record is that it's me. It is exactly what I did. I don't listen to these songs and go, "Damn, I wish I had just done this or that. It is, for better or worse, what I did and what I wanted and that is the key to all of this stuff. I mean, people don't take paintings and send them around to different cities and see if people want to rearrange the ears on a portrait and shit.

You mean like they do in the film industry?

Test audiences are actually controlling what we see and what we hear. If you are going to let the audience tell you what they want, before you put it out, then what is the point of any of it? I thought the point was the mystery of going out and picking up that new record and going to see that new movie that is out and having your own opinion when you see it with an audience or hear it in your car with a buddy. I think it is ruining any artistic endeavor these days, because [art] is being test-marketed like toothpaste.

One component that I find consistent in movies like Sling Blade ***and*** All the Pretty Horses ***is the almost anti-MTV approach of shooting scenes and taking your time with them. I get a sense that the spirit behind the movie's creation is one that trusts the viewer's ability to flow with a scene and be in the scene for however long it takes for things to unfold.***

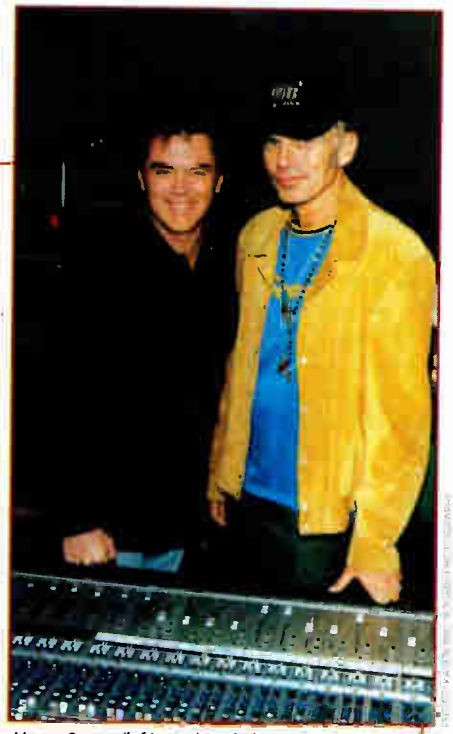
You let it play out like real life. That is the thing they don't want. For all the things they tried to do to *All the Pretty Horses*, the one thing they couldn't do is change that quality. They could cut it to five minutes, but those five minutes would be the way we did it.

You're currently working on a second album, which is a cover album of sorts.

Yeah. We're doing versions of "We Have All the Time in the World" by Louis Armstrong, "Can't Get Used to Losing You" by Andy Williams, Fred Neil's "Everybody's Talkin'," as well as Classics IV's "Spooky" and Paul Revere & The Raiders' "Kicks." We cut "Kicks" almost like the original record. We also did "Young Girl," that song that was done by Gary Puckett and the Union Gap. When we were young, we used to play that music for girls and stuff. We always kept Bread and Gary Puckett handy, in the car.

You recently cut a version of "Ring of Fire" on Earl Scruggs' new album. How did that come about?

I was in Nashville recording some tracks over at Ocean Way, and Randy and Gary Scruggs would come around to say "Hello." They told me that Earl and Louise [Scruggs] were big *Sling Blade* fans. One night, I played Earl and Louise "I Still Miss Someone," which I had originally cut for my record, and Earl just loved it. Then Randy called me and said, "My Dad wants to know if you will be on his record. He went ape over your voice, and he wants you to do a Johnny Cash song. He wants to know if you will do 'I Walk the Line' or 'Ring of Fire.'" I called Marty up and said, "Earl wants me to be on his record. What would you do, 'Ring of Fire' or 'I Walk the Line?'" Marty said, "'Ring of Fire.'" I said, "Why is that?" He said, "I don't even think



Marty Stuart (left) produced Thornton's upcoming CD **Private Radio.**

MARTY STUART'S BILLY BOB PONDERINGS

The genesis of Marty Stuart's involvement with Billy Bob Thornton's *Private Radio* came during the spring of 2000, when Thornton showed up at Ocean Way Nashville to cut some cover songs with some old playing buddies. Stuart (an established artist, songwriter and multi-instrumentalist with a catalog of hit country records) initially wondered if Thornton had the goods to be a recording artist. It didn't take long for Stuart to see that Thornton shared the same kind of Renaissance mentality toward art, and that any medium was fair game for expression.

"When he came into Nashville last spring to do some recording, I had no idea what he had up his sleeve," Stuart says. "Even if he had anything, I didn't know if he was just having fun or if he was serious about it. He came in and did a bunch of cover songs with some friends from Arkansas, and I called a couple of guys to help out on the sessions. I actually played bass on those sessions.

"At the end, I didn't really think that much about it, but the thing that I saw in those sessions was how much he loved music. So out of that alone, he got my respect. I remember he came up to me and asked, 'What do you think?' And I said, 'Are you driving back to California?' and he said, 'Yeah.' I said, 'Why don't you call me when you get back to California and tell me what you think, and we'll go from there.'

"I personally thought that the problem that he had standing before him was that there was a lot of love and passion that was a little bit unformed and undefined," Stuart continues. "And, as most actors do, when they do a project, no matter how legitimate it is, it's written off as a vanity project—yet another actor or actress stepping up to the microphone. I call it the 'William Shatner Hurdle.'

"But I kept thinking about *Sling Blade* and his writing, and I went out to California and took a guitar and said, 'We're going to get into the basement of your studio, and we're going to find out what's there.'

"We picked around the first night, and at the end of the night I said, 'Turn the lights off...take me somewhere...tell me a story.' I started playing guitar chords, and he came up with this almost 11-minute spoken-word piece called 'Beauty at the Backdoor.' [It was] just me playing chords and him telling a story. He didn't miss a word. I knew at the end of that there was something to work with, and it was valid, and it was legitimate. It was pure Southern literature. It came from his gut and his heart, and I found the door to his soul. I thought this is the 'getting on' place. From that moment on, I knew that I absolutely had a real project on my hands.

"The thing that I found out last year, when he was in Nashville recording, and he brought his buddies in from Arkansas who he used to play with, is that they basically got starved out, and it didn't happen [for them years earlier]. So Billy Bob had to go become an actor and come back 20 years later to support his band habit. He had brought his old buddies back with him, and I thought to myself, 'He's still true to the band. I love that, you know.'

"Jim Mitchell engineered and mixed the project. When I first shook hands with Jim—without even knowing him three minutes in—I told Billy Bob, 'Hire this man, and as long as you live never let him out of your sight.' This was last August. Since then, I've scored *All the Pretty Horses* and *Waking Up in Reno*. I've done two projects for Billy Bob, produced those and I wouldn't think about going to the studio without Jim Mitchell anymore.

"The next record is the covers record. We've already tracked it, and it's just a matter of putting strings on it now. It's a perfect reflection of Billy Bob. It's just how across-the-board his tastes are.

"The thing that I walk away from this first record with is, it didn't exactly let you stand still and let you get comfortable with it. It kind of moves around, but I thought so does he. It's like a 55-minute visit with Billy Bob. That's what records are supposed to be."

—Rick Clark

Cash can sing 'I Walk the Line' anymore." [Laughs] So we did it.

There is nothing on my record that is as country as the banjo is on "Ring of Fire," and there is nothing on that record that is as hip-hop as the beat that Randy laid down on the track. "Ring of Fire" would've fit on my record. You could've put it on my record, and it wouldn't of been a surprise or a shock at all. It's a cool track.

Who first encouraged your love for music?

I was raised around it. My uncle, who was my mother's brother, was a country musician. He was kind of an alcoholic carpenter who had a voice like Jim Reeves and played guitar like Chet Atkins. He was just one of those guys who everybody loved, but he just couldn't get his life together. I actually wrote a movie about him called *The Sounds of Country*. It's been finished for years, and I've been saving it until I know that I can do it without anyone messing with it.

Anyway, my mother had always been such a music fan and she had one of these old record players—the kind that you put the arm on the records and the records drop down on the platter and it would shut off when it was done. She would go to sleep every night to certain records. Elvis' *King Creole* was one of them. I grew up listening to Elvis, Ray Price, Jim Reeves and Patsy Cline.

She told me that my first two words were "Elvis" and "funnel," because we had a lot of tornados where we lived in Arkansas. It seems that I spent half my childhood in a storm cellar. When a tornado came, the adults were scared shitless and they were trying to protect the kids, but for us, the storm cellar was full of preserves and shit like that; it was like an adventure. We were down there in the hole and the tornado would be outside.

Before your film career took off, did you have designs to do music?

Well, yeah. The acting thing didn't come along until later on. I was an actor in drama school—in high school and all of that kind of thing. I was also kind of a smart-ass in school, so I guess I was destined to be an actor. Originally, my dream was to be either a musician or a baseball player.

My first band was called The McCoveys. We named ourselves after Willie McCovey, the San Francisco Giants baseball player. We played a lot of Dave Clark Five songs. Later on, we played a lot of songs by Tommy James & The Shondells, too. You know, stuff like "Hanky Panky" and "Crystal Blue Persuasion."

The first song I ever played live in front of a big audience was for a PTA meeting at my elementary school. We played "The Ballad of the Green Beret" by Sergeant Barry Sadler. We didn't have a microphone or anything like that. We just did instrumentals at that time, because we hadn't worked on our singing yet. We just played the music to "The Ballad of the Green Beret." Of course, the words to the song were the whole point. Without the words, it was nothing. [Laughs] I played drums in the very first group I was in. We had two guys on guitar who both played Silvertone guitars and there was no bass player.

"I Want To Hold Your Hand" was the first record I actually bought for myself. I'll never forget watching The Beatles on Ed Sullivan the first time. It was astounding. I thought The Beatles' drummer was named Ludwig, because it said Ludwig on his bass drum head. So I called Ringo Ludwig for the first few days. Then I started hearing them called John, Paul, George and Ringo. [Laughs] Isn't that weird that I thought he was named Ludwig?

When I was in elementary school—like around 11 or 12—I found a Mothers of Invention album in a record store. I didn't even know what that was, but their early stuff became some of my all-time favorite music. I thought, "Hey that looks kind of weird. I'm going to buy that." So I started listening to the Mothers and Captain Beefheart and the Bonzo Dog Band and all that stuff.

The Mothers' *Burnt Weeny Sandwich* is one of my all time favorite records. I wrote *Sling Blade* listening to that. I always tell people that I grew up the way I did, because I grew up listening to Jim Reeves, Hank Williams, the Mothers of Invention and Captain Beefheart. [Laughs]

In Thornton's Cave, engineer Jim Mitchell (left) and producer Marty Stuart at the Trident 80-B console. In the rear are Thornton (on the carpet) and, L to R, keyboardist Barry Beckett, bass player Steve Arnold, drummer Gregg Stocki and guitarist Brad Davis.

So, you know...that doesn't make for a real stable child.

What is your required listening on the road?

I also always take like a greatest hits or anthology on Merle Haggard and George Jones. I always take *Burnt Weeny Sandwich* and Captain Beefheart's *Trout Mask Replica*. I always take that, and *The Allman Brothers at The Fillmore East*.

A classic. I loved "Hot 'Lanta."

Oh buddy! I was once in a soul group called Hot 'Lanta. It wasn't like any of us were from Atlanta. We didn't even play the song. We just called the band that.

The first time I heard the Allman Brothers, I thought, "This will be my favorite music forever. There is no way around it." Some spirit speaks through those guys. I never considered that the Allman Brothers were Southern rock. I considered them something just supernatural. They always will be to me.

The first song that Greg Allman wrote and brought to the Allman Brothers was "Dreams." Now how do you write that when you are 21 or 19 or whatever he was, unless you've lived already. There is no

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John Prine, Dwight Yoakam and Marty Stuart and those guys don't do what they do unless something is speaking through them. I know these guys! They are not just sitting around thinking of clever stuff. We are just a bunch of assholes sitting around doing our thing. We are just a bunch of damn guys. I used to shovel asphalt for the highway department and work in a sawmill in Arkansas. Anytime someone asks, "Where did *Sling Blade* come from?" Shit! I don't know! I was born with it! You know?

When I was a teenager, there was a guy named Uncle Bill, in Lloyd, Florida, where I spent a summer. He would sweep trees in the neighborhood and bury insects out in the middle of the county highway. Uncle Bill was an older man who was an innocent, whose brain had been damaged from a severe fever as a child.

Growing up, there was always some guy in every little town who was walking around town like that. Carl [the main character of *Sling Blade*] is a combination of two or three people that I knew. When I was growing up, we had a guy who was a shell-shocked veteran, and he used to go around knocking on telephone poles, because he thought there might be a bomb in them. There was another guy where I was raised as a little kid, living out in the woods with my Grandmother, whose family actually made him stay out back in a little shed and fed him out there and stuff like that. They used to say he was afflicted, and some of the stories were that when his mother was pregnant with him, she saw a snake and it scared her, and he turned out that way. Another story was that they were drunk when she conceived him. What it really was, was that he had polio. So it was just bits and pieces of things I knew in my life.

Thinking of* Sling Blade, *I always loved the band practice scene. It's such a dysfunctional pack of guys.

All musicians love that scene! I distinctly remember a time, when I was a teenager, when guys put together bands named after stuff in the Bible. At one point back then, we were going to call ourselves Ecclesiastes. That was when we added a couple of keyboard players. [Laughs]

What are your feelings about the role of music in film?

Music is vastly important in movies. Sometimes there is the emotion of what is going on in the scene, and you have no music, and that emotion would be there [anyway]. If you are going to add music, the key is that it should support the emotion that you are already feeling. When you get music that has to point out to people what the emotion is supposed to be, then you are screwed up. That is the bad stuff. Music shouldn't be pointing out anything. It should be what the thing is.

Some directors really go for this bombastic music, and it is so ridiculous. Music is so important, and that is why I have Marty [Stuart] do the music for my recent stuff and Daniel Lanois for *Sling Blade*. Daniel Lanios' score on *Sling Blade* works extremely well. I also like Marty's score for *Daddy and Them*. They know what the deal is. It has to be one thing, and that is a marriage and harmony between music and a movie.

One thing that I find very frustrating and compromising to the integrity of a film, concerns the loading up of trendy hit acts onto a soundtrack. It is reducing music to merely another form of product placement.

The movie business and the music business all sucks, you know? Nowadays, they all want to get 14 songs by whoever the latest acts are. They only want to get whoever is popular to do it. They are only after making a soundtrack album that is going to make money on its own, but what happens is that it is no longer there to serve the vision of the movie and to be a bed for the movie to lay on.

What would you regard as a score or piece of cinematic music that you felt really affected you positively?

The Ken Burns documentary on the Civil War. That music was very moving, and the music was exactly about the tone of the film. Ken Burns sat there with these people and practically conducted them through the movie. As long as there is a pure vision involved, that is the stuff that I like. Anywhere that happens, that is great.

There is a movie that I was in that Jim Jarmusch did called *Dead Man*. Neil Young came in and played the guitar while he watched the movie, and it was wonderful. As a matter of fact, there is a 10-minute scene in the movie that Iggy Pop, Gary Farmer and I were in that is on the soundtrack...Neil's music, the dialog and all. It was really wonderful.

What other areas of show business would you like to explore?

Tap dancing.

Working in the music and film industry, I would imagine you've already learned a lot about tap dancing.

No shit! But I want to learn the kind where you actually move your feet not your ass. ■

Rick Clark is a contributing editor to Mix *and producer of the award-winning* Oxford American *CD collections.*

If you are going to add music, the key is that it should support the emotion that you are already feeling. When you get music that has to point out to people what the emotion is supposed to be, then you are screwed up.

Jim Mitchell on Billy Bob Thornton's Cave

Before Jim Mitchell worked with Billy Bob Thornton, his engineering work included the Guns N' Roses albums, as well as Slash's Snake Pit. When Thornton purchased Slash's studio, Mitchell (who was essentially running the home facility) stayed on to help fine-tune the room, engineer and help equip it with all sorts of instruments and new and classic gear. Mitchell states that the facility is "actually a mini version of A&M Studio B." The approximately 1,500-square-foot studio is outfitted with five iso booths and a great collection of vintage guitar, amps, drums and keyboards. The control room has the latest RADAR system and a Trident 80-B console. There is a full complement of mics (Neumann, AKG, Shure, etc.) and mic pre's (Neve, API, Trident, Avalon). —*Rick Clark*

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Daytime Drama

Live Scoring for *General Hospital*

Luke and Laura Spencer, daytime's premier super-couple.

By Robyn Flans

A tormented Sonny Corinthos laments his wife's betrayal at the same time as he imagines her enticing figure on their staircase, accompanied by the strains of Sarah McLachlan's haunting "Ice." Cut to the underbelly of *General Hospital*, where a menacing-sounding score dramatizes a shot of a villain who has been frozen in ice, awaiting his "re-birth" for 20 years. Later, Maureen McGovern's "Where Do You Start" underscores a bittersweet scene as Luke and Laura—the couple whose union enthralled America's TV viewers in the '70s—anticipate the signing of their divorce papers.

Those are just a few musical examples from between 25 and 35 scenes that are shot each day for the ABC-TV soap opera *General Hospital*—five days a week. Layered within each scene is an immense amount of dialog and numerous sound effects, including anything from birds singing, telephones ringing, and wind and rain, to gunshots and fiery explosions. The number of sound cues in each hour-long episode of *GH* is comparable to what you'd find in an hour-long show for a primetime drama series, each episode of which may take a week to film. Although some parts of the process for *GH* is similar to what's done for a nighttime show, the amount of work required to pull off a daily show is considerably greater, and that goes for every participant—from actors to hair and make-up artists, to those responsible for the sound. In general, the pay is less than in the nighttime world, but there is consistent work all year long for those willing to dive into the demanding schedule of a daytime series.

Aside from a week off at Christmas, *General Hospital* is bustling all year, and all of the audio is done live on the set. At least for now. There has been talk of going to post scoring, which is how many of the other soap operas are already working, but there are, naturally, pros and cons to both methods. Elyse Pecora, *GH* mixer for the past three years, notes that, although there is something to be said for everyone hearing the sound cues live as the show is shot, the process can be very stressful.

"Generally, audio is sweetened when it goes to post, but this show is not," Pecora explains. "So whatever I give them goes to air. Sweetening usually balances out the levels and corrects mistakes if need be, but I have to give them the best performance I can while we're taping. From time to time, they'll change music or sound effects, but not on a regular basis, and any dialog I give them is what you hear on air. If I make a mistake, the production is not going to wait for me."

Sitting in a sound room behind the control room, Pecora is in charge of the dialog first, then mixing the total sound from the stage, and establishing the overall relationship between dialog, sound effects and music.

"I get in at 7:30 in the morning," Pecora says. "My maintenance engineer has put tone online for me. It is a 1kHz tone that's generated so that videotape knows I am sending them a consistent level of audio." Pecora sends four channels—one for dialog, one for sound effects and two for music, stereo left and right. "I separate each channel and make sure that what they're seeing as channel 1 is what I'm sending as channel 1. After they've recorded it, they play it back for me, and I listen to the tone and make sure it's laid down on videotape the way I've sent it. If it hasn't been, when they go to edit the show, something will be wrong with the audio. There's usually no problem with that. Then I load my program for the show and we get going. We rehearse and then tape each scene, and I have a list that tells me where in the script what we're doing, and what set it's in, and what actors are in it, and I can go out there and see what configuration I need."

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There are three booms onstage and two to three boom operators. "I also have fishpole RF mics, which are wireless if I need to hide them in a small set that won't fit a boom," adds Pecora.

However, when a director has blocked a scene with too many people walking in too many different directions, picking up sound can be a problem. "I either have to bring a third boom in or ask the director to change the blocking a little, or perhaps bring the wireless microphones in to put on under their clothes so we can get their voices on tape," says Pecora. "For the most part, the directors know if they're going to have a lot of people walking through a scene. They have to make one person walk past the next person who is going to talk, so the boom can follow the flow of who is talking next."

Pecora adds that she often has to "direct" the boom operators, who must work without a script. "Other shows have a script stand for boom operators so they can see what dialog is coming up next. Instead, I have to cue them," she says. Pecora communicates with the stage via the P.A. and a footpedal, allowing her to talk directly to the director and assistant director in the booth.

This year, the *GH* production purchased a new StageTec Cantus digital mixing board, the first in the United States, according to Pecora. "It's fiber-optic, in and out," Pecora explains. "We took a chance because it seemed to be more advanced than any of the other digital boards available to us. This board is so crisp, I can hear everything onstage, like the air conditioning and background noise. Now I can take that out. The average viewer might not notice the difference, but it's a much cleaner, crisper sound. It was a leap of faith because nobody else had it, but it's been nothing but fabulous for us.

"In the old analog world, I had patches, so I had to patch my sources together so I could send certain microphones to certain places. Everything is internal on this board—my equalization, all the processing. I have filters called telephone filters, so, if there is a two-way phone call, I can make it sound like the person on the other end is actually talking through the phone, and all of that is internal." Pecora also uses a Yamaha REV5 to add reverb, "the only thing that is not internal on this board," she notes. Pecora also praises the new console's equalization facilities and an associated visual display that allows her to "see" what she's doing to the signal. Other recent purchases include a Junger de-esser and a Roland FN-550 digital noise eliminator.

The occasional prerecording session is done in a small room called the announce booth. "I open the mic, and it sends it straight to the audio vault. Say someone is reading a book onscreen and we're hearing what they're reading in their head," she explains. "We'd prerecord that sound byte into the audio vault and then edit it however we needed to, then send it right back with a little echo on it so it sounds like we're hearing it in their head. We can do it all off the floor if we can get the floor quiet enough, but generally we do it in the announce booth so they can be blocking other scenes while we do that."

While Pecora is mixing, Sandra Masone is taking care of the sound effects—anything an actor isn't seen doing. Typical sound effects might include the sounds of dishes and glasses softly clinking at the Port Charles Grille, the daily hospital hubbub (which might include phones ringing, elevator rings and doctors' pages in the background). Of course, everything must be timed perfectly: The elevator ding must be heard just before the elevator doors open, while the doctors' pages must not get in the way of dialog.

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Then there are the special assignments. "Once we had an operation where they were drilling into a person's head, so I had props buy me a watermelon, a coconut and a cantaloupe, and I went to the maintenance department and got a drill," says Masone, who has been with the show for 23 years, the first 15 as a boom operator. "I came in early one day—I have a microphone in my room—and I turned my record machine on and drilled into all three and listened back to them. I realized the coconut sounded closest, so I had to slow the drill down a little, and I did it about three or four times until I got it how I wanted it."

Typically, Masone reads the script the day before shooting a scene and marks it up for the next day. "Most days are basic, but, for example, today I had somebody sitting outside in the rain," she recalls. "I like to mix my stuff so it sounds real. So instead of just giving them rain, I'll give them a few cars passing in the rain, then I'll put in two different types of rain [sounds]."

Masone also runs the audio vault, which contains a multitude of carts that were once used on the show. The effects stored on the carts have been transferred to digital files that are accessible via computer. Masone also has access to hundreds of sound effects CDs. To manipulate effects, Masone uses a 360 Systems short-cut personal audio editor and the Yamaha REV5 for editing.

Addressing the issue of live vs. post-production, Masone says, "A lot of the producers like it live, because they can hear exactly what the show is going to sound like, and if they don't like it, they'll change it right there.

"Management would love to do it in post-production, because they think they're going to save money. But once you take the sound effects out of the booth and put them in post, they still have to have a sound effects engineer go down there and put them in. That can be double the work, rather than the producer hearing the effects or music while it's happening, then maybe putting in one sound effect when they edit the show. Dialog and sound effects used to be on one track; now, they're totally separate, which makes it easier."

RC Cates has been the supervising music director for *General Hospital* for 11 years and its sister show, *Port Charles*, since its inception a couple of years ago. Cates is also a freelance composer and recently won a Daytime Emmy for his composition on *As the World Turns*. He says he anticipates that the *GH* production will eventually move to a Pro Tools system, and will mix sound effects and music in post-production, his own stated preference.

"The greatest pro to doing it live is the immediate feedback from the producers, and the ability to creatively see how the music is helping," notes Cates. "The greatest advantage to doing it in post is you can completely cut the music absolutely to picture. The difficulty of how we do things now is we have to make a decision on the spot, and if it doesn't work, we have to make a new decision on the spot for producers. We're doing a show a day, so on any given day, we have to be ready to roll music into anywhere between 18 and 30 scenes. You don't have all day to look at a scene to see what works."

Audio for General Hospital is handled by a veteran crew, including sound effects mixer Sandra Masone (left), supervising music director RC Cates (center) and mixer Elyse Pecora.

In addition to being the liaison between the show's composers and the producers, Cates is also responsible for selecting outside material, such as the popular songs often featured behind "love montages." "We read the scripts ahead of time and make our decisions about where we're going to put music and what it's going to be," he explains. Most of the music for the show is prerecorded and resides in an Avair digital audio multideck playback system connected directly to a custom-built AMX18 8-channel mixing board from Pacific Research Engineering. The PC-based system holds as many as 15 30-Gigabyte hard drives for a total of close to eight hours of music. "It's all categorized by characters or emotion," adds Cates. "I can do a search and type in 'danger' and get every single cue in our library, which might include 300 pieces of music."

Cates explains the process: "A lot of shows do audition music for the producers as the show is being taped, but it's not intended to go into the show as it's being played. It's just a reference for the producers to see what kinds of choices are being made. Then the music directors follow those shows into post, and completely post-score them and cut all the music exactly to picture."

Paul F. Antonelli, currently the music director for *Passions*, is another advocate of working in post-production. Antonelli, who has worked on *GH* at various times, as well as on *Santa Barbara*, *All My Children* and *Sunset Beach*, says he not only finds the process more rewarding, but also appreciates the difference in scheduling. "We're not at the mercy of the production schedule, so we're not affected if they are having technical problems and are down for two hours," Antonelli notes. "Also, if I want to, I can pull a late day today so tomorrow isn't so heavy. I can also come in at 3:00 a.m. if I have insomnia, since it's not about the 8:30 a.m. start tape day."

Antonelli's first experience working in post was on *All My Children*. "I was working under executive producer Francesca James, who had also come from *General Hospital*, so, initially, we were saying, 'Let's bring it back to the booth,'" Antonelli recalls. "Then we discovered we could actually finesse and tailor every cue and edit in the post process working with Pro Tools. I can't see doing it any other way at this point. I get to sit here, I have my 5,000-plus cues in my hard drive, and I get the final-edited version of the show—not mixed—and I can play with every scene. I can do all kinds of layering and be with it and not have to be rushed.

"Layering means using any more than one particular cue," he says. "Say you have a cue you're using, and all of a sudden another character walks into frame and you want to bring in a layer—it could be a low string, a low cello or whatever instrumentation is fitting. I like to have a library full of strings in every key and different accents—mallet rolls, cymbal crashes, bells, chimes and percussive accents that can be hit with a visual cue. If, all of a sudden, there's a cut to someone's reaction and you don't want to change the cue itself, but you want to accent that twinkle of an eye or the reveal of a razor blade, you can do that. When you're doing it live, you don't have that luxury."

Antonelli typically gets the show after the editing process has been completed,

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about two weeks prior to airdate. He further explains how his process works—how things might work if *GH* switches to a post-production-oriented system. "I have a G4 Macintosh and my database is on FileMaker Pro. We have a great engineer named Dan Bosworth who does the sound effects, and Walter New is the main mixer and music editor. [New] mixes the show on Pro Tools as well as doing the music editing, and when I get the tape, I have my template set up on FileMaker Pro. I go through and make the timecode notes of where I want the cues to go, how I want them backtimed, how far I want them to tail over, where the fades start and where all the layering goes. While I'm doing this in one room, Walter is in the next room doing his music mix. At the end of the day, Dan has the graveyard shift and effects the show. Then Walter and I will do the final mix. We're the last ones to see it with the producer."

Peter Fillmore, post-production editor at *GH*, says the addition of Pro Tools rooms could be an improvement, even though it could take some jobs away.

"We're looking for changes to speed up the process, not eliminate jobs," he explains. "If we can speed up the process, more quality content can go into the show. We saw that happen when we went from linear to nonlinear [video]. We lost all that mechanical clunkiness and got more into the creative content, which I think would happen with post scoring also.

"Currently, once the shows leave the Avid room, they're virtually done. I get the tapes and the script and the AD and I rough-assemble the show—all the audio—in the Avid. We combine all the isos and do what is called group clipping, and we edit that into a rough show. Then we go through the show and edit it, modify levels if the dialog is too low or the effects are too hot, or if they're not the right effects, we strip them and put new ones in, and we work our way through the show. All the audio is done in the offline process with the exception of about four shows a year that are done in post scoring. Ninety-five percent of the time, when it leaves the offline room, it's done. All the audition mixing and sweetening is done in the Avid," says Fillmore, adding that he uses the JL Cooper Box, a MIDI-controlled fader box for eight channels. "It hooks up to the Avid, and I kick it into automation record, and I listen to music, and I can ramp it up and ramp it down, and it records my motions. If I'm ramping up a song and fading it out, it key frames every move I make, and when I play it back, it follows that. It's a very handy tool.

"Hopefully, at the end of this year, we're looking to go to an Avid Unity server system, thereby going to a three-to-one resolution and, hopefully, eliminating the online room altogether. The process would start digitizing while they're taping the shows—actually digitizing the line copy to the server—and then if any isos are needed, they will be done in the evening," continues Fillmore, explaining that with the current system, there are two shifts that digitize the two shows, a day shift that usually works on *General Hospital* and a night shift that does *Port Charles*.

"I don't think Avid Media Composer replaces post scoring," concludes Fillmore. "I think we try to use it to keep it going, but in post scoring, you have more detail and more control and the ability to refine the sound. By having it done as they're taping the music and sound effects, we're able to get it done more effectively, but if they introduce post scoring as a full-time thing, we'll design it to make it work for us." ■

Robyn Flans is a Southern California-based freelance writer.

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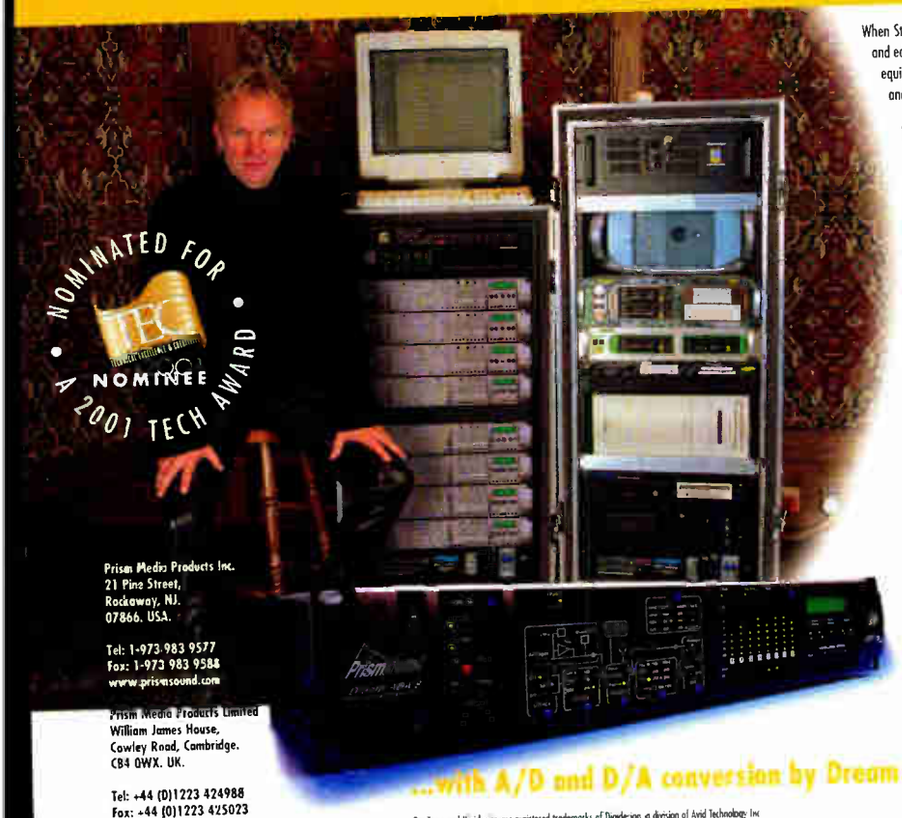

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Simon Osborne – Engineer/Mixer

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Gorillas in the Pit

Foley for *Planet of the Apes*

by Maureen Droney

The thing about being a Foley artist is, you're always trying to outdo yourself. There's no library of pre-recorded sounds from your previous projects to pull from; there's only the library of experience. And when a picture like Tim Burton's *Planet of the Apes* comes along, that mental library gets hard usage. Existential, bizarre and fun are a few of the words that have been used to describe the film, which stars Mark Wahlberg, Tim Roth and Helena Bonham Carter in a sci-fi fantasy where a human being crash lands his spaceship on a very strange planet. Like all of Burton's films, *Apes* is highly imaginative and action-packed, though it's certainly not a conventional action movie.

Foley artists Dawn Fintor and Alicia Irwin and mixer David Betancourt have been a team for six years, five of which have been spent on the Jane Russell Foley stage at Fox Studios. In that time, working on films such as *Traffic*, *X-Men*, *Erin Brockovich* and *Men of Honor*, they've forged a tight working relationship.

PHOTO MAUREEN DRONEY

Foley artists Dawn Fintor and Alicia Irwin with mixer Dave Bentancourt at the Jane Russell Foley stage at Fox Studios.

Fantasy and reality blend in *Apes*; among the Foley challenges are jungles, spaceships, battles, and a multitude of simian breeds, each with proprietary characteristics. There's also what the film's Oscar-winning production designer Rick Heinrichs calls "the dichotomy of animal-human behavior"—in this case represented by characters that are 80% human and 20% ape.

"For this film, we've had to rely a lot on intuition and on what we could see," says Irwin. "On the one hand, the apes are very primitive, yet they have crystal chandeliers, ice cubes and nice beds!"

"We've had to create a lot of sounds for things that don't exist in this world," adds Fintor, "things that are a combination of the past and the future. Some of it is very tribal, and we had to figure out what the characters themselves had to work with: Did they have metals or just leather and wood? Did they know how to blow glass?"

One particularly time-consuming Foley element concerned the armor worn by the soldier apes. Different for each rank, it ranged from extremely primitive to chain mail, breastplates and helmets. Approximately six tracks were recorded for each kind of battle outfit, which included real armor, bones, leather and whatever else was necessary.

"The costume department was great," says Fintor. "They gave us plenty to work with. But a lot of it was plastic armor for the actors, who can't be walking around all day in heavy metal. It looks very intimidating, but it didn't help us. We had to create the heavy sound that makes it seem real. The armor was definitely a challenge. If you move one of the things you are using an inch, it rattles too much; when you move it back, you don't hear enough metal. Those subtle things are difficult."

Experts conducted a special "Ape School" for many of the actors to help them incorporate ape movement into their performances. Irwin and Fintor also found themselves tapping into their "inner ape."

PHOTO SAM EMERSON

Tim Roth as Thode, the opes' militaristic leader.

"They've taken into consideration the evolutionary chain," Irwin notes, "with the foot soldiers being lower in the way they walk than the officers. Dawn and I also found ourselves performing with a lower center of gravity!"

Foley artists are, of course, footstep experts, but the hybrid characters in *Apes* made for some new challenges. "The characterization of footsteps is something that makes humans sound different," says Irwin. "We worked really hard to make the apes sound 'not human,' even though they all were wearing some kind of primitive footwear. We also had to give the heavier apes more weight, to make them more intimidating."

The bulk of *Apes*' footage was shot on soundstages at L.A. Center Studios, where the Foley team created sonic ambiences ranging from jungles to spaceship interiors. While normal recording time for a reel of Foley might average two days, *Apes*, in general, took seven, coming in at about 40 tracks per reel.

"There's nothing average about this movie," laughs Betancourt. "Just making the armor sound correct took six tracks,

—CONTINUED ON PAGE 96

Composer Profile

Denis Hannigan

by Maureen Droney

Home studios are the norm these days. But the evolution of music composer Denis Hannigan's home studio was a little different from most. When the busy Hannigan, who took home 2001's ASCAP Award for "Most Performed Underscore," found his Topanga Canyon studio taking over his home, he let it. Instead of moving the studio out of his house, he moved his family out—to a new home nearby. He then set about rebuilding and upgrading his workspace.

Hannigan has provided music for over 300 television episodes, with the bulk of his work in scoring for animation. His music is heard on many of today's most popular TV cartoon series, from Disney's top-rated *Recess* to Nickelodeon's now-classic *Rugrats* and the hilarious-even-to-adults *CatDog*. Hannigan also provided the score for television's *Beakman's World* and *Adventures in Wonderland*, and for feature films such as the animated *Recess: School's Out*, *CatDog and the Great Parent Mystery*, and the live actioners *The Girl Next Door*, *Foxhunt* and *The New Shaggy Dog*.

Hey, we said he was busy. Anyone who has attempted to write music for a weekly series knows how punishing the schedules can be. Hannigan has been doing it for over 10 years, frequently juggling multiple projects. Therefore, in

—CONTINUED ON PAGE 100

PHOTO: MAUREEN DRONEY

Denis Hannigan and some of his cartoon pals.

Facility Spotlight

5.1 Entertainment Group

by Maureen Droney

Things are busting out all over at 5.1 Entertainment. Positioned as a key player in the world of DVD-Audio, the company has mixed and mastered over 40 classic and contemporary albums for 5.1 surround DVD music release in the past year alone; current plans are to continue to release 10 DVD-Audio discs per month. June's highly publicized release by Warner Bros. Records' of the DVD-Audio version of Fleetwood Mac's *Rumours*, which was produced and mixed by 5.1 Production Services president Ken Caillat, has also upped the ante for the young company.

PHOTO: MAUREEN DRONEY

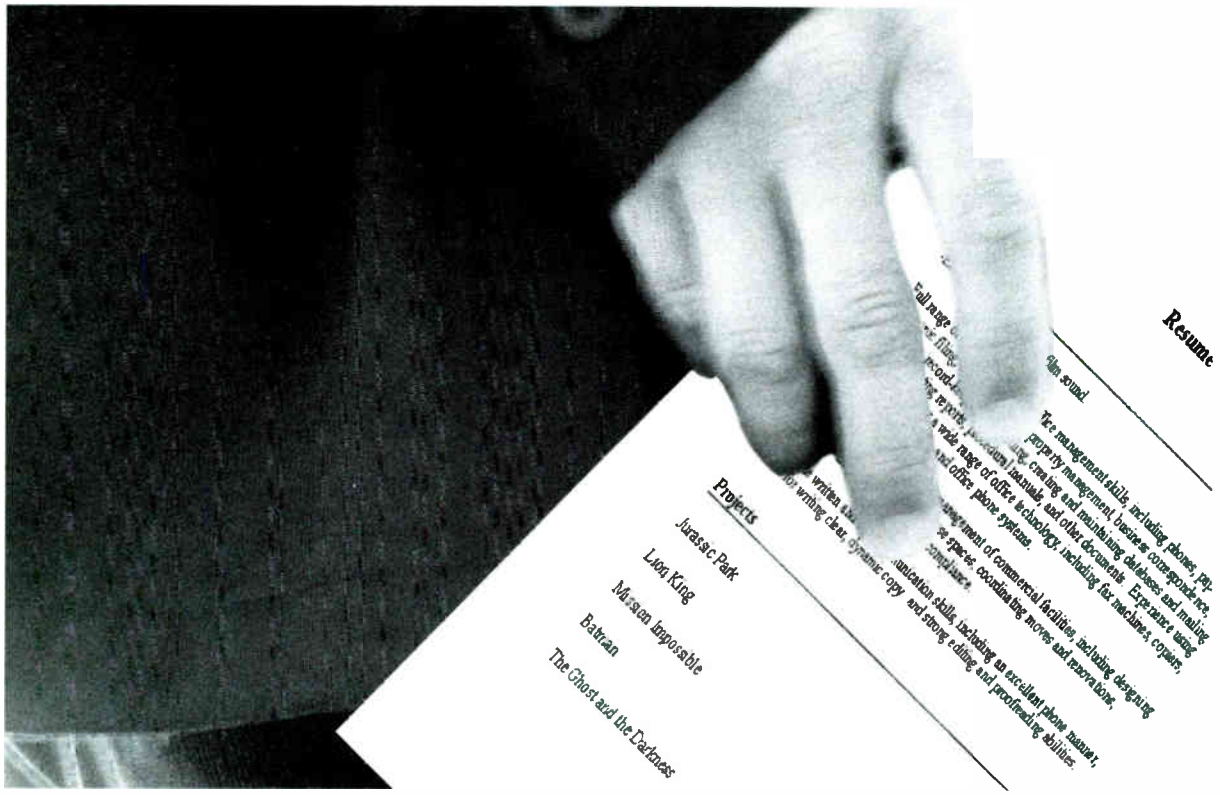
From left, Klaus Trelby, Ken Caillat and Gary Lux

Less than three years old, 5.1 has expanded rapidly and currently employs a staff of 37, all of whom work in offices and studios spread out over two floors of a West Los Angeles industrial complex. The three divisions of the company include digital production services, comprising recording/mixing studios and video production; graphics and multimedia design; and three in-house record labels. On any given day, surround projects in progress at the facility might include remixes of major-label catalog material ranging from Alice Cooper to Billy Idol to Sting, work on Nine Inch Nails' latest video, a film mix for the opening sequence of *Moulin Rouge*, and recording or mixing sessions for artists such as Venice Underground, Bird3, Dishwalla, the Big Phat Band and Aaron Neville, all of whom are signed to either immergent, Electromatrix or Silverline, the three labels under the 5.1 Entertainment umbrella.

It wouldn't be inappropriate to call

—CONTINUED ON PAGE 106

Ripples in the Pond



By Larry Blake

In a recent column, I got all warm and fuzzy explaining why I'm proud to call myself part of the film sound community. It's a small pond in the scheme of things, but it's our small pond, and though we all have fun doing this work, I have the added benefit of being paid to write about it. Two recent events—one very public and noteworthy, the other more akin to a sideshow—have stirred many of my colleagues into e-mail-writing frenzies.

There are a few moments that film sound personnel will always remember. One is when they first saw *Star Wars* or *Apocalypse Now*. Another, certainly, is Oscar Night 2001, when they heard Mike Myers' introduction to the Best Sound and Best Sound Editing awards. For those of you who missed the show, Myers sarcastically said that those awards would be going to unknown folks such as "Chet Flippy" or "Tommy Blub-Blub." He continued: "We don't know [who the winner will be], but what I do know is that what's in this envelope is gonna send shock waves through the industry. Oh, yeah."

It was an embarrassing moment, first for Myers in a very unsuccessful attempt to be funny in front of a few hundred million viewers; second, for members of the film sound community worldwide; and finally, for the Academy. The week after the show, about 20 Academy members wrote letters to Academy president Robert Rehme and show producer Gilbert Cates, taking them to task for allowing such behavior to go on the air.

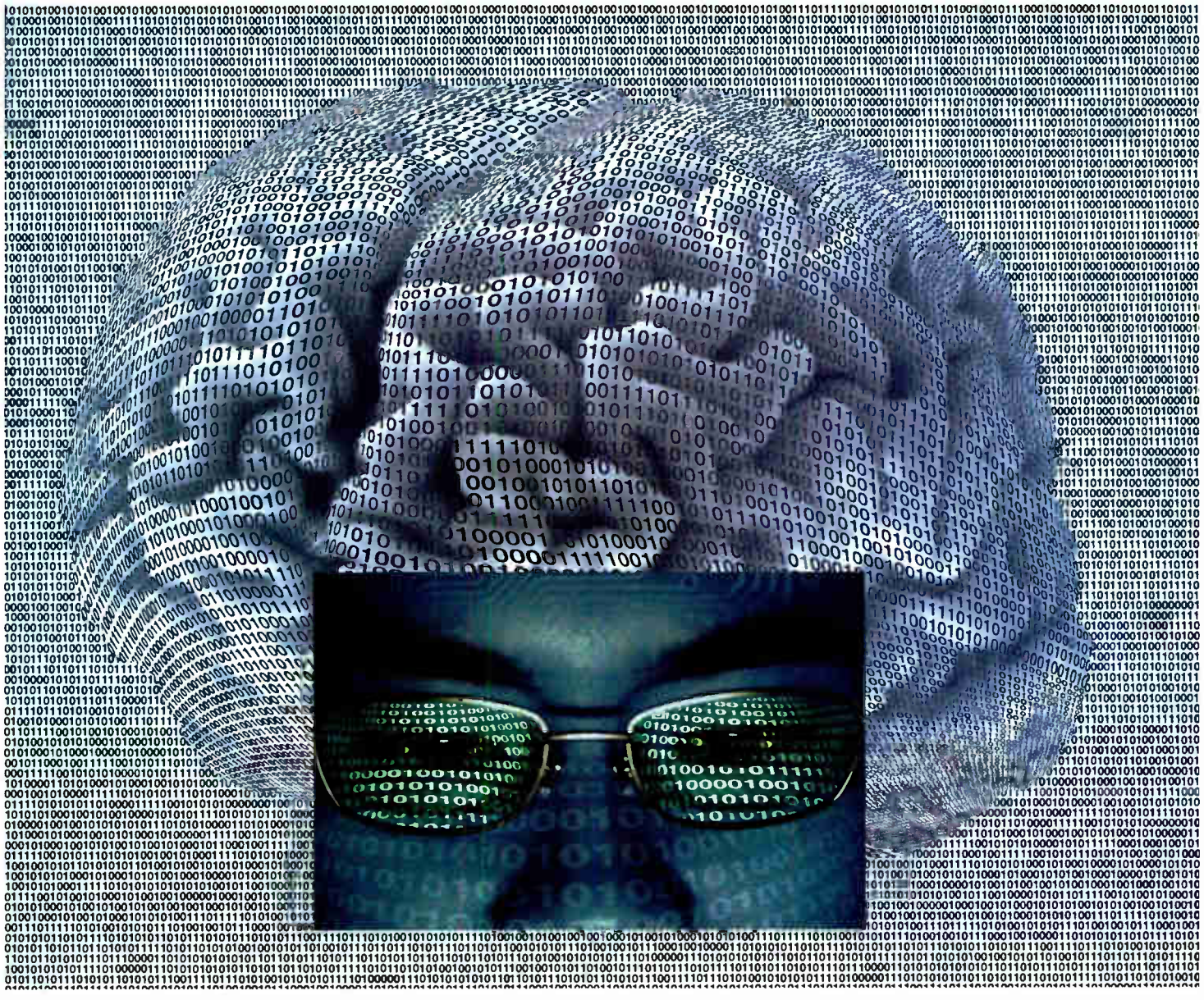
They then proceeded to make a bad situation worse. Though they didn't pass the buck to Myers or the show's writers, Mr. Cates raised the bar for the term "disingenuous" when, in the same breath, he said that he thought the remarks were "amusing," while apologizing for "any harm" caused and stressing that he "wouldn't have used it if I knew it would come across the way it did." Hey pal, that's why there is a law against manslaughter. intent is sometimes beside the point. But because Cates has since been quoted as taking "full responsibility"

GLOSSARY

The only relationship that this month's glossary entries have to film sound is with reference to my column. Any other similarity is purely coincidental.

CHUTZPAH
Yiddish word meaning incredible guts, usually combined with a certain amount of arrogance. Defined in *The Joys of Yiddish* as someone who would kill both of his parents and then appeal to the court for mercy because he was an orphan. (Note to goys: pronounced by omitting the "c.")

THE ONION
Humor magazine, available online (www.theonion.com) and in a printed edition, which has some additional material. Some of the funniest stuff that I have ever read; I frequently have to put the paper down to avoid passing out. If you don't think it's funny, you have no sense of humor.



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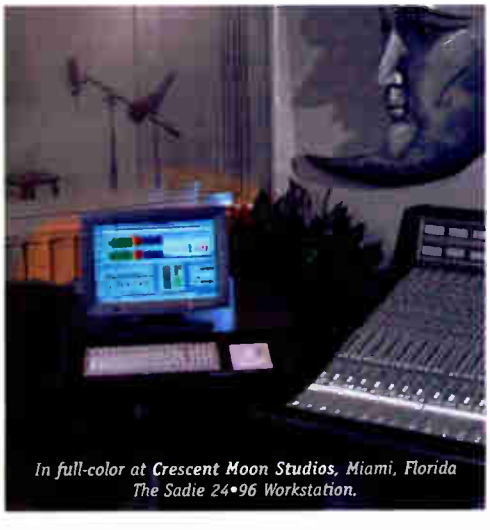

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for allowing Myers' remarks to air, the Academy should see to it that he's never in charge of the broadcast again. The whole incident was rather disgusting.

At first, I did a self-check diagnostic to make sure that I wasn't being thin-skinned about my chosen profession's public image. However, this test came up negative when I was asked about Myers' remarks by friends of mine in New Orleans who are anything but insiders in the world of filmmaking, much less film sound. Furthermore, the film sound community collectively realized that this year's show was merely the latest in a series in which a comedian presented the sound award in a less-than-respectful manner. This would be less of an issue if anyone could come up with an example of any other category being put forth in an even slightly mocking manner, but no one could. Rehme showed shocking ignorance of the English language when he attributed the recent track record of comedy presenters for the sound award to "coincidence." No other category has been ridiculed to this degree, and it's happened repeatedly to the sound awards...This is not the stuff of coincidence.

Enough of all my pissing and moaning. What am I suggesting to make things better? First of all, I have always found it boring to watch presenters read stilted introductions and nominee lists off of TelePrompTers. Instead, I suggest that they show a montage, either with stills or video, of the nominees and their colleagues at work. This could have the effect of shortening the telecast and, at any rate, would add minimal clock time to the show, if any. (This year's telecast, one of the shortest in recent years, also had some of the lowest ratings—so much for equating the show's length with the public's desire to see it.)

By the bye, I'm of course referring to all of the categories, and not just the introductions to the cinematography and music awards, which are frequently described in such hallowed, reverential tones. I believe that such introductions would humanize the nominees to the viewers, and would make the point that movies are made by real flesh and blood people in every department.

The other ripple in our small world of film sound is so weird as to defy belief, but rest assured that I'm not making this up. And while it's not as public or as well-known as the infamous Myers Oscar event, there's at least a certain amount of humor to be found in it.

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In February 2000, I heard that someone was masquerading as the person who was, single-handedly, responsible for some of the most notable sound jobs of the past decade. (My editor, for legal reasons, won't allow me to name him, so let's call him Blaine Chutzpah.) I thought that it was some sort of joke, some form of performance art, until I investigated the situation and saw the guy's Website.

He was quite serious.

He was claiming to have been the sound designer in charge of such films as *Jurassic Park*, *The Lion King*, *Men in Black*, *Mission Impossible*, *Batman* and *The Ghost and the Darkness*. I know the real folks behind most of those tracks, and not only did Mr. Chutzpah have nothing to do with these films, nobody had ever heard of him. Putting forth that you won an Oscar for the sound editing on *Jurassic Park* means that you're at some level pretending to be Gary Rydstrom, who probably has been on more Oscar telecasts than Billy Crystal. Not to mention that Gary and Richard Hymns are officially listed by the Academy as the recipients of that Oscar. How Mr. Chutzpah thought he could get away with those claims is for only him to say.

So, to try to set a trap for Mr. Chutzpah and to find out what was motivating this masquerade, I had a colleague of mine send him a letter to solicit his possible work on the then-upcoming film *Traffic*. He was requested to send us his "resume," and instead an associate of his wrote back a list of questions: What is the budget? Who is attached? He was especially interested in how we came across their Website.

Around that time, I was told that lawyers from various facilities were closing in on the impostor, and then we received another e-mail from his colleague attempting to retract some of the claims, although neither Robert Rehme nor the best writers from *The Onion* could have written a better impersonation of Nixonian doublespeak: "It is important for us to disclose to you that the information on the [Chutzpah] Website is not intended for use as a solicitation for work for [Blaine Chutzpah]. The site is intended as an in-house exercise connected to his foundation. The information on the site is not accurate in its depiction of the body of work performed by Mr. [Chutzpah], nor is it intended to impune [sic] the credibility or body of work of those actually involved."

> *Living in Skywalker Sound's backyard and pretending that you did the sound for some top jobs is like hanging around Langley, Va., and pretending that you were a spook for the CIA. Someone's gonna nail you.*

Huh?

It got even more weird when I found out that this guy lives in the San Francisco Bay Area and has produced a TV show there. Living in Skywalker Sound's backyard and pretending that you did the sound for some top jobs is like hanging around Langley, Va., and pretending that you were a spook for the CIA. Someone's gonna nail you.

Stealing credit from hard-working folks is not a good thing, and the whole situation started to smell even worse when we learned Chutzpah was in charge of a "foundation." But because the claims were removed from the Website, we all figured that he would go away.

Then, in January of this year, he surfaced again in an interview in an online magazine. He went on to make the very same claims, and this time we were treated to some grand quotes: "I think what I do differently is I try to move the audience by making a sound so impactful with a resonating effect that it's not like the real thing." It gets better: He goes on to say that parts of the sound of the T-Rex eating flesh in *Jurassic Park* were the moans of an "aroused" woman!

The interview went on to refer to upcoming projects that he will be working on, including *Jurassic Park III* and *The Mummy Returns*, and said that he would be releasing his "patented" sound effects as a commercial library. Mr. Chutzpah claimed his film sound career sprang full-blown when he ran into the producers of *Lethal Weapon 2*, who were "in need of a fresh perspective." The thought of the very sound-conscious producer of the *Lethal Weapon* series, Joel Silver, hiring someone with literally no experience...

This is such a puzzling episode that, short of speaking directly with this imposter, it's impossible to know if he is seriously disturbed or just incredibly ambitious. Or is he a crook trying to create a front for this "foundation"? Is he some form of a performance artist, a prankster who's playing a joke that's lost on the world? Or some combination of the above?

In an e-mail message that I wrote to the company that published this recent interview, and in informing them about the deception, I compared Mr. Chutzpah to an art forger. This isn't quite accurate, because at least art forgers can paint, even if they are perpetrating a fraud. A friend read a transcript of another interview in which Chutzpah appeared to have no real knowledge of film sound and was merely repeating catch-phrases with no sense of context or knowledge.

I'll keep you all posted on the claims of Blaine Chutzpah, assuming that he doesn't crawl back under his rock.

Send your dirty film-sound laundry to me at PO Box 24609, New Orleans, LA 70184, or via the Internet: swelltone @aol.com. ■

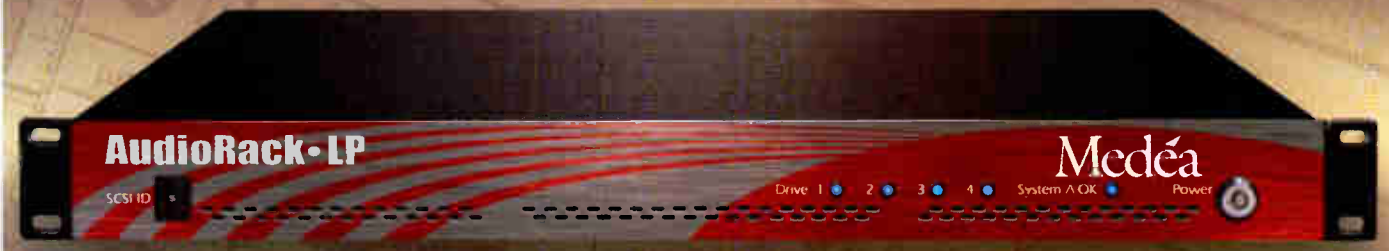
Larry Blake is a sound editor/re-recording mixer who lives in New Orleans for reasons too numerous to mention, although one of them would have to be that he has convinced everyone there that he invented not only stereo sound, but also the Swelltone process.

—FROM PAGE 90, PLANET OF THE APES

and the main apes each have their own separate armor. It's very busy: In a scene where characters are running through the jungle, you have to do as many people independently as you can. You need to be able to distinguish them separately; if not, you'll end up with a wash of sound that won't be very interesting."

"It's worth taking the time to make it distinctive," Fintor agrees. "If we didn't have different size leaves for every time you see them push a leaf aside, it would just sound like noise to the audience. We used something like 20 different plants to make layers of different thicknesses. We're always layering; when someone gets hit on the head with the limb of a

Nice Rack...



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tree, you want to hear the wooden limb sound, the body snap, the part of the helmet getting hit..."

"It's about detail and volume," says Betancourt. "Picking apart the littlest elements here and there in the overall picture makes the biggest difference. If you get the details, that pretty much takes care of everything else."

Most recording on the Foley stage is in mono; for surround, a part may be recorded three times and spread. Background footsteps, however, are often recorded in stereo over three takes, with the walkers watching and performing to left, center and right sides of the screen.

Betancourt usually uses only two or three Sennheiser microphones—KM 81s for closeup work and a 416 for the room. "The art of miking is definitely still alive here," he laughs. "You're mixing as you're putting it down to tape. When we're doing something complicated, like a character that's coming from the distance who then goes right by the camera, I play that perspective by favoring the close or distant mics."

Betancourt's mic preamps of choice are Martinsound. "For Foley, they're the best," he insists. "They are extremely quiet, and they handle the kind of wide dynamic range we need beautifully."

Signal goes direct from the preamps to Digidesign 888s and Pro Tools with Pro Control. For the time being, the Neotek Essence analog console is still used for monitoring, as it provides a function needed in Foley that Pro Tools doesn't yet offer: the kind of monitor switching required to avoid feedback loops on a session where performers don't use headphones.

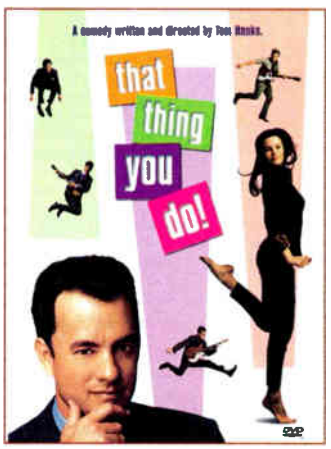
The control room's outboard collection includes an Eventide H3500 (programmed with Betancourt's custom and secret "underwater" settings), dbx 160X compressors, a dbx 120S boom box, an SPX 90 used primarily for pitch programs and a GML EQ. Monitoring is LCR on JBL 4425s.

Planet of the Apes is the first project on the Russell Stage to be recorded into Pro Tools, and the team is unanimous in endorsing the system. Previously, recording was to Tascam MMR-8s, which made playback of multiple tracks difficult. "They can only play back eight channels at a time," explains Betancourt. "If you wanted to record on track 16, you had to unload the first eight tracks, load in the second eight, then arm it...It was very time-consuming when you wanted to check a sound against everything else. Now, working with Pro Tools Mix Plus with 64 voices, we can pretty much go up to 64 channels, including importing eight or so channels of the effects stem to A/B against."

Being able to import a drive of already cut sound effects has proved a big boon. "Pro Tools has allowed us to listen much more easily to what the effects editors have done, so that we can decide how to enhance it," says Fintor. "It's much easier now to hear what they've got and what we need to do. Often, they'll have the low-end weight on it and we just need to add the detail—or it might be the other way around. Before, we were just guessing, and, not knowing what they had, we'd tend to spend more time making it complete. Now, we're not being redundant; it's much more time-efficient."

Betancourt combines tracks within Pro Tools, using only two outputs for monitoring. Traditionally, Foley consoles have not been fitted with automation, so he finds that feature especially helpful. "It's not like on music projects," he comments, "where you lay everything to tape knowing that you'll be mixing it later. In Foley, you want your tracks to arrive at the dubbing stage

DVD Picks



THAT THING YOU DO!

(Fox Entertainment)

Tom Hanks wrote, directed and co-starred in this chronicle of the rapid rise of an early '60s rock band and the subsequent internal friction that ensues. Aside from the quality of the original songs, their individual mixes progress in linear fashion from scene-to-scene, becoming fuller and richer as the band evolves from talent show winners to indie recording artists to festival circuit performers and beyond. One of the most memorable scenes occurs when Fay (Liv Tyler) elatedly races through town to tell the bandmembers that they are being played on the radio. The title song builds from a thin, hand-held radio mix to a booming stereo once the drummer blasts it throughout the appliance store where he works. After hearing the crispness and clarity of the film's retro songs, one might pine for the day when distortion, flanging and other effects were not so prevalent in pop music.

Re-recording Mixers: Chris Carpenter, Bill W. Benton, Bob Beemer. Supervising Sound Editor: Richard King. Music Editor: Alex Gibson. Score composed by Howard Shore. Audio: 5.0 Surround, Dolby Surround. *—Bryan Reesman*

CROUCHING TIGER, HIDDEN DRAGON

(Columbia/Tri-Star)

Ang's Lee brilliant and visually arresting tale of romance and rebellion in 19th century China explores many central themes, one of which is the impetuousness and arrogance of youth. Of course, many people simply went to see the surreal, dynamic fight scenes that express the warriors' states of mind as much as their physical prowess. These sequences spotlight sonically striking motifs: the melodic ringing of the Green Destiny sword when it is struck; the gentler, padded sounds of hand-to-hand combat that go against the traditionally hard punches thrown in Hollywood; and the deeply resonant, propulsive Chinese percussion that perfectly accompanies the magnificent martial arts ballet onscreen. The excellent sound editing intensifies the poetic, orchestrated fighting and adds another layer to this engrossing film.

Re-recording Mixers: Reilly Steele, Robert Fernandez. Supervising Sound Editor: Eugene Gearty. Music composed by Tan Dun. Mixed at Sound One, NYC. Audio: Dolby Digital, Dolby Surround and Stereo. *—Bryan Reesman*

—CONTINUED ON PAGE 104

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PHOTO: SAM EMERSON

The apes charge into battle against the rebellious humans.

ready so that they can just put the faders to zero and everything is mixed."

The art of Foley comes from identifying and creating the subtleties and minutiae of sound. As with musicians who play together in a band, the best product results when there's a team of people who are on the same wavelength.

"The three of us have to be in sync when we're recording," says Betancourt, "because it's live. One of the tough things about our job is communication. It's really difficult to translate back and forth when they're out there performing. What they're hearing out in the studio with the naked ear could be completely different than what gets recorded. Actual words aren't enough: If something doesn't sound like what you think it should, how do you describe it? So we've got fluffy, clacky, smacky..."

"There's no dictionary, no full, American vocabulary of sound," agrees Irwin. "So we've created our own language; we had to for survival. Even other people in the sound business who come in don't always get what we're talking about, but we understand perfectly." ■

Maureen Droney is Mix*'s L.A. editor.*

—FROM PAGE 91, DENIS HANNIGAN

designing his new studio, all of the experience he's gained came into play. So did the need to create a room that would work equally well for writing music and for creating finished mixes of that music.

"I have clients from Disney and Nickelodeon who come here, and I wanted them to be really comfortable," he explains. "But it's also a writer's studio. I have to be able to work fast, because our time frames are so tight. And a dilemma that I and a lot of my friends who are building studios run into is you have to make decisions about whether writing or mixing takes priority."

The issue? Proper acoustics vs. an inspirational environment. For Hannigan, there were two main questions. What goes in the center, in front of the screen and between the monitors: the mixing console or the composing keyboard? And, could he really keep his inspiring vista of Topanga Canyon, viewed through a wall of sliding glass doors that encompass one whole side of the control room? Resolving this conundrum took the help of mixing engineer Leslie Chew, engineer/studio designer Rick Ruggieri and acoustic specialist Bob Hodas. The result: A bright, open space for composing and recording that, with the addition of window treatments, also provides for high-quality mixes. And a pleasingly ergonomic recording and mixing arrangement with a centered main keyboard and a corner workstation.

Bob Hodas
Tuning the Composer's Studio

Hannigan and acoustic analyst Bob Hodas have been friends for many years, making Hodas the obvious choice to help out with tuning the new studio. Hodas is well acquainted with project studio issues; in addition to his work at major complexes such as Abbey Road and NRG, he's provided services to numerous composers, among them James Newton Howard and Patrick Williams.

"Denis had an existing structure with windows along the entire left wall—a spectacular view," Hodas says. "So, for starters, I asked Denis for curtains—as heavy as he could get. Also, the room is quite small, with no room for bass trapping. The existing layer of absorptive polyester and thin foam on the non-window walls had made the room overall a bit too dead. We wanted to add some life."

First, Hodas addressed the ceiling reflections, a factor detrimental to the stereo imaging. "I got rid of those using RPG Abflectors," he notes. "They work down to about 200 Hz, so they get the high frequencies and the midrange reflection out."

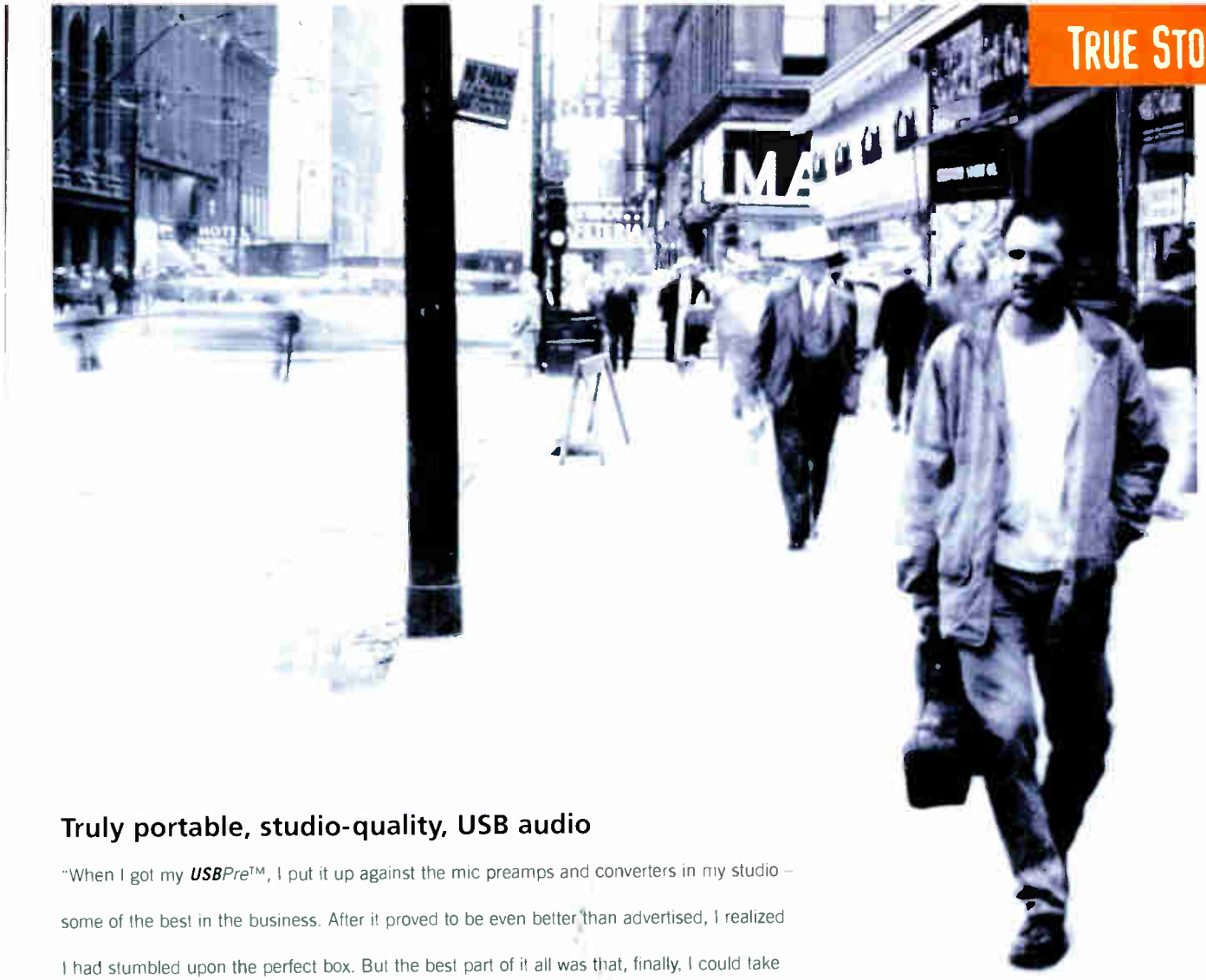
RPG Flatfusers were then placed over the soft back wall to add diffuse high frequencies. Hodas also diffused some spots on the side wall. "That was a bit unusual," he admits. "I wanted to control first-order reflections to balance out some of the bounce that was happening with the glass. It was important to go for symmetry; otherwise, Denis' imaging would pull to one side. So we tried to get the glass down a bit with the curtains and to bring the dead wall up with some diffusion.

"I firmly believe in symmetry, but in this instance, because of the windows, a lot of the equipment had to be placed along only one side of the room. This scenario is difficult—you wind up with the two sides having distinctly different bass responses, which requires equalization."

Hodas used minimum-phase parametric equalizers for the electronic tuning, a Meyer CP-10S on the main Meyer HD-1 monitors and a Symetrix 552 on the Mackie HR824 surrounds.

"Denis has a practical setup," Hodas concludes. "He got the aesthetic feel that is important to him—when he's being creative and writing, he doesn't need perfect acoustics. When he's getting serious about the audio, he closes the curtains and gets down to business. I think it's worked out pretty well."

—Maureen Droney



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SOUND DEVICES

"I make my money by writing," Hannigan explains. "So what I'm doing 90 percent of the time is composing. When I am, I want to see my view; I want to be able to walk out on the deck. When it's time to mix, I put the blinds down and focus on that."

Hannigan, who is musically proficient on woodwinds and saxophone as well as keyboards, prefers to use live musicians on his projects whenever possible. A graduate of the UCLA Film Scoring program, he got his start in the animation business working with composer and Devo member Mark Mothersbaugh.

"I was working for Mark, programming and helping him with the computers in the studio when he got a call to do a series," Hannigan recalls. "He'd been writing very cool music, doing commercials and some shows, but he hadn't really scored a series. He knew my music and asked me to help him. It was a kids' show called *Adventures in Wonderland*. Then, while I was doing that, *Rugrats* happened. Mark wrote the theme, and then he brought me in to do the score. It took off from there.

"We worked together for almost five years," Hannigan continues. "We were working by e-mail even back then, in the early '90s. I was here in Topanga and he was in the Hollywood Hills. I set up his studio so that my files would open up in his system and be emulated. All my instruments would map over to his and his engineer would just mix them; we did all virtual tracks."

Hannigan continues to work in virtual mode. "I want everything up all the time for writing," he says. "That's another physical dilemma with project studios—being able to have everything wired in so it comes up all the time. Plug-ins, of course, are nice for that—everything is right there. But I don't always like to use them. Sometimes what technology like that does is just make everything sound the same. We stay mostly hardware DSP-based, which I think adds more character."

"We use plug-ins for specific applications," adds Chew, Hannigan's longtime engineer. "But we use the hardware DSPs for blanket reverbs and effects. When Denis starts up a new piece, he works from a template for that particular show. Then, as we're mixing, we'll add plug-ins for more special effects."

Hannigan uses a Kurzweil PC88 as his keyboard controller. Favorite sound modules include GigaStudio, Virus B, Waldorf Q and a Novation Super Nova II. He uses

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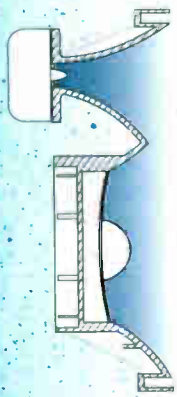

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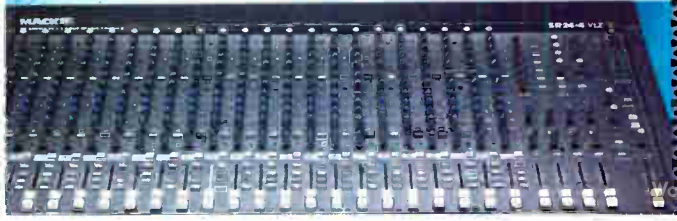


Logic Audio Platinum software, and the core of his recording setup is a Mackie D8B, a 72-channel digital mixer that feeds two Pro Tools systems: Mix Plus 24 and Pro Tools III. The Mix Plus system is used in conjunction with Logic Audio to provide the digital audio component for the MIDI sequencing system, allowing both MIDI and digital audio tracks to be locked to digital video in the same program. Live players are also recorded to the Mix Plus. The Pro Tools III, with a Digidesign USD, is used as a mixdown machine. The final mix, derived from the Mackie D8B, is routed to the Pro Tools III, where it is broken down to anywhere from eight to 16 stems, which are then delivered to the dubbing stage on CD-R in a Pro Tools file format.

While a specific template of sounds is the starting point for the score of each week's show, with the use of three Mackie 3204 submixers, 152 inputs can be available at any one time. When it comes to mixing, though, Hannigan and Chew find that, more and more, they tend to mix inside the box using a mouse and a keyboard.

"I do most of the automation either in Pro Tools or in the sequencer, as opposed to on the console," notes Chew. "It's faster that way, since I'm on the computer driving the sequencer anyway. Also, if Denis needs to do a recall, he doesn't necessarily have to deal with console automation recall. He just recalls one snapshot on the mixer, and everything else is in the computer."

Hannigan's control room is equipped with an 82-inch Stewart Greyhawk screen to accompany the wide-aspect Sony VPL-10HT LCD front projector. The complex, which also includes a live recording space, Studio B for writing, editing and making dubs, and a kitchen and lounge area, is wired throughout with SVHS, making video available in every room of the building. It is also Ethernet-networked for backup and file transfer.

Topanga Canyon remains one of the more remote areas of Greater L.A., so sound isolation was not a big issue. Air conditioning, however, was another matter. "The air conditioning was really a challenge in a little place like this," comments Hannigan. "I wanted a very quiet studio environment. We had to use long runs of Soundflex ducting and some rather complex ways of handling air to keep the noise down, without slowing the airflow too much. I could only fit one 4-ton unit at the site, so we put the main thermostat in Studio A and used thermostat-driven variable dampers in the other rooms. You can barely fit under the house now with all the ducting and conduit, but the studio is quiet!"

As any parent knows, today's kids are extremely sophisticated, and the shows that become hits reflect that sophistication. So do Hannigan's scores.

"It's not hip now to overstate," he explains. "I learned a long time ago that you can't dumb things down too much because kids know, and they don't like that. There are some shows that you can put in the good classic stuff, but most are in the style of *The Simpsons*; a little sarcastic, just a little more smart."

In composing for the quirky *CatDog*, with its half-feline, half-canine protagonist, Hannigan records dobro, acoustic and electric guitar, ukulele, harmonica

—FROM PAGE 98, DVD PICKS

O BROTHER, WHERE ART THOU?

(Touchstone Home Video)

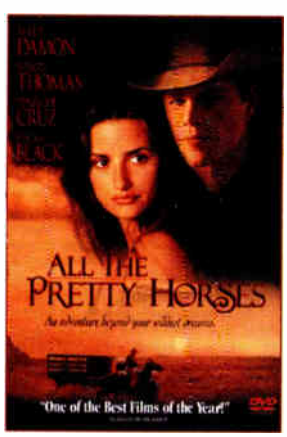
Written, directed and produced by Joel and Ethan Coen, *O Brother, Where Art Thou?* tells the tale of Homer's *Odyssey* through the exploits of three escaped convicts in the Depression-era South. While *O Brother* earned Oscar nominations for Screenplay and Cinematography, T-Bone Burnett's music supervision and production of the music is *the* major story here.

Burnett gathered a notable collection of artists, including Ralph Stanley, Emmylou Harris, Alison Krauss, Gillian Welch, The Whites, Chris Thomas King and others. And while the music is all old-style acoustic country-blues, the soundtrack has gone on to become a multi-Platinum Number One album on the country charts—a format that these days bears no resemblance to its roots. The success of the soundtrack has been read by many as a commentary on the vacuous state of mainstream country. And they just may be right. Name one thing on country radio that compares to the three country divas singing "Down to the River to Pray."

Music Producer: T-Bone Burnett. Executive Music Producer: Denise Stiff. Associate Music Producer: Gillian Welch. Musicologist: Sandy Wilbur. Music Coordinator: Lee Olsen. Additional Music By: Carter Burwell. Music Editor: Sean Garnhart. Music Recorded By: Michael Piersante. Music Recorded At: Sound Emporium and Ocean Way Nashville. Audio: DTS 5.1 and Dolby 5.1; Dolby Stereo. *—Rick Clark*

ALL THE PRETTY HORSES

(Columbia/Tri-Star)



Cormac McCarthy's award-winning novel about the exploits of two young men from Texas in 1949, seeking to embrace the life of cowboys in the twilight of the classic Old West, is given an expansive, yet intimate treatment by director Billy Bob Thornton. The cinematography absolutely captures the majesty of the Wild West, while the music by Marty Stuart ranges from soulful acoustic guitar punctuations to classic sweeping symphonic themes that draw from Tex-Mex border music. Also, Raul Malo (of The Mavericks) turns in a very cool performance of "Porque," written by Malo, Dennis Britt and Daniel Lanois. The haunting closing credits song, "Far Away" (written, produced and performed by Stuart), perfectly captures the ending's wistful sense of longing and loss.

Sound Design: Stephen Hunter Flick, Peter Brown. Re-recording Mixers: Michael Minkler, Lora Hirschberg. Mixed At: Todd-AO West (Liberty Livewire). Additional Music By: Daniel Lanois. Music Supervisors: Christopher Covert, Barry Cole. Additional Orchestrations By: Chris McDonald. Score Mixer: Jim Mitchell. Audio: Dolby Digital and Dolby Stereo. *—Rick Clark*

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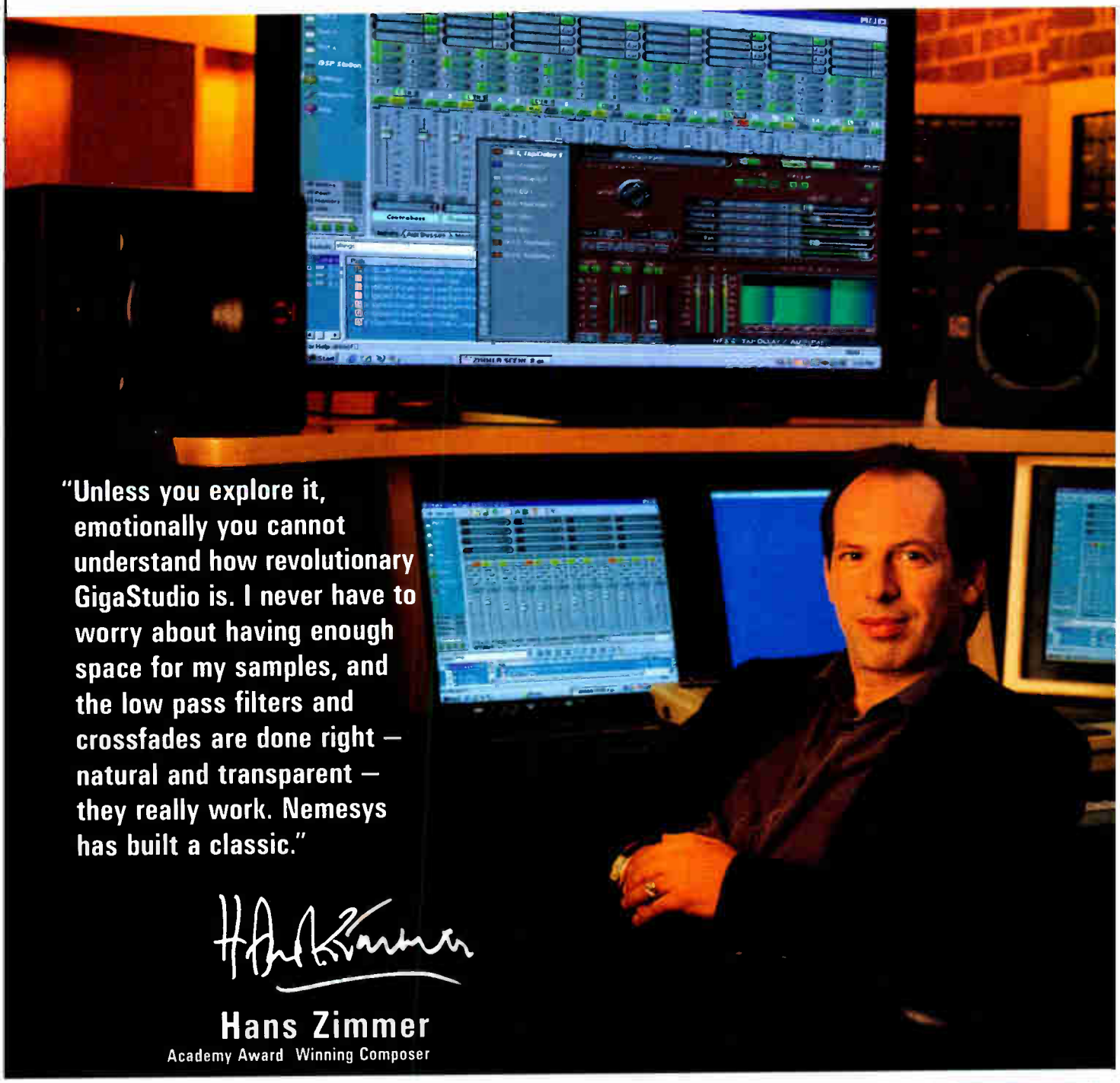

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and bass harmonica, along with MIDI sounds every week. The music, written in his synthesizer, is e-mailed to his copyist, who imports the files into Finale, then prepares the music and faxes the written music back to the studio.

"We save time, the parts look pretty good and the players never complain," comments Hannigan. "Leslie and I then spend a day recording the musicians into my sequencer and afterward make any revisions. The next day is spent mixing, with delivery to the stage by messenger in the p.m.

"Working with an engineer who knows all the software is essential to this process," he continues. "I only have five to six days from start to finish for each episode; that's approximately 20 minutes of music. Scoring 65 half-hour episodes for *CatDog*, another equal volume of *Recess* and two features, all of it done over a period of two-and-a-half years...it takes an enormous amount of focus."

Hannigan finds that his Topanga retreat studio provides him with the kind of environment he needs to concentrate on being creative with a minimum of distraction. "You don't have to move to where your clients are anymore; your clients can be anywhere," he says. "Twenty years ago, the business was more focused. There were only a handful of studios, and all the businesses grew up in the same area. Now, with project studios and package deals, no one knows where anyone is working. And now, the quality of equipment that you can get for a home studio makes it possible to do this.

"The economy drives our business," he concludes. "I'm working the way I am because of the economy. But working this way is more than anybody bargains for. I have to know software, formats, machines, synths, wiring, etc. I have to be responsible for all sorts of business-type things, and I have to have other people working for me. I am not just a composer anymore; I am now a music services company." ■

—FROM PAGE 91, 5.1 ENTERTAINMENT GROUP

5.1 Entertainment co-founder Caillat a visionary. A producer/engineer best known for his work with Fleetwood Mac (*Rumours*, *Tusk*, etc.), he was an early aficionado of surround and even designed his own binaural microphones. With the advent of enhanced CDs and educational CD-ROMs, Caillat quickly recognized the new potential for audio and set about making a surround sound demo of Fleetwood Mac material. To accomplish that, he enlisted the help of former Fleetwood tour manager Leo Rossi. The two hit it off, and in 1992, formed a company called Highway One, which, in 1998, added John Trickett as president and CEO and morphed into 5.1 Entertainment.

DVD-Audio discs produced by 5.1 Entertainment feature 24-bit/96k sampling, and are compatible with AC3, making them playable on the nearly 10 million DVD players currently estimated to be in U.S. households.

The two production studios at 5.1 both house Soundtracs digital consoles, a choice that was initially dictated by that company's pioneering position in the industry. Studio A is fitted with a 160-input, 64-fader DPC-II, and Studio B with a 160-input, 48-fader DPC-II. All of the production rooms at the facility feature M&K self-powered MPS-2510P monitors.

"A lot of consoles being used for surround in traditional studios have been revamped for the genre," comments chief engineer Claus Trelby. "That's not so with the DPC. It was originally made as a post

console. We were the first to pick up on it for music mixing, because we knew it was capable of doing what we wanted. We've done a lot of work with the company, and it's now a very musical console—kind of like a little Ferrari—very easy to operate, and everything is done on touchscreen. There are 160 inputs and outputs; that's always the same no matter how many physical hardware faders you actually purchase."

As with other users of digital consoles, the staff at 5.1 enthuses over the Soundtracs' instant "20-second" total recall, both for its flexibility in moving from song to song, and because a whole album can be roughed out by the mixer before fine-tuning with the artist, if necessary.

"The beauty of it is that we offer the artist the ability to come in at the end," says Caillat. "They don't have to endure the whole grueling two weeks of the mix, where they have nothing to do but eat pizza and play pinball while they're waiting.

Archiving, a major component of the process, is currently to Exabyte. "There is still no proven, solid, digital storage medium for 30 years down the road," says Trelby. "Our plan is that every five years, we'll go back and make sure that all our archiving is intact. A big part of this business is archiving—some of the old tapes we've used have been 'last play.' For example, we had Frank Sinatra tapes that were not well stored. All of a sudden, all the oxide was sitting on the heads of the tape machine—it really was the last true play of that tape. So archiving is extremely important to us; obviously, as technology moves, we are going to follow it."

Transferring program material, especially of vintage tapes, is an art in itself. Projects arrive at the facility on all sorts of formats, and are transferred to Euphonix R-1 hard disk recorders. Apogee PSX-100s are used for 96kHz conversion from analog.

"We always stay at the top, bringing it in at 96 kHz, even if some of the source comes from 48-track digital," notes Trelby. "Once we get it into the board and we're running at 96 to delays and effects, it makes a difference. You've got extra dynamic range, and, in spite of what some people think, it really does come out more than 48. As soon as you're going into EQs, etc., there are harmonics generated in a spectrum that didn't exist in the original. You do get extra space."

It is company policy to work only from original masters, and the staff goes to great lengths to ensure that they find those originals, on occasion flying an R-1 around the country to make transfers on site.

"We are audio detectives looking for these multitracks," laughs Caillat. "We don't want to know about a safety copy or a DA-88. There have been great tracks we were approved to do that we've passed on because they weren't original. We would like to make a plea, by the way. There are actually multitracks out there in people's garages, like those Barbra Streisand tapes that were found in the street. If you see some, call us, call the label—call somebody! Because there are gold nuggets out there that could rot away in some hot garage!"

The film music side of 5.1 has also been seeing action lately, with most film work handled by VP of audio production Gary Lux, whose background includes three years as head scoring mixer at Universal Studios, as well as work with Sting, Aaron Neville and on numerous movies.

"Music is often delivered to dubbing stages in LCR stem formats," Lux notes. "Often, that doesn't translate very well in

5.1. We get calls to help out on special musical pieces, like for *Never Been Kissed*, *A Knight's Tale* and *Hollow Man*, among others, and for the opening segment for *Moulin Rouge*. For *Moulin Rouge*, I think the director, Baz Luhrmann, was quite blown out by what we do. It's a larger-than-life movie, and when he listened to the work we've done, he realized that 5.1 was a music format that matched his visual expectations. In the opening scene, where you go into the Moulin Rouge and Lady Marmalade is playing, and Nirvana is playing and Fatboy Slim—all at the same time—they were going, 'How are we going to mix this?' Our experience really helped out."

Content creation for DVDs has developed as a natural progression for the company, which now also provides visuals, from graphics to interviews and concert footage. For example, for Aaron Neville's Silverline DVD release of his latest CD, *Devotion*, the 5.1 team provided a video crew who traveled to New Orleans to film interviews with friends and family and a performance by Neville at the Angola State Penitentiary.

Artists signed to 5.1 labels are also encouraged to think about creating music in surround. New group Rambient, on the immergent label, was set up from the get-go with a 5.1 surround system to incorporate the genre in its compositions.

"I think what's most exciting is what we are doing with our own artists," Caillat comments. "We have them come in and listen to music before they start their project, and they really get it. That kind of creativity starting out lends itself to so many opportunities."

"Every musician who walks in the door and listens, within two bars, basically throws up their hands and says, 'How am I going to listen in stereo again?'" adds Lux. "We realize that great songs are what it's all about. But there's so much more space in this genre for the artist to realize what they originally heard in their heads. It's like a creative shot in the arm.

"We already know, musically, that it's an incredible experience," Lux continues. "It's our challenge to get it to the public, to heighten their awareness. It's exciting for us, and we are also very user-friendly. We share as much knowledge as we can with others who are trying to do this, because we want the platform to go. It's an education process not only for the consumer, but for record retail. But, with DVD movies a proven hit, they now know that once the customer hears it, they're hooked." ■

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Production Music Libraries

The Promise *and Challenge* of Online Delivery

By David John Farinella

When *Mix* looked at production music libraries two years ago, many houses had already instituted online audition capabilities and were anxiously awaiting the download boom. They had seen the market for production music grow, thanks to the expansion of cable networks and Internet broadcast, and were optimistic about where the business was headed.

Two years ago, the conventional wisdom was that broadband was on the way. It would be another year, some said, at the most two. Some houses banked their future on that premise, and many of those have closed their doors. Now it seems the adage that broadband is around the corner is akin to saying the check is in the mail. Production music houses are tired of waiting for broadband to become the rule of the day, for performing rights organizations to recognize watermarking technology and for producers to jump on the bandwagon.

"It seems that, especially with the current economic situation, not a lot of people are rushing out to develop a great system," says Stewart Winter of Video Helper Music Production in New York. "It seems that broadband is still a distance away."

Joe Saba, Winter's partner, adds, "DSL was supposed to be great, and then all the providers went out of business. That turned out to be more expensive and definitely not hassle-free." He does see the light at the end of the tunnel, though. "I think it's a lot like digital TV. You can go out and buy a digital TV and get HDTV programming, but [broadband] will probably be one of those things that slowly creeps in over a long period of time. In 10 years, everyone will have it and nobody will be talking about it anymore, but I don't think there will be any one threshold day."

The online delivery phenomenon is not simply limited to production music providers; in fact, several sound effects libraries—including London's sound-effects-library.com (see "Field Test" on page 116) and New York's Sonomic—have skipped the "hard copy" CD distribution approach altogether, offering all their sounds exclusively online. However, unlike production music files—which may be substantial in size—SFX downloads are not as dependent on high-speed Internet schemes, and even a simple 56k dialup connection may suffice when downloading short effects such as door slams, gunshots or telephone rings.

Broadband availability is just the first of many issues affecting download-aspiring production music libraries. Once online distribution becomes the order of the day, libraries will have to find new ways of tracking usage. Many are turning to digital watermarking companies, such as Verance. "It is a very promising technology," says Ron Mendelsohn, CEO/co-founder of Megatrax. "It's another technology that we're going to be incorporating into our new Website. As we prepare for the digital downloads on the Website, all the music online is going to be watermarked using Verance."

The key when it comes to issues of watermarks, says Killer Tracks library curator Carl Peel, is to make haste slowly. "There are several companies working on watermarking technologies, but the problem is that nobody has agreed on the stan-

dards," he says. "It's a great idea, a great theory, [and] the technology exists, but it's got to be compatible. The whole point of watermarking is so the performing rights societies and the companies recognize them and are able to use them. It's very expensive to develop this stuff, so you want it to be able to be used by you and everyone who needs to be able to use it. In the long run, it will save everyone time and money."

Randy Wachtler of 615 Music also points to Verance as the library's watermarking tool of choice. "We've been encoding with the Verance digital watermark for over a year now," he says. "We're scheduled to convert to digital downloads toward the end of this summer. We've held off because of the issues of digital watermarking, and we want to make sure

that they've worked out the bugs." According to Wachtler, Verance completed its first round of testing in June, and, by the end of the summer, it will be able to monitor the top 50 markets in the United States. "So, any music that is broadcast over the Internet or radio or cable should be able to be captured by Verance," he says. "Once that's up and running, this big hurdle will be out of the way."

Just as important as tracking where music is being used is getting the appropriate credit from performing rights organizations (PROs), such as ASCAP and BMI. Wachtler reports that BMI has said it will pay for digital detections via watermarks. ASCAP is in the process of evaluating the system and SESAC will accept the Verance technology. While he understands their reticence, Wachtler says it's been a little frustrating to get the buy-in from those organizations. "It's a new technology, and, to a certain extent, they were all waiting to see how the Napster [issue] with the record industry [will be] resolved," he says. "Also, there's the Secure Digital Music Initiative [SDMI] that was initiated by the record companies to put dif-

ferent kinds of information in a digital watermark. So, I think our little industry was watching what happens on the record side to see if there was some resolution. I'm sure the PROs were looking there as well. So, it's a work in progress, but we can see it moving more and more toward acceptance of digital watermarking as a much more efficient way to track music around the world."

These days, PROs are still relying on cue sheets filled out by producers and editors working on deadlines to schedule payments. "Right now, the way things are logged in with the PROs, it's all data entry, and some things get messed up every once in a while," observes Peel.

Another concern in the transition to downloadable music involves the suitability and choice of software. "I don't want to knock or plug anybody, but we were with Liquid Audio back in 1998, and

Production Music Library Contacts

Although the online delivery gold rush has slowed, production music libraries are finding their way to the Internet in droves. Below is a list of some that we found online. By no stretch of the imagination is this a comprehensive list, so do your own search, audition the tracks and find what works best for you.

615 Music
www.615music.com

Accent Music Productions
www.accentmusiccds.com

Chase-Rucker Productions Inc.
www.chase-rucker.com

Chestnut Mills Musicraft
www.chestnutmills.com

CSS Music
www.cssmusic.com

DeWolfe Music
www.dewolfemusic.com

DoReMedia
www.doremedia.com

East-West
www.soundsonline.com

Firstcom Music
www.firstcom.com

Fresh Music
www.freshmusic.com

GMI Media
www.gmimedia.com

The Hollywood Edge
www.hollywoodedge.com

Impact Music
www.studioland.com

JRT Music
www.jrtmusic.com

Killersound
www.killersound.com

Killer Tracks
www.killertracks.com

Librarytracks.com
www.librarytracks.com

Licensemusic.com
www.licensemusic.com

Manhattan Production Music
www.mpmmusic.com

—CONTINUED ON PAGE 113

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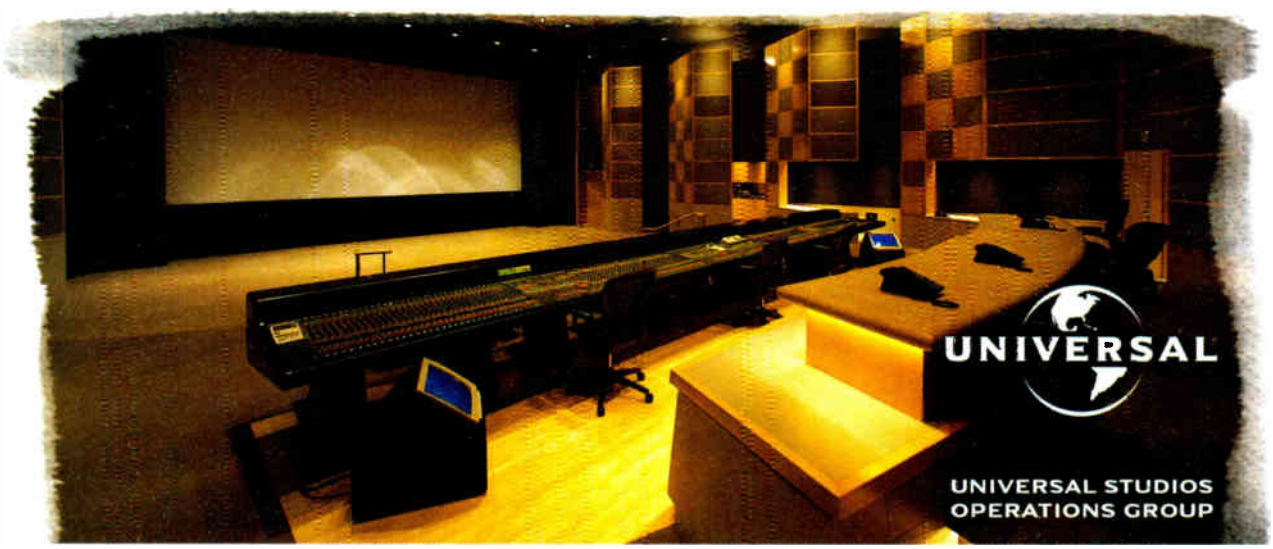

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THE FILMMAKERS DESTINATION

WWW.UNIVERSALSTUDIOS.COM/STUDIO

our clients had a lot of problems using their Liquid Express players," says Mendelsohn. One of the main issues was converting sound files from Liquid's proprietary format into the .AIFF or .WAV formats that clients were requesting. "Clients were getting bounced around between our site and various Liquid Audio sites. We finally started developing our own improved online

system, which wouldn't bounce anybody off our site." Megatrax is now using Music Source for searching and Windows Media for playing. "Interestingly enough, we did a blind listening test between all the compression formats and Windows Media came out on top in terms of quality," he says.

Though it seems that 44.1 stereo should be the order of the day when it comes to digital downloads, just about every house reported that's not necessarily true. At least initially, clients are asking for MP3 files even though audio quality suffers. "You lose the real highs and the lows," Winter points out. "I guess in a crunch it helps, but the real audiophiles I think will always be suspect of delivery over the Internet unless it's a huge file and they've got a fast enough connection to support it." Video Helper has provided MP3s to movie trailer clients in a pinch.

615 Music will be providing MP3s mainly based on storage issues and client demands. "We've researched quite a bit and asked a lot of our customers if they have to have uncompressed .WAV or .AIFF files as compared to one of the better MP3s," says Wachtler. "Most of them don't make a distinction; only the super high-end users are going to say they have to have 44.1 CD uncompressed." For larger uncompressed files, clients can visit the facility's FTP site on a case-by-case basis. The same is true of Video Helper.

Surely, the one group that's most encouraged as the kinks are worked out of the current system is the composers. According to Mendelsohn at Megatrax, there are no particular issues between libraries and composers when it comes to online delivery rights. "As with any production music library, our music gets used in all different types of productions and all different types of media," he says. "So, when we acquire a piece of music from a composer or when we commission a composer, we obtain a full grant of rights from them to do whatever we want with the music. We also assure them that, wherever the music is broadcast, that they are entitled to collect their share of the performance income."

Composers, he adds, have accepted that. "It was never really an issue that we addressed," he explains. "We've been working with our core group of composers for close to 10 years. So, our contracts have always addressed all media in all forms, whether existing or to be designed in the future. So, we didn't have to renegotiate any deals with composers for online distribution."

Even as the online delivery issues are being worked out, music libraries are busy creating new offerings. Megatrax

and Killer Tracks have released 5.1 surround music discs. Megatrax currently has two 5.1 discs available. "Movie Showcase, Volume 4 and 5" is a double disc recorded with the 80-piece London Philharmonic Orchestra and Chorus. "Spectacular Themes" was recorded in 5.1 surround, and the DVD includes Dolby AC3 files and high-resolution .AIFF files for direct digital audio workstation loading.

Video Helper's latest addition to its Noise Generator line was created with an eye toward Internet content creators, explains Winter. "We delivered the sounds not only as audio files, but also as data discs on duplicate files. So, people who are working in those areas have access to the sounds in any format they want in the way that they want them. We have these very quick sounds that are great for

—FROM PAGE 111, LIBRARY CONTACTS

Megatrax
www.megatrax.com

Metro Music Productions Inc.
www.metromusicinc.com

Gene Michael Productions
www.genemichaelproductions.com

Music Bakery
www.musicbakery.com

Network Music
www.networkmusic.com

Non-Stop Music Library
www.nonstopmusic.com

OGM Production Music
www.ogmmusic.com

Omnimusic
www.omnimusic.com

Partners in Rhyme
www.sound-effect.com

Production Garden Music
www.productiongarden.com

Promusic
www.promusic-inc.com

River City Sound Production
www.rivercitysound.com

Sonic Science
www.sonicscience.com

Sound Ideas
www.sound-ideas.com

Stock-Music.com
www.stock-music.com

Techsonics Production Libraries
www.concentric.net/~techsoni/library.html

TM Century
www.tmcentury.com

TRF Production Music Libraries
www.trfmusic.com

UniqueTracks
www.uniquetracks.com

Valentino
www.tvmusic.com

Video Helper Music Production
www.videohelper.com

Who Did That Music?
www.whodidthatmusic.com

Flash. So, we're taking steps to acknowledge all the new content creators with our products."

After all, CDs through the mail or via overnight delivery are still easier for some producers and editors to handle. In fact, there are times when perusing a physical library in a studio is still faster than scanning through a virtual catalog, downloading a piece of music and then converting it into a useful format. In addition, edit rooms don't always offer Internet access. "I think I'm probably one of the few dinosaurs who actually believes that online delivery will never surpass having a disc in your hand," Winter says. "People are not always going to be around the Internet. I know producers who listen to discs in their car. I feel sorry for the producers who listen to production music in their car, but there are some that do."

Online delivery, Winter continues, will be a convenience, but not the end of physical libraries. "You know it will work when you walk into a production room as opposed to trying to connect to the Internet. You know how it's going to sound with a disc. You know there won't be any screw-ups," he says. "When you're paying $500 an hour for an edit room, you don't want to have to sit around and toy with the Internet. It's convenient, yes, and it will work in an emergency, but I still don't think it will replace the disc in the next five or 10 years. I could be really wrong. I thought the Edsel would last."

The bottom line is that the future is bright for production music libraries. Megatrax, for one, is going through an administrative and studio expansion. "One of the reasons we're going through this huge expansion right now is not only because of the current business, but because we see really great potential for the future," explains Mendelsohn. "Once online delivery starts to live up to its promise over the next three to four years, we're going to be delivering music online and through CD. There's going to be more and more productions that use library music." That list, he reports, includes everything from traditional broadcasting and corporate AV clients to Internet streamed media to DVD productions, multimedia productions, video games, and satellite and cable networks. "There are a lot more media outlets and distribution channels than there were five or 10 years ago," he says, "and they will only continue to multiply. That spells good news for production music libraries, and especially for the top-quality libraries that are putting out the really high-quality music." ■

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Tape Gallery sound-effects-library.com

Online SFX Gallery

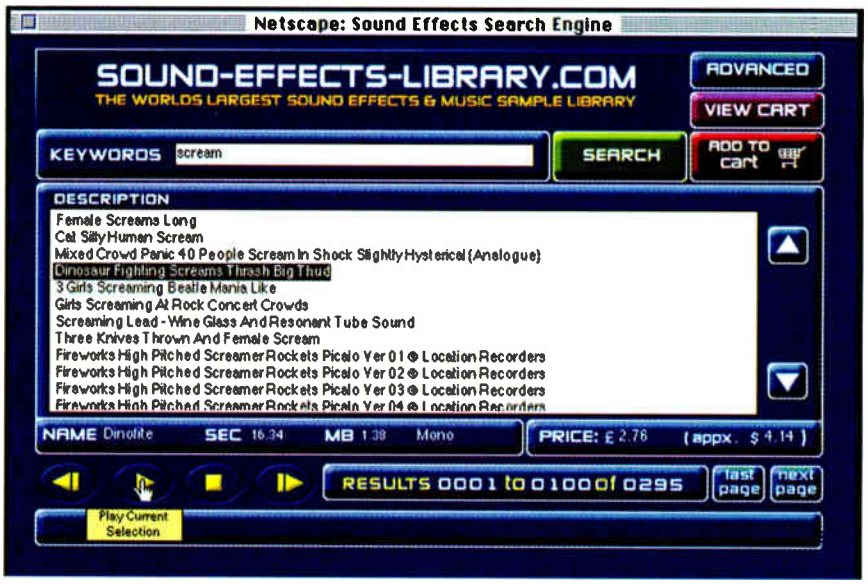
Anyone who creates audio using sound effects for radio or TV broadcast, video, film, video games, live theater and other applications knows the challenge of finding just the right effect for any situation. In my studio, we have at least 15 effects collections on CD, more than 100 vintage SFX records (yes, vinyl!), and another 5,000 or so sounds in Pro Tools and sampler (E-mu, Akai and Kurzweil) formats. Yet we always seem to need some sound that eludes our current stock. Unfortunately, buying another 5, 10 or 20-CD library just to get a single sound is an expensive proposition, while going out with a Nagra or a portable DAT to record lion roars or bull elephants tends to be time consuming and costlier still.

One convenient, fast and relatively inexpensive alternative is offered by sound-effects-library.com, part of Britain's renowned Tape Gallery (www.tape-gallery.co.uk) group of companies, now celebrating its 20th anniversary. Sound-effects-library.com offers instant access (via the Web) to some 30,000 effects—and music samples—from leading international suppliers. Combined with a powerful search engine and a slick interface, sound-effects-library.com can provide quick auditioning of almost any sound effect from anywhere in the world.

Libraries available through sound-effects-library.com include: Audio Interactive; Cape Cod Radio Mystery Theatre; Crawfords; Enn Reitel; Dave Losko; Optifex; Post Organ Toolkit (organ samples in Gigasampler format, as well as accordions, church bells, basses, prepared piano and harpsichord); Prosonus (strings, percussion, Foley, guitars, synths, vocals); Slow Death by Vise; Digital Toy Cupboard (loops); The Tape Gallery; Valentino; Victor Iorillo; Zero-G; and more to come.

HOW IT WORKS

Anyone with Internet access and a relatively recent version of Internet Explorer or Netscape will do fine. The faster the Internet connection, the better, but I had no problems with a 56k dialup. The search/audition engine uses the (free) Macromedia Shockwave player plug-in, so you'll need that and speakers attached to your computer to hear the sounds. (Note: The better the speakers, the easier the audition process goes.) To prevent piracy, the site adds hiss to auditioned sounds, but the high-res 44.1kHz/16-bit, stereo or mono sounds that you purchase in .WAV or .AIFF format are sparkling and exhibit no distortion whatsoever.



This window shows the results of a keyword search.

Once you surf to the site, just enter keywords for any sound you want to audition. A new window opens with a list of all sounds containing that keyword, plus a short description of each sound and its duration and file size. Click to highlight the selection and press the Play key to hear the sound in real time. If it's what you want, merely press the Add To Cart button—the system maintains a tally, listing selected sounds and their prices. Cost per sound begins at £1.40 (about $2.10) and goes up to about $15 or so, depending on the sound, complexity, rarity and length, though most of the sounds fall well into the lower price category. Annual blanket subscriptions are also available, priced for single- and multi-user versions.

Once you've entered your subscriber PIN or credit card number and selected .AIFF or .WAV file delivery format, the system sends you an e-mail listing discrete URLs where each sound (in ZIP format) can be downloaded. Enter the location URL in your browser, and each clip automatically downloads to your system. Unzip your downloads and they're ready for transfer or direct playback. Alternatively, users can request files in MP3, Au, SDII and other formats by using a mail order option.

I found the sound-effects-library.com site fast, convenient and comprehensive, offering a wealth of high-quality sounds—both domestic USA and exotic overseas types—at prices hovering around the cost of a gallon of gas. This is a lot less than the time and fuel I'd spend looking for "dinosaur fighting screams thrash big thud"—one of the 293 entries under "scream"—and provides a powerful tool for the audio pro. The auditions are always free, so check out sound-effects-library.com. It might just change your way of hearing.

The Sound Effects Library Ltd., Tape Gallery House, 28 Lexington Street, London, England W1R 3HR; +44 207/439-3325; fax: +44 207/734-9417; www.sound-effects-library.com. ■

BY GEORGE PETERSEN

Champagne Tastes...

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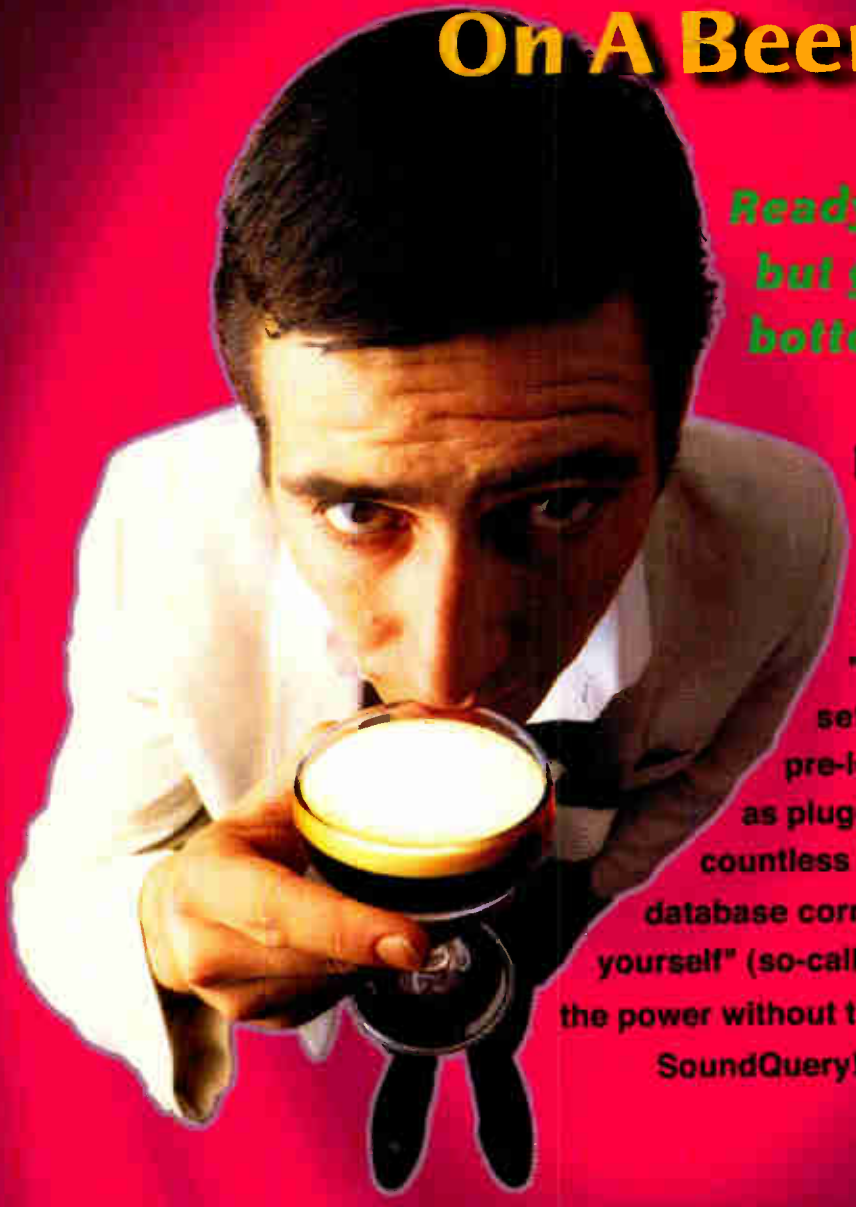

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AMS NEVE LOGIC 3SC

AMS Neve (www.ams-neve.com) has launched the new Logic 3SC 5.1 audio post system, a fully networkable post workstation designed for high-speed editing and mixing. The 64/128-input, menu-free mixing console provides the inputs, outputs and automation necessary for fast and efficient creation of complex mixes. New editorial tools include the DSP ToolBox range of advanced DSP plug-ins. and the system is capable of managing simultaneous multi-version mixes. Surround monitoring is supported.

SONICASE PROTECTS FIELD EQUIPMENT

SoniCase from Sonic Sense (www.sonicsense.com) for field recording equipment is constructed of tough Cordura fabric with a durable ¼-inch padding lining, and carries a full-size portable DAT recorder, two rechargeable batteries, a mic preamp, mics, cables and other accessories. A rain fly protects against the elements, and transparent windows offer visibility when zipped shut. Battery charging and operational changes can be made without unpacking. SoniCase includes a padded shoulder strap and securing waistband. Price is $195, and an accessory pouch is $32.50.

DSP MEDIA VMOTION

Vmotion, from DSP Media (www.dspmedia.com), is a hard disk video recorder/player for audio post applications. Available as a stand-alone unit controlled from a high-res touchscreen, Vmotion interfaces with mixing consoles or sequencer/DAWs via 9-pin machine control and LTC. Vmotion can act as master or slave and offers instant picture location. DSP Media also announces Version 2.1 of AVtransfer, the company's multiformat, multistandard conversion software. AVtransfer opens, plays, combines and exports audio files and projects in OMF and other pro formats, will export 8-bit .WAV and .AIFF files, and can automatically transfer CD track and index files to disk.

LEXICON DIGITAL CONTROLLER

The Lexicon (www.lexicon.com) MC-12 Balanced Digital Controller is a 12-channel digital controller with 12 configurable inputs and three independent output zones (Main, Zone-2 and Record). Beyond the standard 5.1 outputs, the MC-12 adds Rear Left/Right and Subwoofer Left/Right outputs. Audio outputs for Main and Zone-2 outputs are via balanced XLR connectors, and an intuitive user interface aids in speaker configuration. Analog sources are processed at 96 kHz (the unit automatically switches between digital and analog sources), and Lexicon's Logic 7® technology creates a 7.1-channel output

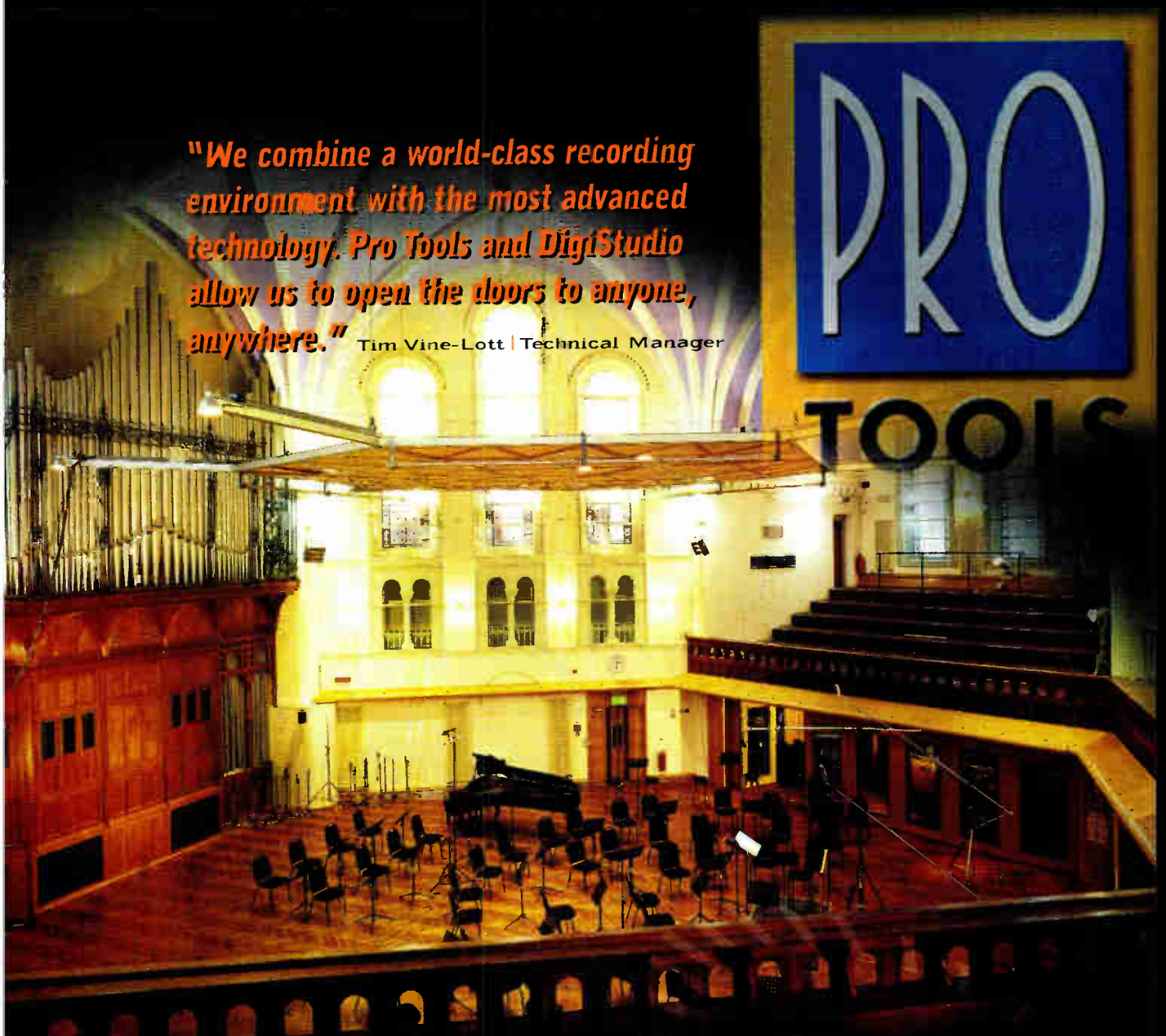
from any input. Dolby Digital, THX Surround EX, DTS, DTS-ES 6.1 and Dolby Pro Logic II are also supported, and the unit is THX Ultra-certified. The controller includes two broadcast-quality video switchers and has three internal expansion slots; system software can be upgraded via the RS-232 port. Price: $9,995.

REMOTE AUDIO PRODUCTS HEADSETS

High-Noise Environment Headsets from Remote Audio Products (www.remoteaudio.com) provide extreme isolation from outside noise, while providing the user with a familiar, "industry standard" headphone sound. Equipped with Sony MDR-7506 drivers, the Remote Audio HN-7506 allows accurate, full-frequency range monitoring, while fluid-filled earpads attenuate external sources by as much as 40 dB. The adjustable headband is heavily padded. Model HN-7506-M includes a noise-canceling boom mic. Price of the HN-7506 is $285; the M version is $315.

SSL AVANT PLUS DIGITAL CONSOLE

Solid State Logic (www.solid-state-logic.com) has introduced the Avant Plus Post & Film Console. Based on a discrete knob-per-function design, the all-digital control board includes SSL's new HS Control Processor, which allows multiple six or eight premix channels to be stacked beneath individual premix master faders; all session settings are stored and recalled by project. The SuperGrouper™ feature links multiple sets of rotary, switched and fader-driven controls across the console. An integrated TFT LCD allows operators to configure the 64x8 programmable monitor matrix for multiformat source selection. Virtual Paddles™ provide paged access to 48 track/record enables from any of eight assignable paddle keys, while surround panning may be controlled with a pen and tablet. Available in a range of frame sizes and input channel configurations, Avant Plus can be configured to support multiple operators.



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TAKING STORAGE TO THE NEXT STEP

OR "ALAS, POOR SCSI, I KNEW HIM WELL"

ILLUSTRATION, MAE LAROBIS

It's autumn. A change of season is upon us, with the twilight of summer and the smell of frying power supplies in the air. It may also be the twilight for the SCSI standard, having just celebrated its 20th anniversary with a wee shindig down in San Jose, Calif. SCSI better watch out as the young Turks emerge to usurp its crown.

You may think I'm bonkers, but the SCSI Trade Association really *did* have a birthday party for the standard that has soldiered on longer than any of its architects had imagined. For performance storage peripherals, it's still the attach method of choice, with the installed base dwarfing Fibre-Channel, its only competition. For high performance in a multi-user environment like sound-for-picture, Fibre-Channel is the way to go. Granted, most SANs continue to use SCSI-attached drives behind a FC facade.

Native FC devices are working their way into the marketplace. However, they'll never achieve the level of penetration that SCSI has enjoyed, simply because there just are few installations requiring the high performance and availability afforded by Fibre-Channel. Desktop hardware will continue to dominate the number of storage devices shipped for quite some time, but the emerging trend that will both affect pro users and turn the storage industry on its head is home servers.

Perhaps I should be more general and refer to "home servers" as storage for information appliances. But whatever terminology you prefer, the reality is that DTV, P2P, DVD2, FTTH (Fiber To The Home) and other technologies will soon converge on Jane C. Consumer. Note: The "C" stands for Conspicuous, requiring the purchase of the latest and greatest gadget. This home electronics trifle will most certainly contain rotating storage—at least until some serious man-

BY OLIVER MASCIAROTTE

ufacturing hurdles are overcome—and the cheapest rotating storage is still magnetic. Home servers, STBs (SetTop Boxes) and personal video recorders all require big storage, but it's got to be cheap, and SCSI ain't cheap. Now, ATA—that's "cheap," but most marketing types prefer the term "cost effective."

Intel has made a lot of noise in the hope of establishing USB, its Universal Serial Bus spec (or "Unused Serial Bus" to its detractors) as the de facto standard for external peripheral attachment. Unfortunately, those in the know tend to dismiss USB as a great way to hook up brain-dead devices, but nothing that requires serious negotiations with either host or peer. SATA or Serial ATA is another matter. Unlike USB, SATA is designed for inside the box, not outside where Jane C. can muck about with it. Along with InfiniBand, another fundamentally radical internal technology, SATA will change the look, feel and performance of new computers.

Wicked competition in both the consumer appliance and desktop computing space dictates that manufacturing cost be trimmed to the bone. Intel has proposed SATA as the nex-gen storage attach protocol that promises to finally give SCSI stiff competition for manufacturers' dollars. Here's the spin on SATA from Intel's Developer Forum: "This technology will enable smaller, sleeker PC designs by replacing today's bulky ribbons with very thin cables that can quickly transfer large amounts of information. The cables and connectors will replace today's products based on the Parallel ATA storage interface. Serial ATA will enable future growth and stability of computers, while maintaining compatibility with today's software base."

Along with Intel, the specification working group includes IBM, Dell, Maxtor/Quantum, Seagate and APT Technologies, an engineering company. Version 1.0 of the spec, dubbed Ultra SATA/1500, was released in November 2000. So, what, you ask, is so cool about SATA? Well, Bucko, it's that "S," as in "Serial." Take a parallel communications bus over a fat ribbon of conductors and serialize it by time-domain multiplexing. This converts that wide ribbon hooked in a finicky physical serial configuration to just a single conductor, plus shield capable of star configurations. That, in itself, is nothing too rad, but it does allow computer manufacturers to reduce the total internal volume while boosting the data throughput to 1.5 Gbps to start. Double and quad-speed versions are scheduled to follow the roll-out of the first Ultra SATA/1500 products next year.

To me, Serial ATA means Slim, Attractive Technology Advancement. To you, it'll just be a good thing. ■

OMas looks forward to The Pueblo by the Bay's one month of summer. Long live warm weather! This column was created while under the influence of Love Tractors' (they're baaaack) theskyatnight *and Joe Satriani's* Engines of Creation. *For links and occasional commentary, visit http://seneschal.net.*

PEDANT IN A BOX

THIS MONTH'S BUZZWORDS

ATA (Advanced Technology Attachment): ATA is the name given to the specification covering IDE (Integrated Drive Electronics) by ANSI, the American National Standards Institute. IDE is an attachment interface used between motherboard and disk. IDE is, in turn, based on the IBM PC's Industry Standard Architecture (ISA), a 16-bit bus standard. EIDE, an enhanced version of IDE, includes—along with support for DMA (Direct Memory Access) and nondisk devices like CD and tape—a 28-bit Logical Block Address (LBA) to specify the actual cylinder, head and sector location of data on the disk. The 28 bits provide an address space of up to 8.4 GB in size, hence the 9GB ATA drives typically seen in most mass-market computers.

TDM: Despite what Digidesign's marketing department would like you to think, Time Domain Multiplexing is a 1-channel coding method for delivery of multibit data over a serial transmission channel. ADAT Lightpipe and the AES Type II S/PDIF optical interfaces are two common examples of inherently parallel data (AES/EBU linear PCM) being channel-coded or repackaged for serial transmission over a single, consumer-grade Plastic Optical Fiber (POF).

New Software/Hardware for Audio Production

AKAI DPS16 UPGRADES

Akai (www.akaipro.com) announces Version 2.0 software for the DPS16 24-bit/96kHz digital personal studio. The upgraded operating system offers .WAV file support and mastering enhancements, including a 4-band stereo multiband compressor, Disk At Once mode for CD burning, Normalize and a new Track Down page for making mixdown easier. New Edit mode selections allow users to save and load .WAV files from external SCSI hard disks; individual tracks can be saved as a mono .WAV file, or pairs of tracks can be saved as a stereo .WAV file. The 4-band stereo multiband compressor provides adjustable crossover points and adjustable slopes in order to fine tune frequencies being compressed. Two user-programmable scales have been added to the scales on the Real-Time Vocal Pitch Corrector for storing custom settings. A new smoothing parameter allows natural vibrato to be retained, and MIDI note triggering allows the DPS16 to track MIDI data from an external MIDI keyboard and adjust pitch in real time. Other enhancements include disk partitioning and a Copy Tracks function that allows tracks to be copied either within the current project or between projects, even if they are on different disks. Coming soon, V. 3.0 will include sample rate conversion and dithering, support for external SCSI CD-R W drives and more. List price for the Akai DPS16 is $2,795, including a 20GB IDE hard drive and a 4-bus multieffects processor.

IZ ADAT I/O

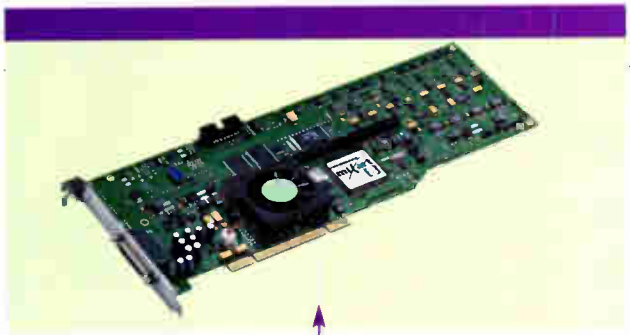
iZ Technology (www.recordingtheworld.com) debuts a 24-track, 24-bit/96k ADAT I/O interface card for RADAR 24 and RADAR 48. The card offers 24-track/24-bit digital output through three ADAT Lightpipe outputs and 24-track/24-bit digital input via three ADAT Lightpipe inputs, with a choice of 48kHz Single Wire or 96kHz Dual-Wire mode. The unit automatically detects the presence of ADAT Lightpipe inputs and syncs to an active input. Rear panel status LEDs indicate valid ADAT Lightpipe inputs and sync source. Other features include ADAT input and output calibration override for user-controlled sync selection, Lightpipe data widths and Lightpipe input sampling points for improving performance in noisy clock environments. An onboard field-upgradeable chip allows future firmware upgrades in RADAR 24 and RADAR 48.

IK MULTIMEDIA SAMPLETANK

IK Multimedia (www.sampletank.com) introduces SampleTank, a software sound module that combines a sampler/synth engine with multisampled sounds into a VST instrument. SampleTank offers 32-bit, floating-point processing and 128-note polyphony, with 128 voices simultaneously available within Cubase VST. Other features include RAM doubling, four effects per voice selectable among 20 DSP algorithms, user-defined sound organization, advanced search features, and .WAV, .AIFF and AKAI-format compatibility. Up to 450 sounds are included. The software is compatible with Mac OS and Windows platforms.

ALTERMEDIA STUDIO SUITE 5

AlterMedia (www.altermedia.com) debuts Version 5 of its Studio Suite studio management software. Originally designed for recording studios, Studio Suite 5 has been expanded to manage all types of media production, including film, TV, radio, DVD, Internet, games, mastering and more. Studio Suite 5 is user-customizable, relational, networkable across platforms and Internet-accessible. The redesigned interface features: hierarchical, expanding/collapsing "packages" for Calendar booking and Project management; tracking of budget and actual charges and expenses and profit/loss per project and per line item; export of Studio Suite invoices to QuickBooks accounting software (others to follow); e-mailing of invoices and communications directly from Studio Suite; and the means to attach any



external file (Avid, Pro Tools, Word, Photoshop, etc.) to a Studio Suite project, contact, library or title, thus centralizing documentation. Pricing for Studio Suite 5 is $499 for the first license, $199 for each additional networked workstation.

DIGIGRAM MIXART

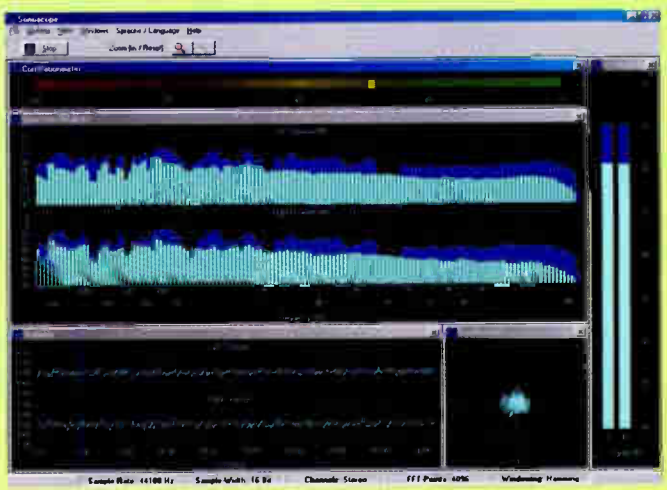
Digigram (www.digigram.com) recently introduced the miXart audio platform. A family of multichannel sound cards, miXart is based on Motorola's Power PC processor and combines audio processing and mixing. The first product is the miXart 8, with eight analog I/Os and an option of four additional stereo AES/EBU I/Os. An upcoming re-lease will offer eight ADAT stereo I/Os. Other features include eight, 16 or 24-bit resolution, MPEG Layer-1 and -2 encoding and decoding (standard on miXart ADAT, optical on miXart 8), real-time mixing, routing and audio effects, time stretch/shrink and scrub, and Digigram's Vconsole Builder application.

NEW MICROBOARDS DUPLICATORS

Microboards (www.microboards.com) introduces two new CD duplicators. The Saturn IIP is a stand-alone duplicator/printer offering two 12x recorders, simultaneous record and print, with an internal 13GB drive that permits caching of print files, disc images and extracted tracks. The Saturn IIP can hold up to 150 discs in re-serve. The Orbit II is a stand-alone, entry-level duplicator, based on Microboards' Champion series autoloaders. The unit holds 50 discs, supports up to 16x recording speed (with variable speed control) and features simple two-button operation.

UPGRADES AND UPDATES

Propellerhead Software (www.propellerheads.se) announced Reason 1.0.1, a free software update that features rewritten ASIO implementation with support for external WordClock and S/PDIF sync. Reason 1.0.1 also includes the ReFill Packer, which lets users create their own ReFill files with their own samples, loops, patches, etc. Also new from Propellerhead, Recycle! 2.0 can now work with stereo files; most settings within Recycle! can now be previewed in real time...**Tascam** (www.tascam.com) announces expanded features for its US-428 workstation controller, including compatibility with Windows ME and Windows 2000, compatibility with MOTU's Digital Performer and control for Native Instruments' B4 virtual synths...**BIAS Peak 2.6** (www.bias-inc.com) is now shipping. The new version of the audio editor features QuickTime, MP3, Shockwave and ASIO enhancements. New tools include: the BIAS Vbox SE VST multi-effects control environment; Waves AudioTrack; Roxio Toast 5 Lite; and over 300 MB of PowerFX Samples...**SEK'D's SONOSCOPE** turns any PC into a real-time audio analysis tool. You can now test SONOSCOPE for free for 10 days by downloading from SEK'D's Website, www.sekd.com. Receive your registration code via e-mail for $299; the full boxed version retails for $499 (Pro Net $399)...**Steinberg**'s HALion VST sampler is now shipping; visit www.steinberg.net...**HHB** (www.hhbusa.com) introduces the DVD-R 4.7GB DVD-R disc, designed for general V. 2.0 DVD recording...**Rimage**'s (www.rimage.com) new Everest printer offers photo-realistic printing on the surface of CD-R and DVD-R discs. Said to offer color printing that exceeds magazine print quality, the Everest also operates at high-production rates for on-demand printing...**SADiE** is now the worldwide distributor of the Meridian Professional MPL Encoder; visit www.sadieus.com...**E-mu** (www.emu.com) has released Version 4.6 of its Emulator Operating System (EOS), the operating system for E-mu's E4 sampling line of instruments; users can now import Ensoniq ASR sounds via floppy and SCSI. Other new features include new RFX plug-ins, including a 13-band Vocoder, Ring Modulator, Phaser, Muxter and Quad Muxter. EOS Version 4.6 is available for free download at E-mu's Website and will ship standard with all E4 Ultra samplers...**Emtec** introduces 2.6GB and 5.2GB MO disks engineered specifically for professional audio recording, with features such as certification routines that eliminate "re-tries." For more information, visit www.emtec-usa.com...The **Primera** Composer is a low-cost ($2,495) duplicator that copies up to 50 CDs per batch. A color printer is optional. Visit www.primera3.com. ■



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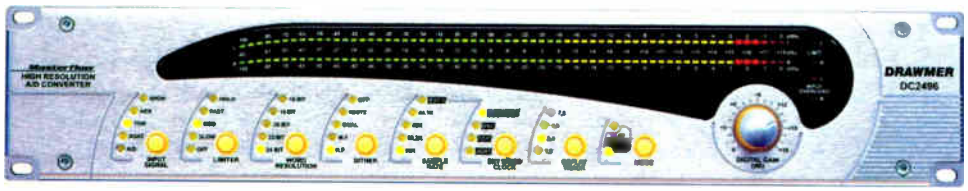

DRAWMER MASTERFLOW DC2496

Drawmer (www.drawmer.com) offers the Masterflow DC2496, a sophisticated, high-res A/D converter with both analog and digital I/Os. Digital converters are 24-bit, and digital output can be 16/18/20/22/24-bit at standard sample rates up to 96 kHz. Noise-shaped dithering is included, and Word Clock I/O is available. An additional converter package provides a further 44.1/48kHz, 16/20-bit output in addition to the main 24-bit/96k output. Analog I/Os are balanced XLR; digital output formats include AES/EBU, S/PDIF, ADAT and TDIF. A high-quality D/A converter allows for accurate monitoring of the digital signal, and the DC2496 can perform ADAT-to-TDIF digital format transfers and vice versa. Additional features include a dual-stereo input limiter with variable time constants, 100dB-range, 64-element stereo signal meters, and an integrated dual sine wave generator.

SONY OXFORD V. 3.0

Control software for the Oxford OXF-R3 digital console from Sony (www.sony.com) has been upgraded to Version 3.0. A key feature of the 3.0 upgrade is a new monitor panel that supports convenient monitoring of stereo, LCRS, 5.1 and 7.1 formats. An innovative "fold-down" capability allows users to execute quick downmixes from one program format to another and check compatibility. The main program bus has widened from two to eight channels, and each channel now has automated joystick panning to the program bus and multitrack buses. Version 3.0 also provides flexible grouping into mono, stereo, LCRS, 5.1 and 7.1 groups, each with its own independent fader and joystick. Control panel options include 24 addressable channel faders and 17 master section faders, or larger configurations with 48 channel faders.

APHEX MODEL 204 AURAL EXCITER

Aphex (www.aphex.com) unveils the Model 204, a revitalized version of its acclaimed Aural Exciter, which features a new Optical Big Bottom function, two independent channels, internal power supply, XLR and ¼-inch I/Os, and improved overall sound quality. The Aural Exciter process extends the harmonics of an audio path, restoring the signal's natural brightness, clarity and presence; the Big Bottom circuitry provides deeper, more resonant bass with little or no increase in peak output. Retail is $400.

EUPHONIX ENHANCES SYSTEM 5-B

Euphonix (www.euphonix.com) announces updates for the System 5-B High-Performance Broadcast Console. Software Version 2.5 supports the new Model 403 Modular Post-Production Panel, offering multichannel monitoring and full machine control with PEC/Direct monitor controls and record safe/ready arming. A new graphical user interface allows 32 switch closures to be created from objects on the control surface; 32 external inputs can also implement console functions. Stereo, LCR, LCRS, 5.1 and 7.1 formats are supported, and operators can control up to eight channels from a single on-surface channel strip. The PatchNet I/O router accommodates 672x672 sources/destinations at 48 kHz (alternatively, 336x336 at 96 kHz). Onscreen diagnostics report all system component status, and a Fail Safe function protects against DSP or control failure.

NEUTRIK 3-POLE DIGITAL XLR

Neutrik (www.neutrikusa.com) has introduced the new FX-Digital XLR connector, designed for digital microphones and other digital equipment. The new 3-pole connector features gold contacts, a coaxial ground spring and a coaxial hex crimp ferrule at the cable entrance for reliable transition of the shield to the shell. A self-adjusting cable strain-relief makes screwed assembly obsolete. The FX-Digital accepts a wide range of cable diameters and will be available in 4 to 7-pin configurations.

APOGEE 24-BIT A/D CONVERTER

The AD-16 16-channel 24-bit A/D converter from Apogee (www.apogeedigital.com) operates at sample rates up to 96 kHz, offers ADAT optical output, and can sync to wordclock or its own internal high-stability clock. Matching the companion DA-16 16-channel D/A converter, the AD-16 features UV22HR wordlength reduction and a SoftLimit feature for maximizing digital output

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level. (These may be applied separately to channels 1-8, 9-16 or all channels). The AD-16 also supports the Sonorus S/MUX spec for sample-splitting, high-sample-rate audio data into multiple ADAT-style optical interfaces. Additional Lightpipe outputs deliver up to 96kHz digital audio from all 16 channels in this mode. I/Os include 16 balanced analog inputs on 25-pin D-subs; outputs consist of four Lightpipe interfaces delivering 2x8 channels in ADAT mode and 4x4 for S/MUX, plus Word Clock Out. Price: $2,995.

BLUE SKY POWERED MONITORS

Blue Sky International (distributed by Group One Ltd., www.g1ltd.com) offers the first system in a new range of powered, near-field reference monitors. The Sky System One consists of two Blue Sky SAT 6.5 bi-amplified satellite speakers and a companion Sub 12 powered subwoofer. Featuring full-range audio with smooth on/off-axis response, the system uses Blue Sky's proprietary computer-optimized crossover and bass-management network. Weighing 28 lbs. each, the SAT 6.5 powered speakers feature video shielding and are provided with Omni-Mount® Series 100 (¼-inch x20) mounting inserts. The 62-pound Sub 12 has a built-in 2.1 bass management system with a fourth-order, 80Hz Linkwitz-Riley lowpass filter, and second-order, 80Hz highpass filter for the satellites. Sky System One is THX pm3 approved for use in THX pm3 Certified Studios. A 2.1 system retails at $1,395; a 5.1 system is $3,295.

DB TECHNOLOGIES M•AD-824

dB Technologies (distributed by Audio Intervisual Design, www.aidinc.com) adds the M•AD-824 24-bit/96kHz, 2-channel A/D converter to its range of M Series Modules. Designed to fit in the dB•44-96 PSU/rackmount system, the M•AD-824 offers 96/88.2/48/44.1kHz sampling with varispeed, Acoustic Bit Correction dither and noise-shaping algorithms, and two forms of "soft saturation" that prevent sharp clipping and emulate analog tape behavior. The M•AD-824 also has individual input-level gain pots and LED metering with peak hold. Other M Series modules include a clocking module (required for A/D conversion), a 24/96 D/A converter, single- and dual-speed AES translators, and up/down sample rate converters. With the dB•44-96 rackmount system, users can mix and match up to four M Series modules, providing a flexible and economical way to configure 2 to 8-channel AD/DA conversion functions in one package.

AKAI MFC42 ANALOG FILTER

Akai (www.akaipro.com) offers the MFC42 MIDI Filter Controller, a digitally controlled analog filter module, featuring four selectable filter types and real-time control of filter, LFO, distortion, phasing and envelope parameters. Optimized for the MPC Series products, the MFC42 features two independent channels: a stereo channel for processing MPC drum sounds and a separate mono channel for bass. Four filter types include lowpass, highpass, bandpass and notch filters. Toggle switches allow users to switch among filter types immediately. The MFC42 also provides built-in effects, including distortion, a stereo analog phaser and EQ. Standard inputs are augmented with direct turntable inputs.

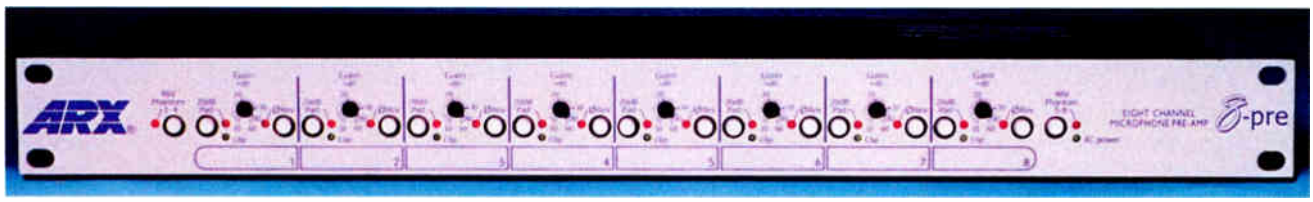
SRS PRO 220 SPATIAL ENHANCER

SRS Labs (www.srslabs.com) announces the SRS Pro 220, a rackmount processor that restores the original 3-D sound field to any stereo music mix without affecting time or shifting phase. Incorporating patented Sound Retrieval System (SRS) technology, the Pro 220 can also convert mono material to stereo, and may be used to create additional width and depth in any stereo recording or sound reinforcement application. Price: $299.

JOEMEEK DUAL STUDIO CHANNEL

The TwinQCS Dual Studio Channel from Joemeek (distributed by PMI Audio Group, www.pmiaudio.com) is a dual-channel voice processor/tracking module, with a mic pre, optical compressor and 3-band EQ in each channel.

PREVIEW

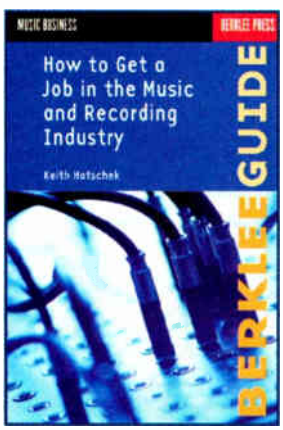


The self-optimizing TwinQ matches itself to any mic or instrument source impedance. Inputs include balanced XLR mic and line inputs, plus a front panel instrument input for each channel. The two optical compressor sections can be linked for stereo compression via a front panel Optical Link button, and large VU meters show input gain or gain reduction. Price is $1,299.99; an optional 24-bit/96kHz stereo output card is $199.99.

ARX 8-CHANNEL MIC PREAMP

ARX Systems Pty. Ltd. (www.arx.com.au) has released the 8 Pre 8-channel microphone preamplifier. Featuring premium components, the 8 Pre offers eight individual mic pre's in a 1U rackmount enclosure. Each mic pre has an adjustable 40dB gain trim pot, a 20dB pad and a polarity reverse switch, all mounted on the front panel. 48V Phantom power is switchable in banks of four (channels 1-4, 5-8). Input headroom is specified at +23 dB, and individual channel Clip status LEDs light up 1 dB before the onset of clipping. Signal-to-noise ratio is 93 dB unweighted (99 dB A-weighted). Input connectors are balanced XLRs; outputs are balanced TRS jacks. Price is $530.

HOT OFF THE SHELF



Berklee Press offers *How to Get a Job in the Music and Recording Industry* by industry veteran Keith Hatschek. Based on Hatschek's popular career development class at San Francisco State University, the $24.95 paperback provides detailed guidance on the job-seeking process and introduces readers to a wide array of career options, from Foley artist to video game sound designer. Call 617/266-1400 or visit www.berkleepress.com...**Verbatim's new 80-minute DataLifePlus CD-R media** are certified for full-speed 24x recording. In addition to recording at speeds of up to 3.5 MB/sec with 24x drives, and 3.0 MB/sec with 20x drives, the media can be used with existing CD drives at speeds ranging from 1x to 16x. At 24x, burning an entire CD takes about three minutes. For more information, visit www.verbatim.com... **Valentino Production Music** offers its 5-CD Comprehensive Production Music Library, which includes almost 150 tracks tailored for low-budget and small production applications; available royalty-free for $250. Surf to www.tvmusic.com or call 800/223-6278... **Gepco's next generation of 110-ohm AES/EBU digital audio multipair cables** is available in 4/8/12-pair configurations. Gepco's 5596GFC Series cables provide accurate transmission of all formats of AES3 digital audio, including 96kHz sampling rates. For more information, call 847/795-9555 or visit www.gepco.com... **Professional Systems Network offers its *2001 Reference Catalog* in an expanded CD-ROM format**, as well as in hard-copy. The 400-page print version of the reference catalog contains product information on desktop video editing, projection, computers, presentation graphics and desktop video, and lists products from 183 manufacturers. The CD-ROM version includes an enhanced product search feature, plus a selection of technical articles and system profiles. Call 800/277-7764 or visit www.psni.org...**AKM Semiconductor debuts its line of Direct Stream Digital (DSD)** D/A converters with the AK4383, a 2-channel DAC designed for pro and audiophile applications, and the AK4357, a 6-channel DSD device aimed at multichannel audio playback and surround recording applications. Both products support SACD and 24-bit, 192kHz DVD-Audio formats. Features include direct balanced outputs, digital volume control and Soft Mute function. Call 408/436-8580 or visit www.akm.com...**Lexicon's Version 2.5 software for the 960L Multi-Channel Digital Effects System** features more than 100 new algorithms based on newly developed stereo and multichannel delay algorithms. Also included in Version 2.5 are two new stereo and multichannel 96kHz algorithms. The new software is priced at $599 but is free to registered users. Visit www.lexicon.com to register or call 781/280-0300 for more info. ■

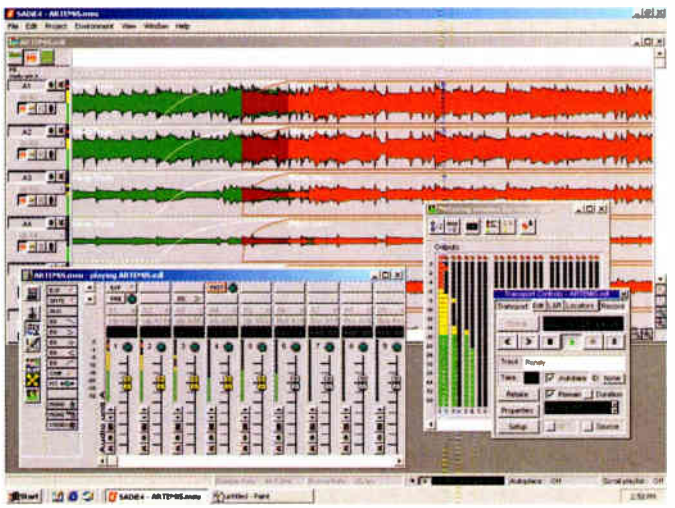
A live feel and superb audio quality are vital, especially when playing software instruments. You want to hear the music as you play it. Now, with the EMI 216, you can. With other USB audio interfaces, it's often a case of too little, too late, because latency between the computer and the interface results in a disturbing signal delay. Not so with the EMI 216. Thanks to a unique driver architecture, it's the USB audio interface with the lowest latency currently available. And the only one with 6, 24 Bit, analog outputs. Zero Latency Monitoring and S/PDIF digital connectors round out a professional mobile audio interface that's ideal for both live and recording situations. Regardless of whether you use it with a laptop on stage, in the studio or for DVD 5.1 Surround playback, the EMI 216 is definitely the right choice.

Technology with Soul.

www.emagic.de

SADiE ARTEMIS

DIGITAL AUDIO WORKSTATION



Artemis allows up to 18 tracks of 44.1/24-bit or 30 tracks of 44.1/16-bit audio; sampling rates of up to 192 kHz are supported.

Given the ever-expanding choice of editing platforms available, why choose a particular product? In SADiE's case, the answer could be depth. SADiE software, although not difficult to use, always seems to have another layer of accessible editing depth. It would take the better part of this magazine to explore all of the SADiE's editing features; therefore, the objective of this article will be to acquaint new users with the SADiE system in general and outline the expanded features of the new Artemis model.

SADiE systems are primarily known as editing workstations, yet perhaps it's best to think of Artemis as a comprehensive digital editing system "plus." In addition to its digital I/O and a complete set of mastering tools, the Artemis system includes AD/DA converters, making it entirely possible to use as a stand-alone hard disk recording system. This system can take you from initial tracking all the way to the CD mastering process. The new Artemis model supports up to 18 tracks of 44.1kHz, 24-bit audio, or up to 30 tracks of 44.1kHz, 16-bit audio per card, and sample rates up to 192 kHz.

Priced at $15,495, the basic SADiE Artemis system consists of a businesslike, four-rackspace PC chassis, a rackmountable breakout box, a 17-inch CRT monitor, keyboard and mouse. The 4U chassis houses a standard PC motherboard with Pentium III processor (for OS chores only), 128 MB of PC133 RAM and an 8MB AGP graphics card. The case also houses the CAT timecode card, the Artemis card, a 10GB system drive and removable SCSI drive. All Artemis systems currently ship with Windows 2000 as the standard OS.

The breakout box features eight channels of AES/EBU digital I/O on four XLRs (these can also accept S/PDIF I/O if desired), XLR digital reference input, four channels of RS-422 9-pin serial machine control, XLR SMPTE LTC timecode I/O, and eight channels of ¼-inch, unbalanced analog I/O. The Breakout Box 800B option adds balanced XLR analog inputs and outputs. The system can be expanded by adding up to four Artemis cards and associated breakout boxes, providing a maximum of 32 audio inputs and outputs.

Audio storage chores are handled by a removable 18GB SCSI drive. Additional SCSI devices can be connected to the external port on the Artemis card.

IN SESSION

SADiE's proprietary software runs solely in conjunction with SADiE's hardware, but the system itself runs on most versions of Windows. The unit I tested operated on Windows 98. SADiE has a reputation for writing solid and elegant software, and this version (4.0) was no exception. I did not experience a crash the entire time I used the Artemis. All of the DSP processing occurs on the Artemis card, so there is virtually no stress on the operating system. It is safe to say that you can put PC stability fears out of your mind.

Anyone familiar with Steinberg's Wavelab and Sonic Foundry's Sound Forge editing software should have no trouble with SADiE's main editing screen. Editing on a SADiE system can be as elementary or as involved as you require. Although I found basic editing to be greatly intuitive, finding some of the deeper functions can be a little difficult. This is a fairly minor issue because nearly every editing function can be assigned to a hot key; therefore, after an initial learning curve, SADiE-style editing becomes remarkably fast.

Audio files are loaded into the Artemis either by importation or by real-time recording via SADiE's digital or analog inputs. SADiE can import nearly all types of audio files, including the new AES-31 standard, a SADiE first. In addition, SADiE is able to read hard drives formatted in the SADiE 2, SADiE 3, HFS, FAT 16 and FAT 32 standards. The Artemis is now shipping with its audio drive formatted to FAT 32 in compliance with the AES-31 protocol. A cool feature of the Artemis is the ability to stream and edit audio from these differently formatted drives simultaneously.

Once audio files are loaded into the Artemis, all signal processing occurs at 32-bit floating point precision,

BY PETE LEONI

ensuring that there will be virtually no degradation of audio quality. The Artemis is capable of extensive DSP via its built-in processors and optional proprietary plug-ins, including a de-esser, stereo expander, graphic EQ, dithering and a mastering limiter. Also optional is a complete set of CEDAR sound restoration tools and Apogee's UV22 bit-reduction plug-in. Direct X effects may be also applied offline—not in real time.

A session with SADiE starts with the creation of a Project, containing a playlist (called an EDL), a mixer and a Clipstore that holds all audio clips associated with the current Project. EDLs (Editing Decision Lists) are created either by importing audio, or directly recording it via SADiE's inputs. Each EDL consists of a series of audio clips. These clips can then be individually edited from within the EDL. All editing of clips including volume, crossfading and application of most effects is nondestructive and occurs in real time. Furthermore, EDLs and mixer parameters may be automated. Automation is locked in all the way down to the sample level within each clip. When a clip is moved, copied or edited, all automation data will move along with the individual clip. Doing cuts in real time while playing automated audio is remarkable!

Each EDL created can be routed to a specified channel in SADiE's mixer screen, which features the usual Vertical Fader, Plus Pan, Solo and Mute buttons. EQ and dynamic processors are simply "drag and dropped" into each channel strip; the parameters of these processors can also be automated.

Once an EDL is created, automated and processed, and the clips are placed in the desired order, a PQ list can then be manually or automatically generated. At that point, a CD master is created. The Artemis is capable of creating PQ masters to DDP 1.0, 2.0, Red, Orange and Blue Book standards, plus other formats as well.

Many mastering labs still tend to favor hardware over software processing options, but I have to say that SADiE's EQ and dynamics plug-ins sounded superb. The sonic quality is definitely on par with current state-of-the-art hardware devices.

One aspect of the Artemis system puzzles me: The SADiE system is widely known as one of the finest audio workstations available. They are found in major mastering rooms and post-production facilities around the world. Why, then, are the system's stock converters only 20-bit? True, SADiE is primarily known as an editing platform, and, yes, the vast majority of audio will be recorded via the digital inputs or imported into the system, but if you are going to include AD/DA converters in an otherwise excellent system, then incorporation of high-quality, 24-bit converters should be a given, especially when the hardware has been recently upgraded, as is the case for the Artemis. (Note: SADiE's tech support staff informs me this will be addressed in the next version of the hardware.) I would also like to see the Artemis have the ability to run Direct X and other plug-ins in real time. Some first-class and truly remarkable tools are now available in these formats.

In the stratified air occupied by high-end digital editors, SADiE workstations have long held their own space. Today's engineers expect to have the ability to do finely detailed audio editing. The sonic quality, speed and editing depth possible with the SADiE Artemis guarantees it will stay among those at the top.

SADiE Inc., 2218 Metro Center Blvd., Nashville, TN 37228; 615/327-1140; fax 615/327-1699; www.sadie.com. ■

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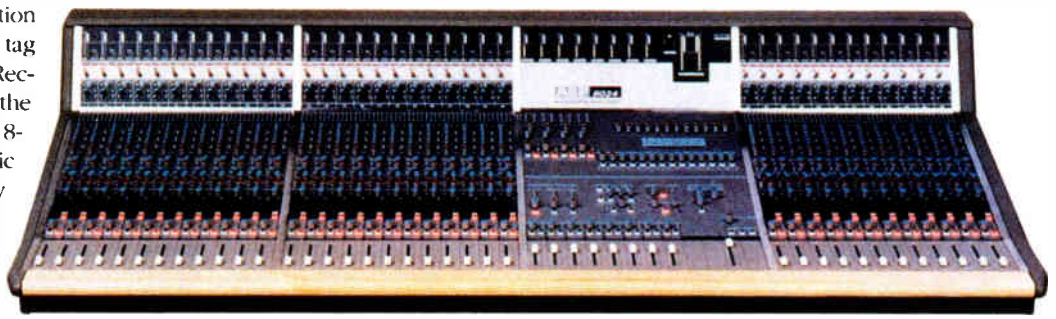
AUDIENT ASP8024

HIGH-RESOLUTION ANALOG MIXING CONSOLE

These days, new professional analog consoles don't appear very often, especially in the price range for mid-sized studios. There are reasonably priced used models available. If you search the Internet or *Mix* magazine classifieds, you'll find plenty of old warhorses priced between $30k and $80k, but on more than a few of these, repairs/restoration and installation can easily push the real price tag well past the $100k mark. Recognizing the gap between the compact (and ubiquitous) 8-bus boards carried by music stores and the elusively priced used high-end consoles, UK-based Audient offers a solution in the form of the ASP8024. Priced from $33,120 (in standard 36-input configuration), the ASP8024 is a good fit for smaller studios or large studios' "B" and "C" rooms, and this console's sonic quality rivals that of many boards found in high-ticket "A" rooms.



NEW PARTNERSHIP, OLD PARTNERS

Audient was formed in November 1998, by the original founders of DDA (Deardon Davies Associates), David Deardon and Gareth Davies. DDA manufactured mixing consoles in the early 1980s. The design of the 8024 reflects the depth of experience present at Audient. All controls are well laid out, and the color-coded surface makes the signal path easily recognizable. Intelligent ergonomic design seems high on Audient's priority list. For example, the input module of each channel shares some tilt with the meter bridge, facing the engineer at a more visible angle.

The ASP8024 is an in-line design, with two faders per channel strip, 24 bus outputs and a well-equipped center section featuring a stereo bus compressor. The fader housing accepts many of the popular moving fader automation systems, such as Flying Faders or Uptown. ASP stands for Analogue Signal Processing, and 8024 refers to 80 inputs and 24 outputs (available with the 36-channel configuration). The console can be shipped in 24, 36, 48 or 60-channel versions. Channels are arranged in buckets of 12, which hinge up for testing. In terms of repair, this is an advantage over the common 8-bus consoles where, if one channel goes down, the whole board needs to go in for repair, though it's a disadvantage when compared to the high-end modular consoles, which can still operate while one channel is removed for repair.

The Audient frame is sturdy and a stand, complete with built-in cable boxes and adjustable feet, is included. The power supply for the board is refreshingly quiet, as it uses convection cooling instead of a fan. The meter bridge offers 20-segment peak-reading bar graph LEDs and a simpler, three-segment meter; these two can swap duties metering input or off-tape. The 20-segment meter divisions follow the digital convention, with zero at the top, corresponding to -18 dBFS.

SIGNAL FLOW

The input section of each channel is tilted at about 60°, nicely placed facing forward, which brings these knobs within reach of a seated engineer. The input controls include switches for phase, phantom, low cut, insert and mic/line. There is no pad, and the gain runs from 6 to 60 dB. After the mic pre, the signal hits the short fader, which then sends it on to the buses and aux sends, with or without EQ. Normally, the long fader monitors the track returns from the tape machine, but these duties can be swapped at the touch of a button.

After the short fader, the signal can be sent to the 24 bus outputs. There is a switch to select either 1 through 12 or 13 through 24, and panning between buses is available. Another luxury: Before the EQ section, the Long Fader Source switch lets the long fader feed into the short fader, allowing use of the bus outputs as extra effects sends at mixdown.

The EQ provides ±15 dB in four bands: two parametric midbands, and high and low shelving. The mids, with bandwidths variable from 0.4 to 2 octaves, overlap (60 to 1.5k Hz and 450 to 20k Hz), and the shelves can switch between 50 and 100 Hz for the highpass and 10 and 18 kHz for the lowpass. I would have liked more choices here, such as a 15kHz shelf. The EQ can also be assigned to both the long and short faders, and there are separate insert points for each.

On each channel, a switch sends the signal either to aux outputs 1 through 6 or to auxes 7 through 12. So, although 14 aux sends are available (sends A and B are intended for the band headphones), one channel can only reach a limited number of

BY DAVID OGILVY

sends. Fortunately, with numerous routing possibilities, it is difficult to imagine this becoming a problem. And Audient has implemented yet another helpful feature for the tired engineer: red knob caps for aux sends A and B. Unfortunately, the pre/post switches affect pairs of sends, which is the only aspect that might cause a few extra seconds of thought during an effects-laden mixdown.

Both short and long faders have Solo and Cut buttons. Depending on the selection made in the center section of the console, Solo can be heard in one of three modes: PFL, AFL or SIP. Solo-In-Place is an extremely useful feature, one that is strangely elusive on some consoles. In addition to a Solo Level control, there is a Solo In Front control, which allows a customized balance to be set between the soloed channel and the rest of the mix.

The center section also contains an oscillator, with tones at 40 Hz, 1k, 10k or 15k Hz. Extensive monitoring options appear in the spacious center section, as well as the auxiliary send masters and 24 bus trim controls. Aux sends leave the back panel via XLRs, while the buses are output through three D-Sub connectors and wired using the popular Tascam DA-88 format. Four pairs of effects returns input through balanced ¼-inch jacks and appear, with versatile routing options, in the center section. The eight subgroup faders each have insert points, Solo and Cut switches, and Pan controls.

There is also an insert point for the main stereo bus, as well as a dedicated stereo compressor. It cannot be patched into anything other than the stereo output of the board. There has been no skimping in the design of this compressor, useful both for approximating the sound of the mix on the radio and for managing the headphone mix that the band hears in the studio (as well as simply "premastering"). There are controls for attack, release, make-up gain, threshold and ratio (2:1, 4:1 or 10:1). Gain reduction is visible with a 12-LED meter.

RACE TO RETROFIT

I got a chance to run an ASP8024 through its paces recently. One of a growing number of Audient consoles that have made it overseas thus far is located at Retrofit Studios, in sunny Sacramento, Calif. The facility's large tracking room and multiple isolation booths are well-complemented by the Audient console. Playing back a 2-inch master of an acoustic group I recorded and mixed years ago (Harmony Grits), the tracks sounded much better than I remembered. Having passed these very tracks through an Amek and a Neve, I was impressed by the sound quality of the 8024. I had long ago completed mixing the song but felt compelled to mix it all over through the Audient console.

In general, the audio quality was clean, but not brittle, and was free of any undesirable character. When I engaged the EQ, I was able to add some undesirable character, but only through stupidly exaggerated amounts of gain. The parametric midbands performed well in the act of notching out offending frequencies. Controls are easy to see and read, and there's enough room around the knobs to work comfortably—no squeezing here! I sometimes wanted an additional frequency band, but, in general, the Audient EQ was more than adequate.

With a familiar microphone, I recorded mandolin through one of the Audient preamps. The results represented the microphone and the mandolin extremely accurately. There is rich detail in the midrange and an airy quality to the top end.

My only real complaint about the console concerns the feel of the knobs. They turn smoothly and feel fine to the touch, but they seem to afford quite a bit of side-to-side play—not solid. This is to be expected with multichannel circuit boards. However, I anticipated a much more solid Control Room Monitor knob, which gets used every few minutes. Of course, this objection is outweighed by the affordability of this great-sounding console, but I had to nitpick.

This is a fine board that is reasonably priced. The grounding, routing and layout are extremely well-thought-out. It's easy to use, because most controls are within reach of a seated engineer, and there is an optional built-in TT patchbay. It is very quiet, yet its sonic qualities are warm and brilliant, and for the user who demands more, it can accommodate third-party moving fader systems. The 8024 will not add a certain tone to your sound the way a Trident or Neve will; instead, it provides a transparent signal path—clean and free of the strident top end found in lesser consoles. If I were starting a studio right now, I would rather purchase a new Audient than an old fixer-upper.

Audient, dist. in the U.S. by Audio Independence, 2140 W. Greenview Dr., Middleton, WI 53562; 608/831-8700; www.audient.co.uk. ■

David Ogilvy, an engineer/producer in Northern California, wishes the latest generation of music listeners knew the joy of good analog recordings. And big thanks go to JR and the staff at Retrofit Studios for their assistance and insights.

VINTECH AUDIO X73

MICROPHONE PREAMP/EQUALIZER

The Vintech X73 is a single-channel microphone preamp/equalizer based on the venerable Neve 1073 channel strip module. Vintech Audio has been in the business of manufacturing audio gear based on vintage designs since 1997, and the X73 is the company's flagship unit. Featuring the original circuit design, the same polystyrene capacitors and the same transformers ensures that the X73 sounds exactly like the old 1073—back in the day, when the Neve unit was brand spanking new. (Vintech also offers a 2-channel, all-discrete microphone preamp based on the Neve 1272 amplifier.)

A large part of the sound of the original Neve 1073 and the X73 is the Class-A output amplifier that uses a 2-power transistor. The DC operating voltage flows through the audio output transformer's primary winding, a design twist that is more like an RF (radio frequency) final amplifier design than an audio amplifier circuit. This causes a certain amount of desirable low-frequency coloration, aka distortion. The input impedance can be switched between 1,200 ohms and 300 ohms on both the X73 and the 1073, but not easily—the 1073 module has an inaccessible toggle switch under the rear edge connector, while the X73 has to be re-wired internally.

Removing the top cover from the X73's single-rackspace, 16-gauge, all-steel cabinet reveals a single, large motherboard with all components neatly laid out, and three audio transformers mounted to the chassis sides. As in the original, there are both line and mic input transformers and a large output transformer, all made by St. Ives. The X73 is well-constructed and hand-assembled in the U.S.—and at considerable expense, judging from the individually soldered front panel switches. Dallas Upton from Vintech explained that the original 22-position, Elma rotary input gain switch used in the 1073 must be hand-wired for each X73 unit. The other EQ switches are by Electroswitch and, like the Elma, have gold contacts. I like the new custom-machined aluminum knobs that match the original plastic knobs in shape and color, but without the vintage feature of cracking, discoloring or breaking. (I find that when old Neve modules are mounted horizontally on rack panels, facing you instead of vertically mounted in a console, it is all too easy to apply too much torque to the controls and switches. This can cause those old and possibly brittle plastic knobs to crack or get loose.)

SIGNIFICANT MODERN TOUCHES

If you are going to emulate a recording studio icon like the Neve 1073, then you should improve on it without trying to make it sound better. The Mr. Rupert Neve design, "warts" and all, occupies a special place in engineers' and producers' sonic palettes and imaginations. The X73 has several additions that, without changing the Neve 1073's personality or character, turn the old 1073 into a true piece of professional, stand-alone outboard gear.

First of all, there is an Output Level control (made by Clarostat) for precisely trimming down final levels if needed. This control is normally operated fully CW, allowing for a full output level as set by the input gain selector. To the right of this control are three toggle switches for +48-volt Phantom, Phase Flip and EQ In/Out. But there aren't any silk-screened labels to indicate which way these switches work! (The switches activate to the right.) It's still an improvement over the 1073, which uses two push buttons for EQ In/Out and Phase that, in my experience, are the first switches to fail, get noisy, and require cleaning or replacement.

Other new items are an LED Output meter ranging from -6 dB to +18 dB and a power indicator. I only wish there were also clip LEDs that indicate when the preamp section and/or output amp clips. Another new addition is the ¼-inch front panel instrument input jack. You can plug a bass guitar directly into this 100k input impedance jack, but be aware that it is active along with any microphone already plugged in—the unit needs Mic/DI switching and this should be added soon to future units. On the rear panel, there are both Neutrik XLR mic input and line output jacks, but, strangely, a ¼-inch TRS line input jack.

ENHANCED FREQUENCY SELECTION

The Neve 1073 equalizer is a 3-band type with 16dB boost or cut and a separate, selectable highpass filter. Frequencies for the highpass filter are 50, 80, 160 and 300 Hz. The low-frequency equalizer section is a shelving type with 35, 60, 110 and 220Hz positions. The Vintech X73 copies this same lineup. The fixed, bell-shape midrange section in the 1073 has: 360Hz, 700Hz, 1.6k, 3.2k, 4.8k and 7kHz frequencies, and the X73 adds a 10kHz position here. The high-frequency section in the original 1073 is a fixed-shelving type set to 12 kHz, but the X73 adds a great new feature: switchable 10, 12, 14 and 16kHz high-frequency positions. Except for the high-frequency shelf EQ, the 1073 has Off switch positions for each section

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of the equalizer and the highpass. They are in first position on each of the knobs across the panel. Unfortunately, the X73 does not copy the 1073's consistency here—the Off position is at the opposite end of the midrange knob.

NOW FOR THE A/B!

I was fortunate enough to have a newly refurbished Neve 1073 module supplied to me by Brent Averill Enterprises for this casual and very nonscientific A/B. I also had a second Averill module that was recapped about seven years ago. The Neve module (and the X73) has up to 80 dB of gain selectable in 5dB steps with the rotary Input Gain control. The same switch also changes the module from the line input to the microphone input after passing through an Off position. The X73 I received had 24 positions, one extra at each end of the switch's travel that muted the output. Apparently, the switch stop pins were forgotten. The wider spacing of the controls on the X73 front panel and the larger metal knobs make rotating through gain steps and operating the equalizer much easier than the original 1073. I also liked the center detented equalizer Boost/Cut controls on the X73. With a Neve 1073, you are never quite sure if you are exactly at 0dB boost/cut, hence the Off position.

I used a Neumann M49 microphone with a narrator for my first quick test. Along with three other engineers and producers (all of whom know the sound of this particular M49), we strictly evaluated the quality of the amplifier without getting distracted by music or good singing.

Using the microphone preamp only with no EQ switched in, the two Averill modules were very close together in sound. There were some very slight differences in gain and tonality, but they were well within typical module-to-module differences you would find in a well-maintained Neve console. The Vintech X73 acted like a third Neve module with similar gain and tone. All three modules sounded great, and I think we were hearing differences in component tolerances and age.

Using the equalizers on line-level sources, I was not able to hear any difference between any of the three modules. Without using precise test gear, setting boost or cut with the 1073 equalizer is, at best, a "guesstimate." The 1073 and X73 do not have calibrated Boost or Cut knobs, so you just turn the controls until it sounds right. All three units sounded smooth in the high frequencies and warm in the bass—just like a Neve console. I tried the X73 with different microphones on all the sources I would normally use a 1073, and it sounded the same in all cases.

With the exception of a few manufacturing oversights, the X73 excels, providing more frequency choices than the old Neves, plus direct input, metering and output level control. The new switch components offer glitch-free operation, while the more rugged construction is valuable for taking the Neve sound "on the road."

A great way to get into the classic sound of Neve with a good-sounding, rugged and worthwhile unit, the Vintech Audio X73 sells for $1,995. A power supply that will run up to four X73s sells for $225.

Thanks to Dan Vacari and Lex Marasek from L.A.FX Studios, North Hollywood, Calif., and producer Greg Mathieson for their help in this review. Also thanks goes to Brent, Avedis and Haik at Brent Averill Enterprises, Sherman Oaks, Calif.

Vintech Audio, 4905 Reagan Ave., Seffner, FL 33584; 813/643-8114 or 877/4-MICPRE; www.vintech-audio.com. ■

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

WAVES MAXXSTREAM

INTERNET AUDIO PROCESSING/ENCODING SYSTEM

Plug-ins from Waves Native Power Pack have resided in both my Mac and Windows computers since 1997, and I would be in a world of hurt (on a pro audio level) without them. Being both a longtime Waves user and an advocate of better audio on the Web, I jumped at the chance to review MaxxStream.

What is MaxxStream? To begin with, MaxxStream is an industrial-strength, rackmounted PC, specifically designed as an all-in-one Internet audio processing/encoding solution for the broadcast industry. Combining the operating stability of the Windows NT 2000 environments, with a proprietary Waves soundcard (sporting onboard DSP) and Waves audio processing software, MaxxStream could easily be mistaken for a Waves DAW. Its only purpose in life, however, is to receive a live audio stream, premaster it (on-the-fly) using Waves software for encoding, encode the target audio live in the RealMedia, Windows Media, MP3 or Quicktime audio formats, and deliver it directly to a streaming server for Internet distribution. Did I mention this was all in real time?

CONFIGURATIONS

MaxxStream is available in two basic configurations, the M100 and the M200. (The MaxxStream PCI card is included in both the M100 and M200, and can also be purchased separately for use in any Windows NT or 2000 computer.) The entry-level MaxxStream M100 is a single-rackspace PC with a 466MHz Celeron processor, one MaxxStream DSP card (to handle the I/O and DSP chores), and Waves processors and encoding software. The standard M200 comes with a little more horsepower under the hood (specifically a Pentium III 800MHz CPU), and can be configured to work with as many as four DSP cards. An M200 with four DSP cards installed can process and deliver eight or more separate audio streams simultaneously, dependent on CPU.

Figure 1: The Wave Rack is a chain of Waves processors for enhancing audio streams.

THE COMPONENTS

The Wave Rack (Fig. 1) is a chain of Waves processors optimized to enhance the target audio stream for playback over the Internet. A custom Rack can be configured from scratch or there are a variety of preset Wave Racks that will meet most, if not all, broadcast-encoding needs. Audio professionals who have used the Waves NPP and Gold Bundle plug-ins will be familiar with most of the MaxxStream software processors, specifically the Q10, Audio-Track, C1, C4-24-bit, L1, S1, De-Esser and MaxxBass. Any or all of these processors can reside in a Wave Rack.

Figure 2: By opening a processor in the Wave Rack, you can edit its parameters.

The MaxxStream PCI card offers both analog and digital I/Os, including balanced XLR, unbalanced RCA, AES/EBU and S/PDIF. The DSP on the MaxxStream card is handled by a Motorola 56301. The obvious advantage of having a separate DSP card is that the host CPU is free to run the OS and encoding software.

MaxxStream is a Windows NT 4.0/2000-compatible system. Unlike the consumer versions of the Windows OS, Windows NT 4.0/2000 Professional is just about bulletproof in regards to stability and ability to stay up and running 24/7. Also, by using the industrial-strength version of Windows, a MaxxStream system can run multiple soundcards, and has the capacity to process and encode multiple audio streams simultaneously.

IN USE

Once MaxxStream is booted and running, it is simply a matter of choosing the proper Wave Rack preset and, at the most, making a minor adjustment to the input and output levels in the audio chain. Loading a Wave Rack is as easy as selecting the encode quality (low, medium or high) and choosing a preset that most closely matches the content of the broadcast stream (classical, rock, speech, etc.). Each software processor (or plug-in, if you like) can be opened and edited by clicking on its location in the Wave Rack (see Fig. 2). It is, of course, a necessary step in the process to launch the encoding software (RealProducer Plus or Windows Media Encoder) and set the attributes to match the targeted streaming audience. Both RealProducer Plus and the Windows Media Encoder have rudimentary input meters that will get you into the

BY RON SIMPSON

ballpark with regards to whether your processed audio signal is too low or too high.

One minor inconvenience that I ran into with the review unit (M100 with NT 4.0) was the lack of a mixer utility for the MaxxStream soundcard. Both RealProducer Plus and the Windows Media Encoder rely on this utility for volume control within their applications. Without this utility, the volume levels for the encoding software can only be controlled from the Wave Rack. Once the user is aware of this, it should not be a problem.

MONITORING AUDIO

In my review unit, I was not able to effectively monitor the audio signal (post-processing) through the analog or digital outputs in the MaxxStream soundcard. This has more to do with the way the encoding software works than with the MaxxStream system itself, as it's not possible to hear the results of the encoded stream without launching either the RealPlayer or the Windows Media Player and listening to the stream playback through a consumer soundcard. The MaxxStream unit does have a SoundBlaster consumer audio card installed, and thanks to the multitasking nature of Windows NT, it is possible to monitor the live stream (post-processing and encoding) this way.

REAL PRODUCER PLUS 8.5, WINDOWS MEDIA ENCODER

One of the available MaxxStream options is RealProducer Plus 8.5 from RealNetworks. A distinct advantage to using RealProducer Plus to encode a live audio stream is the SureStream option. With SureStream, a single incoming audio stream can be encoded into the streaming RealMedia format and delivered to the RealServer in as many as eight different target bit rates. Also, the audio codec in 8.5 sounds considerably better than in previous versions.

Unlike the RealProducer Plus, the Windows Media Encoder installed on MaxxStream only allows the user to encode the audio stream at a single bit rate. This is due to limitations in the "basic" Windows Media encoder that ships with MaxxStream. MaxxStream does, however, allow the user to encode and deliver RealMedia and Windows Media content simultaneously using one DSP card.

IN CLOSING

I will admit that I initially had some problems adjusting to the quirks of Windows NT 4.0 (vs. 98), and also had to get over a few preconceived notions as to what exactly MaxxStream was and was not—I kept thinking it was a DAW. MaxxStream is designed to give the emerging Internet broadcast industry an all-in-one audio processing/encoding solution that can stand up to the rigors of running 24/7 without crashing. By integrating its industry-standard Waves processors with one or more DSP cards, and using an industrial-strength rackmount Windows PC, Waves has created a unique and powerful tool. The Web audio/Webcasting industry has long been plagued by poor sound quality, and by introducing MaxxStream into the audio chain of events, any Internet broadcast will sound a whole lot better.

Note: When I started this review, Windows NT 4.0 was the operating system being shipped with MaxxStream, but Windows 2000 Professional (originally dubbed NT 5.0) is now the current OS. Also, the C4 processor/plug-in had not been installed in my review unit, but is now shipping with all MaxxStream systems. For the record, I'm using the C4 in Pro Tools, and it rocks.

Waves, 6716 Central Ave, Suite 8, Knoxville, TN 37912; 423/689-5395; fax 423/688-4260; www.waves.com. ■

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To EQ or Not To EQ

When encoding an audio file (live stream or archived) to a compressed audio format such as RealAudio or Windows Media, you will end up throwing away 90% or more of the original program material. Even with the most up-to-date audio codec, the end result will pale in sonic comparison to the original source material. By anticipating the (post-encoding) signal loss and selectively boosting the EQ (pre-encoding), much of the damage can be averted, resulting in an encoded audio stream that is truer to the original source than otherwise possible.

The multiple processors in a Wave Rack take this basic concept of pre-encoding manipulation of an audio file to another level altogether. The only danger I can foresee is over-processing an audio file. Still, too many options are way better than too few.

—*Ron Simpson*

YAMAHA AW4416

INTEGRATED AUDIO PRODUCTION WORKSTATION

The Yamaha AW4416 ($3,799 with internal 13GB and CD-RW drives) is a digital workstation that combines a very 02R-like, 8-bus mixer with moving fader automation, an internal 16-track HD recorder, 16-button sampler and CD burner. You can choose 24- or 16-bit operation for each song, with sample rates of 44.1 kHz and 48 kHz.

If you want or need more tracks, inputs or outputs, then these can be added via two card slots similar to the four slots on the 02R. Cards for the slots include the MY8-AT (eight channels of ADAT), the MY8-TD (eight channels of TDIF) and the MY8-AE with eight AES/EBU channels. All are $319 each. Other cards include the MY8-AD (eight channels of balanced TRS inputs, $369); the MY4-AD (four channels of balanced analog XLR ins, $319); and the MY4-DA (four channels of XLR balanced analog outs with DACs, $269). Higher-grade Apogee converters are also available. A warning note indicates that some MY Series cards sold by other manufacturers may be usable only in slots 1 or 2.

SOME ASSEMBLY REQUIRED

Before using the system, the user must install the HD and CD-RW drives. My review unit included a 2.5-inch, 12.7GB IBM Travelstar drive.

Installing the Yamaha CRW8824S CD-RW drive was fairly easy, but the drive's SCSI connector is wired with the key on the *upper* side of the cable. Access to the CD-RW drive is from beneath the AW4416, so you can't really see the key notch and have to feel around.

Contradictory language in the manual about SCSI ID addresses for the CD-RW drive made me wonder whether I had to change SCSI addresses. I decided to ignore the manual and not change the CD-RW drive's SCSI address or alter the jumpers. I was correct.

There are two small fans, one on the inside of the AW4416 and one on the CD-RW drive. Powering up the AW4416, I found the fans and drives were quiet enough for most rock 'n' roll, but not quiet enough for critical recording of quiet sources.

The AW4416 includes a helpful 60-minute operational videotape. The AW4416 is a very multifunctional box, so grab a cold one, watch the tape and take notes. Getting the overview from the video before you skim the 32, 128 and 256-page manuals may test your concentration, but it will also lower your frustration. *[Note: Complete manuals in PDF format are also available online at www.aw4416.com—Editors]* There are many similarities between the 02R and the AW4416, but as the price point suggests, there are some important differences as well. For example, the 02R has four card slots; the AW4416 has only two. The AW4416 has only eight inputs standard (two with phantom-powered mic preamps and analog inserts) and is limited to 24 inputs total, and only after adding two optional cards. The AW4416 does not support surround mixing.

Not all the comparisons favor the 02R. The AW4416 has fewer AD/DA converters—a total of eight without the optional cards—but while the 02R converters are 20-bit, the AW4416's are 24-bit. EQ and Automix are the same, yet the 02R uses 24-bit busing, while the AW4416 runs at 32-bit, with 54-bit EQ and dynamics. The 02R only has effects on aux buses 7 and 8, but effects are insertable on any channel or output on the AW4416. The AW4416 has four separate "Omni Outputs" to which any output can be routed, and even the stereo out can be assigned to different physical outputs. And the AW4416 has an internal 16-track recorder; the 16 hard drive returns show up as a third layer on the mixer.

A list of approved drives can be found at www.aw4416.com. The SCSI-2 interface should work with MO drives of 128 MB, 230 MB, 540 MB, 640 MB and 1.3 GB, hard disk drives and CD-RW drives. The CD-RW drive can be used to back up the hard drive, burn final masters in a disc or track-at-once mode, or import/export audio files and play your CDs. You can't directly record or playback audio signals in

BY TY FORD

real time to/from external SCSI drives, which can only be used to store sessions or audio. To record, play or edit sessions, they must be on the main drive.

The AW4416 also includes an input/output and routing matrix with storable settings. Once you establish a favorite way of working, you can use these settings as a starting point for each project. In addition to the 16 tracks of HD, there's space on the drive for a separate stereo master. That means you can mix your project digitally right back to the drive, without the need for an outboard mastering machine. Hate setting up a recording session? The AW4416's Quick Rec button asks a few basic questions and can have you recording on all 16 tracks in seconds. Each of the 16 tracks has eight virtual tracks.

Up to 16 tracks can be recorded or played back at the same time. During overdubs, however, there are limitations as to how many tracks you can listen to and record. The 4416 will begin to mute playback tracks as processing power is consumed, although users can select individual tracks to be muted, leaving the more important ones open for playback.

CONTROL SURFACE

The AW4416 control surface has a number of dedicated buttons knobs and soft keys—too many, some might argue. The system also uses a Shift button to increase the number of layers; a small arrow to the left of the menu tabs lets you know there's another layer. For example, loading the demo song from the CD-RW drive requires a moderately convoluted series of button pushes, including Shift/F2, just to get the CD-RW drive to pop open. It took about 10 minutes to load the 569MB demo, and once restore had begun, there was no stopping it. I went to make coffee.

The first two inputs are mic/line inputs with XLR and TRS jacks. These inputs also have switchable phantom power, and each has an analog TRS insert jack. Inputs 3 through 7 are line-level, TRS balanced inputs. Input 8 is switchable TRS balanced line or hi-Z TRS. Continuing across the top line of the back are a single headphone output (with a moderately beefy output), RCA jack S/PDIF I/O, Word Clock I/O, SCSI-2 connector and serial host connector.

Along the lower part of the rear panel are MTC Out, MIDI Out/Thru and MIDI In jacks, a 9-pin D-sub mouse port, a ¼-inch footswitch jack, four unbalanced 0dB Omni outs, two +4 TRS monitor outs and two RCA -10 stereo outs. An IEC mains socket receives AC power through a standard detachable power cable. Get a mouse. It makes navigation a lot easier.

EFFECTS TO SPARE

Every input to the AW4416, as well as the stereo output, has 54-bit, 4-band, ±18dB fully parametric EQ and dynamics processing. The dynamics processing includes compressor, gate, ducker, expander and compander functions. There's a library of presets, and you can make and save your own. Key-in and stereo links are also supported. There are eight sends per channel, with sends 7 and 8 dedicated to two internal multi-effects processors that provide reverb, delay, modulation effects, distortion and amp simulation. *[Note: By the time you read this, the Y56K Waves plug-in card with Ultramaximizer, Renaissance EQ, compressor, supertap delay, TruVerb and DeEsser with ADAT I/O should be available for about $999. Each card supports up to eight channels (with five functions each) of stereo or mono effects.—Editors]*

The AW4416 can store up to 96 scenes, including fader locations, mix parameters and effects settings. Scenes can be recalled via top panel keys or by MIDI program change data from an ex-

ternal MIDI sequencer. You can slave your MIDI sequencer via MIDI clock or MTC, and use program change data to manipulate the AW4416. Dynamic onboard mix, pan and EQ automation is included for all 44 inputs.

Song data, including audio, setups and automation, scene memory, effects settings, region fade, timecode top setting, counter display and undo data, can be backed up on an optional external HD, MO disk or the internal CD-R/RW.

Songs, tracks, parts and regions can each be edited separately, and editing includes 50% to 200% time compression and pitch change. There are 15 levels of undo/redo, and the dedicated Undo/Redo buttons light to indicate pushing them will result in a change. For editing purposes, tracks refers to all of the audio on one of the 16 active tracks. Parts are pieces of audio on a track. Regions are sections of a track that may include whole parts, portions of parts and/or sections of silence between parts.

There are eight basic locate keys (Start, End, RTZ, A, B, In, Out, Rollback), and an additional 99 markers can be set for each song. Auto punch-in/-out is also supported, and a built-in click track metronome is linked to the tempo map of the song.

A built-in sampler capable of storing up to 16 sounds (eight dedicated pads in two banks) is also part of the system, and it can sample from a sound file, audio CD or from a .WAV file on an optional SCSI device. The sampler has eight-note polyphony and can record up to 90 seconds of audio at 16-bit/44.1kHz.

Once songs are mixed to the internal 2-track master recorder, they can be burned to the CD-RW drive. Earlier constraints of having to rebuild disk images for each burn have been removed, allowing additional copies to be burned more easily. The CD-RW drive can also be used to backup projects two different ways. Type 1 first erases the inserted media and can spread large projects out over more than one CD. Type 2 stores songs as individual files. The CD-RW drive is also used for software updates. I upgraded from Version 1.2 to 1.3 during the review. It's a painless process.

GLOMMERS BEWARE

Glomming—pretty much ignoring the manual and just jumping on the beast and pushing buttons until something happens—is not always the best approach. I looked at the video, skimmed the manual and glommed. Even though it had been explained to me that there was an input matrix that was used to connect the inputs to the A/D converters and to the 16 tracks of recordable hard drive, it took me a while to get the hang of the system. After some head scratching, things started to make sense, and I began to have fun.

The demo song is a good place to learn basic operational features, and a small tutorial manual takes you through the song, explaining the basics of mix automation, EQ and other effects. From the song you can backward-engineer the settings.

NOISE ANNOYS

I plugged in my Fender Thinline Telecaster and went for it. The humbucking pickups on my Thinline picked up electronic noise radiated from the 4416, unless the two were separated by at least three feet. I also found that plugging the Tele into either the AW4416's channel 8 hi-Z input, the balanced TRS inputs or through a passive direct box and into a balanced input resulted in a low-level thin buzz and/or preamp hiss. I got my best results from running the Tele through my GML preamp and coming into the AW4416 at line-level. The AW4416 preamps, by the way, are decent quality and mostly neutral.

Assembling tracks was easy after I got the first one laid down. There are Edit sections in two of the manuals, but only one really tells you how to edit. Without that info, you can see the field that needs to be changed and still be lost. Also, the recorder and editor are not particularly well integrated. You can't play audio directly after doing an edit; you have to hit a button and wait a few seconds for the system to get to the right place. The addition of some "intuitive" macros to reduce the button pushing would be very welcome.

Unlike more powerful (and more expensive) multitasking systems, the AW4416 can't do much while the transport is recording or playing. You have to stop and then hit other buttons. While there is waveform editing, it's a visual and not an audible experience. There's just not enough processing power.

My attempts at looping a music bed took too many steps, and I was never quite able to get the loop points to work smoothly. Even when I made what I thought were overly tight edit points, there was still a slight dropout.

Currently, there is no Autosave feature, so you'll want to *save often*, otherwise, you can lose a whole project. In the typically redundant Yamaha way, it takes five moves to save a project instead of one or two. Some unrepeatable freezes have been encountered with the AW4416. Yamaha knows about them and is trying to solve the problem. Registering your system and getting the upgrades is the best solution to avoid freezes. Did I mention you need to *save often*?

The rear panel includes two card slots (shown here fitted with ADAT Lightpipes) that accommodate various I/O options.

IN CONCLUSION

I will make no excuse for the fact that I am accustomed to more powerful workstations. As always, the lower the price, the more effort required. You can cut your lawn with a manual reel mover, or a 42-inch, 20-horsepower tractor. They'll both cut the grass. But, 10—or even five—years ago, if you told me I could get a portable 16-track, 24-bit recorder with mixer, automation, effects, sampler and a CD burner for less than $4k, I'd have thought you were nuts. So, on a price/performance scale, the AW4416 looks very good. The Devil, however, is in the details. I think with a few more software revs, Yamaha could make the AW4416 a really strong contender for the project studio market. I hope they stick with it, because, as a company, Yamaha has brought a lot of excellent gear to the market, and I know they can do it. As always, stay tuned.

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

Ty Ford has been writing about audio workstations and consulting on their development for more than 11 years. He can be reached at www.jagunet.com/~tford.

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WHICH WITCH?

THE ANALOG SOUND: VINTAGE, RETRO OR EMULATED?

ILLUSTRATION MAE LAROBIS

I cringe every time someone mentions that some improvement to digital audio technology will finally make it sound more like analog. To them I say, "Which analog are you talking about?"

Veteran engineers know better, but every day, novices join our profession, many experiencing only hearsay about analog's glorious past. Or worse, misinformed clients request specific gear as if any one product will make them sound better. Great-sounding records *and* CDs coexist with proof of skill. We're human. With each mistake, there's an opportunity to learn and hopefully get another shot to do better. Our equipment is "human" too, and should not bear the primary blame for sonic imperfection. That's too easy.

BIRTH OF BITS

The digital revolution changed our lives in the early '80s. Prior to that, audio pros had an edge over most consumers. In the control room, our tape machines were being checked and calibrated daily. At home, most record players and cassette decks were tolerated for wide variations in speed, frequency response and distortion—a moving target at best.

BY EDDIE CILETTI

Since the CD, the differences between master and "copy" have diminished, along with our edge over consumer formats and perhaps our sense of humor as well. Because of what I like to call the "sonic airbag protection" of analog tape and the phonograph record, we got into a few bad habits, always struggling for a little more clarity, boosting treble here and there with wild abandon.

These bad habits made the transition to digital more painful than necessary, yet we owe the "ones and zeroes" technology a debt of gratitude for increasing our awareness about all things analog, real or imagined. Boutique audio man-

WHAT REALLY MATTERS IS THE SOUND

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Candace Horgan
Mix, April 2001

...one of the main reasons to get a stand-alone CD burner is sound quality, and here is where BurnIT really excels. I have found all of HHB's CD recorders to have excellent audio quality ... I just know what my ears tell me – that the BurnIT sounds great.

David Darlington
HomeRecording, June 2001

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FIRST WE LISTEN

ufacturers too numerous to mention exist, survive and are responsible, not just for keeping vintage technology alive, but for the continued evolution of both vacuum tube and semiconductor technology. We are smarter and more informed now. All-digital projects are sounding better, with no excuses.

As the chronometer advanced from 1999 to 2000, the air was electric with expectation. The world still turns in the same direction, and I only wish for 1% of the money lost on Internet startups. In the meantime, a quiet revolution was brewing somewhere between the 16th and 24th bit. Professionals have finally regained the edge with a choice of bandwidth and bit depth options—some more than exceeding the capabilities of analog tape—while being relatively affordable. For the average consumer, the ability to deliver more samples and bits is almost inconsequential. With the exception of a few who really know the difference, MP3 files, audio cassettes and VHS tapes seem acceptable.

DIGITAL STEAK = HAMBURGER

Digital has been deconstructed and criticized ad nauseum. It's only fair to turn the table to see which of analog's deficiencies contribute to its greatness. The primary difference between digital and analog is that, when pushed to the limits, analog distortion is harmonically related to the program, and digital's artifacts are not.

It's easy to view digital audio as a picture turned into the puzzle. Once cut, the pieces never become completely whole, or at least that's one of the "puzzles" our mind has had difficulty reassembling. More bits and more samples make the pieces smaller than eye and ear can perceive. In some cases, more resolution than necessary, yet a comforting degree of psychological assurance sometimes goes a long way. For professionals, choices are good.

A friend once gave me a gift subscription to an audiophile magazine. In one issue, an all-digital recording project was released in both CD and vinyl versions. The reviewer preferred the vinyl. On the surface, that's fine. Having serviced disc-cutting equipment—as well as having a romantic attachment to both recorders and reproducers—I was equally aware of the limitations. I wondered which of the idiosyncrasies—known or not—the reviewer preferred. None were acknowledged.

The dialog consisted of all the usual intangibles that seemed more seance than science. Had the reviewer put a test record on the turntable to check frequency response alone, I would have been satisfied that the comparison correlated with something based upon fact. Records may be ancient history, but their electromechanical complexity helps make all analog devices more tangible.

CUTTING THE GROOVE

The disc recorder begins with a "cutter head," basically two small motors—just like a pair of headphone drivers—coupled to a cutting stylus. As such, they are subject to all the idiosyncrasies of *induction*, including electromechanical resonance, coil and magnet saturation. Hot levels overheat the "voice" coil, increasing resistance and reducing efficiency.

The Record equalization curve boosts treble and cuts bottom, and Playback EQ inverts the curve to return the spectral balance to normal. The same concept is applied to analog tape to improve signal to noise. Boosting treble in Record reduces headroom. Excessive levels increase the chances of high-frequency saturation. This can be considered "peak limiting," *if* you

don't go overboard. It's no wonder so many people were dissatisfied with digital at first—no airbag equals "big ear boo-boo."

INWARD SPIRAL

Novices may be surprised to discover that a phonograph record's frequency response is "flat" only at the outside. Disc speed is constant. But as the grooves spiral toward the center, more high frequencies are crammed into a smaller space, making that groovy road more difficult to travel with each revolution. Contrast this with a CD, which "starts" at the center, with the rotational speed decreasing as the laser spirals to the outer circumference. Speed is determined by clocking information, embedded in the data, so signal readability is constant.

The analog-cutting stylus is a very precise "chisel" capable of putting more wiggles into the groove than some playback stylii can trace, for bass as well as treble, the latter exaggerated by the EQ boost during record. Several stylus shapes, the most common being elliptical, improve tracking. Still, as inner grooves become more difficult to accurately trace, high-frequency response is reduced while distortion increases. Tracking accuracy is subject to the mechanical optimization of every component within the cartridge and arm, starting at the tip of the stylus all the way to the type of wire used at the back-of-the-arm pivot points.

Built into Neumann cutting amplifiers is an "acceleration limiter" to protect the cutter head as well as make the groove more manageable. (Helium trickles into the head coils to prevent overheating during loud, bright passages. Be sure to ask your mastering engineer to demonstrate the cooling effect of this gas on vocal cords.)

While the opportunity is increasingly rare, observing the meters of a cutting amplifier will increase awareness of the high-frequency energy generated by an "S," an F," a snare or tambourine. A high-frequency limiter is not only essential for protecting the head, but it is also part of the "sound of vinyl." Keep in mind that recovering two channels from one groove does not yield 100% separation, also known as "crosstalk," which can range from 15 dB to 35 dB, representing the transition from high to low frequencies, respectively. Crosstalk *creates* phase-localization information that tricks the ear into feeling more immersed into a 3-D space, particularly with recordings made using modern—not better—multi-miked/pan-potted, "stereo" production techniques.

BACK TO THIS CENTURY

Having explored two of the more obvious idiosyncrasies responsible for the "sonic airbag" and "spatial enhancement" qualities associated with *analog* disc recorders, we now return to the present. The most advanced digital recording technology will not sound like analog disc or tape. It should be neutral and accurate. Any "desirable color or de-constructive artifacts"—aka distortions—must come from either vintage-style analog hardware or digital emulation.

Regarding software for workstations, it should be noted that Native-based products are facing their biggest challenge since Napster made music available for free. Copy protection schemes for software runs the gamut, but most can be cracked because of the common platform—PCs and Macs alike. The primary method of circumvention is dedicated hardware. The new hardware offerings from TC Electronic and Universal Audio serve a dual purpose. Dedicated DSP allows more sophisticated code to be written without stealing power from the host processor. Equally important, the code

—CONTINUED ON PAGE 220

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The P.A. system is delayed to match the acoustic sound of Caroline Corr's drum kit.

TOUR PROFILE

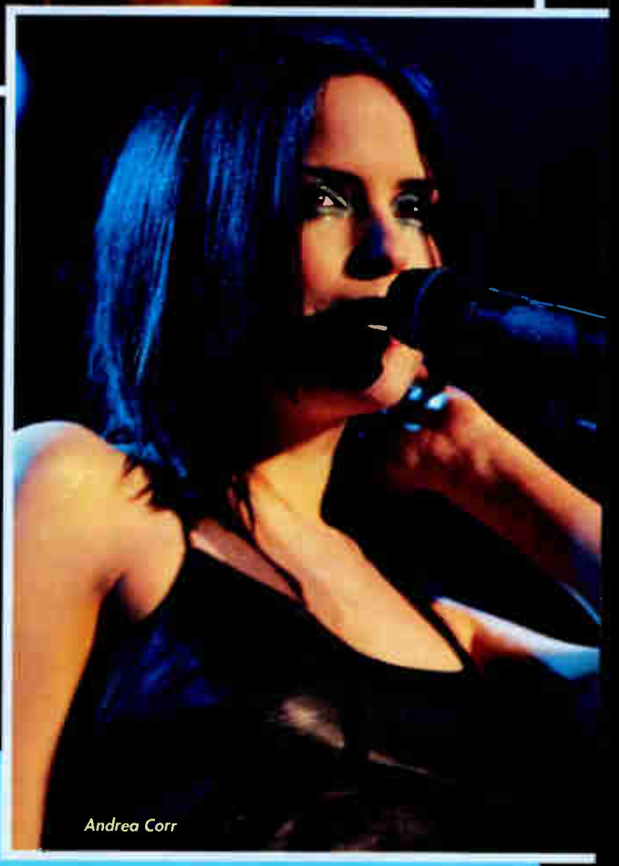
THE CORRS

ALL IN THE FAMILY

by Mike Mann

Sharon Corr's violin is routed through a dbx 160S compressor and a Meyer Sound CP-10 parametric EQ.

Jim Corr



Andrea Corr

Ireland's first family of pop, The Corrs, are living proof that talent often runs in the family; all four siblings (Andrea, Caroline, Sharon and Jim) play more than one instrument and contribute vocally to the band's recorded and live material. Mixing traditional Irish influences with chart-topping pop writing, The Corrs have built up a huge UK and European fan base since their first major tour in 1998, when they supported Celine Dion, and have set their sights on conquering the U.S. next year. *Mix* caught up with them on the sold-out UK leg of their current tour.

Mixing such a talented and tight-knit bunch of musicians might be intimidating, but FOH engineer Max Bisgrove remains unfazed after nearly four years. "My brief from the band was to make the show more rock 'n' roll, which is what I've tried to do all along," he explains, justifying his reputation among his peers as a noise boy. Bisgrove's choice of a self-powered Meyer Sound loudspeaker system, supplied by London's Canegreen Ltd., may not seem the obvious choice for a louder-than-average, full-on rock production, but the engineer has remained loyal to the brand through three arena tours and countless other shows. "I love the self-powered idea for two reasons," he enthuses. "First, the load on the amplifier is quite light—and it's always the same. Second, the very short distance between the amps and the drivers. As a result, the system has much more punch than a conventionally powered system." Bisgrove notes that

when The Corrs supported U2 at the start of their recent U.S. tour, speaker cable runs for the Clair Bros. P.A. system were 200 feet long.

Bisgrove is also unconvinced by the current trend toward line array systems—though he admits that his recent experience with the Meyer M3D at an open air show has revised his views somewhat. "Venues over here [in the UK]

System engineer Chris Peters controls up to 21 separate speaker zones with the BSS Soundweb remote.

are not purpose-designed for P.A. systems, and a line array is not flexible enough for every room," he explains. "Using a self-powered system, where every cabinet has an independent XLR input, means that we can hang the same system every day, but adjust its coverage to suit each venue."

For the UK tour, Bisgrove's design is based on an array developed two years ago by the Meyer team for the same band, and comprises long-throw MSL-6 and medium-throw MSL-4 enclosures. Each cluster is topped by three giant MSL-6 boxes, which are tight-packed to give a horizontal coverage of 90°. Trimmed so that the dispersion "window" just reaches to the upper-rear bleachers, the original design used MSL-6s to fire all the way to the back of the UK's largest 15,000-seat rooms. A delay system made up of MSL-4s has now been added to maintain the direct-to-reflected ratio at the rear.

While MSL-4s comprise the bulk of the rest of the system, a row of DS4-P horn-loaded single 15-inch cabinets give Bisgrove the added mid-bass punch that has become his trademark sound—European audiences, it appears, favor having their chests kicked, rather than their trousers flapped. Groundstacked 650-P subs provided an ideal platform for MSL-2 and UPA-1C front fills (the only conventionally powered elements in the system). With so many self-powered cabinets in the system, Canegreen's technicians have designed their own remote power switching system—just in case the unthinkable happens while a cluster is in the air.

Video engineer Chris Burford with his Mac G4 laptop. "When you can edit on tour, you can let the visuals grow with the show," he notes.

The twin L/R clusters are driven by three BSS Soundweb digital matrices, which Canegreen had supplied with a UHF wireless link to a palmtop computer, enabling system engineer Chris Peters to wander freely around each venue, tweaking any of the 21 independent system zones. Zones are arranged so that the same physical array design can be used for a variety of different venue shapes and sizes. Outer and inner columns of speakers are handled separately, for example, which means that the nominal coverage pattern of the arrays can be widened, narrowed or even offset as needed. The entire system is delayed, zone by zone, to the acoustic sound of the drum kit in order to project a completely coherent image to as many parts of each arena as possible. At present, all three Soundweb units are housed in the FOH drive rack, though Peters says this may change in the near future. "I'm looking at using the Soundweb's networking facility to remote two of the units to the stage and feed them with digital audio from here," he explained at the FOH position. "There should be significant advantages over an analog multicore, especially on larger shows."

The Corrs endorse Shure microphones and use UHF and wired Beta 87C and 87A models for vocals. The wide assortment of instrumental mics includes an AKG C-308 mini-mic fitted inside the Irish bodhran drum. Bisgrove employs a form of dynamic control normally only seen on heavy metal stages; each part of Caroline Corr's impressive

Monitor engineer Paul "Mini" Moore (left) and FOH engineer Max Bisgrove

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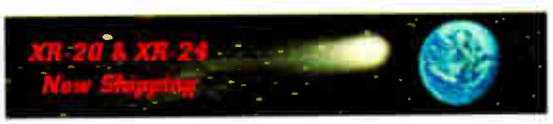

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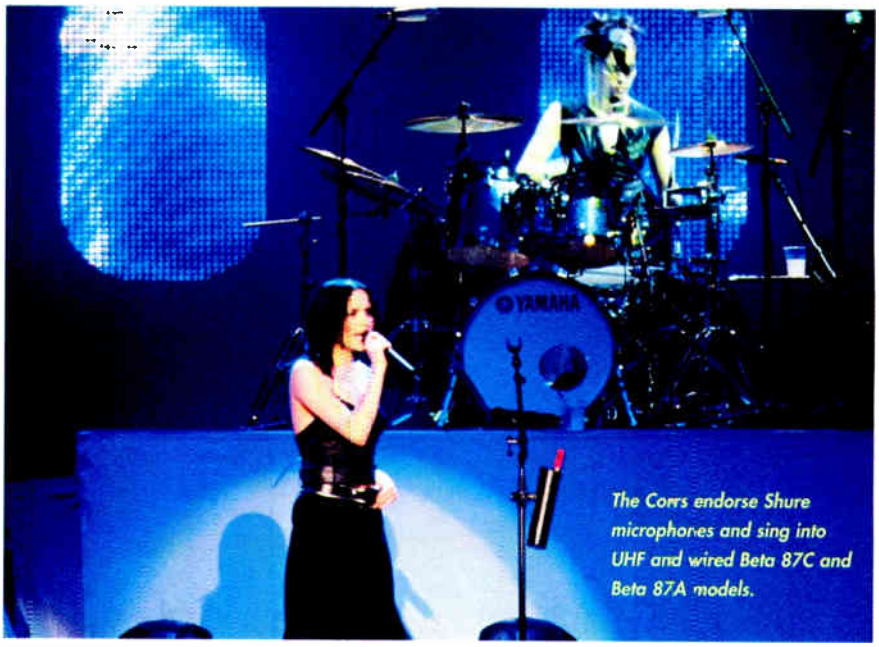
drum kit has, in addition to a microphone, a d-drum trigger, which is used to open gates on each drum channel. "This works well and has really tightened up the drum sound," he explained. To reinforce the natural kick drum sound, an ancient Wendel Jr. analog drum sampler is used for those songs that need a tightly controlled, predictable sound.

As with most modern bands, The Corrs use a hard disk playback system for elements that are too complex to reproduce live—drum loops or keyboard parts, plus some backing vocals to give the more choral numbers extra weight. The Akai HD system runs in parallel with an identical backup unit, both being fed through a changeover box supplied by Technical Earth.

To keep Andrea Corr's voice lightly in check, her vocal channel is routed through a BSS DPR-901 dynamic equalizer and one half of a dbx 160S dual compressor; Sharon Corr's electric blue violin is fed into the other 160S channel. Before returning to the console, the vocal and violin signals are also patched through a Meyer CP-10 parametric equalizer; this manual analog device is, says Bisgrove, as good as anything on the market for sweetening tricky sources. Further dbx 160S units, which seem to be becoming ever more popular, are inserted across the guitar and bass, as well as across drum and backing vocal subgroups.

Subgrouping, however, is a technique that Bisgrove employs purely for processing purposes; for mixing, he primarily uses the VCAs on his Midas XL4 console and few of the console's automation capabilities. Bisgrove prefers to set up a simple starting point scene for each song in the set, relying on his own skill to handle the sometimes complex mixes. (Outboard equipment is all MIDI-controlled via Digital Performer 2.41 software running on a Mac Powerbook via a MIDI Timepiece.) "I feel more comfortable if the desk operates independently, even though it might seem odd to have to press two buttons for the start of each song," he explains. To replicate the sounds created in the studio, Bisgrove uses a variety of effects units, including Roland SDE-330 and SDE-300A delays, Yamaha SPX990 and Lexicon 480L reverbs, and an Eventide H300/S Ultra-Harmonizer.

One of the few true Irishmen on the crew, monitor mixer Paul "Mini" Moore, has been with The Corrs' family act since



The Corrs endorse Shure microphones and sing into UHF and wired Beta 87C and Beta 87A models.

before their rise to fame in Europe. The band has experimented continuously on the road with monitor systems and is currently using a Shure PSM700 in-ear rig. To supplement these, Moore uses two quartets of Meyer MSL-4s as sidefills, flown using Meyer's L-track hardware. As well as wearing her PSM700 system, Caroline Corr, whose powerful and energetic drumming style belies her petite build, receives a kick-ass monitor sound—literally, thanks to a Clark Tactile Sound Transducer NEO 329-F driver fitted to her drum stool. This 8-inch diameter device has a tactile frequency response that extends from 5 to 800 Hz, and is capable of handling 200-watt peaks, delivering a maximum "transduction force" of 240 pounds—some kick!

Moore is also an proponent of the d-drum trigger system, using them on five of the drum feeds to his XL4 monitor board. Gating is precise, and along with a smattering of dbx 160S and 160A compressors, helps keep excessive dynamics firmly under control, enabling Moore to generate accurate and repeatable IEM mixes. Effects are sparse, consisting mainly of a handful of Yamaha SPX990s for vocal and instrumental reverbs.

While The Corrs' tours to date have concentrated solely on the music, the current outing has seen several developments on the visual front. An integrated video and lighting concept has been designed by Willie Williams, one of the UK's foremost rock 'n' roll LDs, with the help of The Corrs' regular LD and board op Liam McCathy. Faced with an arena-sized stage but limited video budget, Williams specified an unusual LED video wall—leaving out every second panel to produce a characteristic checkerboard effect and creating a wall of twice the size for the same expense. This 32-panel Megascreen wall (supplied by Screenco) would be unusable for conventional source material, but in collaboration with video director Craig Tinnetti, Williams has merged a series of abstract video clips with his own lighting projections. One stunning example of this is a combined starcloth and video sequence depicting a space flight—and because the LED screen is kept hidden behind a projection gauze, the audience is never fully aware of the "cheat." Other lighting features (supplied by Lighting & Sound Design) include nearly 80 LSD Icons and Studiocolors, and no less that 12 follow spots, all driven from Icon and Wholehog II consoles.

Video engineer Chris Burford, whose job it is to run the visual show, spends his free time on tour at the keyboard of his shiny new Mac G4 laptop—his copy of FinalCut Pro has, he says, taken the place of a full-scale edit suite for this type of application. "We could never do this sort of thing before, but when you can edit on tour, you can let the visuals grow with the show," notes Burford. "I think we'll see a lot more of this type of system as bands realize that they can modify set lists and songs without being left with useless bits of video. Apple is gradually doing to video what they did with DTP."

The Corrs 2001 tour is now heading for Australia and the Pacific Rim, following delays due to Andrea Corr developing an ear infection. So who forgot to wipe those IEM molds? ■

Mike Mann is a freelance writer living in England.

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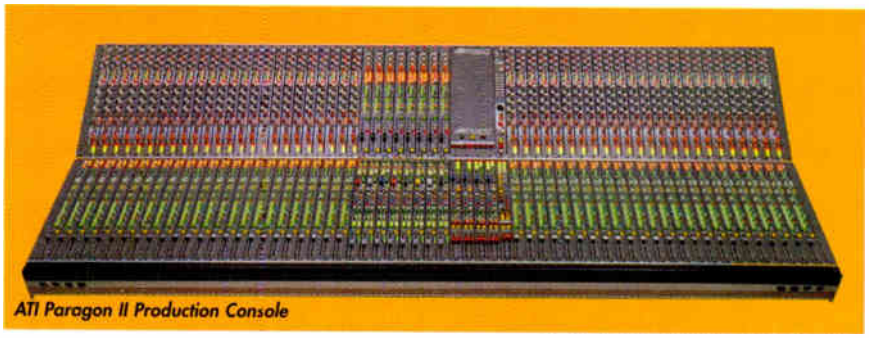
Large Format Consoles

Touring

Mix Surveys the Over-40 Set

by Randy Alberts

Allen & Heath ML5000


ATI Paragon II Production Console


Carvin S/L56

Today's touring and special-event productions are more complex and technically demanding than ever before. In recent years, live sound system designers and operators have increasingly had to make provisions for in-ear monitors, multilevel and "B" stages, frequent set and costume changes, and the incorporation of prerecorded material. Touring console manufacturers have responded to the market demand and now offer dozens of increasingly sophisticated and flexible control systems for FOH and monitor mix applications.

But the current touring season has introduced a new problem: plummeting box office receipts and a looming recession. Today's live sound system operators are under increasing pressure from their clients to "slim down" and produce tighter truck packs, shorter load-in times and smaller FOH compounds. In this less-than-rosy business environment, the traditional customers for large-format mixing consoles for live sound must think very carefully before committing to their next purchases.

Fortunately, the selection of large-format mixing consoles (40 inputs and up) suitable for FOH and monitor applications has never been greater. Analog consoles provide stable technology, ever-improving noise and distortion specs, and competitive prices. Digitally controlled analog consoles combine sample-accurate repeatability with a dazzling menu of functionality that is often only restricted by system memory. Despite some initial skepticism, fully digital consoles are now firmly established as reliable and effective alternatives, and, despite their comparatively high purchase costs, they offer significant economies for multi-act productions and situations where space is limited.

Mix surveyed the current crop of large-format consoles, looking at the "top of-the-line" model from each manufacturer. (See the sidebar on page 158 for manufacturers' contact information.) Also, visitors to this month's AES Convention in New York will no doubt see the introduction of at least one new large-for-

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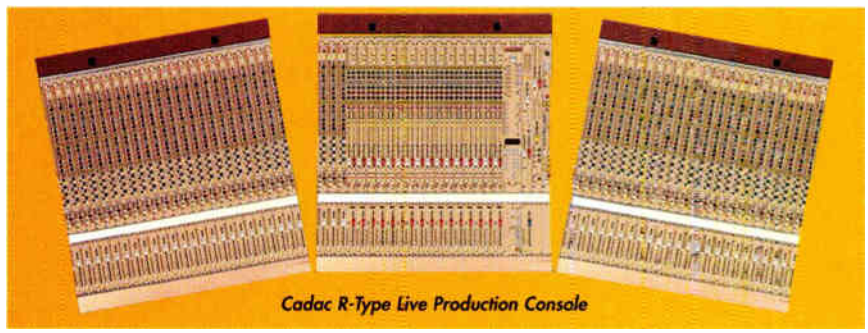
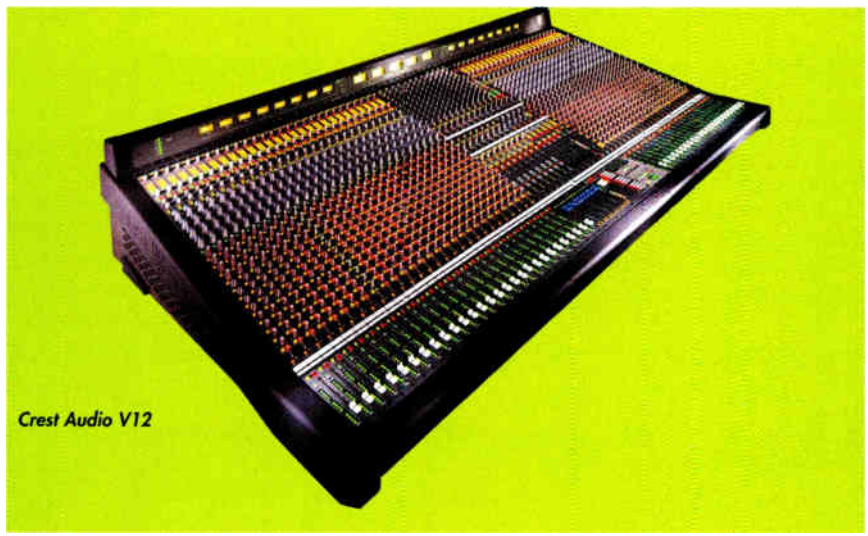
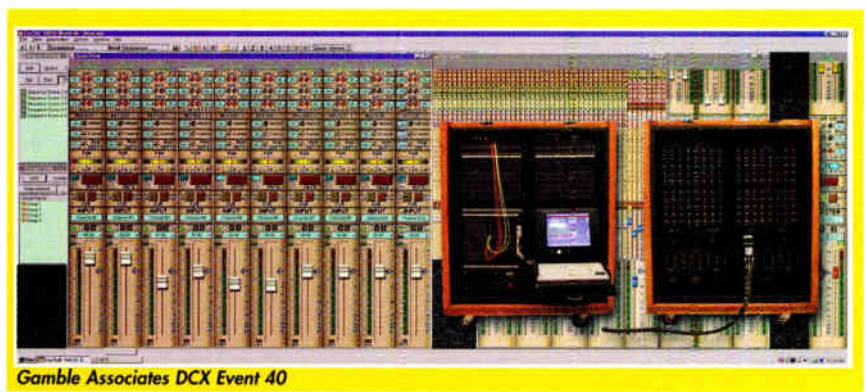
Harrison/GLW Live Performance Console


Cadac R-Type Live Production Console


Crest Audio V12


Gamble Associates DCX Event 40

mat console. If you can't make it to the show, then look for our post-AES coverage in the November issue of *Mix*.

The analog ML5000 from **Allen & Heath** is a dual-function FOH/monitor console incorporating the company's LCR-plus™ panning system and robust VCA assignment, mute and snapshot automation features. Audio routing is via 24 group and auxiliary buses, eight VCA groups and an extensive output matrix. Input and output mutes can be assigned to one or more of eight dedicated mute groups, and the ML5000's console mute and VCA assignments can be stored in 128 snapshot memory locations. Up to two 24-channel sidecar expanders can be added, allowing for more than 100 mono and stereo input channels. EQ is 4-band with fully parametric mids. Additional features include 20 analog VU meters, Windows-based snapshot-memory archiving software and an intelligent PFL/AFL system. Price is $29,999 for a 56-input configuration (48 mono inputs, 4 stereo).

Complementing the company's Paragon II Monitor Console, the Paragon II Production Console from **Audio Toys Inc. (ATI)** is designed as an analog FOH mixer for live sound, broadcast production and live theater applications. Offering 64 microphone inputs (expandable to 100), 12 stereo input pairs and a dizzying array of outputs (including eight mono and four stereo aux buses and eight stereo groups), the Paragon II features a fully equipped dynamics processing package on each input channel. ATI's new Distributed Intelligence™ onboard computer design stores and maintains all channel, group and master scene information within a flash microcontroller on every input channel, an architecture that enables the system to respond instantaneously, eliminating system boot-up and response wait times. Prices start at $119,000.

The R-Type Live Production Console from **Cadac** features a new lightweight, monocoque-engineered, 24-slot frame and is designed for a "two-man lift." A cost-efficient analog touring mixer that can install quickly, the R-Type provides FOH and monitor mixing facilities, and incorporates Cadac's interchangeable console modules that can be located in any slot and in any frame. Including the dedicated output section, DC master, and LCR and stereo output modules, the R-Type can be loaded with a total of 51 mono and stereo inputs. Custom R-Type console configurations can handle 200 inputs and beyond. Price for a "fully loaded" R-Type approaches $190,000.

The dual in-line S/L56 56-input analog console from **Carvin** offers a high feature-

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per-dollar ratio. Live mixers benefit from each channel's eight aux sends (two effects/four independent monitor sends and stereo in-ear monitoring) and Analog Devices mic/line preamps, as well as the S/L line's ergonomically redesigned rotary knob and fader spacing for increased dexterity in a critical live mix. Two midsweep EQ knobs per channel control the 80 to 5k Hz frequency range, a switchable low-cut filter frees up wasted power in the bottom end, and a rackmount 400-watt power supply (more than double the S/L56's requirement) is standard. Price is $4,999.99.

Crest Audio spent five years on its analog console development program, and the flagship V12 is the result. Designed for both live concert and theatrical applications, the V12 offers the ability to create eight mono, five stereo and up to 28 additional output mixes. Features include 12 VCA groups for level and mute control and true LCR panning. EQ on input modules is fully parametric 4-band with 18dB/octave highpass filters. MIDI-based automation features are under microprocessor control, with a front end provided by JL Cooper or Crest's own NexSys Computer Control System. An optional link system can accommodate up to three main consoles and two 30-input sidecar expanders to create a single 212 mono/stereo-input console. Price for a 52-input channel version is $72,000.

The DCX Event 40 from Gamble Associates is a digitally controlled analog console packaged in a 56-inches-high by 45-inches-wide, self-contained, double-bay rack. The virtual console allows control of all functions via dual display screens and an optical mouse; using the Zoom View function is like looking at a portion of a typical console surface through a piece of glass. Offering 40 channels to control 80 mic and 80 line inputs, the DCX Event 40 is configured for eight stereo subgroups with inserts, 16 stereo aux sends and eight stereo matrix sends. As one would expect from a Gamble product, noise and distortion specs are exemplary; the DCX 40 has no phase shift within the audible range of 5 to 20k Hz. All electronics sit on 60 plug-

ROBERT SCOVILL JUGGLES SOUND SYSTEMS FOR TOM PETTY

BY ANDREA ROTONDO HOSPIDOR

Any FOH engineer at the top of his game will tell you that he is *always* busy. But few are as busy as Robert Scovill has been this summer. Back in March, Tom Petty & The Heartbreakers decided that it would be fun to take a quick tour around the U.S. before settling into the studio to record the follow-up to 1999's *Echo*. Scovill has been working with Petty for years, so it was natural for the band to call him first. Great news for Scovill? Not exactly—he was already booked on the Matchbox Twenty tour (see "All Access" in June *Mix*).

Disappointed that he would be missing out on the Petty tour, Scovill created an equipment list and P.A. spec for his replacement. Working up the proposal, Scovill noticed that the system spec matched that of the rig he was already using with Matchbox Twenty—48 V-DOSC enclosures, 16 DV-DOSC enclosures, 10 Aura subwoofer enclosures, 10 ARCS enclosures and all Crown 5000 power amplification. Also, the FOH position called for a Midas XL4 with 16 stereo modules and 20 channels of Midas XL42 external preamps.

"It was uncanny," says Scovill. "The setups were virtually identical. I went ahead and completed the list and contacted Tom's manager, and, as luck would have it, the last Matchbox Twenty date for the current leg was on May 8th and the first Petty date was May 9th—a mere 600 miles away. At that point, the gears really started turning. If I was going to do the Petty tour, it seemed exorbitant to have ProMix build a rig that was identical to the Matchbox Twenty rig." In the end, the tours ended up sharing one rig.

Mix caught the band playing a two-night stint at The Joint in Las Vegas. Unlike the rest of the venues on this tour—amphitheaters seating 20,000 or more—The Joint is a small club located within the Hard Rock Hotel and Casino. Nearly 1,500 fans crammed into these general admission shows to witness a little bit of rock 'n' roll history. Though the crowd enjoyed every minute, Scovill expressed relief that the remainder of the tour was scheduled for larger venues. "I do have to change my mindset slightly when working in such a small venue," he admits. "Honestly, I think it's easier to put on a good sounding show in the bigger venues—I'll take a 20,000 seat arena with the right P.A. system any day."

Tom Petty & The Heartbreakers onstage at The Joint, Las Vegas

PHOTO: ANDREA ROTONDO HOSPIDOR

Whatever the venue size, Scovill is particular when it comes to processing gear. Held over from the Matchbox Twenty rig are Manley ELOP and Summit DCL-200 stereo compressors and two Manley Vox Boxes. Further dynamic control is achieved via six Drawmer DL241 stereo compressors, six DS201 stereo noise gates and three Behringer multiband de-noisers, while effects devices include three TC Electronic M3000s and one TC 2290, three Lexicon 930s and a BSS Time Corrector. Also earning space in Scovill's FOH racks are an HHB Classic 70 stereo tube equalizer, six BSS Omni Drive Compact Plus crossovers and six FCS 926 VariCurves.

Besides the complement of processing gear, another common thread to the Tom Petty and Matchbox Twenty tours is Scovill's Pro Tools multitrack recording rig. "I have a pretty extensive rig—substitute the 't' in extensive with a 'p' if you like," he says. Scovill's setup consists of a Mix Plus 24 system with 56 channels of 888/24 I/O that interface directly to the FOH mixer. "I can record about four hours of 56-track, 24-bit/48kHz audio in one pass for a given show with my current hard drive configuration, a 4x 36GB Glyph Trip rack," says Scovill. "During the show, I also record 2-track mixes directly to CD-R and DAT and have been getting some really great results. Having my Pro Tools rig on the road also affords me the opportunity to work on record projects while on the tour."

Whew, does this pace ever get to be too much? "No, not really," admits Scovill, who feels blessed to be working with so many wonderful musicians. "It has been great working with Tom and The Heartbreakers over the years. It's been very inspiring and influential, as well as a great learning experience. I wouldn't trade this summer for anything."

Andrea Rotondo Hospidor is an engineer and freelance writer.

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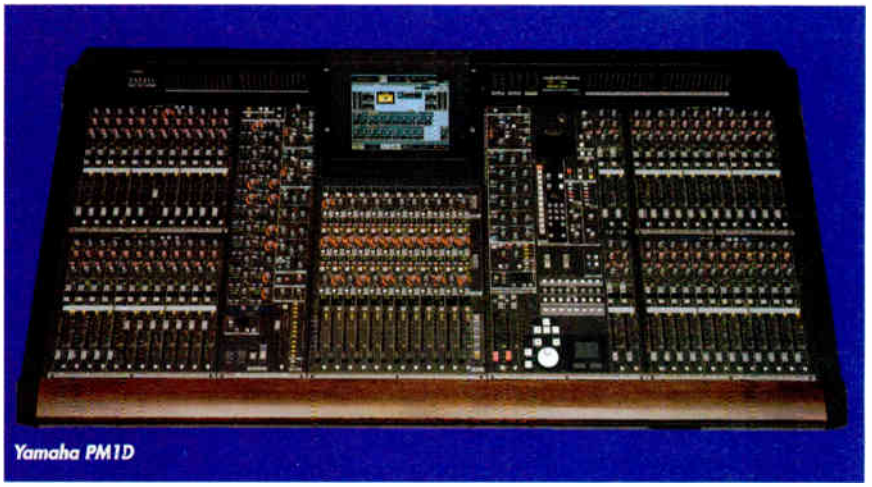
in module cards housed in VME-type cardcages with separate power supplies for each. In space-critical situations, the DCX Workstation Roadcase may be placed at the FOH mix location with the DCX Event 40 Rack located onstage; a supplied 100-meter CAT-5 wire links the two units. Price is $250,000.

The Live Performance Console (LPC) from Harrison/GLW is a digitally controlled analog system that was jointly developed by Harrison and Showco. With a control surface measuring just 74x40 inches, the LPC uses BeOS-based control software to control all audio parameters for as many as 720 mic and 240 line inputs arranged in three 80-input audio processing racks. (Each input features one line and three mic inputs.) The audio processing racks, normally situated on or near the stage, contain all audio cards and I/O interfaces. An automation computer in the processing rack executes all changes to routing and signal processing, as instructed by the digital control surface via a fiber-optic link. Because no audio passes through the control surface, any interruption of the digital data stream passing between the control surface and the processing racks is effectively inaudible—all audio assignments, levels and EQs remain frozen until the system resets and the control surface picks up where it left off. Because of its comprehensive routing and instant recall capabilities, the LPC may be used for either FOH or stage monitor mixing. Each channel features a full dynamics section, 4-band EQ, high- and lowpass filters, and 32 sends. Price is $250,000.

As with other Innova-Son consoles, the new Sensory Large Scale Series digital console consists of a control panel (the same as for the Sensory Live Series) that connects to dedicated stage boxes via lightweight, coaxial cables. The all-digital system supports up to 96 input channels, each of which features a digital input gain trim, 5- or 8-band parametric EQ, and comprehensive dynamics control. Notch filters and delay processing functions are also available, with instant recall of all settings and comprehensive PFL and AFL monitoring throughout the signal path. The output


Yamaha PM1D


Mackie Designs SR56•8


Midas XL4

TOURING CONSOLE MANUFACTURERS CONTACT INFORMATION

MANUFACTURER	PHONE	WEBSITE
Allen & Heath	801/568-7660	www.allen-heath.com
Audio Toys, Inc. (ATI)	410/381-7879	www.audiotoys.com
Cadac	631/249-1399	www.cadacsound.com
Carvin	858/487-1600	www.carvin.com
Crest Audio	201/909-8700	www.crestaudio.com
Gamble & Associates	530/583-0138	www.gambleboards.com
Harrison/GLW	615/641-7200	www.harrisonconsoles.com
Innova-Son	860/434 9190	www.innovason.com
LCS Audio	626/836-0446	www.lcsaudio.com
Mackie Designs	425/487-4333	www.mackie.com
Midas Consoles	952/736-4031	www.midasconsoles.com
Soundcraft USA	615/360-0471	www.soundcraft.com
Yamaha	714/522-9000	www.yamaha.com/proaudio

section includes an LCR master, 46 premix bus and 20 matrix bus outputs, each equipped with 8-band parametric EQ, dynamics and delay functions, and individual level control. The Large Scale is also the first Innova-Son system to use the ergonomic Hierarchies Pre-Mix Architecture™ organizational software. The Large Scale console, which can be configured to handle up to 164 inputs and 144 outputs, starts at $140,000.

Level Control Systems (LCS) recently introduced its CueConsole, a proprietary control interface that works in tandem with the company's existing LCS system to provide a flexible all-digital FOH or monitor mixing platform that may be configured to match almost any requirements. One or more CueConsole systems may be linked to the LCS SuperNova™ or Matrix3™ audio engines via four types of control modules (Transporter, Fader, Meters+ and Editor). Multiple Matrix3 audio control system frames can be linked to provide a staggering 400-input/512-output system, all controllable from one CueConsole surface. (Multiple control surfaces may also be distributed for local submix control.) Because of the modular design and the capability to selectively reassign fader control to multiple inputs and outputs, the CueConsole offers an extremely cost-effective solution when FOH mixing space is restricted or expensive, a common problem for theatrical productions. CueConsole systems start at $80,000.

The SR56•8 from **Mackie Designs** is the company's latest large-format analog sound reinforcement console. Laid out in a 56x8x3 configuration with eight subgroups, center master section, LCR main outputs, four extra stereo aux return strips and a 12x4 matrix mixer, the SR56•8 features Mackie's VLZ input channel circuitry for reduced noise and channel crosstalk. Channel EQ is 4-band with high and low sweepable mids, and "Air" HF circuitry. Additional features include Mackie's UltraMute™ computerized group muting system, a flip switch for exchanging stage monitor application functions and a new "monorail" tapered fader design. Price is $13,595.

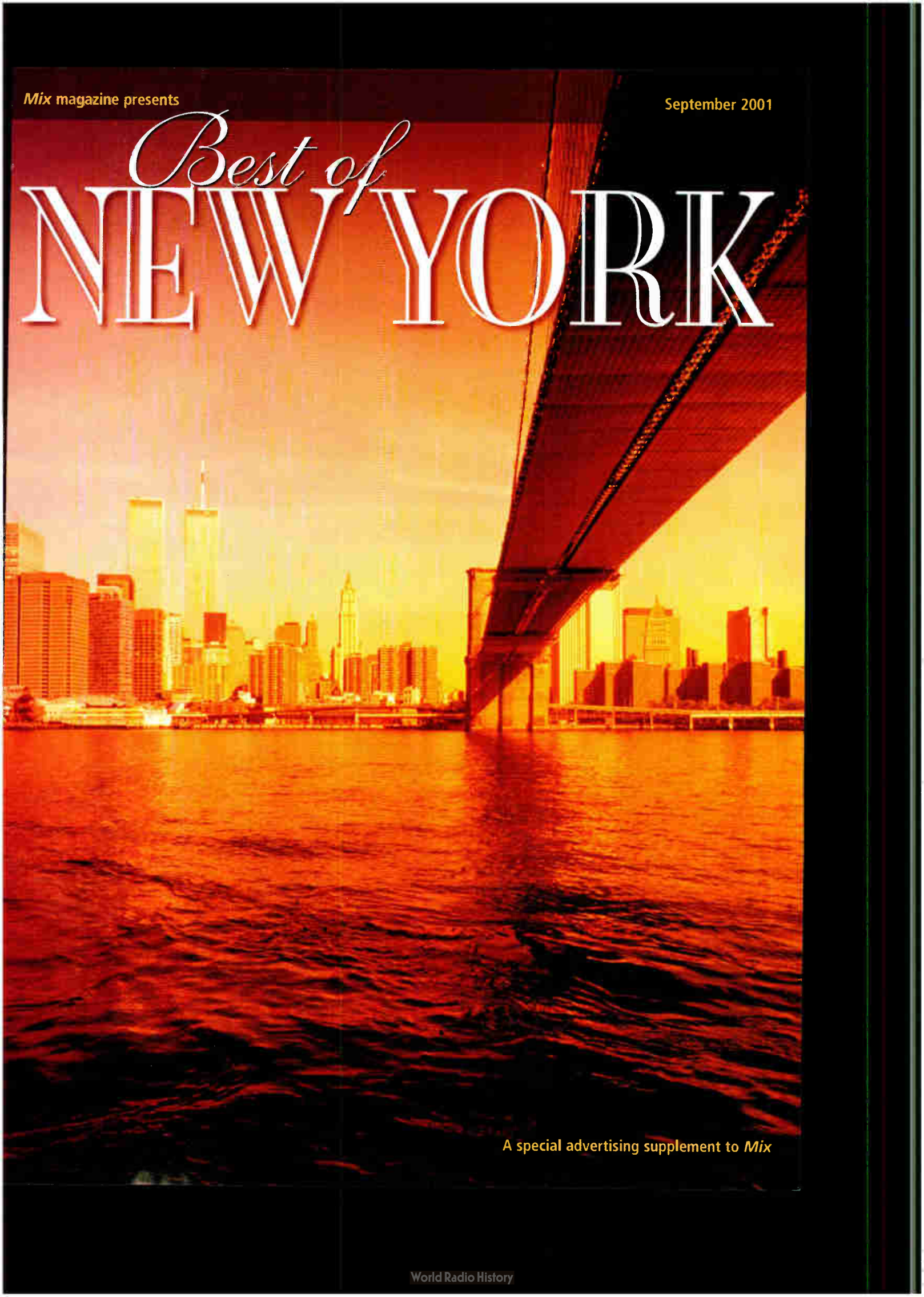
Midas now offers the XL4 Touring Package, which includes a flight case and extra power supply. The analog XL4's 48 mic inputs now feature an improved mic preamp design, and treble and bass sections of the EQ section now offer an extended frequency range and are switchable to fully parametric operation. Sixteen main audio groups can be assigned to any of eight automute groups and VCA control via 12 motorized VCA master faders. Up to

2,000 snapshot mix scenes can be recalled instantly, and all of the XL4's dynamic and snapshot automation features can be imported/exported in a variety of formats, either for archiving or for multiple console and system linking applications. The XL4 Touring Package is priced at $176,675.

The analog Series FIVE from Soundcraft USA is designed for a wide range of live touring and theater applications. Various frame sizes can accommodate from 24- to 56-channel configurations; LCR panning, 100-millimeter faders and a built-in 16x10 output matrix are standard. Each input channel offers four stereo mic/line inputs with fully parametric 4-band EQ and sweepable filters on both mono and stereo inputs. The Series FIVE is also MIDI-controllable. Price is $61,495 for the 52-input version.

The Yamaha PM1D is a fully digital large-format console for touring or installed sound. Features include complete recall and undo and a 32-bit internal audio path, and the system is capable of controlling up to 384 inputs, 192 channels and 96 mix buses when fully expanded. The PM1D's 260-pound, 75x38-inch control surface uses a 68-pin cable and two Ethernet connectors to communicate with the companion DSP-1D digital audio engine, which may be located onstage. If the control surface loses power or is accidentally disconnected from the audio engine, then the system will continue to stream audio without interruption. PM1D configurations include both 48- and 96-channel versions, each furnished with 48 mix buses, 24 output matrices and 12 DCAs. Additional features include 4-band fully parametric EQ and full dynamics processing on inputs and buses, scene memory recall of channel A/B assignments, virtual channels and a user-definable number of aux sends, effects processors and graphic EQs. Prices range from $110,000 to $145,000. ■

Randy Alberts is a musician, engineer and writer exploring music and recording technology in his Pacifica, Calif.-based studio.



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by Dan Daley

Best of New York

New York City is where the modern recording industry began. Forty years after Thomas Edison had perfected the cylindrical recording machine in his Menlo Park, N.J., laboratories, most of the major record labels had established their own recording studios in Manhattan. At a time when the recording industry was evolving from its former position as a subset of radio, the Decca, Columbia and RCA studios offered the large, ambient recording spaces that came to define the way records would sound for decades to come.

It was in New York that the trend toward individually owned studios first emerged as well, with facilities like A&R Recording and Nola Sound Studios appearing in the late 1950s and '60s. In more recent times, the New York recording scene was graced with such classic facilities as Media Sound, Skyline Studios, the Record Plant and the Power Station.

Today, New York serves the entire entertainment industry. Record labels have their headquarters here, as do talent and booking agencies and music publishers. Wall Street investment firms now underwrite much of the entertainment industry and, even as the music industry consolidates, it does so without diminishing its presence in New York.

Despite challenges from other major metropolitan areas, New York retains its position as the capital of the broadcast industry. Sirius Satellite Radio has chosen Manhattan as the site of its massive new satellite-based coast-to-coast digital operations, scheduled to commence later this year. And though the days of the "Big Three" broadcasting networks are a fading memory, ABC, CBS and NBC still have flagship radio and television stations based in New York. Live Webcast concerts have been regularly beamed from New York studios for several years now, starting with David Bowie's ground-breaking effort in 1998 at Philip Glass' downtown studio, and many New York studios have since integrated a range of "new media" capabilities.

The quantity and quality of film production work in New York has steadily increased throughout the last decade, too, and the city's expanding post-production infrastructure now allows producers to keep projects in town from start to finish. Once the political wrangling is over, it seems likely that the former Brooklyn Navy Yard will become home to a massive new film, video and audio complex. All this and world-class restaurants, too.

Though there is not yet a clear indication as to which of many newly evolving technologies will drive the entertainment industry in the New Media Age, there will always be a need for a wide range of audio-related services. Times change, but the need for quality doesn't. ■

Contents

PHOTO: GREG GRUSBY

PHOTO: CHRISTY KRAKOWKA

Absolute Audio

In an era of diversity and multitasking, the notion of picking a specialty, honing it to its ultimate art, and sticking with it seems romantically distant. Well, that approach is precisely what has brought Absolute Audio success as an audio mastering facility.

"We focused on a few things early on, and we've stayed focused on them," says Jim Brick, who, with his brother Tom, founded the company in June 1991. "What's enabled us to become a premier audio mastering studio is that kind of intensity directed toward a specific goal. It's allowed us to keep a certain mindset. It's one that polishes the craft of audio mastering, while remembering the true meaning of customer service."

The Bricks started their facility from scratch. They had a Neve Digital Transfer Console and a Neumann cutting lathe, and that's about it. Even as the owners expanded the technical side of the company, adding new digital audio platforms such as a Sonic Solutions system, as well as an array of state-of-the-art processing gear at a newer West Side location, they also saw that the music industry was evolving. Independent record labels and self-produced artists were becoming the new paradigm, and Absolute shared a common sense of origin, time and place with these artists and companies. Absolute Audio had been marketed successfully to the next wave and became the mastering resource for emerging genres that today dominate the music industry globally: hip hop, dance and alt-rock.

Along with owners Tom and Jim Brick, today Absolute Audio has a mastering staff that includes Fred Kevorkian, Dave Kutch, Larry Lachmann and Robert Amar.

Having begun his engineering career in his native France, Kevorkian moved to New York, where he began a nine-year stay at Sear Sound. Drawing upon his experience in a variety of musical styles, he made a switch to mastering and began his tenure at Absolute Audio.

With The Hit Factory Mastering as a starting point, Kutch made a move to a then brand-new facility, Powers House of Sound. Four years later, after making a mark there, Kutch joined Absolute Audio.

Larry Lachmann began his musical career at Sterling Sound in 1984. After years as studio manager, he, like Kutch, made a switch to help then-startup Powers House of Sound. There, he split his time as studio manager while making a move over to mastering. He finally made engineering his full-time career when he and Kutch made the move to Absolute.

Amar, since starting out as a general assistant three years ago, has proven himself as an up-and-coming engineer, as well as being invaluable for numerous day-to-day operations of the studio.

From a technical point of view, the engineers regard Absolute Audio as a hybrid facility, one that combines the warmth of vintage analog equipment with the cutting edge of digital technology. But the key is not the gear, rather in the way you approach it. That, and the understanding that this is all about the music. That, for Absolute, is the real bottom line. ■

SPEC SHEET

Company Name: Absolute Audio. **Contact:** Kristi Krakowka. **Services Offered:** audio mastering, archiving and restoration, disc cutting. **Main Technology Platforms:** Sonic Solutions, Steinberg Audio Cube, custom analog mastering consoles; Dunlavy SC-4 monitors; large array of other speakers; large selection of vintage and digital outboard, including Avalon, Weiss and Neumann. **Partial Client List:** Dave Matthews Band, Phish (Fred Kevorkian); Outkast, St.Lunatics (Dave Kutch); Jaheim, Boyz II Men (Larry Lachmann); Peter Murphy, Francis Dunnery (Tom Brick); Jordan Rudess, Steve Walsh (Jim Brick); Kktus Tribe, Hellz Army (Robert Amar).

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PHOTOS: STEPHEN GREEN-ARMYTAGE

Bearsville Sound Studios

Bearsville Studios has already become a legend in the audio industry. Of all its music recording facility contemporaries from the glory days of rock 'n' roll, such as the great RCA and Decca studios, Media Sound and A&R, only Bearsville remains a robust and working entity. It is very much an integral part of the multimedia landscape that makes its home in New York. When Coca-Cola needed a barn recording studio to shoot an Atlanta gospel choir for a television commercial last holiday season, it found exactly what it was looking for at Bearsville. Lots of others have, too.

Its history alone merits Bearsville a place in the annals of the music business. Founded in 1969 by the late Albert Grossman, manager of The Band, Bob Dylan, Janis Joplin, Todd Rundgren, Paul Butterfield and many other artists, Bearsville quickly became the hub of a music scene centered around Woodstock, N.Y. Over the years, Bearsville's three studios and comfortable residential environment became home—often literally—to recording artists of the highest stature, including the Dave Matthews Band, Foreigner, Phish, R.E.M., Jeff Buckley and The Pretenders, to enumerate just a handful of the hundreds who have sought out this unique facility.

"The organic nature of this studio—the fact that it is literally in the woods with a sort of resort/retreat vibe about it—contributes to its allure to so many great artists, producers and engineers over the years," observes Chris Laidlaw, former Bearsville engineer, now studio manager. "It offers a great contrast to the almost-maniacal pace of the rest of the media business, providing a private, peaceful and inspirational ambience to work in."

Bearsville also offers the quintessence of classic audio recording platforms, set in a large space that is rare in the city. Studio A has a recording area of 60x40 feet with a 38-foot ceiling, and it is world-renowned for its outstanding sound. In the control room sits an impeccably maintained, one-of-a-kind, vintage Neve console, which was originally custom-made for The Who's Rampport Studios. Studio B's 700-plus square feet of recording space is larger than most facilities' main music recording rooms. Studio B's control room, designed by George Augspurger, houses a Solid State Logic 4056 G-Plus console fitted with Ultimation. For true privacy, Bearsville also offers Turtle Creek Barn and Apartments. The converted post-and-beam barn is a separate, self-contained studio building featuring a huge 35x35-foot main recording room (with 10-foot ceiling) and a classic API Legacy console, fitted with Flying Faders automation. The 300-seat Bearsville Theater is used for live performances and rehearsals.

Bearsville's lifespan of more than 30 years now gives it a Blue Chip cachet. Its technology, acoustics, staff and experience at personalized service have assured its success during that time, and will into the future. ■

SPEC SHEET

Company Name: Bearsville Sound Studios. **Contact:** Chris Laidlaw, studio manager. **Services Offered:** Audio recording and mixing, ISDN lines, theater for live presentations and rehearsals. **Main Technology Platforms:** Custom 80-input Neve console; Solid State Logic 4056 G-Plus console w/Ultimation; 32-input API Legacy; Studer A800 MkIII analog multitrack (4); Digidesign Pro Tools. **Partial Client List:** Branford Marsalis, Bon Jovi, Cassandra Wilson, Jewel, Metallica, Nas, Natalie Merchant, Nina Persson, Noreaga, Vertical Horizon.

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PHOTOS: GREG HOLLMANN

Frankford/Wayne Mastering Labs

If the soul of New York is its diversity, then Frankford/Wayne Mastering Labs mirrors the eclectic essence of the city. And like New York itself, Frankford/Wayne has been around for a long time—35 years, to be exact—which, in the volatile media and entertainment industry, is more than a lifetime.

Tom Steele started Frankford/Wayne's mastering operations in 1966, first as part of the Philadelphia recording institution Sigma Sound Studios—home of the famous Philly Sound and the writing/production team of Gamble & Huff. There, he gained a firm footing in the rootsy music that endures today, and soon after, he opened his own facility nearby. It was at Frankford/Wayne that the heroes of East Coast soul, including The O'Jays, Teddy Pendergrass and Lou Rawls, among many others, came for their mastering. Philadelphia was also where Steele began a lifelong affinity with independent record labels, which positioned the facility well for the future. In 1973, Steele opened a branch of Frankford/Wayne in Manhattan, which is now home base.

Today's Frankford/Wayne facility is a serendipitous combination of the facility's heritage and the pro audio industry's cutting edge. Staff mastering engineers Duncan Stanbury, Michael Sarsfield and Greg Vaughn work out of Studios A, B and C, respectively, with a technology collection that spans the generations, from tube compressors and analog equalizers to the latest in SADiE digital audio workstations and other systems, including the Sony DAE-3000, Harmonia Mundi consoles, Sony 1630 with Apogee modifications and the Lexicon LFI-10 controller.

Frankford/Wayne has established itself as the premier mastering facility specializing in urban music, and regularly masters for the leaders in rap, hip hop, dance and house, such as Dr. Dre, Erykah Badu, Lost Boyz and Bone Thugs. But the staff covers all genres, with work for artists such as Elton John, Deborah Gibson and Joe Jackson. "Rock, pop, gospel, even Irish clogging music—we've seen and heard and done it all here," muses Tracy Steele, daughter of Frankford/Wayne's founder and the facility's general manager.

Artists and producers from Tokyo to London, and all points in between, rely on Frankford/Wayne as the definitive mastering solution for vinyl dance mixes. Roots that extend back to the Philadelphia Sound have remained alive and vital, and manifest themselves today at Frankford/Wayne in records that top the charts of the lingua franca of global entertainment—dance and club music.

And, as you might expect from a family business, the studio has a family feel about it, from the warmth of its analog sound to the large, comfortable and inviting lounge area, complete with (very analog) pinball machines.

"When you've been in business this long, you learn a few things about what the music needs and how people want to be treated," concludes Steele. "And in the music business, being in business for over 30 years truly does speak for itself." ■

SPEC SHEET

Company Name: Frankford/Wayne Mastering Labs. **Contact:** Tracy Steele, general manager; Eric Ronick, studio manager. **Services Offered:** Digital audio mastering, editing, vinyl mastering and lathe cutting. **Main Technology Platforms:** SADiE digital audio workstation, large assortment of analog and digital outboard; JBL, Yamaha, Polk Audio, Blaupunkt and custom KRK monitors. **Partial Client List:** Universal Records, J Records, Island Records, Def Jam Records, Rawkus Records, Sony Music, Loud Records, Elektra Records, Rhino Records, Atlantic Records.

FRANKFORD WAYNE
mastering labs, inc

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PHOTOS: GREG HOLLMANN

Harmony 534

The name truly does say it all. This multilayered, multilevel, multimedia facility, which opened June 1, 2001, represents the dovetailing of the talents of its several principals and staff with serendipity that is unique and complementary. And there's nothing cryptic about the number: It's the facility's address on West 43rd Street, on Manhattan's West Side, central to everything New York.

However, Manhattan does not intrude upon Harmony 534. The 3,000-square-foot, three-story, four-studio audio/video/Web design and hosting facility was built inside the shell of a former National Guard Armory. The result is an unheard-of degree of acoustical isolation for the facility's two audio control rooms and three isolation booths.

Designed by Richard Oliver and his experienced crew—who also provide Platinum and Gold engineering and support services at Harmony 534—the audio control rooms host two completely digital consoles: a 252 PATH/24-fader Neve Libra, and a 32-input Mackie D-8. Both audio control rooms and the facility's two video suites are designed for 5.1 surround monitoring and mixing, using Dynaudio M-2 speakers for mains and Dynaudio Contour speakers for surrounds, and all studios are tie-lined for audio, video and network links. Audio recording is to a large Digidesign Pro Tools 5.1 system and E-Magic's Logic 4.7 software. Data connectivity is via a mixed 100/1000 baseT Gigabit network.

The video post-production suites are fitted with Avid video editing equipment, though Harmony 534's staff can rent and integrate any system a client wants. DVD authoring services will be implemented in the near future.

"It's truly a boutique type of service facility, but a vertically oriented one," observes Doug Romoff, Harmony 534's CEO. "We can service a project from top to bottom—ADR, Foley, audio recording, editing and mixing, video editing, and mix-to-picture—and do it in a very intimate atmosphere where the client basically owns the facility from start to finish." Romoff and fellow founding partner and president Thom Spahn have long histories in the commercial and industrial multimedia industry sectors, and both continue to use the facility for their own multimedia productions. Romoff and Spahn's accounts include CBS, Slim-Fast and the University of Pittsburgh Health System, and their projects often engage the facility's entire range of services, including music and voice recording, scoring, picture transfer and editing and layback, all within the walls of Harmony 534.

"If there's anything that characterizes Harmony 534, it's that the facility is a powerful combination of technology and creativity," observes Spahn. "That goes for the staff and the facility itself. It's a very relaxed, creative place to work. The kind of place where you're more productive and more inspired. And that's a nice combination." ■

SPEC SHEET

Company Name: Harmony 534. **Contact:** Jamie Jackson, studio manager. **Services Offered:** Audio recording, editing and mixing; sound design film/video editing and mixing; ADR, Foley, scoring, ISDN, Web design, content compression, Web hosting. **Main Technology Platforms:** 104 channels of Pro Tools 5.1, 64 tracks of Tascam DA-78HR, MCI JH-24 24-track analog, Logic 4.7, Neve Libra digital console, Avid video editing system, Doremi Labs V1M, extensive new and vintage outboard equipment; large microphone selection. **Partial Client List:** Fisher Price, CBS, Universal Pictures, Sesame Workshop, Reebok, UPMC Health System, Galt MacDermot, Don Sebesky

Harmony 534

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PHOTOS: DANIEL DOBERS

The Lodge

The finest in digital and analog technologies, coupled with a unique sense of style, set The Lodge apart from other mastering facilities. It's no surprise that audiophiles from major and independent labels alike seek out this service-oriented Shangri-La.

President/CEO and mastering engineer Emily Lazar established The Lodge in Manhattan's bustling bohemian (and increasingly high-tech) Lower Broadway area in 1997. Since then, it has become one of New York City's leading high-end audio mastering and specialized recording facilities. Designed by Lazar with assistance from Waterland Design's Vincent Van Haaf, the multiroom facility is based around Sonic Solutions 16/24 and 24/96 HD digital audio workstations.

Select highlights from the studio's extensive equipment list include converters from dB Technologies, Prism Sound and Apogee Digital. It also features analog gems from Avalon, Pultec, and Tube Tech, as well as digital outboard equipment from TC Electronic, DK Audio, Weiss, and Z Systems.

"The mastering suites are intended to provide the best in both digital and analog audio technology," says Lazar, who earned a master's degree from NYU's Music Technology Program, where she has also taught graduate-level courses. The main mastering suite includes three soaring windows that bathe the studio in natural light, and the custom desk, which houses a Muth Audio Design CM-2040 console, is made from bird's-eye maple and has intricate inlay detail. The fully stocked kitchen and relaxing atmosphere of the lounges add to The Lodge experience. "It's not just a concept," explains Lazar. "We've proven that providing a refreshing space with versatile and talented engineers delivers genuine results."

In addition to the mastering suites, The Lodge offers a Pro Tools-based studio, which includes an iso-room and a wide array of vintage instruments, amplifiers and microphones. All of the suites in the facility are tielined.

The Lodge was an early entrant in providing DVD authoring services, adding Sonic Solutions DVD Creator in 2000. "Besides existing on the more traditional mediums like tape, vinyl and CD, audio has exploded on the Internet and is available in various compression formats," Lazar says. "We address the issues associated with all of these newer technologies by testing our mastered projects in a number of playback scenarios. This way we can hear not only how it sounds on great speakers, but also how well it holds up in the domain of new media and digital distribution."

Recent projects mastered at The Lodge have included Sinead O'Connor, Gang Starr, Mindless Self Indulgence, Sun Ra, Vitamin C, Neil Sedaka and Taj Mahal. Lazar also mastered the Saturday Night Live 25th Anniversary boxed set, the *Hedwig & the Angry Inch* cast album, more than two dozen titles in the Putumayo World Music Series, and a host of high-profile soundtracks, including *Pokémon: The First Movie*, *Boys Don't Cry*, *American Psycho* and *Training Day*. ■

SPEC SHEET

Company Name: The Lodge. **Services Offered:** analog and digital audio mastering, digital audio editing, specialized digital and analog audio recording and mixing, DVD authoring. **Main Technology Platforms:** Sonic Solutions 16/24, SonicStudio HD 24/96, Sonic Solutions DVD Creator authoring system, extensive digital and analog signal processing and recording equipment. **Partial Client List:** Columbia Records, Dreamworks Records, Elektra Records, Interscope Records, Priority Records, Putumayo World Music, RCA Records, Sony Music, Virgin Records, Warner Music Group.

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PHOTO: MICHAEL HOILAND

INSET PHOTO: TOSHI TAGAWA

Manhattan Center Studios

Few studios in New York play equally strong roles in preserving the city's media history and in propelling its media future. Manhattan Center Studios is one of those special few. The facility's heritage is remarkable: It opened at the turn of the 20th century as the Manhattan Opera House, under the guidance of Oscar Hammerstein, father of legendary theatrical composer Oscar Hammerstein Jr. In mid-century, the building was purchased by the Masons and additional floors were added. This provided New York not only with an opera house (now known as the Hammerstein Ballroom) but also with a world-class acoustical space, the Grand Ballroom, which was used by Broadway casts and conductors including Leonard Bernstein. These changes also paved the way for the facility's development as a multiple-studio complex.

The Grand Ballroom (Studio 7), Manhattan Center's renowned scoring studio, has a Neve VR 96-equipped control room and a simply awesome, gigantic 94x98-foot music room with a 60x80-foot stage. On one occasion, it was able to hold the entire Metropolitan Opera orchestra and choir simultaneously for a recording performance, and it has become a favorite of many scoring composers and film directors.

"The acoustics are quite extraordinary," says Victor Moore, Manhattan Center's VP of audio sales and production. "The Masons had very specific construction techniques, and they imparted this space with a sound that is remarkably warm, yet retains great punch and clarity."

Being one of the city's jewels of scoring and orchestral work would be enough to secure the Grand Ballroom a berth in the top tier of media studios. However, the facility has expanded significantly into multimedia applications in recent years. In addition to a second audio studio (Studio 4), equipped with a Neve VR 72 console, Manhattan Center also offers video production and both audio and video post-production. There is an audio editing suite (Studio 8) that houses a Digidesign Pro Tools system, and two online Avid/Sony digital video editing suites. In addition, the facility holds two fully equipped and broadcast-operational television stages with control rooms, one of which is the nerve center for New York's cable Metro Channel. All of the rooms, post suites and acoustical recording spaces are networked via fiber, allowing post to proceed even as productions remain in progress.

Moving further into multimedia, Manhattan Center two years ago inaugurated a new division, Manhattan Center New Media, which specializes in Web page design and construction.

"The studio has evolved into a comprehensive, soup-to-nuts media facility over the past decade," says Moore. "But while the diversity of capabilities we have here is sizable, what I truly believe sets Manhattan Center apart is the fact that it had this tremendous history as a performance space behind it. The place has a vibe that can't be duplicated just with technology. It's truly a part of New York history, and in the process, we continue to make history here." ■

SPEC SHEET

Company Name: Manhattan Center Studios. **Contact:** Victor Moore, VP of audio sales and production. **Services Offered:** Audio recording and mixing, 5.1 surround mixing, film scores, orchestral recording, digital audio editing, video production, video post-production, online digital video editing, Web page design and construction. **Main Technology Platforms:** Neve VR consoles (2), Pro Tools, Sony 3348, Studer, Avid. **Partial Client List:** Virgin Records, Sony Pictures, Interscope Records, Elektra Records, Columbia Records, Mandalay Pictures, VH-1, Island/Def Jam, Paramount Pictures, Sony Classical.

MANHATTAN CENTER STUDIOS
AUDIO · VIDEO · NEW MEDIA · EVENTS

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PHOTOS: GEORGE ROOS

Masterdisk

Masterdisk has established itself as a true brand in the field of audio mastering, an instantly recognizable name that is associated with quality. It is also constantly and organically evolving, adding three new core competencies to its audio mastering specialties: 5.1 surround mastering, a dramatically expanded DVD compression/authoring division and Enhanced CD creation.

Masterdisk has six mastering suites, manned by an award-winning group of veteran and musically diverse mastering engineers: chief engineer Andy VanDette, Leon Zervos, Roger Lian, Howie Weinberg, Tony Dawsey and Drew Anderson. "The music market has become incredibly diverse," says Zervos. "But from rock to rap, orchestral to Latino, we've covered every genre out there."

The unifying factor at Masterdisk's audio mastering operations is the custom-built equipment: mastering consoles and monitoring systems, tailored by Masterdisk technical director Don Cuminale, working with input from each engineer. The result is highly personalized mastering environments in which the technology is reliable and consistently accurate.

The facility pioneered the still-burgeoning realm of 5.1 surround mastering, which commenced with Drew Anderson's studio in 1998. Since then, Masterdisk has taken a leadership position in the multichannel music market, which many expect to see blossom this year as major labels announce plans for scores of new and catalog surround music titles.

That same desire to stay at the leading edge of new technologies and formats, and to influence the directions that pro audio takes, were at the core of Masterdisk CEO Doug Levine's decision two years ago to implement DVD authoring. What began as a single Sonic Solutions workstation has grown to a multiroom, multifaceted new department occupying a floor adjacent to the audio mastering division. Scheduled to open in Q3, 2001, the new division will also feature Avid online digital editing services. And what had been the original DVD suite has been converted into a high-end theatrical playback environment, complete with surround audio and a large projection screen. States Masterdisk chief engineer Andy VanDette, "The key to success for the next 25 years is the same as it was the last 25 years: Provide clients with the right tools and expertise to complete their creative vision in a comfortable, relaxed environment."

The facility stays ahead of the technology curve by being proactive with the formats and platforms it believes will become the most successful—then developing expertise in those areas. Though Masterdisk has developed into a true multimedia entity, audio mastering remains at the heart of the business. "There's more music coming out than ever before, and it's being made under all sorts of circumstances, with multiple producers and multiple engineers working at multiple studios on a single project," Zervos comments. "Mastering, as the last opportunity for quality control in this process, has never been more critically important than it is now." ■

SPEC SHEET

Company Name: Masterdisk. **Contact:** Traci Chandler, general manager. **Services Offered:** Audio mastering, DVD authoring, Enhanced CD creation. **Main Technology Platforms:** Custom audio mastering consoles (6), custom monitoring systems, Sonic Solutions, Pro Tools. **Partial Client List:** DMX, Jay-Z, Kid Rock (Tony Dawsey); Uncle Kracker, David Bowie, Camoflauge (Andy VanDette); Nirvana, Tom Waits, Run-DMC (Howie Weinberg); Tito Puente, Black Crowes, Whitney Houston (Leon Zervos); Faith Hill, Staind, Paul Oakenfold (Roger Lian); Dream, Usher (Drew Anderson).

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PHOTO: MICHAEL HOILAND

Pilot Recording Studios

Pilot Recording Studios provides the ultimate in tracking and mixing environments. Featuring an acoustically exceptional live room with high ceilings, isolation booths and an unsurpassed room ambience, Pilot has earned a reputation for outstanding drum sounds, basic tracks as well as an incredible mix room. A spacious studio located in the heart of Manhattan's Chelsea neighborhood, Pilot offers exclusive lockout sessions, extreme privacy and a comfortable lounge with numerous client amenities.

Founded by owner, producer/engineer Will Schillinger in 1992, with a console upgrade in 2000, Pilot was designed by Frank Comentale, with additional design by Wilbur Systems Limited. Pilot Recording Studios takes its name from Schillinger's love of flying, a passion second only to audio and music production. The kind of precision, attention to detail and reliability that are critical to aviation are amply evident in Pilot's carefully considered design and its high standards of maintenance. Some recent clients include Junior Brown, Marshall Crenshaw, Marc Cohn, Kenny Baron, Chico Hamilton, Ryan Adams, Burning Spear, Joan Osborne, Cassandra Wilson, Bo Diddley, Marianne McPartland, Cornell Dupress, Sean Lennon, David Garza, Tricky, Joey Ramone, Patty Scialfa and The Lemonheads.

The tracking room has been the site of sessions ranging from major label music projects to multimedia work to extensive film scoring and more. The spacious 24/48-track control room features a Neve V3 console with Uptown/P&G Flying Faders automation, Studer A827 analog 24-track machines, Studer ½-inch decks and a Pro Tools Mix³ 32-channel/24-bit system with the complete plug-in library. The monitoring system incorporates the new Tannoy DMT 15 MkII speakers, powered by Perreaux 9000B amplifiers, as well as an assortment of Hot House-powered near-field speakers.

Pilot offers an extensive microphone collection of over 150 models, including vintage matched pairs with and without tubes and a variety of ribbon mics, including dozens of RCAs. The outboard list is lengthy, including many Class-A mic pre's, more than 35 limiters, a collection of new and vintage effects, and a variety of high-end tube equalizers. The facility is also home to a large variety of vintage instruments, including a rare Yamaha C-7 grand piano, Hammond B-3 with Leslie, Clavinet, Wurlitzer electric piano, Estey pump organ, two Harmoniums, toy pianos, over 30 acoustic and electric guitars, many guitar and bass amps, and a wide selection of drums (including over 35 snares).

In addition to Studio A, Pilot also offers a Pro Tools editing suite, which has been used for many applications, from film scoring and digital editing to CD mastering. Equipment includes a Mackie 32x8 and a full complement of MIDI gear and software. Pilot takes pride in its mastering work and accommodates many formats, including audio production for multimedia. ■

SPEC SHEET

Company Name: Pilot Recording Studios Inc. **Contact:** Will Schillinger, owner. **Services Offered:** Audio recording, mixing, mastering and editing; remote recording services available. **Main Technology Platforms:** 60-input Neve V3 w/Flying Faders automation, Studer A827 analog 24-track machines, Studer 1/2-inch decks, Pro Tools 32-channel Mix³/24-bit system with the complete plug-in library, extensive analog and digital outboard signal processing. Tannoy DMT 15 MkII speakers, Perreaux 9000B and Hot House amplifiers. **Partial Client List:** Junior Brown, Marshall Crenshaw, Paul Shaffer and The World's Most Dangerous Band, Marc Cohn, Kenny Baron, Chico Hamilton, Ryan Adams, Burning Spear, Joan Osborne, Cassandra Wilson, Bo Diddley, Marianne McPartland, Cornell Dupress, Joe 90, Sean Lennon, David Garza, Joey Ramone, Patty Scialfa, The Lemonheads.

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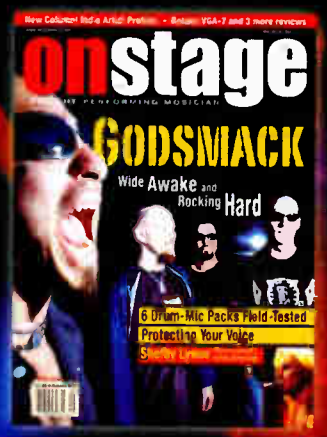

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PHOTOS: BOB WOLSCH

Scott Hull Mastering/Classic Sound

Scott Hull learned long ago the power of creating a brand. By the time he had struck out on his own, establishing Scott Hull Mastering at Classic Sound in 1999, the high number and status of the recording artists, producers and engineers who had sought out his expert audio touch over the course of two decades at other facilities assured the success of his own studio.

"I like the fact that people know me and associate the name with quality sound," says Hull, who mastered the 2000 Grammy-winning Album of the Year, Steely Dan's *Two Against Nature*. "But what I believe is just as important—and what has had every bit as much to do with success as technical talent—is the fact that throughout my career in mastering, I've wanted to get to know my clients as individuals and their music as the artistic extension of their personalities. That's how you can give a mastering client the best work possible."

Scott Hull Mastering's two studios—a mastering suite and a production/edit room—were designed by the renowned Walters-Storyk Design Group and were later modified to accommodate Hull's choice of Duntech Sovereign 2001 monitors, which are powered by Cello Performance amplifiers. It's a combination that Hull describes as "beautiful-sounding and wonderfully accurate." Hull was also one of the first engineers in New York, in 1990, to acquire and master the Sonic Solutions digital audio workstation, which is used heavily for digital editing work. However, Hull says, the heart of the mastering process is the custom-built Manley analog mastering console in his main mastering suite; it's supported by a wide array of vintage analog and leading-edge digital signal processing equipment.

In addition, Scott Hull Mastering shares facility space with Classic Sound's other division, Lazarus Engineering. Tom Lazarus' leading New York remote recording and post-production company. The relationship offers additional technical and creative synergies to Hull's clientele.

"One of the things to know about New York is, there is a great deal of specialization here," Hull explains. "Talented people choose to focus on something and become true experts at it. That's the way I like to look at the media business in New York—as a pool of resources with a depth of knowledge and expertise that cannot be found anywhere else to this degree."

That perspective is what governs Hull's outlook on new-media technologies and formats. The facility is increasing its complement of 96/24-capable equipment (while keeping the best of the analog, of course), yet Hull clearly sees his specific niche in the evolving framework of new media. "With formats like DVD and SACD coming to the market, I keep very up to date on them," he says. "But I believe the key is that I see myself as the expert resource for the audio component of new media. There are others who can provide great video and computer solutions. I don't want to diffuse the core specialty of this facility. We are about audio—the best audio—and that's it." ■

SPEC SHEET

Company Name: Scott Hull Mastering/Classic Sound. **Contact:** Andrea Yankovsky, general manager. **Services Offered:** Audio mastering, digital audio editing, hi-res 96/24 for all formats, access to remote recording, mixing, post-production. **Main Technology Platforms:** Custom Manley mastering console, Muth monitoring interface, Sontec mastering EQ, Prism converters, Z-Sys 6-channel 96/24 digital EQ, many more digital and analog pieces of gear. **Partial Client List:** Steely Dan (Album of the Year Grammy winner, 2000), Nelly Furtado (Grammy nominee), Garbage/Butch Vig, Wu-Tang Clan, Indigo Girls, The Offspring, New York Voices, Zap Mania.

SCOTT HULL mastering

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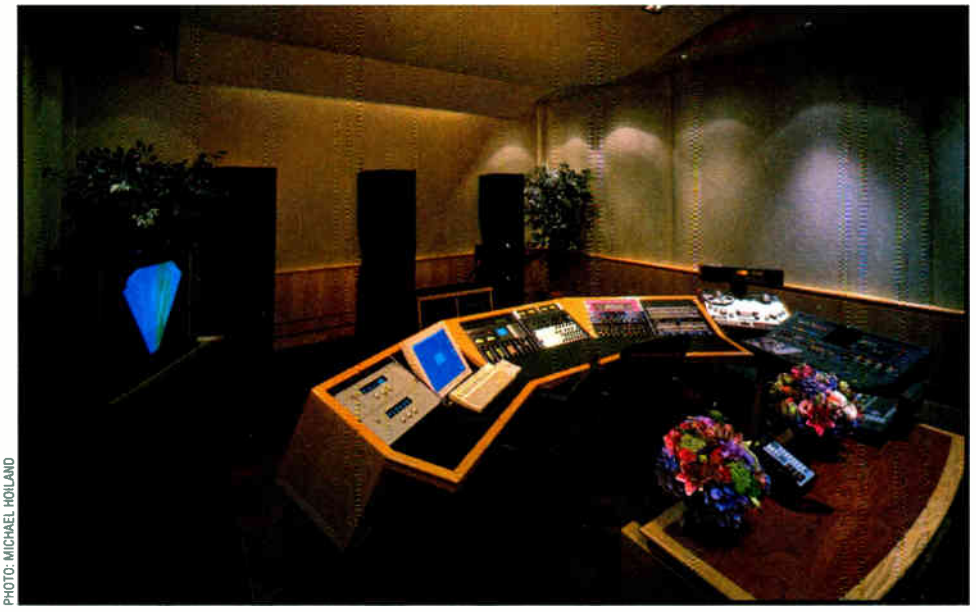

PHOTO: MICHAEL HOILAND

Sony Music Studios

Sony Music Studios is a universe unto itself, leading the industry by combining state-of-the-art technologies with an extremely diverse range of services. The mastering department is one of the crown jewels of the studio's audio department and acts as a hub for the past, present and future of audio production and restoration.

"What's unique about the studios is that we've blended an unprecedented array of technology under one roof," observes Andy Kadison, senior VP of Sony Music Studios. "We're like the millennium's version of an old-time Hollywood studio. We can do virtually every aspect of an entertainment project under one roof, ranging from audio recording, mixing, mastering, archive restoration and plant production, to television production and satellite broadcasts, to audio and video post-production.

"Our mastering department is truly special because it offers us a window into the past and a glimpse at the future of audio production," he continues. "We have Edison cylinders here that go back a hundred years, and we can access them and any other format easily."

Sony Music Studios' mastering rooms are tailored to the specific requirements of its elite corps of engineers, including Vlado Meller, Mark Wilder, Vic Anesini, James Cruz, Joe Palmaccio, Darcy Proper and others. They are part of an almost 50-room studio facility that reflects the scope of New York's multimedia universe, while at the same time offering clients highly personalized service and tremendous technical and creative support.

"What sets Sony Music Studios apart is that we think and operate in a very nonlinear manner," explains Brian McKenna, senior director of audio operations and marketing. "Each aspect of each project can be worked on simultaneously, if the client wants to, and each aspect gets the same amount of attention and care. So, for instance, a producer can take a piece of a project at any stage and send copies to get feedback before it's finished. That's a huge creative edge that this facility can offer."

The mastering department at Sony Music Studios has been acclaimed for its remastering of valuable archived audio material, as well as for its work in furthering both the technology and the market for multichannel audio. And it has even been credited with keeping New York very much a rock 'n' roll city, with recent Platinum mastering efforts from Meller on records for Limp Bizkit, Red Hot Chili Peppers, Staind, Weezer, Rage Against the Machine and Macy Gray.

All of the work done at the studios is given a common link through close coordination by the company's executive staff, as well as through David Smith, VP of Engineering. The mastering department has also been an important part of the development of Sony's acclaimed Direct Stream Digital (DSD) audio system, and the Super Audio CD (SACD) format. "Whether it's linear PCM, DVD, DSD or any other format, this facility can handle it," Smith says.

"The future is very much here already," adds Kadison. "There simply isn't another facility in the world like Sony Music Studios...and that's okay with us!" ■

SPEC SHEET

Company Name: Sony Music Studios. **Contact:** Brian McKenna, senior director of audio operations. **Services Offered:** Audio mastering, recording, mixing and editing; direct-to-disc lacquer cutting; video and audio post-production, graphics, DVD authoring; audio archiving and restoration; full video and audio production services; satellite transmission services; ISDN. **Main Technology Platforms:** Sonic Solutions digital audio workstations, Digidesign Pro Tools systems, SSL 9000J (4) and Neve VR-SP analog consoles, Sony Oxford (2) and Neve Capricorn digital consoles; custom mastering consoles (5). **Partial Client List:** Jennifer Lopez, Marc Anthony, Ruff Ryders, Brian Malouf, Billy Joel, Elton John, Phil Ramone, Sheryl Crow, Herbie Hancock, Elliot Scheiner, Bruce Swedien, Missy Elliott, Celine Dion.

Sony Music Studios

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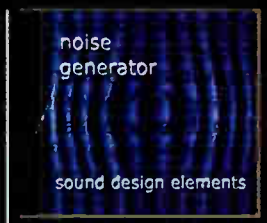

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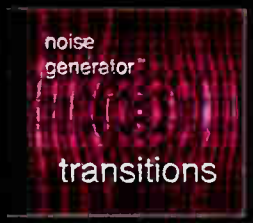

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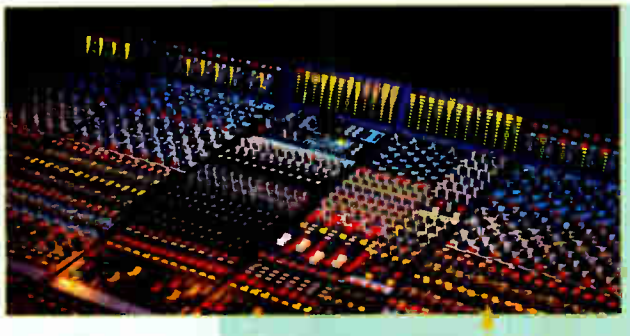


COMMUNITY XLT500 SERIES

Community Professional Loudspeakers (www.loudspeakers.net) adds five new models to its XLT500 Series, including two stage monitors (models XLT502 and XLT505), a compact, dual-15 subwoofer (model XLT509), and two three-way P.A. systems in trapezoidal enclosures (models XLT525 and XLT530). All XLT500 models (except the sub) feature a UC-1 1-inch compression driver, and full-range models feature IntelliSense™ protective circuitry and PowerMeter™ LED indicators designed for peak performance without risk of damage. A newly developed, sandwich-core plywood construction combines strength with light weight, and some models offer corner protectors, recessed handles, a black-carpet finish and stand sockets. The new XLT500 Series retail from $779 to $999.

MIDAS LEGEND SERIES CONSOLE DEBUTS

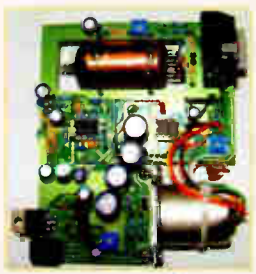
Midas (www.midasconsoles.com) announces the Legend Series of live mixing consoles. Debuting with the Legend 3000, the series features a semi-modular console constructed in blocks of eight, each of which is split into three sections. Preamp circuitry is derived from the Midas XL4, and EQ is based on that in the XL3. Further, every input channel has two sets of EQ—one for monitors and one for FOH—as well as two faders for complete control over each mix. Additional features include 12 aux sends.

MEYER DF-4 DOWNFILL SPEAKER

Meyer Sound (www.meyersound.com) intros the DF-4, a self-powered downfill loudspeaker system designed to provide balanced coverage below and immediately in front of larger flown arrays. The compact enclosure has a direct-radiating MS-815 15-inch LF driver and a 4-inch diaphragm HF compression driver coupled to a symmetrical 50° horn. Specs include a 65-18k Hz (±4dB) response, max 134dB peak SPLs at 1 meter, and a 50°x50° coverage pattern from 2-18 kHz. The amp and signal processing are housed in a single, field-replaceable module. The 2-channel, Class AB/H power amp produces 1,240 watts (620W/channel) peak, and it includes TruPower™ limiting, phase-corrected active crossover and Intelligent AC power supply. The DF-4 comes equipped with both standard aircraft pan fittings and Meyer Sound's new QuickFly L-Track-based hardware, and the DF-4 readily attaches to arrays configured from Meyer Sound loudspeaker systems.

AKG MICROMIC III

AKG's (www.akgusa.com) MicroMic III Series of live sound mics feature improved signal/noise ratio (5 dB better than the MicroMic II Series). The new line includes the C 430 pencil-type cardioid condenser—specifically for cymbal and overhead miking—and the D 409 hypercardioid dynamic mic, which is designed to clip onto woodwinds, brass, drums and percussion instruments. Most MicroMic III Series models are available with connectors for use with wireless transmitters.



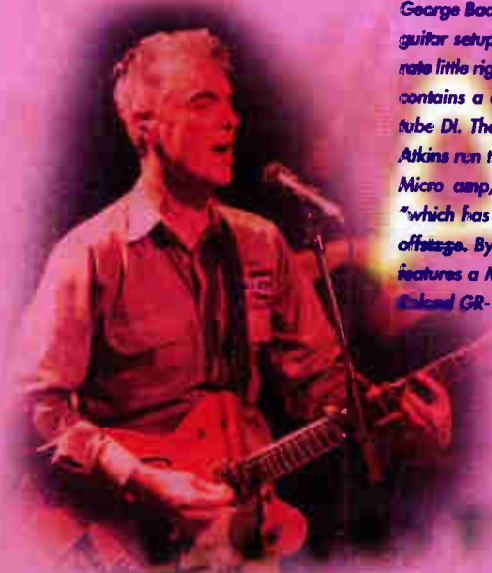
VALVOTRONICS OCP TUBE MIC PRE

The OCP V.1 tube microphone preamp from Valvotronics (www.valvotronics.com) is a transformer-coupled, low-noise, tube-amplified mic input circuit board using a single dual triode, and it fits on a 3.5x5.2-inch PC board that can be placed inside most modular consoles. Originally designed for the Cadac J-Type theater sound console, the OCP V.1 can be fitted into many other console input modules.

David Byrne is on tour to promote Look Into the Eyeball, *his latest CD, and will be playing around the U.S. and Europe until at least the end of the year. Traveling light, with only an in-ear monitor system and FOH racks, the tour is picking up sound production and a string section locally. Seen here at San Francisco's famous Fillmore Auditorium in June, Byrne's lively show includes new and familiar material from his solo catalog, as well as a few Talking Heads favorites.*

DAVID BYRNE

George Bade oversees David Byrne's guitar setup. "It's basically three separate little rigs," he says. The Guild acoustic contains a custom preamp that plugs into a tube DI. The electric rig includes a Gretsch Chet Atkins run through a pedal board, including an MXR Micro amp, an old Thomas Autowah and a Sans Amp, "which has a real nice overdrive," and then into a reissue Vox AC-30 set offstage. Byrne's third axe is a Godin, which is strung with nylon classical guitar strings and features a MIDI output in addition to a standard pickup. The Godin's MIDI output is fed to a Roland GR-1, which, in turn, outputs both a "straight acoustic tone" and synth sounds.



PHOTOS AND TEXT BY STEVE JENNINGS

Appearing with David Byrne on tour are Paul Frazier (bass), David Hilliard (drums) and Mauro Refosco (percussion). Supplementing the group at the Fillmore were San Francisco Symphony and San Francisco Opera Orchestra members Melissa Kleinbart, Naomi Kazama and Cathy Down (violins), Adam Smyla (viola), and Peter Wyrick and Nora Pirquet (cello).

Monitor engineer Kris Umezawa is on his second tour with Byrne, who is using in-ear monitors (IEMs). "David's had in-ears for a while now," says Umezawa. "They're great from a mixing standpoint, as it's a quiet and clean stage." Umezawa is mixing on a Mackie digital 8-bus supplemented with two Mackie 1604s that are used only for their mic pre's. "I've got 40 analog inputs with 33 mic pre's," explains Umezawa. "It's a pretty sleek package."

Like Mann, Umezawa finds that working with new string players in every city is quite a challenge. Though the players are almost always top-notch, many of the musicians have not used IEMs before and are understandably apprehensive about having mics hooked onto their valuable instruments.

FOH engineer/tour manager David Mann has worked with Herbie Hancock, Dan Wilson, Luna, Lloyd Cole and Duncan Sheik, among others. Mann's FOH rack includes BSS DPR-402s and an Eventide Harmonizer for Byrne's vocal, and dbx166 compressors for drums. "When I go to Europe, I'll have a rack of BSS 402s, some Drawmer gates, an Eventide 3000 and a Meyer CP-10 Parametric Equalizer, which I'll use on the cellos," he notes. Mann is using primarily Music Valve Electronics Tube DIs, but he selected a Demeter tube DI for Byrne's guitar setup.

The tour is endorsing Shure microphones, and Mann has selected FX185 lavalier mics for the violins and violas. "I'm doing a lot of creative EQ'ing as well," explains Mann. "The lav mics, because they're designed for speech, are a little hot around 3 kHz. When you roll that off, you get a very warm sound on the strings, plus you attenuate a lot of the leakage from all the percussion instruments." On the cellos, Mann cuts "just about everything but 2.5 kHz. You get the sound of the bow and the rosin sound, which gives the timbre of the cellos. That cuts through the mix—it really works."

BY BLAIR JACKSON

PHOTO: STEVE JENNINGS

STAIND

BREAKING OUT OF THE HARD ROCK MOLD

by Elianne Halbersberg

Finding the right producer can be as important, and sometimes as difficult, as finding the right bandmembers. The right producer came to the hard rock group Staind on his own. Producer/engineer/musician Josh Abraham—who recently launched his own label, JAB Records, and whose credits include heavyweight acts such as Limp Bizkit, Orgy and Korn—shares management (The Firm) with the Massachusetts-based group and, "looking to get into a more organic field of production," he asked the company to set up a meeting with vocalist Aaron Lewis, guitarist Mike Mushok, bassist Johnny April and drummer Jon Wysocki. What he didn't expect was just how organic their collaboration, *Break the Cycle*—which entered the charts at Number One this past June—would be.

"To be honest, I thought I was going in to make the heavy follow-up to *Dysfunction* [Staind's successful 1999 major-label debut]," says Abraham, who instead found himself producing and engineering a more melodic, acoustic-based album. "The first time I heard Aaron sing 'Outside' was on the way to a rehearsal. I didn't even know the song existed. Up until that time, I thought he was just a screamer. I asked him to play me some demos, and 'It's Been Awhile' [the CD's first single] was a song that he'd written five or six years ago. I said, 'This is great stuff! Let's focus on your vocal performance.'"

What might surprise Staind fans, who immediately bonded with *Dysfunction*'s aggressively delivered, heart-on-sleeve lyrics, is that Lewis was a self-described "choir geek" who sang in the All State Choir while in high school, performing such classics as Schubert's Mass in G. Prior to Staind, he performed acoustically, playing guitar and singing Cat Stevens, James Taylor, and Crosby, Stills & Nash songs. Those roots, however, are not far removed from those of his bandmates.

Mushok, who studied guitar under Tony MacAlpine, shares Lewis' passion for melody and poignant lyrics, citing James Taylor, Jim Croce and the folk music his parents loved as his musical foundation. *Break the Cycle* isn't the stretch that one might imagine.

"We aimed to make this record different from the last one," Mushok says. "We wanted to accomplish the melodic elements, and it was difficult for me, because there were days when I literally paced around my backyard thinking my head was going to explode because I would have four song ideas going on at once. I'd listen to the recordings and wonder, 'Is this any good?' I lost my perception a bunch of times because I was so close and wrapped up in it. I had to step back and take weekends off to come back with fresh ears and try to pick out what was good and what wasn't. So in writing the songs, for me there was a lot of doubt and trying to push myself to get rid of that doubt. It was hard as we went along, but we finished it two days before Christmas, I went home with the rough mixes and at that point I was able to say, 'This is really good.'"

Unlike so many rock bands who track in one place over a matter of weeks, Staind

—CONTINUED ON PAGE 188

TRAIN

TO "JUPITER" AND BEYOND!

by David John Farinella

L-R: Charlie Colin, Pat Monahan, Scott Underwood, Rob Hotchkiss, Jimmy Stafford

PHOTO: STEVE JENNINGS

Train's singer—and newly commissioned trumpeter—Pat Monahan is contemplating the differences between their 1998 self-titled debut and the recent *Drops of Jupiter* release. "From the beginning of recording this last record, the money that we spent and the fact that Brendan O'Brien did the recording and producing of it, *that's* a big difference," he says.

Having a real budget and a top-flight producer were just two of the key elements that contributed to Train making a smash CD and fulfilling the promise its supporters have predicted for some time. By the time the band's tour bus pulled into Southern Tracks recording studios in Atlanta last year to cut the new album with O'Brien, they were already a group on the verge of major stardom. The group had grown from an acoustic duo playing San Francisco coffee houses to a full-fledged band, and from an unsigned act to heavy rotation stars, thanks to the catchy "Meet Virginia."

In fact, the band was on the road touring to support that single when they started writing new songs. "It just seemed like it was time to make a record, naturally," Monahan explains. So they went right from the road to the studio. "But we had another song that Columbia was about to release to Top 40

—CONTINUED ON PAGE 190

DAVID GRAY

THE BUDGET TRIUMPH OF "WHITE LADDER"

by Gaby Alter

PHOTO: STEVE JENNINGS

These days, it's rare to find a recording on pop radio that doesn't sound like a million dollars—or at least a hundred thousand. Money is poured into top-of-the-line microphones, recording consoles and vintage gear, sounds are tweaked by sophisticated technology, and parts are layered and mixed to create a sound so compelling that it can sometimes blind a listener to a pop recording's musical shortcomings. So it is a refreshing change to see a quality home-recorded album like David Gray's *White Ladder* go Platinum in the States and abroad. Recorded for less than $5,000 in the UK singer-songwriter's London apartment, the album shot up the charts last year on the strength of its first single, "Babylon II."

Released Stateside by Dave Matthews' ATO records (Matthews is a longtime Gray fan), *White Ladder* is a perfect blend of soulful folk songwriting and electronica-style backgrounds. Simple, effective arrangements of real and looped drums, samples and keyboards complement Gray's deeply felt vocals, lyrics and acoustic guitar. There is, in short, nothing fancy about this record, but plenty of emotional honesty—qualities that can be found in one of Gray's stronger musical influences, Van Morrison. And *White Ladder* is unique in that it achieves a feeling of warmth and intimacy from its electronic sounds, a fact that can be attributed both to Gray's songwriting and to the album's home-recording origins. (Since the success of *White Ladder*, a second acoustic album recorded around the same time, titled *Lost Songs*, has been released to capitalize on Gray's incredible career momentum.)

White Ladder's genesis can be found in a particularly dark

—CONTINUED ON PAGE 194

CREAM'S "SUNSHINE OF YOUR LOVE"

PHOTO ©MICHAEL OCHS ARCHIVES.COM

L to R: Ginger Baker, Jack Bruce and Eric Clapton

by Dan Daley

Cream was one of the first nonorganically created rock supergroups of the 1960s. Music business entrepreneur Robert Stigwood contracted Eric Clapton, bassist Jack Bruce and drummer Ginger Baker to play as a group, for a term of two years, with an option for a third. Each member had already achieved a degree of fame in their native UK—Clapton with The Yardbirds and John Mayall's Bluesbreakers; Bruce and Baker had played together in the Graham Bond Organisation; and Bruce had played briefly with Clapton in the Bluesbreakers and with Manfred Mann. Individually and collectively, they were part of a movement that was reinventing and reinvigorating American blues, electrifying it, fusing it with rock and shipping it back to the U.S., where it wound up making white British rockers far more money than it ever made for Robert Johnson.

Cream's debut LP, *Fresh Cream*, on Atlantic Records in the U.S. and distributed by Polydor globally, was predictably laden with blues tunes, but also showed a deft pop hand at work. But in the wake of that record, and in the process of defining themselves beyond Stigwood's prenuptial agreement, the band began writing more of their own material, particularly Bruce, co-writing with lyricist Pete Brown. Those efforts laid the foundations for the power trio and added immensely to the canon of psychedelic rock that Jefferson Airplane and other San Francisco Bay Area groups had inaugurated. That was the petri dish from which "Sunshine of Your Love"—which, in January of 1968, would become Cream's first U.S. Top 10 hit—was born: a stew of blues, rock and a little bit of "Blue Moon" thrown in for good measure.

Atlantic founder Ahmet Ertegun saw Clapton playing with one of the label's artists, Wilson Pickett, in a blues club in London in 1966. He made the deal with Stigwood to put Cream on Atlantic in the States and asked Tom Dowd, who had been ripping up the charts with other Atlantic artists, to produce the band's second record, *Disraeli Gears*.

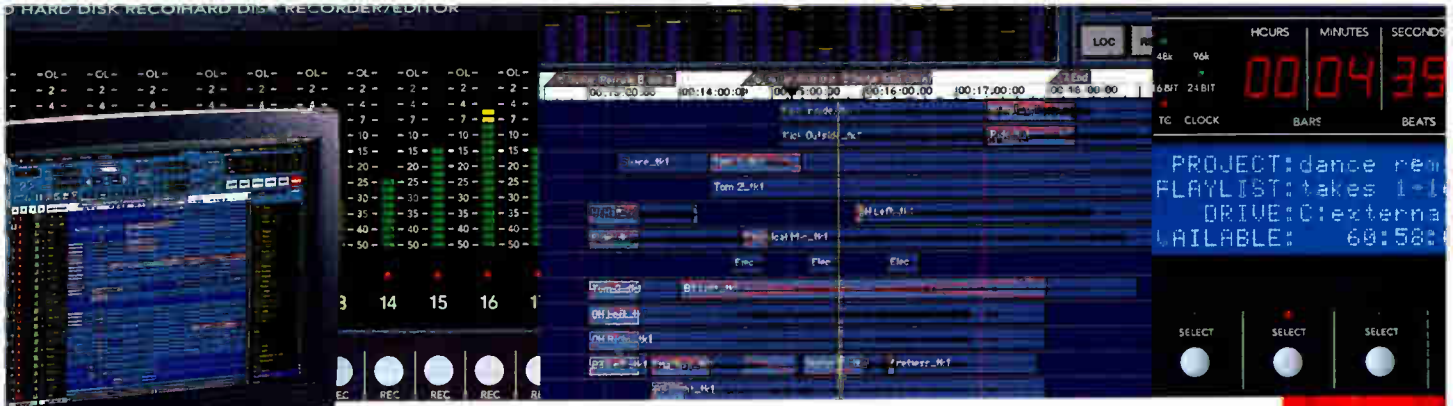
"We knew the band had basically been put together by Stigwood and that the members didn't have personalities that always meshed perfectly," Dowd recalls. "But I also knew they were brilliant musicians and that they would not let that interfere with their professional obligations. So I was up for it."

Dowd was waiting for them at Atlantic Studios, on 60th Street in Manhattan, on a Thursday in 1967. He had designed the facility himself, in 1959, mainly to accommodate the Ampex 8-track deck he had convinced a reluctant Ertegun to invest in during the late 1950s. According to Dowd, Ertegun's initial response to the request for $12,000 for the console was, "Twelve thousand dollars? That's how much it cost to start the whole company!" Dowd had pointed out how amazing the Les Paul and Mary Ford records were sounding and how successful they were, and Ertegun finally agreed, though Dowd's use of multitracking had mainly been limited to jazz records for artists such as the Modern Jazz Quartet and Ornette Coleman. Atlantic's pop records continued to be done mainly on 2-track.

The 60th Street studio enabled Dowd to give the towering machine a permanent home, though he also had to scramble to build a new console for it, as well. The recording room was 37 feet deep, 45 feet wide and had a 15-foot ceiling, and would become home to hits including "Save the Last Dance for Me" and "Up on the Roof."

That day in 1967, when Dowd came to the studio to meet Cream, he didn't know until they showed up that their work visas were to expire the following Sunday, giving him all of three days to make the entire album. He was also not expecting to see a trio of roadies setting up massive stacks of Marshall amps and a double-bass drum kit. "I thought to myself, 'Three guys need all of this?'" he recalls. "Then I find out that a limo is going to pick them up Sunday morning, and we have to be finished with the whole record by then."

The band zipped through six or seven songs very quickly, including future classics "Strange Brew," "Dance the Night Away," "Tales of Brave Ulysses" and "SWLABR." Dowd was impressed by their tightness, apparently honed during their first U.S. tour. "They came in and were very no-nonsense," Dowd remembers. "They went through the first few songs like greased lightning."



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NOMINEE

That wasn't the case with "Sunshine of Your Love." Clapton and Bruce had their parts down—basically the famous riff that plays throughout virtually the entire song that the two play in unison. Baker, however, was having trouble finding a groove for it. So the song was pushed toward the end of the sessions.

And the recording setup would be waiting for it—it remained the same for the entire record. Dowd used a pair of Neumann U47 microphones as overheads for Baker's array of rack and floor toms and four cymbal trees, close-miking the hat and snare and kick drums only. The kicks got E-V RE20s, though Dowd would ask Baker on each song if he would be using double-kicks. The hat and snare had E-V 666 and 667 mics, respectively, which Dowd remembers fondly as having remote EQs placed in-line so he could adjust them from the control room. In addition, he placed a pair of condenser mics in an "X" pattern behind Baker's seat, about eight feet high.

The massive Marshall stacks, guitar and bass had a single B&K ribbon microphone placed about two inches from one

Cool Spins

The Mix Staff Members Pick Their Current Favorites

Gigi: *Gigi* (Palm)

Is there anything more satisfying than finding a CD by a complete unknown that just knocks your socks off? Ejigayehu "Gigi" Shibahaw is a 27-year-old Ethiopian singer who migrated to San Francisco three years ago. A tape she made that circulated through the Bay Area's sizable Ethiopian community eventually found its way to Palm Pictures' Chris Blackwell; he, in turn, signed her and hooked her up with producer/musician Bill Laswell, who has shown his deft touch, fusing different strains of world music on project after project through the years. Gigi wrote all of the songs on the CD, in her native Amharic language, and her assured vocals (and there are *many* tracks of them) provide the dynamic center for this amazing aural excursion. There are pieces that sound like they are derived from Arab culture, others that skip along with a sub-Saharan lilt and more that have Western pop antecedents. Laswell has put together a first-rate group of adventurous players for Gigi's debut outing, enlisting his longtime associate Nicky Skopelitis on guitar, percussionists Aiyb Dieng and Karsh Kale, and Laswell himself on bass. Guests include sax greats Wayne Shorter (incredible on a song called "Mengedegna"), Pharoah Sanders and Henry Threadgill. All in all, it's a wonderful polyglot of ancient and modern styles. This is sure to become one of the year's top World Music discs.

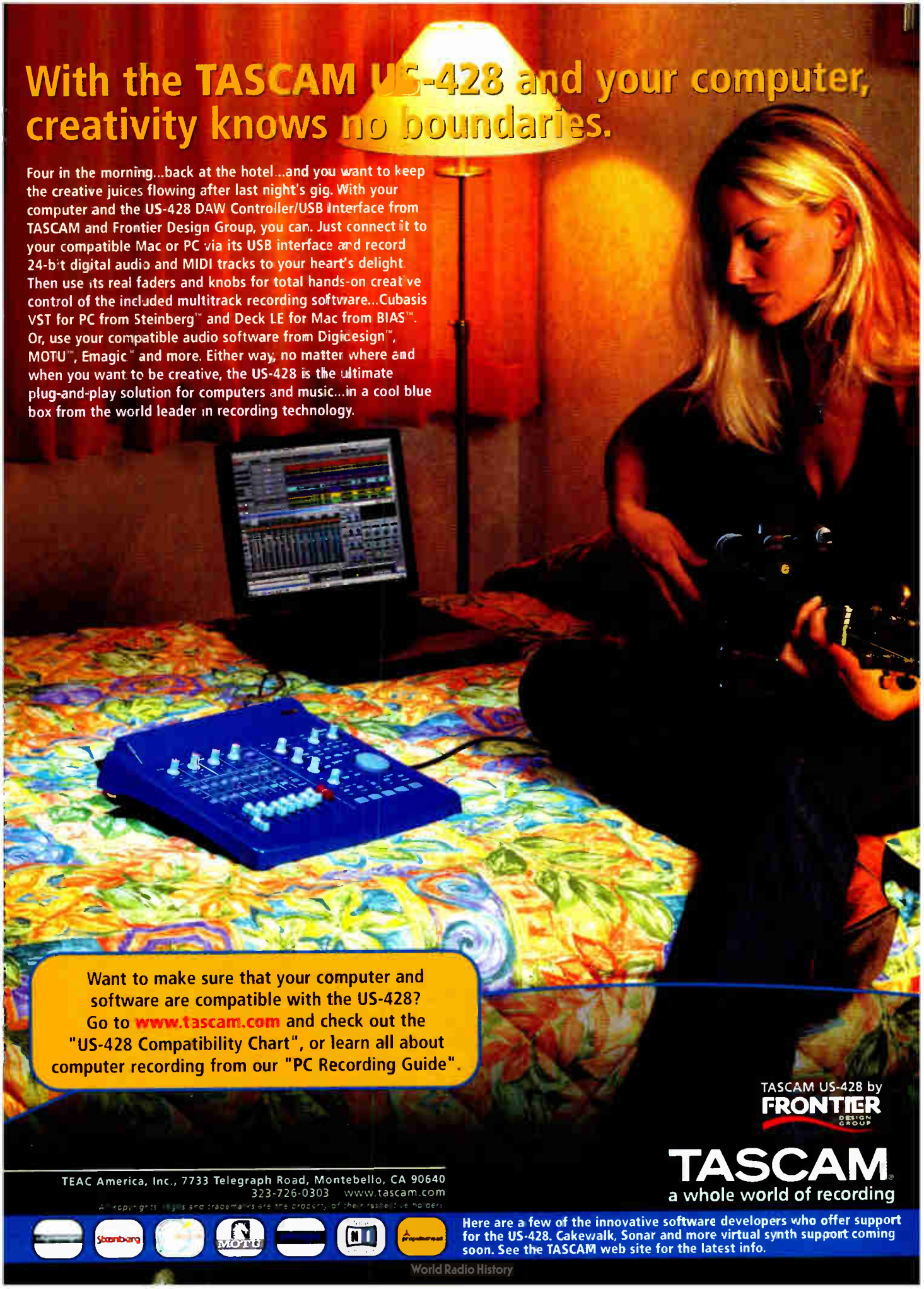
Producer: Bill Laswell. Engineer: Robert Musso and Khaliq Glover. Studio: Orange Music Sound Studio and Garage Sale Studio. Mastering: Michael Fossenkemper/Turtletone. *—Blair Jackson*

Various Artists: *Songcatcher: Music From and Inspired by the Motion Picture* (Vanguard/Combustion Music)

Oftentimes, soundtrack albums that include music "inspired by" the movie seem like studio money-grabs, but the *Songcatcher* CD is an obvious labor of love. For one thing, this is not a genre musicians choose for financial gain; it's gorgeous high-lonesome bluegrass

sung by almost all women artists. There's an old-school, Carter Family-inspired (what isn't?) version of the traditional "Barbara Allen" sung by one of the film's cast members Emmy Rossum, followed by a haunting, plaintive version of the same song from Emmylou Harris. Appearances by singer/songwriters such as Julie Miller, Iris Dement,

—CONTINUED ON PAGE 200

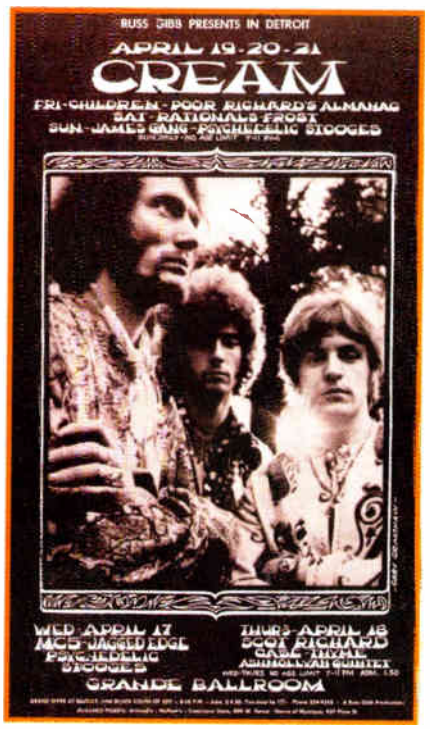


speaker and at a 45° angle, to deflect pressure and avoid stretching the ribbons. About two-and-a-half feet farther out, he placed a cardioid Western Electric 639A microphone on a stand aimed at the amps. "The volume was simply staggering," Dowd says, still cringing at the sonic memory. "When they were playing, the room was up around 125, 130 dB. It was deafening. I would come out into the studio wearing headphones, and they thought I was listening through them, but I was just protecting my ears. But I couldn't say anything. As far as they were concerned, I was a foreigner."

The studio was large, but Dowd saw the futility of attempting isolation for any instrument, let alone vocals, which were mostly sung live with the basic tracks. "My big job was protecting Ginger from the double stacks," he says. "They were 45 feet away, but no way could you isolate them meaningfully. It was pure bedlam."

Drums were assigned to three tracks of the Ampex 8-track deck (running at 15 ips), the guitar was recorded in stereo, bass in mono, leaving three tracks for vocals and the occasional overdub.

"Sunshine" came into being after Dowd, still seeing Baker wrestling with the groove, suggested an American Indian-style tattoo beat. That did it. Baker was finally inspired, except that he put his own spin on it, playing the groove on the first and third beat of the bar, instead of two and four, as Dowd (and every confused guitar player ever since) had expected. Twenty-five years later, when they had all reassembled in Santa Monica, Calif., for a Rock & Roll Hall of Fame ceremony, Dowd laughs that Clapton was still playfully chiding Baker for putting the groove on the "wrong" beats. As with the other tracks, Bruce sang lead into a Neumann U47, Clapton on harmonies on a U48. (Dowd says it might have been the other way around; his memory, though remarkably sharp, fails him there.) Those were keeper vocals, as well. And one of the vocal tracks became the home for Clapton's solo, hidden there so the guitarist could keep the riff going underneath it on the basic track.



The guitar solo on "Sunshine of Your Love" is perhaps its most memorable moment. In the midst of a heavy rock track, Clapton breaks into an instrumental quote from the pop classic "Blue Moon." Even Dowd was startled, though Clapton had apparently planned it that way all along. "I asked him why he was playing 'Blue Moon' as the guitar solo, and he says to me, 'I want to show people that things in music haven't changed,'" Dowd recalls.

The rest of *Disraeli Gears* went down similarly, and a pattern quickly developed: The band would play for three or four hours straight, then pile into the control room to listen to playbacks, determining,

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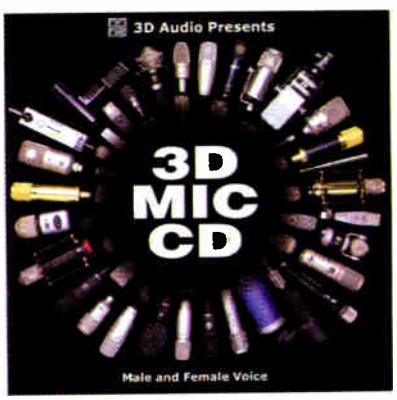

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with Dowd, which takes were better and which needed redoing or punches. Then they'd take about an hour off, and then it was back to work. And so it went from Thursday morning through Sunday morning, when the limo driver pulled up just as they were listening to the final playbacks. "The reciprocity of working visas between the U.S. and the UK at the time was very begrudging," says Dowd. "So there was no getting extensions. Whatever was done when the limo pulled up, that's what would be *Disraeli Gears*."

Dowd had been doing rough mixes as he went along, and used them as references when he started mixing in earnest on the following Monday. It was an easy mix, he says, not just because of the limited number of tracks but also because the band was simply razor-sharp. "There were no clams on those tracks," he says. "Not a lot of processing, either; I'd say the room itself was 30 or 40 percent of the sound of that record, just because the band was so loud."

And that's why Dowd was stunned the next time he got to work with Clapton, on the "Layla" session, at Criteria Studios in Miami. Walking into the studio, Dowd was braced for another stack of Marshalls, perhaps even more of them than on the Cream sessions. Instead, he found Clapton playing quietly through a tiny Fender Champ amp. The contrast was startling, and as Dowd puts it, "If someone had walked into the studio that day during a take and their shoes squeaked, it would have blown the take." ■

—FROM PAGE 180, STAIND

changed studios several times. "We recorded in four locations," says Abraham. "The bulk of the record was done at NRG Studios in North Hollywood. We spent six weeks recording drums, bass and guitars, then we resumed work on vocals at Longview Farm Studio in North Brookfield, Mass. We tracked the song 'Pressure' in its entirety at Electric Lady in New York. We finished vocals and did the last touch-ups at South Beach Studio in Miami. Each setting created a new vibe. If we'd get stuck from staying in one place too long, we'd go somewhere else and think things out in a different way.

"I do all vocals on Pro Tools, so it's not hard to keep the continuity," Abraham continues. "You just pack up, take your drive, plug it in and roll. We'd start from scratch on a song, vocally, so there was nothing to punch in or overdub. Pro Tools is a big part of what I do. I've been using it since it was Sound Tools.

"The basic signal we went through for the vocal chain was a Neumann U47 tube double-compressed through an 1176 and a Distressor EL8 through the 1073 Neve module," Abraham elaborates. "Drums were cut in Studio B at NRG with a 1073 side console and to 2-inch 16-track on a [Studer] 827 and transferred straight into Pro Tools. For some of the bass, I used API and Neve mic pre's, a FET 47 and a [Sennheiser] 421 on the cabinet. I had a couple of Shure 57s on the guitar cabinet, through the API 312 mic pre's and Neve 1073s. I like using the Vocal Stressor by ADR, the Eventide 3500 and TC Electronic Fireworx. Also, the 312 cards are a must-have. The 312s are in a small API sidecar console that goes everywhere with me."

Assisting Abraham was Anthony "FU" Valcic, with whom he has worked for five-and-a-half years. "As an engineer, I make sure the sounds are right," Abraham says. "Once I get that comfort zone, I relinquish everything to him while I focus on the musical side. You have to know when not to get too crazy in the engineering side

and know when to be a producer."

This time out, Staind entered the studio with music but no lyrics. Says Mushok, "Changes and progressions are worked out, then Aaron adds the melodies and lyrics to what we've done. We'll play along, and he'll make up something freeform over it. The lyrics are the last thing written. Usually we just have melody, chorus and verse."

Adding to the challenge, says Abraham, is the fact that Lewis literally makes it up as he goes along. "He constantly changes melodies, and every take has different lyrics, so when you have him sing something five times, you'll have it five different ways. So I'd comp what made sense and have him sing that version. He's probably the easiest guy I ever worked with."

Each setting created a new vibe. If we'd get stuck from staying in one place too long, we'd go somewhere else and think things out in a different way."

—Josh Abraham

Mixes were done by the ubiquitous Andy Wallace, whose credits as a producer, engineer, mixer and musician cover the alphabet, from Alice In Chains to White Zombie. With Staind, as with all of his projects, Wallace's role is to "spend time learning not only the songs and how they are set up," he says, "but learning intimately the multitracks and the parts of the performances that are most important and have the most magic. I work with the music to see how I can arrange things to most dramatically present all the songs. It's a complex situation: You work with it so that it has the most musical consistency and the best effect over the various mediums through which it will be listened to. The actual audio I prepare has to hold up. It's up to me to accomplish that in as musical a way as possible, which is what all listeners respond to, so it helps to, in addition to making it sound good, make it a good musical event."

Working with his longtime assistant, Steve Sisco, Wallace mixed at Soundtrack Studios in Manhattan for approximately three weeks. "I use probably less outboard gear than anybody I know," he says. "We mixed at Studio G using a G Series SSL console, which has Ultimation, an automation package. I mixed down to a Studer half-inch analog 2-track. I ran my mixes simultaneously to that machine, which is the primary machine that mixes are used from in mastering. The other mediums I mixed to are partially for backup and partially for any additional production—a Panasonic DAT and to a Sony DA-78, which is a 24-bit digital recorder. I mix the stereo mix on that with the time-code, which allows me to synchronize the mix to multitrack.

"My outboard gear varies from song to song. I'm very partial to the Lexicon PCM42 delay lines. I usually have a bank of those and a Lexicon 480 processing unit and a Lexicon PCM70. The only real 'must use' is my ears, but these things I generally like to have in the control room. There are plenty of other toys there that I may or may not use from time to time—typical things they have, like the Eventide Ultra-Harmonizer, because sometimes someone wants something moved from one verse to another.

"As far as monitors, like the rest of the

world, I use Yamaha NS-10 speakers and a pair of Genelec 1031As. Those are the monitors I generally mix on."

Throughout the process, Wallace was in touch with Abraham and Mushok. "Sometimes there was a technical or artistic direction question," Wallace says. "But for the most part, it was just to make sure we were on the same page. For the day-to-day activities, Mike was in the studio a fair amount of the time, particularly at the beginning of the project, then he had to return to Massachusetts. If I had a question or wanted him to review a mix, I would send it over the Internet, and, with an ISDN line, he could download it from the server in a matter of minutes, listen to it at home, then call me with various information, suggestions and feedback."

While both men agree that *Break the Cycle* is a remarkable album, neither could have predicted the response it received out of the box. "I don't know that anyone can foresee that," says Wallace. "I felt the potential was there for a very successful record, but, in hindsight, no, I didn't see it going through the roof the way it has."

"Part of what makes a good record is a band with good energy and a positive outlook," says Abraham. "What transpired here is an amazing record, and it's a good feeling to know that I worked so hard on something that other people respect. It's really a big honor to have." ■

—FROM PAGE 181, TRAIN

radio called 'I Am.' So, we came in, recorded, wrote, pre-produced the whole thing in about two months, and then went out and toured 'I Am,'" he says.

Writing on the road influenced each of the songs on the new album, explains Monahan. "The only time we had on the road to write was at soundchecks," he says. "We'd just get together and put

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down whatever creative thoughts and ideas we had musically."

"We didn't go home and sit in our rooms, play guitars and write songs, and get together and rehearse it," reports bassist Charlie Colin. "We were listening to all these tapes of all these soundchecks, so the album was all written out of jams, which was different than the first record." It was also a new strategy to have the entire band contribute to the songwriting.

While their debut was self-produced, with help from Matt Wallace and Counting Crows' Dave Bryson, who mixed the album, the band wanted to work with Brendan O'Brien this time around. "We asked Brendan to see us in San Francisco," Monahan recalls. "It was pretty amazing that he was available. I think it's rare that he's available." In fact, at first O'Brien's management passed on working with Train, until the producer remembered "Meet Virginia" from the radio. "He flew to San Francisco to see what we were writing," Monahan says. "We felt like we were on our way to making a good record. We were probably at 10 or 12, actually we may have had 14 ideas. Some of them were farther along than the others. He came in and said, 'Man, these are great starts. This is what we need. Let's make a record.'"

While the notoriously press-shy producer and his engineer Nick DiDia declined to be interviewed, Monahan reports O'Brien was a great leader in the studio. "He's able to get the best out of everybody," he says. "There's a lot he has to offer. He's an incredible musician and songwriter, so he knows how to keep things going in that way. He brought a lot of those things to the record when we needed that."

One of the things O'Brien brought to the sessions was a sense of confidence and freedom in each of the bandmembers, explains drummer Scott Underwood. While the band was writing the song "Mississippi" on the road, Underwood started thinking about working in a percussion loop and keyboard part—both were new ingredients in the Train sound. So he programmed a trance-like drum groove on a Roland 505 Groovebox and brought that into the studio. "We said, 'Man, we want to use these loops.' [O'Brien] liked the idea. We did all the tracks, and after a while, I started thinking that maybe the Groovebox isn't the right way to go. Maybe we should manually make real loops where I would do a bass drum part with a mallet." O'Brien and engineer Nick DiDia recorded two bars of the bass drum part and then Underwood tapped a snare with his finger. "That song is my favorite tune on the record because I love trance and I love that quality of drumming where there's a continual loop," Underwood says.

Monahan was curious about using loops, but not convinced. "I wanted to hear them," he says. "I really want to take advantage of technology, but I don't want to date our records. That's a hard place to go, making it so it's not dated, but also keeping it fresh and taking advantage of what is available."

Where Underwood had a chance to add his programming talents to the album, bassist Colin added his own flavor to the songs. "I felt very busy on this record in a great way," he says. Then he points to "Getaway," a tune where he played with a number of bass pedals such as a Big Muff and a wah-wah. He also took advantage of the bevy of effects and amps that O'Brien had at Southern Tracks. "On every song, we would just dial in one or two or three sounds and get some stuff live. Train has a much more dynamic spectrum sonically than it did on the first record," he explains. "It's still raw and

real, but at the same time I did get some really fun sounds. There are times where I'm playing much more higher-frequency melodic stuff, like upper-octave parts."

Not wanting to be the only bandmember who didn't have a series of instruments listed next to his name, Monahan added trumpet to the song "Mississippi." "That was a big dream-come-true type of deal," he says. "I just started playing that thing a few years ago and man, I've played some bad trumpet onstage! Playing a muted trumpet is a lot more difficult than just playing an outright trumpet. So to get a good result was really a positive experience for me. You can always hire somebody, but it's so much fun to give it a shot yourself."

Though there are programming touches and trumpet and string overdubs, the album was largely recorded live in the studio's central tracking room on 48-track analog. The whole band played at once, without headphones, through a P.A., for that extra "band" feeling. Some solos were performed during the tracking; others were added later. The strings were recorded at Ocean Way in Nashville and Capitol in Hollywood.

Interestingly, the band was set to release the album without the title tune and "Hopeless." "'Drops of Jupiter' was not written in the beginning," Monahan reports. "It kind of took over as the song that was to describe the record." Indeed, with its dramatic dynamic shifts, its powerful lead vocals and blend of rock instrumentation, and its tastefully arranged strings, the band has come up with a moving power ballad that has connected with millions of people and shot the group's career into the stratosphere. MTV and VH-1 can't seem to get enough of the song and telegenic band; the song and album are shaping up as one of the surprise hits of the year.

But just two albums in, Monahan isn't looking to live off the Train legacy quite yet. "Right now, I just want to have a career; let's just go with that right now. We can figure out all the rest later," he says with a laugh. "I would like to have what they call a discography. We don't have one of those yet."

They did, though, get a taste of the quintessential rock lifestyle while they were making *Drops of Jupiter*. "We got on a rented Lear jet and flew from Atlanta to Nashville to put a string section down with a big orchestra," Monahan says. "That was on the song 'Something More.' Getting into a plane with a bunch of guys to go have an orchestra play on one of your songs is a pretty great rock 'n' roll moment." ■

—FROM PAGE 1ST, DAVID GRAY

period for Gray. In 1996, he found himself running out of patience and, as is unfortunately common for emerging artists, a disastrous run of luck with major record labels. He had released three albums in as many years, first with Caroline, then Virgin and finally EMI. Each received critical acclaim, but Gray still had no more than a devoted cult following, despite opening for big acts including Radiohead and Matthews. After EMI (then about to go belly up) bungled promotions for his album *Sell Sell Sell*, Gray decided he'd had enough. He broke his contract with EMI, despite being signed for an additional two albums. "There was a big advance waiting, but we just decided to get out, because it was just like death, basically," he recalls. "I couldn't face going through anything like that anymore."

The period that followed was one of personal and creative uncertainty for Gray. "At that point, I was really confused as to why I was doing it," he says. "It wasn't as simple as getting up and playing music. I was not meeting any of the commercial criteria, obviously. So I had to go back to the drawing board."

The "drawing board" consisted of Gray's electric and acoustic guitars (Martin, Lauden and Gibson), an Electro-Voice D257 microphone, a 4-track, an Akai S3000 sampler and a Roland Groovebox synth. ("About half the sounds on the album come from the Groovebox," Gray explains.) Without a recording contract or a proper studio, Gray and his drummer and sometime bassist Clune began "messing around," without any intention of making an album. "I was writing a lot of stuff, all kind of miserable, trying to get something going again, trying to find out what I was doing," he says.

As they recorded, something began to change for Gray. Previously, he had always felt intimidated by the studio environment—mostly, he admits, because he knew nothing about the technical side of recording. But that changed as he learned the process at home. "I was absolutely free as a bird to twiddle anything...experiment in a very basic way," he relates. "I got really excited about it all. It brought me closer to the character of what I was doing."

In addition, Gray found a new relationship with Clune. "I got involved with Clune in a more sort of writing, collaborative way," Gray says. "He plays very simply, but deceptively simply. There's a real musicality to the way he plays the drums. He's very respectful of the song at all times." (For example, check out the album's opening track, "Please Forgive Me," where Clune executes a stealthy, jungle-like groove.) As Gray listened more closely to Clune's musical ideas, he began writing pieces around Clune's rhythm tracks and bass lines, or sounds he found on the Groovebox, rather than the more conventional method of starting with a melody or chords. The result is striking: *White Ladder*'s use of electronica has an organic feeling to it, extending the soulfulness of Gray's music, rather than sounding like an attempt to commercialize his style with trendy electronic sounds and beats.

After some time, Gray bought an ADAT to replace the 4-track. As they needed some more technical help on the project, Gray also brought in Iestyn Polson as producer. Polson, in turn, upgraded the duo to a Mac with a Logic MIDI sequencer to sync up the Groovebox and purchased an Audio-Technica 4033, bringing the mic count to a whopping two.

Polson, who had worked in big studios before, liked the home recording process. For one thing, he could actually have a life during the recording process, rather than spend endless hours in the studio. For another, he felt that he could

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keep perspective on the recording, unlike the situation of being "locked up in the studio where you start to lose your objectivity on tracks." Engineering for the project was Jon Bailey.

Without a proper studio, Gray, Polson, Bailey and the other musicians faced the pitfalls of home recording. There was the difficulty of ambient noise: For several weeks, they halted recording because the city council began tearing up the street outside the apartment. "There was drilling going on. It was unbelievable. It was character-building," Polson laughs. At another point, Gray's cat hopped on the Akai sampler during a session, putting it out of commission. "[That cat] destroyed about three pieces of equipment in its short life," Gray groans.

Drum recording was also less than optimal. As Gray's apartment was not sufficiently large, the crew had to record most of the drums in a photography studio belonging to a friend of Gray's manager. The photographer was gone that day, but his assistant had, unbeknownst to him, booked the room. "His assistant was in there taking photos," Gray says. "In the end, we just got so bored we just went for it anyway. He was just taking photos of these people in the background, and we were actually getting a take. It ended up on the record." The acoustics were also a problem, because it was a large, stone room. Polson confesses that they re-recorded the drum tracks for the album's singles.

The upside of the process, however, far outweighed the disadvantages. For Gray, home recording was liberating. "It was just mayhem, really," he said. "But it was just brilliant being involved in something from its very first chords and first bit of singing right down to measuring the gaps in between the songs and mastering."

The other great advantage of home recording, according to Polson, was that it gave them time. "When I'm making a record, I like to live with the tracks for a while," Polson says. "If you can live with them for six or seven months, you don't make any rash decisions, which you may regret when you listen back to the record." Without the rush of completing the project for a deadline—or paying a studio for the time—the group found themselves able to listen back to the recording at their leisure and find whether the song itself came through in the recording. *White Ladder*'s arrangements—simple but not spare, its electronic grooves both emotional and tastefully restrained—show the care that Gray and company took to remain faithful to the songs.

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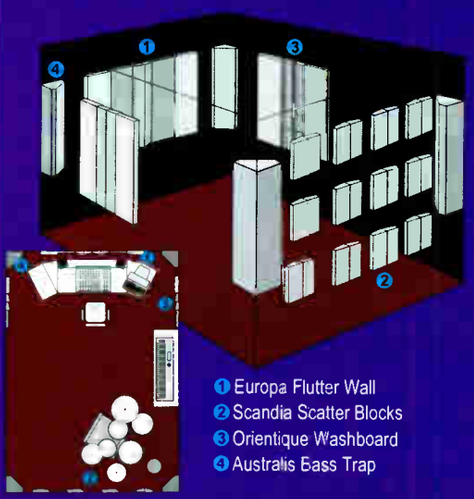

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Gray himself also learned the value of restraint in studio playing. "Understatement is your great standard, unless you're in Napalm Death," he says. "It can be beefy as a motherf****er, but don't overplay. Keep it under wraps. There are moments to let it rip. If you let it rip every time you feel like, it doesn't stand up as well to the test of time."

As for the technical limitations on the album's sound, Polson makes no apologies. "There's no point in taking the sort of music we were doing and dressing it up to sound like it was something else, because it wouldn't have worked in the setup that we had," he says. "It's a bedroom record. It has got that home studio sound to it. I think that's why people like it. Most things these days are done on an SSL or a Neve. You use all the best gear, because that's what people use, and it always sounds the same. It doesn't always, but it's very rare that you have a record that has any recognizable tonal quality."

Gray's cat hopped on the Akai sampler during a session, putting it out of commission.

Even after Polson joined the project, bringing professional know-how to the record, there was still no definite intention on Gray's part of making an album from the material. It took a little distance for him to realize what they had on their hands: "I went away and listened to it and thought, 'Christ, this is a record. This is the best thing we've ever done!' So we decided to continue and finish it at home."

For the mixdown, Polson and mixer George Holt borrowed an older series Soundcraft board that had a "cheap but warm" sound he prefers to the comparable Mackie. The Soundcraft, however, was quickly nicknamed "The Grumbler" because of a buzzing noise it made every few minutes due to a problem with the power supply. During the mixing, Polson had to stop to brush the corrosion off the wires. So they ended up mixing the album in Gray's front room to a Tascam DA-20 between the buzzes. "That and the drilling," Polson laughs.

Polson compressed each track using a

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humble Joe Meek Studio channel compressor. "We didn't have enough process power to compress it in the computer—we weren't running Pro Tools," he says.

When all was said and done, *White Ladder* is an honest and unpretentious recording. It is what it is, and that is all it needs to be. Polson sums up the ethos of the project best: "Making a record is how you feel when it's being recorded. It emotionally conveys, and that's what counts, not the quality of the microphone. It's the emotion of the track and how it makes you feel." ■

—FROM PAGE 184, COOL SPINS

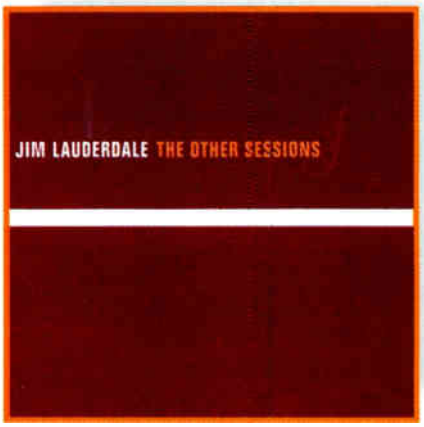
Roseanne Cash and Gillian Welch with her collaborator David Rawlings are equally moving, but the best surprise here is the chance to hear some mainstream "new country" artists sing in the old style on tracks that are simply produced. I always knew Deana Carter would sound great with the right accompaniment.

Producers: Steve Buckingham, Chris Farren, Ken Levitan and Christopher Covert, John Leventhal, Buddy and Julie Miller, Emory Gordy Jr., Gillian Welch and David Rawlings, and David Mansfield. Engineers: John Leventhal, Gary Paczosa, Neal Cappellino, David Mansfield, John Saylor, Dan Gellert, David Thoener, Dennis Ritchie, Justin Niebank, Buddy Miller, David Rawlings, Steve Macantonio, Glen Neibaur, Tony Volante. Studios: 12th Studio, Avatar Studios, Soundtrack (all in NYC); 17 Grand, The Doghouse, Ocean Way, Nevada, East Iris, The Cave, Emerald (all in Nashville); Hound's Ear (Franklin, TN); Royaltone (L.A.); L.A. East Studios (Salt Lake City). *—Barbara Schultz*

Jim Lauderdale: *The Other Sessions* (Dualtone)

Meanwhile, back in the big city, the brand-new Dualtone label has released Jim Lauderdale's latest batch of superb honky-tonk songs. Lauderdale, whose compositions have been covered by the Dixie Chicks, George Strait, Vince Gill and dozens of other artists, makes the craft seem easy; his songs sound like country classics you can't believe you've never heard before. For this release, he worked in collaboration with a few other talented composers, including four songs co-written with the great Melba Montgomery, and he is joined by a laundry list of more than 30 of country's finest musicians. With titles like "Merle World" and "Diesel, Diesel, Diesel," this album is true to the spirit of country music. Lauderdale's not "alt," he's just for real.

Producers: Jim Lauderdale, Tim Coats and Luke Wooten (one track). Engineer: Tim Coats.



Studios: Moondog Music, Javalina Recording Studio, Station West (all in Nashville). Mastering: Robby Turner/Turner Up Recording (Nashville). *—Barbara Schultz*

The Go-Go's: *God Bless the Go-Go's* (Beyond Music)

They're baaaack. Yup, that's right. Gone from the pop scene for 17 years except for a quick tour last year with co-headliners The B-52's ("All Access," October 2000), cult '80s group returns with another healthy dose of quirky pop. These five lovely ladies (and they *are* ladies now) are focusing on what they do best—sugar-sweet tunes for the new age beboppers. In fact, the album focuses so much on the grown-up side of

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The Go-Go's that the cover shows each bandmember dressed in nun garb, with each photo captioned with honesty, chastity, mercy, purity and modesty—who are they kidding?! *God Bless the Go-Go's*, a 13-song release, sounds more like a sampler of their previous albums, with such tangy songs as "La La Land," "Automatic Rainy Day" and "Daisy Chain." Even Belinda Carlisle sings with that same gritty yet very feminine style that catapulted the group to stardom and left just about every guy in the '80s champing at the bit. Charlotte Caffey's and Jane Wiedlin's guitars rock out with the same veracity of yesteryear's "We Got the Beat." I'll file this one next to my Debbie Gibson records and secretly hope for more to come!

Producers: Paul Q. Kolderie, Sean Slade and Rick Neigher (track 6). Mixers: Paul Q. Kolderie, Sean Slade, Mike Shipley (tracks 1 through 4), Marc DeSisto (track 6), Tom Weir (track 13). Mastering: Steve Hall at Future Disc. Studios: Sound City Studios and Sound Image. Mixing done at: The Record Plant, Fort Apache, The Magic Shop and Record One.

—Sarah Benzuly

No One: *No One* (Immortal Records)

It seems that this year's manufactured hard rock/metal bands, who seem to appear and disappear with the tides, can be summed up quite nicely in four words: 15 minutes of fame. In fact, making it on MTV's *TRL* or cramming their way up to the top of the charts is really the only sign of life from such bands. But sometimes there comes a band, without radio releases or becoming fast friends with Carson Daly, that spin wildly from the underground and blitzkrieg their way into the hearts and bleeding ears of metal fans. No One's debut release is textbook metal/hard rock, without the sparkle from

the bright lights of Hollywood. Gleaning the talents and sounds of Korn, Pantera and Slayer, *No One* maintains its edginess throughout the entire album, relentlessly infusing each note with the venom of intense, hard-hitting licks. Hailing from the Windy City, No One hits the speakers like a train wreck—their powerful grooves, intense vocals and impossible-to-lose-track-of guitar lines show just how heavy No One is. The lead track, "Down On Me," is a showdown of brute force and screaming guitars. (In fact, according to Murk, the band's lead singer, the song came out of an emotional pressure pile-up after Immortal Records signed them; the band was signed based on a three-song demo, the label assumed No One had the entire album worked out, the band didn't—you do the math.) *No One* is a riveting album, full of subtle textures and layers of moods, that climaxes all the way to the end.

Producer/engineer/mixer: Johnny K. Mastering: Ted Jensen at Sterling Sound.

—Sarah Benzuly ■

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COAST TO

L.A. GRAPEVINE

by Maureen Droney

Engineer/producer Mark Howard has a penchant for non-traditional studios; recently, he opened a particularly stunning one, high on a Silverlake hill in the Paramour Estate. Howard, whose credits include Bob Dylan and U2, collaborated for more than 15 years with musician/producer Daniel Lanois, and previously operated Teatro Studios, the Oxnard, Calif., facility that was housed in an old theater. His new venture, Paramour Studios, has been up and running since March. Located in a 22-room mansion set on 4-½ acres of terraced gardens, it boasts a 360° view, a white marble-lined swimming pool and four residential suites. Currently, there are two studios available for rental in the building: the large live room operated by Howard, and a smaller Pro Tools suite, fitted with a Fazzioli adjustable-action piano, which belongs to Pierre Marchand, Sarah McLachlan's longtime producer.

The Paramour Estate was built in the early 1920s as a wedding gift from an oil tycoon to his daughter and son-in-law, both of whom were silent movie stars. The elegant structure and its grounds were, until recently, used for numerous film shoots, such as *Scream II*.

Howard, who lives nearby, discovered that one of the Paramour's high-ceilinged rooms had originally been designed as a music performance space, making it a natural choice for the all-in-one-room recording style he prefers. "As a producer and an engineer, I work hands-on with the band," he explains. "Working this way makes it easier to juggle hats between the production and technical ends."

—CONTINUED ON PAGE 206

PHOTO: MAUREEN DRONEY

Mark Howard taking a break at Paramour Studios

PHOTO: EDDIE KRAMER

Keith Richards at Olympic Studios (London, 1967). Kramer took this shot during sessions for Beggars Banquet.

NY METRO REPORT

by Paul Verna

With a father who was an avid self-taught musician and a mother who is a gifted painter and sculptor, Eddie Kramer was genetically destined to end up in either the musical or visual arts. Well, it's no secret that Kramer picked music, and that his involvement in the medium yielded some of the most enduring recordings of all time—works by Jimi Hendrix, Led Zeppelin, Kiss, the Rolling Stones, Traffic, The Beatles, Santana, Peter Frampton and other legends.

However, Kramer's mother's talents also rubbed off on him, judging by the quality of the photographs he captured in the studio and onstage from 1967 through 1972: "That glorious period when rock was supreme," as Kramer says.

Those images form the basis of a collection titled *From the Other Side of the Glass*, which will be exhibited in New York at VH-1 headquarters for three months starting September 15, and at the Rock and Roll Hall of Fame in Cleveland, beginning October 4. Furthermore, the photos will be on sale through the Kramer Archives Website, www.kramerarchives.com. Kramer Archives is the company formed by the producer to catalog, exhibit and sell the images.

Shot mostly in black-and-white, Kramer's images offer a stunning visual companion to his recordings. There are shots of Hendrix in mid-take, relaxing between sessions, and smoking a joint *and* a cigarette at the same time; photos of Led Zeppelin recording

—CONTINUED ON PAGE 210

COAST

NASHVILLE SKYLINE

by Dan Daley

The End of an Era: The passing of Chet Atkins in Nashville on June 30 serves as a point of perspective for the city's music business and its studio community. Atkins, 77, was known the world over as an innovator in the playing and the design of guitars, and the Gretsch Country Gentleman, named for him, is a fitting ongoing memorial.

But Atkins, along with Owen Bradley, who passed away four years ago, was largely responsible for creating the business structure of the music industry as it continues to exist in Nashville today—one in which record producers continue to run major record labels. As far as the music business is concerned, nothing in Nashville would be as it is today without Atkins and Bradley.

The same goes for recording studios. As president of RCA Records in Nashville for over 30 years, Atkins expanded the company's studio operations there. The studio's technology was improved and kept up to date. More importantly, under Atkins' guidance, the studio became an extension of the art of making records, not mainly the science of it, as was the case with the EMI model. Bradley's Quonset Hut, as his studio on Music Row was called (before Music Row was called that) accomplished the same thing before, and after, it was incorporated into the Columbia Records office.

RCA Studio A, later to become Javelina Studios, was very much Atkins' creation. RCA Studio B, now a museum, was built earlier, during the term of the late Steve Sholes, Atkins' predecessor as head of RCA Records, but according to Fred Bogart, who for years ran a production company out of Studio B, "Chet had lobbied for Studio B 'til it was built in 1957. He had always wanted a studio here where he could record RCA artists with the best technology of the time."

"Chet was a major influence on the coming of larger rooms to Nashville," recalls East Iris Studios manager Milan Bogdan. "He was an advocate of square footage in a studio. He also taught the engineers here a few things. I remember him teaching me how to mike a kick drum, showing me that you needed to pull the microphone back

—CONTINUED ON PAGE 212

SESSIONS & STUDIO NEWS

SOUTHERN CALIFORNIA

Everyone's favorite coffeehouse diva, **Lisa Loeb**, cruised into Studio A at **Ocean Way Recording Studios** (Hollywood) to work on her latest album. Loeb, who recently signed to A&M Records, co-produced the effort with **Peter Collins**; engineer/producer **Jack Joseph Puig** was tapped to mix…**Mariah Carey** was in at the **Record Plant** (Los Angeles) working on vocals and mixes with engineer **Dana Chappelle** and assistant **Jay Goin**. Carey also worked with remixer **M.J. Cole** and assistant **Tim Le Blanc**. **No Doubt** were in tracking with producer **Nellee Hooper**, engineer **Greg Collins** and assistant **Anthony Kilhoffer**. **Macy Gray** camped out in every room at the Record Plant, working on her upcoming album with executive producer **Rick Rubin**. Gray, who is producing the effort herself, tracked with producer/engineer **Darryl Swann**. **Thom Russo** and **Dave Way** were tapped to engineer and mix, while Goin, Le Blanc, Adam Olmsted and Kilhoffer were brought in to assist. Engineer **Elliott Scheiner** recently finished the 5.1 surround sound mixes for latest R.E.M. project with producer **Pat McCarthy** and Pro Tools engineer **Jamie Candiloro**; Goin was in to assist.

NORTHEAST

Bela Lugosi is still dead: Pop music's answer to Christopher Walken, **Peter Murphy** recently put the finishing touches on

—CONTINUED ON PAGE 214

PHOTO: DAVID GOGGIN

In at Ocean Way (L-R): A&M Records president Ron Fair, co-producer Peter Collins, Lisa Loeb and producer/engineer Jack Joseph Puig.

—FROM PAGE 204, L.A. GRAPEVINE

On the day I stopped in, Howard was setting up for a 5.1 mix of Hootie & the Blowfish's multi-Platinum *Cracked Rear View*, using a multinational speaker system comprising Canadian Paradigms, English Spendors and three kinds of Westlakes (BBSM twin 12s with 18-inch subwoofers, BBSM 5s and the brand-new LC 5.75s).

The main console in Howard's large recording space is an Amek Media 5.1 surround console that features preamps and EQs designed by Rupert Neve. Howard, who is into hybrid recording, cuts tracks through a Neve BCM10 console onto 2-inch analog tape. He then transfers the program material to Otari RADAR and Steinberg Nuendo, and mixes through the Amek.

About the Amek he says, "The whole console is recallable, which is great because I always like to be in mix mode. The analog recall is a snapshot, and the dynamics are a digital insert, so you get a great combination: warm analog preamps and EQs, and on 48 channels, your choice of digital gates and compression."

PHOTO: MAUREEN DRONEY

Chris Knight in at the L.A. Recording Workshop

Celebrating its sixteenth year in operation, the Los Angeles Recording Workshop recently made major equipment upgrades, both digital and analog. Now, in addition to an SSL 4000 G-Plus console and four Pro Tools|24 systems, the facility features five Sony DMX-R100 consoles, and two additional large-format desks: a 72-input Sony Oxford and a Neve VR Series with Flying Faders.

Located on Lankershim Blouvard in the Noho Arts district of North Hollywood, LARW offers a 900-hour recording engineer program that provides hands-on training in small groups. While most conventional recording classes begin with basic audio theory, at LARW, students start out working on R100s during their very first week. "We think it's important," says owner and director Christopher Knight. "Rather than very basic things, we start them on fairly high-end technology. The R100s are terrific—touch-screen operation, moving fader automation and every feature is fully automated. It's a great way to begin."

All of LARW's classrooms are outfitted with Tascam MX-2424 hard disk recorders with DVD RAMs, enabling students to transfer their projects between the complex's 12 studios as they progress through the program. In addition to traditional recording and mixing, curriculum segments include workshops on Pro Tools, 5.1 surround, audio post, and the basics of computer hardware and software. Students get practice on 21 different consoles, and there's also plenty of theory on topics from microphones, mixing, outboard equipment and MIDI, to maintenance and general music business.

"Some students come here knowing that they want to work in a specific area of audio recording," Knight comments, "but many aren't sure exactly what they want to do. Part of our job is to show all the possibilities to them."

Knight is a musician and producer/engineer in his own right who, before opening LARW, taught recording classes at the University of Oregon and Santa Monica College. Although his roots are in analog recording, his enthusiasm for current technology is infectious. "The audio world is a computer world now," he states. "We make sure that our students have a basic understanding of hardware and software, for both PCs and Macs.

"Pro Tools is absolutely critical for audio training now," he continues. "The students love it. They've grown up around computers, and they find it very natural. Our graduates sometimes walk into situations where there are engineers, with incredible talent and credits, who just haven't had a chance to stop and learn some of the new technologies. That's great for our graduates, because they can walk in with experience and knowledge that a studio really needs."

The installation of a cutting-edge Sony Oxford digital console fits in with that "out-in-front" philosophy. "There are two consoles that you have to train on," Knight asserts. "Solid State Logic and Neve VR, because there are so many of them out there. Beyond that, the Oxford offers an innovative design that is critical to our training. Analog consoles are built the same way, and there's an ease of that. But going fully digital, working in layers and being able to select what appears right in front of you, gives this console incredible power. You get to decide, chan-

PHOTO: MAUREEN DRONEY

Heidi Rodewald and Tim Davis inside the warehouse at Recorded Media Supply

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nel by channel, how to arrange the signal flow. You might have been able to do most of that previously with lots of patch cables, but there are some things that you couldn't have done at all. Once engineers get used to the idea of accessing, and having everything software based, it [becomes] very intuitive."

I finally got to put faces to the friendly phone voices at Recorded Media Supply, when customer service rep Heidi Rodewald and general manager Tim Davis gave me a tour of their Burbank facility, providing a look at how the company has diversified.

With a fleet of six delivery vans and a "can-do" attitude, RMS is known for excellent service. Many L.A. studios depend on the company, not only to be fully stocked with media for every possible format, but also to provide information on new technology—and, of course, to deliver whatever the customer needs on what is sometimes *very* short notice.

"We thrive on the honesty of our clients," laughs Davis. "If they say it's an emergency, we believe them and we will knock ourselves out to accommodate that."

RMS began life in the early '90s when musicians Jeff Burgess and Scott Mullen, searching for a way to supplement their gigging income, started a cassette duplication service. As they met more engineers and musicians, they saw a niche to fill—rapid delivery of recording supplies.

"When I started as a driver," Davis recalls, "we just had to carry 2-inch, half-inch and DATs. Now, there's so much—and more all the time. We stock many brands and can advise you of the best disk or drive to purchase for your application. We work at getting a jump on what's new, to make sure that we have everything that our clients might need."

The staff keeps up with trends by reading trades, interfacing with manufacturers and getting feedback from customers. They pride themselves on helping clients help themselves: They ask the right questions, and more than once, they've saved clients from making expensive mistakes. Besides the usual—multitrack analog and digital tape, DATs, CD-Rs, DVD-R and video products—RMS carries every current backup format from MO to Zip and DLT to AIT.

"AIT dominates right now," says Davis. "But every six months, there's a new version that may have a higher data storage rate. We have to be careful, because they might not be cross-compatible with machines. For example, some studios that have multiple locations will use different generations at different locations. We're always careful to double-check."

Every other studio necessity is also in stock, from woofers and tweeters for Yamaha NS-10s to console labeling tape, headphones, storage racks, Apogee analog/digital cables, china markers, *both* gaffer's and duct tape, and yes...ear plugs. New items available for purchase at RMS include Digidesign's Digi-001 recording system, Apogee Rosetta A/D converters, Glyph Technologies Hot Swap drives, various software plug-ins and Marshall microphones.

"The Marshall mics are doing really well," notes Rodewald. "Especially the MXL V77S tube and the 600 condenser FET. They sound great and they have a very cool look. People who try them almost always buy them."

With the proliferation of home studios, drivers have become an important part of the business, and another point of pride to the company is the quality of their delivery service. "We hire people who are professional and discreet," Rodewald notes. "We have many well-known clients with home studios, so privacy issues are something we're always very sensitive to. From the beginning, we thought about what kind of service we wanted to provide. We had to decide, if somebody wants one item and we have to take it to

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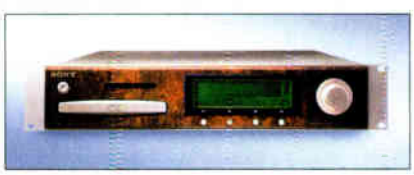

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Santa Monica, is it worth it? But for our good clients, it is. They remember us. Every one of us has been out in our car, late at night, delivering something. We have a lot of great customers, and we really do feel like we're all in this together."■

E-mail L.A. news to msmdk@aol.com.

—FROM PAGE 204, NY METRO REPORT

Houses of the Holy in the yard at Mick Jagger's country estate; stills of the Stones and Hendrix hanging out backstage at Madison Square Garden; frames of Johnny Winter leaning on a studio gobo discussing a song with his bandmates; and dynamic live shots of Frank Zappa, Crosby Stills & Nash and Joe Cocker taken from a VIP balcony at the Fillmore East.

Every picture depicts an artist so deep into his craft that he seems unaware of the presence of the lens. Asked what was going through his mind as he was taking these historic photographs, Kramer says, matter-of-factly, "I was just trying to stay the hell out of the artists' way and be as innocent as possible. I just snapped away when the situation was cool. Nobody gave a damn in those days. You had a camera, no big deal. There was an element of trust. Actually, the artists kind of ignored me."

This probably explains why the pictures are so candid and so revealing. After spending countless hours together making records with them, Kramer developed a peer-level association with his clients that permitted him to go where no "professional" photographer had ever gone—into the inner sanctum of the recording studio.

Not that Kramer was the first person to photograph recording sessions. However, because he was part of the process, he approached it as an insider, as opposed to a visiting journalist or artist trying to capture a story. Kramer was—and remains—an integral part of that story.

Having had a few years to reflect on the quality and magnitude of his work, Kramer has decided to exhibit approximately 250 of the images he captured during the period in question (which number 1,070, for anyone keeping score). Some of the shots are arranged in panels of several images, while others are presented as stand-alone portraits. Prices range from $400 to $740 for 9x14-inch portraits (matted, in a 16x20 frame) to $850 and $1,500 for the panels, which come in a wide variety of sizes and shapes.

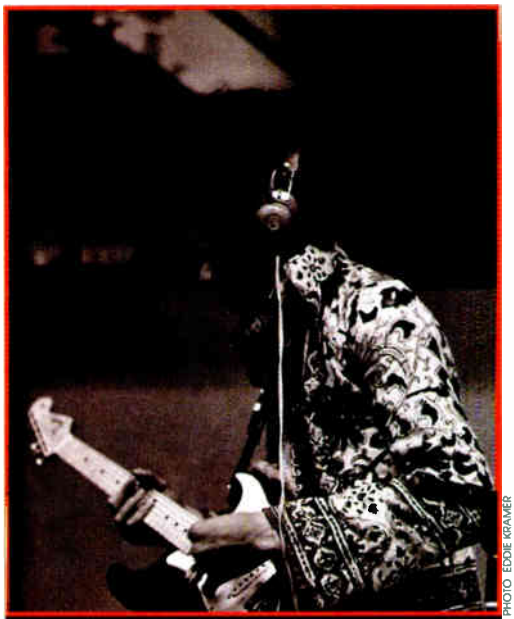

PHOTO: EDDIE KRAMER

Jimi Hendrix at Olympic Studios (London, 1967) during the recording of Are You Experienced.

Interestingly, there are no photos of Kiss in Kramer's exhibit. Is that because

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PHOTO: EDDIE KRAMER

Led Zeppelin guitarist Jimmy Page and frontman Robert Plant recording Physical Graffiti in 1972 on the lawn at Stargroves, Mick Jagger's English estate.

the infamous masked band refused to be photographed out of costume? Not at all. The reasons for the absence of Kiss material are much more mundane. "I stopped shooting pictures in the studio around 1972," says Kramer, "and I didn't start working with Kiss until the mid-'70s. By then, I had gotten married and had kids, so I preferred to take pictures of my kids than of hairy rock 'n' roll guys."

Also notable for their absence in Kramer's exhibit are The Beatles, for whom Kramer engineered the timeless tracks "All You Need is Love" and "Baby You're a Rich Man." Kramer recalls, "Working with the Stones, Hendrix, Traffic and all those guys was great. They were my buddies. But The Beatles...now you're talking some serious stuff. They were like royalty. They came into Olympic Studios [where Kramer worked at the time] because they couldn't get into EMI, and I didn't want to yank out my camera, because I thought I might blow the whole session. So that's the only time during that period that I didn't take any pictures."

If he had, Kramer might have captured John Lennon discovering a clavioline that was sitting around Olympic Studios and using it on "Baby You're a Rich Man." Or, he might have caught George Martin playing a harpsichord that also happened to be lying around. But it wasn't to be. Those famous Beatles sessions live on in Kramer's mind—and in the grooves of the records—but not on film.

No one, least of all Kramer himself, seems to mind that The Beatles aren't represented in the archive. After all, the collection is so rich and so steeped in rock 'n' roll history that one becomes awestruck imagining that a single person was present at all those sessions.

The images were catalogued, digitized and restored by New York digital imaging specialist (and audiophile) Peter Kavanaugh, Kramer's partner in the photo archiving project. Kavanaugh says, "My prime objective when working with these images is to respect the physics of what analog light and film can do, how they interact with each other, not to put the pictures through a lot of digital filters and special effects. We went for the most photo-realistic enhancement techniques so as not to undermine the original photos."

Although Kramer admits that the photography project has consumed much more of his (and Kavanaugh's) time than either one of them anticipated, it hasn't stopped Kramer from keeping a feverish pace in the studio. In the last few months, he has restored and remixed two Hendrix live performances in surround for film/DVD release: the "Isle of Wight" concert and *Jimi Plays Berkeley*. He has also been co-producing solo sessions and a soundtrack recording by Matchbox 20 guitarist Kyle Cook. Meanwhile, Kramer has been flying back and forth between his New York City-area home and Salinas, Kan., to record a blues album by Jimmy D. Lane, son of the late Chicago bluesman Jimmy Rogers. ■

Send your NY Metro news to pverna@vernacularmusic.com.

—FROM PAGE 205, NASHVILLE SKYLINE

from the drum to give it more air and more bass instead of the tight-miking they always did—and he was right. And even though he loved that amp sound, he was also pretty good at getting direct guitar sounds off a board."

In fact, it was on Atkins' first foray as a full-fledged producer, on Don Gibson's 1955 hit "Oh Lonesome Me," that Atkins went against the sonic conventions of country music and had recording engineer Jeff Miller place the microphone directly in the kick drum rather than rely on ambient or overhead microphones to pick up the kick. He also chose to use drummer Troy Hatcher rather than one of the session regulars at the time, favoring the more aggressive drumming that Hatcher had brought to Gibson's demos. It was a bold move for the time, considering that the Grand Ole Opry still frowned on any drums at all onstage at the time.

Atkins was also aggressive in incorporating strings into country productions, in the process creating what would come to be known as the "countrypolitan" sound, which propelled hits that Atkins produced for Jim Reeves, Eddie Arnold, Skeeter Davis and many others over to pop charts.

Temperamentally Atkins was somewhat opposite Bradley. Atkins was known for a laid-back approach to record production, one that has been summed up as "pick the right songs, pick the right players, sit back and let it happen." That's how Norro Wilson, one of the generation of Nashville producers who came in after Atkins and Bradley, and who produced one of Atkins' last solo records, remembers his mentor. "He did not go for 40 takes of something," recalls Wilson. "He would just let it happen in its own time. He knew how to make a recording studio a comfortable place for the artists and the musicians. That made a big difference in the quality of the recordings, and it made studios realize that they had to be more accommodating to artists and producers, too."

Wilson says that Atkins particularly liked Studio A because it emulated the large RCA studio in Manhattan; he says that Atkins wanted RCA New York to know that Nashville's records were on par with any records made anywhere else. "But what really brought that across was the fact that Chet Atkins was not just a producer or the head of a record label," adds Wilson, "he was also a *star*! That was the image he brought with him. You just never had that in the music business before—a star recording artist who was also a hit record producer and head of a major record label."

Atkins never stopped being a studio rat. Wilson remembers that Atkins was the first major artist/producer in Nashville to have a home studio. And he still did session work even after he passed the 70-year mark. Engineer Bob Bullock, who worked on part of the 1994 Grammy-winning *A Tribute to Bob Wills* record, recorded Atkins' guitar overdubs on one song at Emerald Studios. "He walked in and was a total professional," recalls Bullock. "Not a star, not some big name. Just another musician. You could imagine him walking into a recording session 50 years earlier the exact same way. Nail the part and then head on out. No wonder guys like Mark Knopfler and Les Paul would come here to record with Chet. He was always a musician first."

I had my own encounters with Chet Atkins over the years in Nashville. Most of the time, it was in passing, like seeing him at the Bellevue Mall shopping for Christmas gifts, or having breakfast at the Cracker Barrel restaurant on Charlotte Avenue, which he did regularly. One time was for an interview for a book I was writing about the music industry in Nashville in the late '90s. We sat in his office off Music Row on a dreary winter's morning, and he graciously answered my

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questions. He looked tired then, but never talked about his illnesses. He probably got a kick out of telling me the story about how he decided he had to retire from RCA—the day he came to work and looked down and realized his shoes didn't match. As it turns out, it wasn't the first time he had told that story, and it made me realize I had to start digging a little deeper into the archives for research. So in that sense, he had an effect on me as a writer, as well.

The same week of Atkins' passing, two more lights of an era past went out. Johnny Russell passed away on July 3 in Nashville. A recording artist and songwriter, he co-wrote "Act Naturally," which was recorded by both Buck Owens and The Beatles. And Roy Nichols, longtime guitarist for Merle Haggard, died the same day in Bakersfield—the "other" Nashville. ■

Send your Nashville news to danwriter@aol.com.

—FROM PAGE 205, SESSIONS AND STUDIO NEWS

his forthcoming two-disc album, *aLive Just for Love*, at **Absolute Audio Inc.** (NYC). **Tom Brink** was picked to engineer the effort. The album was produced by Murphy and is set for release on Metropolis Records...Modern Irish Folk group **Solas** spent two months at **Bearsville Studios** (Bearsville, NY) utilizing all three rooms of the facilty for rehearsal, tracking, overdubbing and mixing with producer/engineer **Neil Dorfsman**. Sugar alumni **Bob Mould** handled some overdubing and mixing chores for his forthcoming, self-produced solo album. Latin jazz saxophonist **David Sanchez** tracked in Bearville Studio A, fronting an all-star sextet. Grammy winner **Rob Hunter** engineered and co-produced the project with Sanchez.

NORTHWEST

Movie producer **Ismail Merchant** stopped in at **Studio 880** (Oakland, CA) to track and

Engineer John "J.P." Pegram (left), Juvenile and Love Shack studio manager Grant Fowler.

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Dark entries at Absolute Audio, (L-R): mastering engineer Tom Brick, Peter Murphy and Daniel Cinelli.

mix his film score for the movie *The Mystic Masseur*. A full orchestra was brought in, and major contributors to the score included world-renowned tabla player **Zakir Hussain** and **Santana** percussionist **Karl Perazzo**. **Reto Peter** engineered the project, and **Marco Martin** assisted. Engineer **Michael Denten** handled the 5.1 mix...**Rainstorm Studios** (Seattle, WA) kicked off the summer with punk rock outfit **Youth at Risk**. **Steve Carter** produced and engineered the sessions. Euro pop group **Epigene** was in tracking drums and doing final mixes on their debut album with studio owner **Paul Speer** at the console. Hard rock band **Counterfist** wrapped up the month mixing and mastering their debut album. Speer handled the mixing chores with Carter assisting on Pro Tools...**Soundtracks** (Battle Ground, WA) owner/producer, **Burke Harris**, recently finished tracking and mastering the new **Jonathan Jackson**/Scarlet River CD *This I Know*...**Gravelvoice** (Seattle, WA) was taken over by **Deborah Bartley**, who was in recording her second album with a full band. **Yam** stopped by to track additional songs for their first CD. Everything was recorded and mixed by **Scott Colburn**...**Glenn Sound** (Seattle) has been working on some exciting projects: **Everclear**, Tantric, UK band **The Doves** and **Guttermouth** performed for numerous KNDD-sponsored End Sessions with Glenn Sound engineers **Glenn Lorbiecki** and **Eric Oz**...**Gropius Mastering** (Seattle, WA) spent most of the first half of 2001 tracking and mixing the soundtrack to the independent feature *The Trouble With Boys and Girls*. Also in with owner/engineer **Don Gunn** was local guitarist **Antony De Gennaro** mixing his third CD. Other mastering projects included a CD/video package featuring 'N Sync drummer **Billy Ashbaugh** for Warner Bros.

PHOTO EDWARD COLVER

Solid State Logic gathered a group of Hollywood's top scoring mixers on The Scoring Stage at Livewire Studios (previously Todd-AO) in celebration of their numerous projects done on the SL 9000 J Series Scoring System. L-R: John Richards, Steve Kempster, John Kurlander, Dennis Sands, Bruce Botnick and Shawn Murphy.

SOUTHEAST

Multi-Platinum artist **Juvenile** spent most of June camped out at **Love Shack** (Nashville). Juvenile has been producing artists **Young Buck**, **Wacko**, **Billy Cook** and **Corey Cee**, all of whom recently signed with the rapper's new label UTP Records. **John "J.P." Pegram** and **Karl Heilbron** engineered...Singer/songwriter **Shana Morrison**, daughter of **Van Morrison**, was in the Neve Room at **Seventeen Grand Recording** (Nashville) laying down tracks for her upcoming album on Vanguard Records. **Steve Buckingham** produced. **Gary Paczosa** engineered with assistant **Thomas Johnson**. ■

▪ STUDIO SHOWCASE ▪

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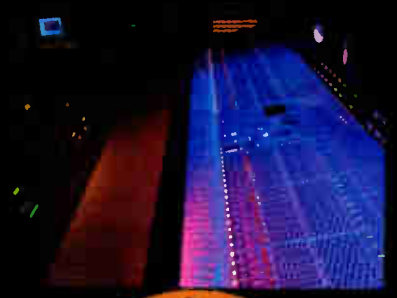

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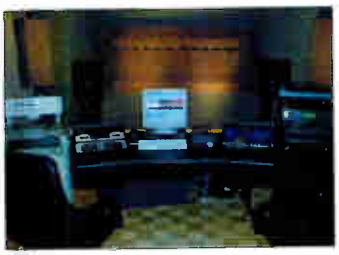

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—FROM PAGE 144, WHICH WITCH?

runs only on its hardware, perhaps the most effective way to thwart pirates. For continued technological improvements, software writers have to do more than break even.

JOHNSON, EVINRUDE OR MERCURY?

A few facts can help users make informed decisions about outboard purchases and applications. Of course, I am talking mic preamps, equalizers and compressors—not the motors on your dingy. Never before have so many options been available, both as traditional "hardware" and as the many digital variations on a theme. How to choose?

Determining which analog topology is best for your tastes and applications requires experience. You may not be able to afford any or all of it, but you can rent. Some people season their food, others want it plain. Whether consciously or not, equipment is designed in a similar way. Many boutique designers are building the gear for themselves. Such is the case with Greg Gualtieri at Pendulum Audio and Dave Hill at Crane Song, designing gear specifically for their own project studios.

On my Website is an Altec vacuum tube mic preamp that I used to illustrate some of analog's idiosyncrasies. It has input and output transformers. I can't tell you how many times someone has e-mailed me about a transformerless version, mostly because transformers are expensive and take up space. Hello? The "sound" of vintage may be a bit of a moving target, but remove a major component and the character goes with it. Manley products go the all-tube and transformer route, while Millennia Media (also a classical recording company) eschews "iron" for a more direct signal path.

Note: The following is an oversimplification for the sake of general comparison. Let's narrow the analog audio descriptors to five electronic categories: Macrobionic, Industrial, Fast Food, Gourmet and Genetically Modified. All IC op amp consoles fall into either Industrial or Fast Food subgroups. Industrial examples are Neve and SSL—their distinguishing traits are buffered output amplifiers, versatile EQ, real power and ground distribution (for lower noise), and higher-component quality than Fast Food varieties. These are production consoles designed for versatility, speed and reliability.

The Fast Food group embraces most of the project market. Companies like Mackie, Trident (its Series 65), Soundcraft, Allen and Heath and others have served their affordable fare from pre-project times to the present. Just because both of these types are "analog" shouldn't imply any inherent warmth. IC op amps are very linear, just like digitized audio. Aside from the type and number of op amps used, any notable sonic character primarily comes from the equalizer section. Old Trident A-Range modules (as reproduced by Daking Audio) use inductors, not op amp emulation.

Gourmet applies to vintage and retro gear. No matter whether or not tubes or transistors are the "active" devices, transformers are key sonic contributors of phatness. That's why API gear is rock 'n' roll magic, and Neve line amps are the most widely reproduced products on the retro scene (the new Great River MP-2NV is one example). All API products are based around a discrete transistor op amp—the 2520—biased Class-AB. The most desirable Neve modules use a single-ended, Class-A output stage. Especially when driven hard, different transformers + different output stages = different sound.

Macrobionic primarily refers to transformerless designs that go for the minimal amount of circuitry in the audio path. These are typically made from discrete components—tubes or transistors—with an "educated audiophile" approach. Such products should be the most sonically transparent, imparting the minimum of their own personality upon the signal.

Genetically Modified implies a hybrid design—tubes and transistors *or* discrete transistors and high-performance ICs. Occasionally, transformers will be used, but only in essential positions.

SUMMING AMPLIFIER

The transition to digital received more scrutiny than was given to analog, at least since the transition from vacuum tubes to transistors. It is common in our industry, especially during sessions, to find a magic box and place it on a pedestal. A little understanding goes a long way to making magic more repeatable. Squeaky clean or shady character, all of it is cool, so long as we know which is witch. Level matching plays a key role in the comparison process. We'll address these issues and explore circuit comparisons, topologies and vintage maintenance issues in upcoming months. Stay tuned. ■

Have questions or comments? Eddie Ciletti can be reached at edaudio@tangible-technology.com.

broadjam

Artist: Katrina Carlson
Genre: Pop

Song: I Know You By Heart
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Artist: Kodac Harrison
Genre: Blues

Song: Love Turned On The Light
LO-FI MP3 | HI-FI MP3 | REAL AUDIO

Artist: Faye
Genre: Alternative

Song: What's Right
LO-FI MP3 | HI-FI MP3 | REAL AUDIO

Artist: Bill Epps
Genre: R & B

Song: Sign On In
LO-FI MP3 | HI-FI MP3

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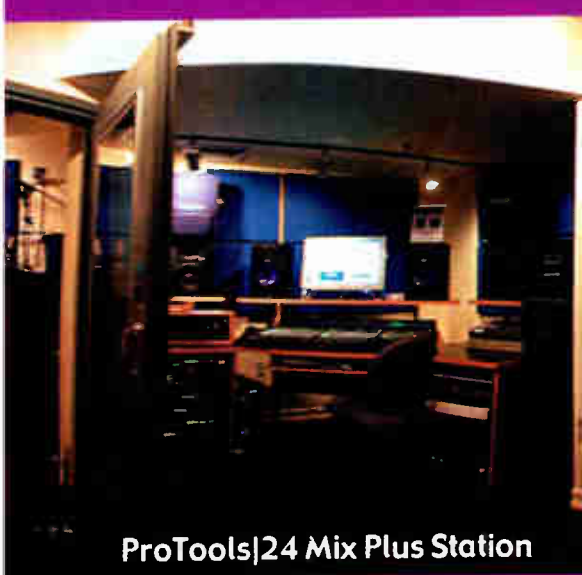

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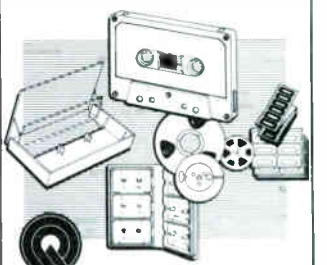

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—FROM PAGE 18, THE ULTIMATE

I used to practice in my basement and pretend there was an audience, but when I went out onstage, I used to close my eyes and pretend I was practicing in my basement.

You see, I happen to be one of those guys who damn near dies every time he walks onstage. It has been that way since my first live performance, and it has stayed with me from those early blues bar days through monster venues where the audience stretches to the horizon.

That minute before I hit my first note is sheer terror for me. I can't breathe, I can't talk, hell, I usually can't even hear. That walk down the hall and finally to my mark behind the closed curtain is just like jumping off a 1,500-foot cliff into a rocky canyon. The *only* thing I have to hold on to is the memory that somehow, some way, I have done this a thousand times before, and it has almost always worked. Even as I feel in my heart that my E string will break as soon as I touch it, or I will miss my opening chord and hit an F when the band hits their E, I know in my mind that I will hit it right, and the audience will lift me into the air with their approval, and I will not be dashed to my death on the jagged rocks below. At least not until morning when the reviews come out.

And when I do make it past that first five seconds, and my terror is replaced with exhilaration and confidence, those two worlds touch, and both change. I begin to make eye contact with the very audience that I could not bear to even acknowledge moments before, and they begin to feel connected to me. I usually pretty much stick to the shtick for the first few tunes, and then things change.

And so it begins, the most unique art form that exists, interactive performance.

Now, I fully realize that most musicians don't suffer quite this much before they go on, but each does in some way, to some extent. Each has a private game or ritual to control it, and many have compensated so much that they don't even acknowledge it happens to them—but it does, and it must, for it is the transition from fear and insecurity to the exhilaration of success to the final stage, that deeply emotional interactive performance that we live for. It validates us, both personally and, of course, financially.

Even as we hate the audience for demanding that we play some lame-ass hit from six years ago that we are so far beyond we almost wish we had never done it, we love them for loving us. Even as we resent them for relentlessly judging us, we get that high, a rush that justifies the decades of struggle and seals our fates to go through the entire hell-to-heaven trip again in some other city tomorrow. Because if they judge us with a fickle heart, and *love* us, it must be the truth. It can be trusted.

And we know how to make it even more intense…

Once you are comfortably in control, you start to feel the audience. You feel their general attitude and response to what you do. Then, if you are good enough, then you begin to feel their response to each song, and then each phrase, each lead, each solo. And then the magic begins. If you are both good and lucky enough, the moment comes when you can feel the audience respond to every note you play. At this point, not only do you (and in some sick, twisted way the drummer) control the tempo and pace of the developing story, but you react to the audience reacting to you. You feed them, they feed you, you feed them better. They close their eyes and give themselves to you. You do the same.

Let me clarify. You play, they react. You feel and understand their reactions, and you alter the way you play—*what* you play—in response to what they have just told you. You sense, with each note, whether you are moving them closer or further from where you want to take them, and where they want to be taken. There is *no* delay. You play, you feel, you adjust, you play. It is then that the perfect concert can happen—the stuff legends are made of. More than anything, the audience admires a band who takes them *exactly* where they need to be, even if they didn't have a clear idea of where that should be.

There we have it, a unique art form. A live, never-the-same-twice musical performance that dynamically changes to become closer to perfect until it actually reaches that goal. The audience actually becomes part of the art, steering it and contributing to a night that will become part of their personal history, never to be repeated exactly the same way again.

Damn, I love rock 'n' roll! ■

SSC has gone off to plug his old Gold top into his THD. He'll be back when he's hit that point one more time.

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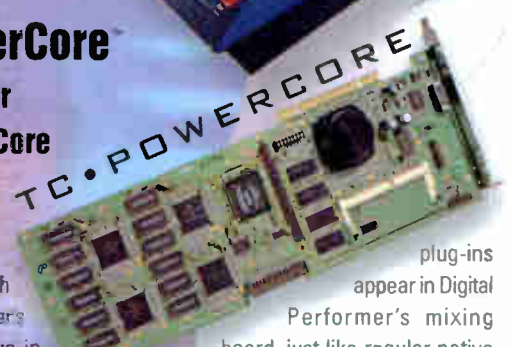


TC•PowerCore is a major breakthrough for Digital Performer's real-time MAS plug-in environment because it provides DSP turbocharged plug-in processing. At last, the renowned TC TOOLS/96 studio-quality FX package (included), with TC MEGAVERB, TC Chorus/DELAY and TC EQ[sat], can be at your fingertips in Digital Performer, plus other TC | Works plug-ins such as TC MasterX and TC Voice Tools (sold separately). These powerful plug-ins appear in Digital Performer's mixing board, just like regular native plug-ins, but they run on four powerful 56K DSP chips on the TC•PowerCore PCI card. It's like adding four G4 processors (equal to 2.8 gigahertz of extra processing power!) to your computer. Run 12 studio-quality TC plug-ins with no hit on your CPU power, and run other native plug-ins at the same time! TC•PowerCore is an open platform, so it will also run plug-ins from other respected 3rd party developers, too (details TBA).

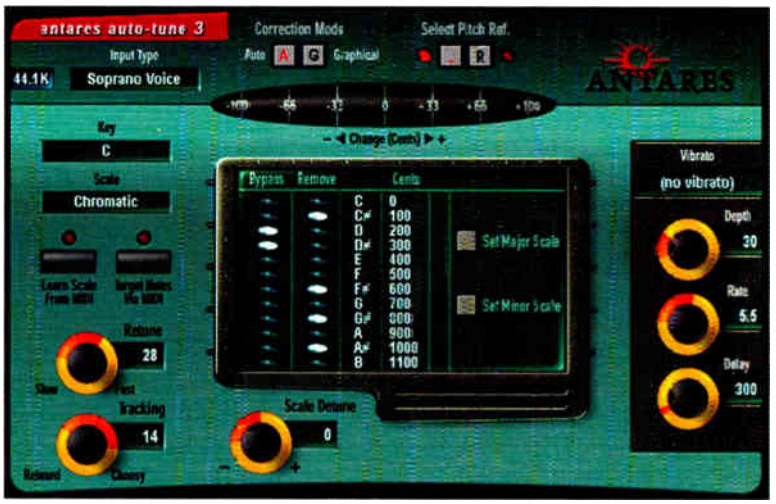
TC | WORKS

ANTARES AUTO-TUNE

TIPS FOR TRANSPARENT PITCH CORRECTION

The Antares Auto-Tune plug-in has become an indispensable recording tool. The tips presented here are based on Version 3.0, but many also work with previous versions and the rack-mount unit, the ATR-1a.

In general, if you're going for a natural, unprocessed-sounding result, then use as little Auto-Tune as possible: Correct the problems, but keep things transparent. This often means stopping short of trying to make the track "perfect." On the other hand, if you want an interesting and creative effect, then use it a lot. On the radio, you'll often hear tracks that fall somewhere in between. What follows are a few tips for producing natural-sounding, transparent pitch correction.



Auto-Tune's main screen; Version 3.0 features a completely revised interface.

SUBTLE FIXES

If the singer is generally on pitch except for some occasional instances, then the easiest automation to use is the Bypass control. I usually try this between phrases. Otherwise, if you have to sneak into the melody, release Bypass and keep the Retune (speed) value high (slow) until you need it, and then use the automation to speed up the pitch correction; then get out again. This allows you to effect a note or two or three in a more subtle way.

FIND THE RIGHT KEY

Because Automatic mode handles so many situations, many Auto-Tune users never get into Graphical mode. If you don't understand why Automatic mode is processing the way it is, then use Graphical mode to simply analyze the problem. For example, once the audio has been captured by the Track Pitch control, you can easily see how the detected pitch envelope relates to an equal tempered scale. Once you see the graph, you're a lot better informed about how to set up Automatic mode. For example, you may not know what key the singer is in (you don't have perfect pitch and there's no reference tone available). A glance at the pitch graph will instantly tell you what key and scale to set.

POINTING OUT THE PROBLEM

Of course, once in Graphical mode, users are either impressed by the array of pitch correction tools and techniques, or dizzied by it. If you tend toward the latter, take heart. Ninety percent of the time I use just a few techniques to fix all kinds of pitch problems, and these are performed with the Pointer tool. The Line and Curve tools are for the brave and possibly brilliant. But if you want a natural-sounding vocal that's dead on, then the Pointer tool is your best friend.

Most of the intonation problems I work on involve notes held with some duration. Part of the reason is that many singers are unable to find or stay on pitch while sustaining a note, and part is that the listener cares more about sour notes the longer they last. Checking out the pitch graph in Graphical mode usually shows three situations for these long notes: The pitch is off and then corrected, the pitch is on and then drifts away, or the whole note is sharp or flat. In the first two cases, place the Pointer tool at either end of the note (Antares calls these "anchor" points—the Pointer turns into arrowed crosshairs) to bring it to its targeted pitch. The beauty of this is that all of the singer's natural vibrato and pitch "stylings" remain intact, but are now centered around the correct pitch. To deal with the last case, simply move the Pointer along the middle of the curve of the errant note, and it turns into a horizontal line, which allows you to adjust the pitch of the entire note, again preserving the singer's natural style.

If you're experiencing octave offsets in the pitch correction, then the Input type (new in 3.0) probably needs to be changed.

NUDGE IT ALONG

If you're processing an instrument sound that has strong, upper harmonics and throws the pitch detection off, then try adding some energy to the fundamental (insert an EQ with a low-shelf boost before Auto-Tune). I've seen this work with just a slight amount (1 dB) of bass boost. ■

BY GERRY BASSERMANN

Gerry Bassermann is a musician living with his son and piano on the Coastside. He owns and operates OpusNine Productions.

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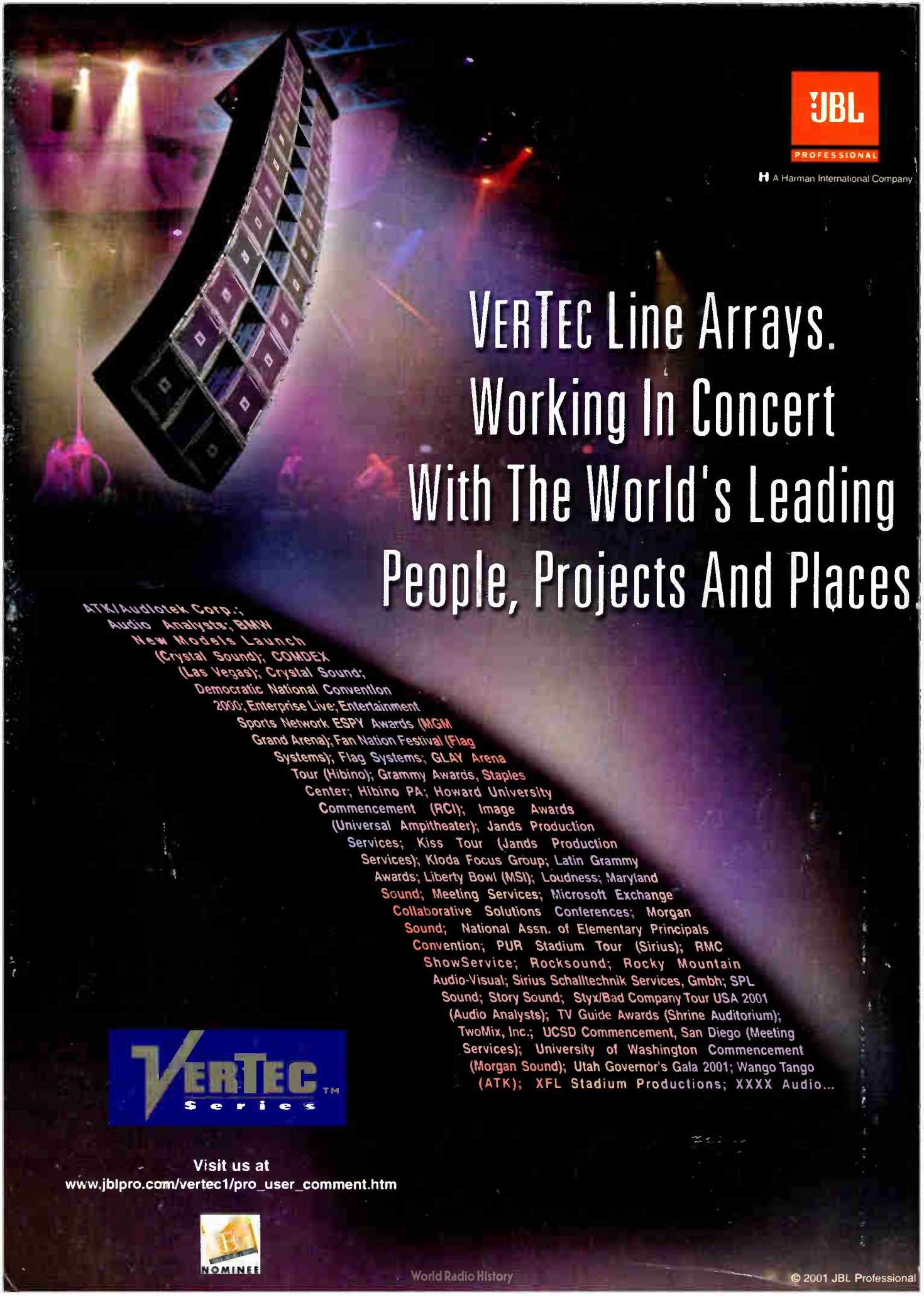

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