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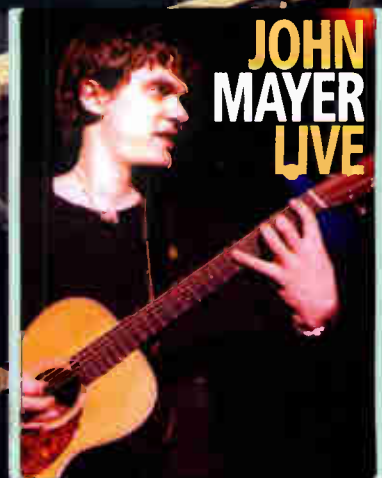
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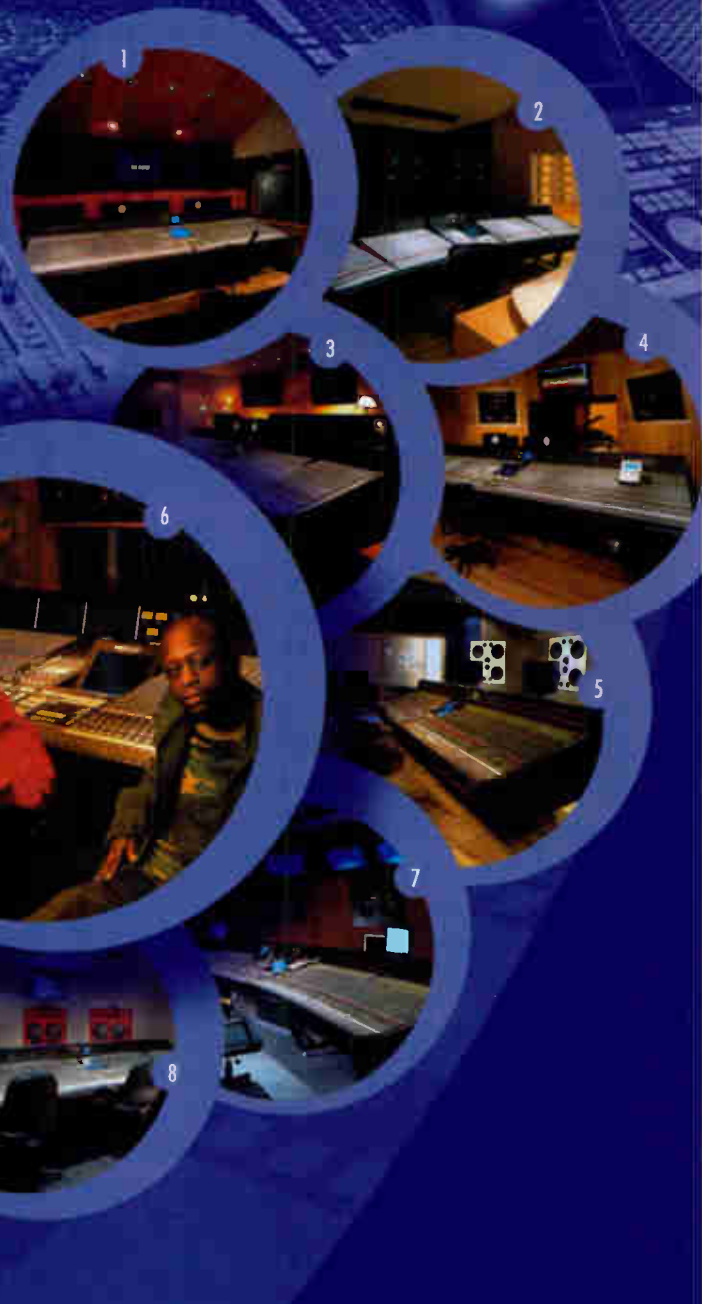


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3 Davout, Paris

4 Pacifique, Los Angeles

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8 Hit Factory, New York

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10 Conway, Los Angeles

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12 MG Sound, Vienna



XL 9000
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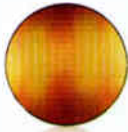
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4-gigabyte memory ceiling of every other PC in the world. The G5 processors also have the world's fastest frontside bus, running at 1 gigahertz, which gets data to the processor almost twice as fast as the 533-megahertz bus found in the next-fastest personal computer (a dual 3.06GHz Xeon machine).

In side-by-side speed tests using industry-standard benchmarks, the dual 2.0-gigahertz Power Mac G5 is up to 41% faster than both the fastest Pentium 4 and dual-processor Xeon workstation. And the results get even better when using real-world applications:

the new Power Mac G5 runs Photoshop more than twice as fast as the fastest PCs. Further tests reveal there are similar gains across a wide range of applications, from



The PowerPC G5 chip is based on IBM's highest performance 64-bit supercomputer processors.

music and video to science and mathematics.

Impressed? We haven't even touched on

the Power Mac G5's other features. Like its ultrahigh-bandwidth system architecture, featuring AGP 8X, PCI-X, FireWire® 800, Gigabit Ethernet, up to 500 gigabytes (yes, that's half a terabyte) of internal Serial ATA storage and a SuperDrive® for DVD authoring. All inside a stunning, professional-quality aluminum enclosure that features four discrete computer-controlled cooling zones for whisper-quiet operation. Together, they make the Power Mac G5 a true breakthrough in personal computing.



SPECint_rate 2000: Integer calculations

Dual 2GHz PowerPC G5	16.9
Dual 3.06GHz Xeon	16.7
3GHz Pentium 4	10.3

SPECfp_rate 2000: Floating-point calculations

Dual 2GHz PowerPC G5	15.8
Dual 3.06GHz Xeon	11.1
3GHz Pentium 4 8.1	

Independent tests show the Power Mac G5 edges out the competition on integer and blasts past them in floating-point.





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World Radio History

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PROFESSIONAL AUDIO AND MUSIC PRODUCTION
September 2003, VOLUME 27, NUMBER 10



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On the Cover: Studio A at Angel Mountain Productions, featuring an SSL 9000 K Series, Quested 412 surround monitoring and Pro Tools|HD, was designed by Martin Pilchner of Pilchner Schoustal International. For more, see page 20. Photo: Dave King. Inset photo: Steve Jennings.



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Warp Your Mixes With Extreme Plug-Ins

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Report From Summer NAMM

More than 20,000 audio and music professionals descended on Nashville for the Summer NAMM convention. *Mix* editorial director George Petersen brought home the product news for those who couldn't make it.

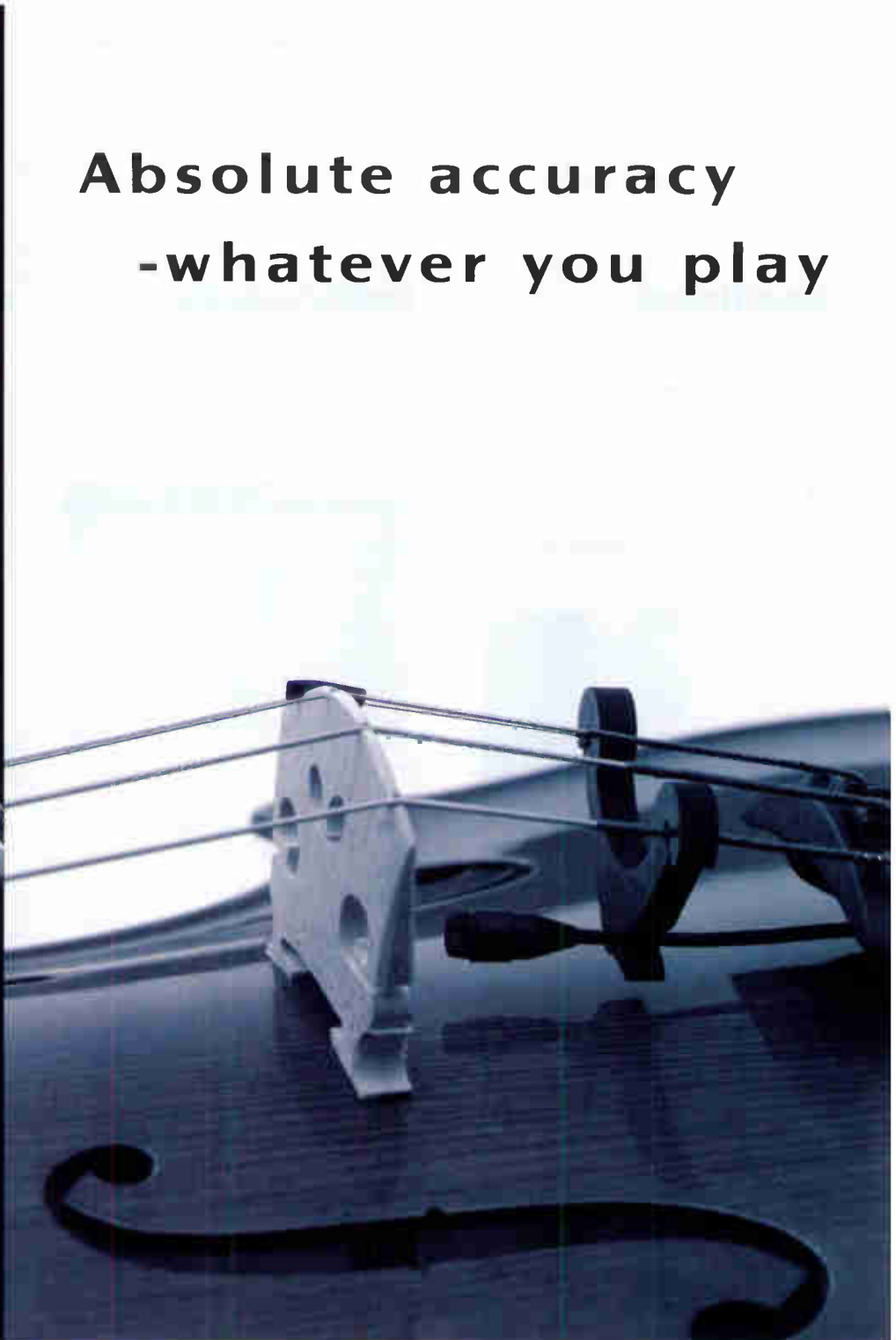
70 The 8th Annual Mix L.A. Open

Everyone's a winner at *Mix*'s annual golf tournament, because all of the proceeds benefit hearing health and awareness charities. *Mix* L.A. editor Maureen Droney recaps the event in words and pictures.

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

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The Legacy of Sam

By now, just about everybody in the music biz has heard about the passing of Sam Phillips, the founder of Sun Records—the seminal label that in a space of a few years introduced the world to artists such as Jerry Lee Lewis, Roy Orbison, Johnny Cash, B.B. King, Carl Perkins and Elvis Presley.

In an era when terms like “legends” are overused to the point of utter meaningless, Phillips—the innovator, entrepreneur, visionary and straightforward guy with an innate sense for spotting and developing talent—was a true legend: the father of rock ‘n’ roll. In fact, in terms of developing musical forms that transcended art itself, leading to social change and a cultural revolution, few other individuals—among them Motown founder Berry Gordy and Beatles producer George Martin—have equaled the impact of Phillips.

Not that it was easy. Phillips launched his Sun Records label from a small studio space at 706 Union Ave. in Memphis, a town blessed with a musical scene of varying styles: Delta blues, gospel, country and hillbilly. It began in 1952, a time when “race” records were the norm and segregation was rampant throughout the South. Yet, Sun released records by black and white artists, and in the studio, black players would play on white releases and vice versa. For Phillips, the only thing that mattered was the music.

Sun Records’ releases broke new ground in advancing the art of music and defining new styles. This came not only in terms of bringing rock ‘n’ roll to mainstream listeners and the mostly untapped teen market, but also by advancing the rise of country music, with the infectious backbeat and up-front drums(!) of rockabilly taking over the airwaves of America and the world. Compared to the tired, conventional crooners and sappy orchestrations so prevalent in ‘50s pop, the sounds of Sun made audiences want to get up and move!

Changes in musical mores have typically been reflections of society itself, and the revolution coming out of Sun Studios was indicative of a changing world. While the big band sounds of the ‘40s were part of the guarded optimism of the war, the post-nuclear, Cold War era in the ‘50s needed something completely different: Rock ‘n’ roll was the answer. The same could be said with the changes during the ‘60s, with The Beatles, Motown and the rise of guitar-rock, just as punk music provided the flip side to the overproduced pop and disco of the ‘70s, followed by grunge, thrash and rap in more recent years.

So far, only a few times in history has a single person—i.e., a Phillips or a Gordy—stepped forward as the flag-bearer for a musical revolution. So, given today’s corporate music climate—where a willing culture is spoon-fed prepackaged “product” that’s carefully created by labels filled with lawyers, accountants, psychologists and marketing/demographic consultants—could it happen again? Absolutely! Some may argue that the days are long gone when a Phillips type could cut a record and drive over to a radio station where a hip DJ would break it to the world. However, with the immediacy of the Internet and a worldwide audience ready for something creative, interesting and new, the time has never been more right than now.

George Petersen
Editorial Director

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A PRIMEDIA Publication

EDITORIAL DIRECTOR George Petersen gpetersen@primediabusiness.com
EDITOR Tom Kenny tkenny@primediabusiness.com
SENIOR EDITOR Blair Jackson blair@blairjackson.com
SENIOR ASSOCIATE EDITOR Barbara Schultz bschultz@primediabusiness.com
TECHNICAL EDITORS Sarah Jones sjones@primediabusiness.com
 Kevin Becka kbecka@earthlink.net
ASSOCIATE EDITOR Sarah Benzuly sbenzuly@primediabusiness.com
EDITORIAL ASSISTANT Breena Lingle blinge@primediabusiness.com
LOS ANGELES EDITOR Maureen Droney msmdk@aol.com
NEW YORK EDITOR Paul Verna pverno@vernaonline.com
NASHVILLE EDITOR Rick Clark rmburge@mac.com
SOUND REINFORCEMENT EDITOR Mark Frink mfrink@markfrink.com
FILM SOUND EDITOR Larry Blake swelltone@aol.com
TECHNICAL PROVOCATEUR Stephen St. Croix
CONSULTING EDITOR Paul Lehman lehman@pan.com
WEB EDITOR Dan Cross guitar.guide@about.com
NEW-TECHNOLOGIES EDITOR Philip De Lancia
CONTRIBUTING EDITORS Robert Hanson Michael Cooper Bob McCarthy
 Eddie Cietni Oliver Muscarotte Gary Eskow Randy Alberts

SENIOR ART DIRECTOR Dmitry Parich dparich@primediabusiness.com
ART DIRECTOR Kay Marshall kmarshall@primediabusiness.com
ASSOCIATE ART DIRECTOR Lizbeth Heavern lheavern@primediabusiness.com
PHOTOGRAPHY Steve Jennings
INFORMATIONAL GRAPHICS Chuck Dahmer

SENIOR VICE PRESIDENT Pete May pmay@primediabusiness.com
PUBLISHER John Pledger jpledger@primediabusiness.com
ASSOCIATE PUBLISHER Erika Lopez elopez@primediabusiness.com

EASTERN ADVERTISING DIRECTOR Michele Kanatous mkanatous@primediabusiness.com
NORTHWEST/MIDWEST ADVERTISING MANAGER Greg Sutton gsutton@primediabusiness.com
SOUTHWEST ADVERTISING MANAGER Albert Margolis amargolis@primediabusiness.com
SALES ASSISTANT Anthony Gordon agordon@primediabusiness.com

CLASSIFIEDS/MARKETPLACE ADVERTISING DIRECTOR
 Robin Boyce-Iturbitt rboyce@primediabusiness.com
WEST COAST CLASSIFIEDS SALES ASSOCIATE Kevin Blackford kblackford@primediabusiness.com
EAST COAST CLASSIFIEDS SALES ASSOCIATE Jason Smith jasmith@primediabusiness.com
CLASSIFIEDS MANAGING COORDINATOR Monica Ciomarty mciomarty@primediabusiness.com

MARKETING DIRECTOR Christen Pocock cpocock@primediabusiness.com
MARKETING MANAGER Angela Rehm arehm@primediabusiness.com
MARKETING TRADESHOW COORDINATOR Megan Koehn mkoehn@primediabusiness.com

DIRECTOR, SPECIAL PROJECTS Hillel Resner hresner@primediabusiness.com

VICE PRESIDENT—PRODUCTION Tom Fogarty tfogarty@primediabusiness.com
GROUP PRODUCTION MANAGER Melissa Langstaff mlangstaff@primediabusiness.com
SENIOR ADVERTISING PRODUCTION COORDINATOR Liz Turner lturner@primediabusiness.com
CLASSIFIED PRODUCTION SUPERVISOR Gina Wilkinson gwilkinson@primediabusiness.com

SR. DIRECTOR AUDIENCE MARKETING Susi D. Cordill scordill@primediabusiness.com
GROUP AUDIENCE MARKETING DIRECTOR Phil Semler psemler@primediabusiness.com
AUDIENCE MARKETING MANAGERS Jeff Lirson jlirson@primediabusiness.com
 Craig Diamantine cdiamantine@primediabusiness.com

HUMAN RESOURCES MANAGER Julie Nave-Taylor jnave-taylor@primediabusiness.com
RECEPTIONIST/OFFICE COORDINATOR Lara Duchnick lduchnick@primediabusiness.com

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 Sr. Vice President, Sales/Operations John French jfrench@primediabusiness.com

Sr. Vice President, Business Development Eric Jacobson ejacobson@primediabusiness.com

Vice President, Content Licensing & Development Andrew Elston aelston@primediabusiness.com

Vice President, Corporate Communications/Marketing Karen Garrison kgarrison@primediabusiness.com

Vice President, Human Resources Kurt Nelson knelson@primediabusiness.com

Sr. Vice President, Chief Information Officer Kris Paper kpaper@primediabusiness.com

Vice President, Technology Cindi Redding credding@primediabusiness.com

Primedia Business-to-Business Group

745 Fifth Ave., New York, NY 10151

President & Chief Executive Officer Charles McCurdy cmccurdy@primedia.com

Creative Director Alan Albanian aalbanian@primediabusiness.com

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Chief Executive Officer Charles McCurdy cmccurdy@primedia.com

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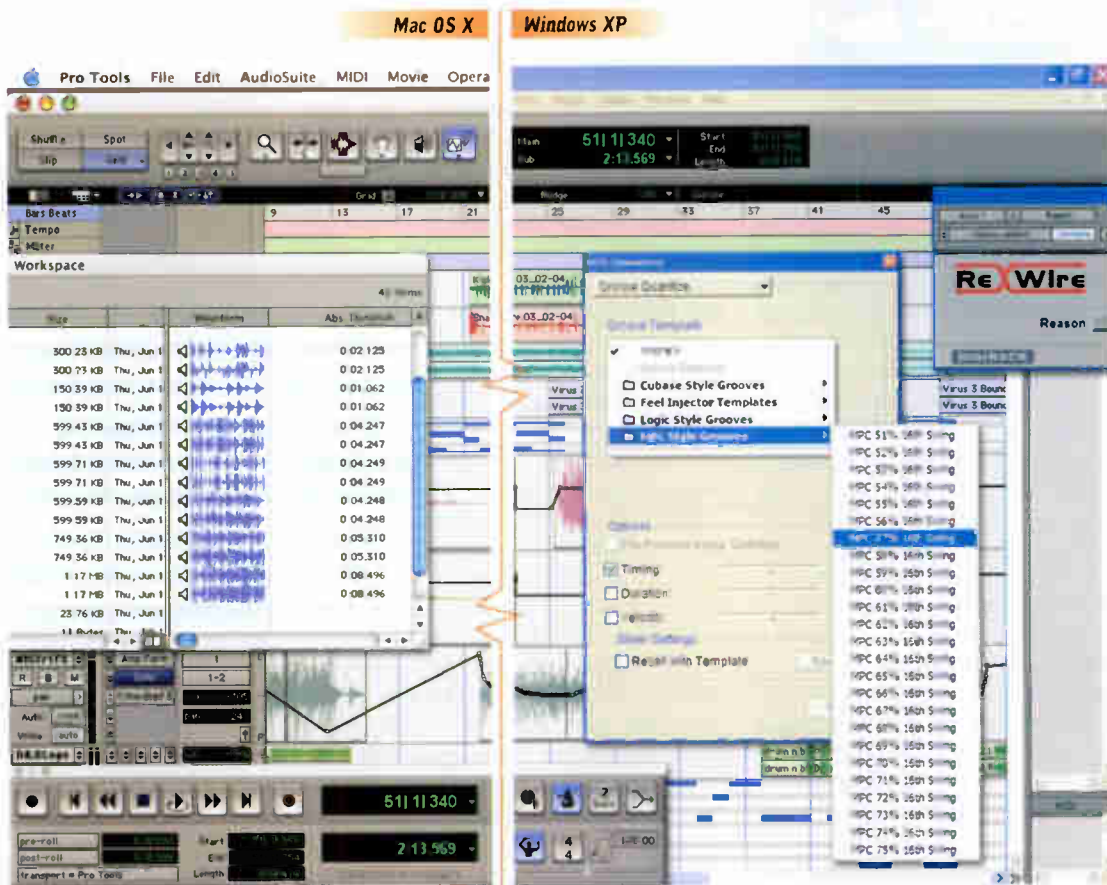
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Letters to Mix



ILLUSTRATION: DAVE EMBER

WORDS AND MUSIC

Bravo to Stephen St. Croix for his article about the iTunes store ["Fast Lane: The Geek Shall Inherit the Earth," June issue]. He hit it on the head (as usual) in pointing out all of the pleasures of this addictive place to purchase music. I sometimes wish Apple placed a governor on the software so that you can't buy more than, say, a hundred bucks a day. Whoop boy, that AMEX bill! However, there is one thing he did not address that surprised me. It's something, or rather the lack of something, that has been bothering me with every purchase: no liner notes. You get *nothing* about the creative team. No musicians, producers, engineers, programmers. Nothing. You only get the album cover! Now this is where the "\$9.99 is too expensive" argument becomes too true. I'd rather pay Amazon \$13.99 and get the full credits (not to mention lyrics) than pay \$9.99 and not get any liner notes. Maybe people don't mind surfing to whatever site to get the liner notes—if they are even available online—but to me, that defeats the purpose of the store.

It's supposed to be convenient and save time: a one-stop Mecca for all your music needs. Am I alone on this? Perhaps. I haven't seen too many others lamenting this yet. Or maybe I'm just early! Come on, Apple, make the labels give you the liner notes so that we can grab 'em when we buy 'em! I'm sure somebody way smarter than I can think of a clever way to do it.

Tommy Igoe

Q: WHAT CAN SAVE THE MUSIC INDUSTRY?

A: LET THE PRICE REFLECT THE QUALITY

As far as the selling of CDs is concerned, I think we have passed the point of no return. The mistake was to market the media, not the art. There was never any monetary value placed on

the music that was contained on the CD. I realize that music "quality" is very subjective, but the fact that a CD of Garth Brooks' music and a CD of "Junior Samples Sings Your Favorite Hymns in Latin" are the same price is outrageous. It is comparable to selling a Monet painting for a price based on the kind of canvas it was painted on.

We market everything but the music: the look, the sex appeal, how many units sold, pictures of the groups, etc. Music has very little to do with what the "industry" wants from the people in it. If we can see our way clear to get back to the music and not all the crap around it, then we might be able to get what we all are asking for.

Matt Cornwell, composer
Big U Music Sound Design Inc.

NO MONEY, NO MUSIC

I think the people who write in are going way too far into detail. If people knew how much money goes to band/artists for tour expenses, recording costs and promotional costs, then most people might not download as much music as they do. I'm all for a sneak peek at a new CD with a free MP3 that's put out by a band to help sell their new product, but full-album downloading is wrong because nobody wins. Consumers have an MP3, which isn't near the sonic quality of a CD, the artist doesn't make any money from this, and neither does anyone else for that matter. If people realize when one falls, the others will eventually. Also, if labels (no matter how large) can't supply funds for an artist to record a quality-sounding CD, then there's no product.

Matt

TUTTI FRUTTI

What can save the record industry? Try a nice big shot of musical talent. I work part time in an undergraduate college media lab, and I'm forced to listen to all of the latest hits from Britney Spears and Eminem. I see what's going on here. The industry has lost its focus. Music has taken a backseat to the bottom line. All of these bands are pure crap. It's plastic, a corporate product, pumped out by cynical "greed-heads" with major ego problems.

Eminem is Pat Boone in a hoodie. It's yet another sad attempt to profit from white-bread covers of black musical styles. The same goes for the Backstreet Boys. *N SYNC is the worst of bland teen-pop. It's all just recycled R&B rereads, just bleached a paler shade of

white. If it's not flat-out awful, it's just boring. I'd rather watch the fish in my aquarium!

Britney Spears simply cannot sing or express emotion through her music. If you don't believe me, listen to one of her records, and then listen to Etta James or Aretha Franklin. That's settled!

None of the current pop music has any staying power. Once fans turn 16, they're too embarrassed to admit that they ever liked these groups. I grew up listening to the scintillating genius of They Might Be Giants, Adrian Sherwood and Sonic Youth, and you're trying to feed me Aaron Carter and Triple Image? Spare me! My advice? Can all of the lawyers and corporate managers and hire some real A&R staff!

Kiff LaBar-Shelton

ONE-SIDED

I found the article by Paul Lehrman, "The One-Eared Monster" ["Insider Audio," July issue], to be quite "whiney" for lack of a better word. No doubt, Lehrman ran into an uninformed video-duplication "dubber." (I refrain from calling this person an engineer for fear of insulting others who deserve the title.) I know it must have been frustrating for him, but having said that, his portrayal of the video industry as "the murky world of video" is uninformed and unfairly attacks an entire industry for the mistakes of one company. Remember, too, that the owner of the video-duplication facility in Lehrman's article corrected the problems once they were brought to his attention. Kudos for that.

Mike Puckett, C.A.S.

INSIDE STORY

Oliver Masciarotte's tour of Hit Factory/Criteria ["Bitstream," July issue] was most definitely a welcome change of pace for me. I know the column varies in its scope a little, and he's not the normal studio review kind of guy, but I liked this one as an alternative to the usual studio review. It wasn't about business models or music industry war stories (both of which are fine, but maybe somewhat monotonous). Neither was it a laundry list of equipment, which the reader can come up with by looking at the pictures. It was about things we never see or hear about. These types of articles usually fall into predictable patterns, but this one exposed some behind-the-scenes stuff that rarely gets mentioned. Thanks.

Dane Tate
Solo Sound Inc.

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World Radio History

REMEMBERING SAM PHILLIPS

"He potentially changed every life on this planet simply by recording music. I certainly have other heroes in life, but I've never met a man like him," says producer/musician/artist Jim Dickinson of recording legend Sam Phillips, who passed away in July, due to respiratory complications.

Dickinson's reflection might be an exaggeration if he were talking about almost anyone else in the recording world, but truly, many of us wouldn't be doing what we do today had it not been for the revolution Phillips started in Memphis in the 1950s.

Samuel Cornelius Phillips was born on January 5, 1923, in Florence, Ala. In 1942, he began work in broadcasting. After stints in Alabama and Nashville, he settled in Memphis and started work at WREC, recording big bands at the Hotel Peabody for broadcast. There, Phillips began actively experimenting with mic placement that would highlight a band's strengths and the interaction of the performance in the room's ambient space. When it came time to build his own studio, Phillips had clear ideas about the importance of creating the correct acoustical space and the creative utilization of microphones. He also had

strong feelings about the type of music that he wanted to record.

Phillips built the Memphis Recording Service (which later became Sun Studios) in 1950; it was the town's first independent studio. There he recorded and produced groundbreaking, seminal sides from Howlin' Wolf, Jerry Lee Lewis, Rufus Thomas, Roy Orbison, Carl Perkins, Johnny Cash, B.B. King and, of course, his most famous discovery, Elvis Presley. Most of these were released on Phillips' Sun Records label, which he formed in 1952.

Among the legendary Phillips-produced recordings are Elvis Presley's "That's All Right," Johnny Cash's "I Walk the Line" and Carl Perkins' "Blue Suede Shoes." Phillips also produced what was arguably the first rock 'n' roll record in 1951: Jackie Brenston & His Delta Cats' propulsive "Rocket 88," which reached Number One on the R&B charts.

Phillips' Sun Records productions are among the most distinctive sounding in recorded music. These days, when so many tracks suffer from overproduction, it is instructive to remember Phillips' trust in the honesty of the raw, creative moment, as well as the fact that his recordings captured

that brilliance with no more than five microphones.

Another quality that set Phillips apart was his intrinsic belief in what he called "the undeniable importance to God of every individual soul." In an October 2000 "Mix Interview," Phillips explained, "I loved what I knew black and poor white people in the South could do with music if only they were heard, and I loved the close kinship between the two: between country music and blues music. There's not much difference there. It's such honest music."

Presley was probably the ultimate manifestation of Phillips' vision of merging black and white regional sounds. Though Phillips sold Presley's contract to RCA for almost \$40,000 in 1955, his success continued with hits by Perkins, Charlie Rich and others. In 1960, Phillips built the state-of-the-art Phillips Recording Services at 639 Madison Ave. in Memphis, and legendary recordings continued to take place, including Amazing Rhythm Aces' "Third Rate Romance," Jerry Jeff Walker's "Mr. Bojangles," Sam the Sham & The Pharoahs' "Woolly Bully," as well as more arcane cool sessions like The Yardbirds and Phillips' 1979 production of John Prine's album *Pink Cadillac*.

Besides spotting great raw artistic talent, Phillips hired and trained a handful of engineers who would go on to great success, as well.

"He was probably more instrumental in getting more people into the music business—especially people who went on to be highly successful—than anybody I know of, like Alan Reynolds, who produced all of Garth Brooks' records, Jack Clement, Billy Sherrill and Rick Hall," says Roland Janes, studio manager/engineer for Phillips Recording and original



Sun Recording session guitarist.

Clement, who recorded some of Jerry Lee Lewis' most famous records at Sun and later went on to produce many of Cash's great records, says, "Sam gave me my first job in the music production business. He encouraged me to go out there and be different: Get wild, get crazy. Do everything wrong. I started off with a guy who is an experimenter, so I became an experimenter."

In 1986, Phillips was inducted into the inaugural class of the Rock and Roll Hall of Fame, along with Sun artists Presley and Lewis. Subsequent honors include the Alabama Music Hall of Fame (1987), the Blues Hall of Fame (1998), the Country Music Hall of Fame (2001) and the TEC Awards Hall of Fame (2000). Sun Studio was declared a National Historic Landmark on July 31, 2003, the day after Phillips passed away.

Phillips' family members have requested that tributes be made in the form of donations to the University of Memphis School of Music's Sam Phillips Scholarship fund, which grants money to music business and music technology students; call

901/678-4372.

—Rick Clark

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Sam Phillips and Jerry Lee Lewis

MACKIE TO OUTSOURCE SELECT PRODUCT MANUFACTURING

Mackie Designs announced that the company will begin to outsource the assembly of a number of high-volume products currently produced in its Woodinville, Wash., headquarters. As a result, 200 employees were laid off.

"It is important to understand that cessation of Woodinville manufacturing is the next phase in a very important and deliberate transition, and not a scaling of workforce to

revenue, as industry rumors may suggest," Jamie Engen, Mackie president/CEO wrote on the company's Website, www.mackie.com.

Engen also wrote that Mackie will introduce a range of new products. Engineering, product development, industrial design and marketing teams, as well as sales, sales administration, support and service teams will remain in Woodinville.

In other Mackie news, the company and Emagic will merge their audio control surface technologies: Future Mackie-engineered control surfaces will include Emagic's Logic Control and Mackie Control, as well as Mackie's HUI protocol. The two companies have released an upgrade that allows Mackie Control and Logic Control users to take advantage of the combined functionality.



Jamie Engen, president/CEO at Mackie Designs

CAKEWALK, ROLAND TO CO-DEVELOP PRODUCTS

Roland and Cakewalk announced in mid-July that the two companies will co-develop desktop music products; Roland also made a minority investment in Cakewalk, meaning the manufacturers will remain independent companies.

Cakewalk will continue to develop current and future products independent of Roland. Cakewalk-



branded software products will remain the same. Users can expect to see co-branded Roland/Cakewalk products announced later this year and early 2004.

Cakewalk products will be exclusively distributed by Roland

and its subsidiary, Edirol, in select countries outside of North America; Roland has been the sole distributor of Cakewalk products in Japan since 1995. Cakewalk's U.S. and Canadian distribution will not be affected.

AVATAR HOSTS JOHN MAYER

Grammy™-winner John Mayer recently took residence in Avatar's (New York City) Studio A with engineer/producer Jack Joseph Puig, recording for an upcoming Columbia Records release. Ross Petersen assisted. Also booking time in A, engineer Elliot Scheiner and producer Rob Mounsey were tracking for new Universal/Verve artist Sissel. Brian Montgomery assisted. For more on John Mayer, see the "Tour Profile" on page 78.



Showcasing three levels of smiles: Jack Joseph Puig (smirk), studio manager Tino Passante (glee) and John Mayer (surprise).

TEC AWARDS TICKETS STILL AVAILABLE

A limited number of tickets are still available for the 19th Annual Technical Excellence & Creativity Awards, to be held Saturday, October 11, 2003, at the Marriott Marquis in New York City. Along with



Bruce Springsteen

the 27 awards for Creative and Technical Excellence, producer Eddie Kramer will be inducted into the Hall of Fame and Bruce Springsteen will be presented with the Les Paul Award. For more information or to order tickets, call Karen Dunn at 925/939-6149 or visit the Website at www.mixfoundation.org.

Several additional companies have signed on to support the TEC Awards, including AMS Neve, Acteva, Apogee Electronics, Electro-Voice, Pilchner Schoustal International, Tascam and Walter-Storyk Design



Group. For a complete list of sponsors, check www.mixfoundation.org/tec/03TEC_sponsors.html.



Eddie Kramer

ON THE MOVE

Who: Steve Zaretsky, Solid State Logic VP broadcast, U.S. and Canada

Main Responsibilities: overseeing broadcast sales and marketing activities within the U.S. and Canada

Previous Lives:

- Terminal Marketing, sales manager, 1997-2001
- Euphonix, Eastern regional manager, 1994-1997
- Otari, Eastern regional sales, 1993-1994
- New England Digital, Eastern/Western sales manager, 1985-1992

The one profession that I would like to try other than my own would be... Professional golfer, but I would have to lower my handicap by 20 or 30 strokes first!

The one piece of advice that I would give to professionals entering this business would be... Keep an open mind to opportunities that come your way. There are many creative and challenging career paths in our industry that go beyond the traditional studio environment.

The last great book I read was... *Seabiscuit* by Laura Hillenbrand.

The moment I knew I was in the right profession was when... working for several innovative companies with groundbreaking technology. Each step has been an opportunity to work with great people and develop new skills.

Currently in my CD changer: Anything by The Beatles or the Beach Boys for those hot summer beach days!

When I'm not at work, you can find me... on the beach in Rhode Island.



INDUSTRY NEWS

Software developer Voyager Sound (Weston, MA) has appointed **Delon Dotson** to CEO...**Tim O'Neil** is the new CFO for Mackie Designs (Woodinville, WA)...Also adding a



Chris Canning



Dennis Meyers

new CFO is **Behringer** (Singapore office), which appointed **Dennis Chia** in that position...Post-production company **Colorado FX** (Santa Monica, CA) named **Dennis Meyers** its general manager...Producer **Jason Menkes** joins **Sacred Noise's** (New York City) creative staff...The new touring market manager for **Community** (Chester, PA) is **Bill Koehler**...Managing the promotion of new **Orban/CRL** (Tempe, AZ) products is **Glenn K. Schulke**...**Julia Lennon** can be seen in **Two-thousandstrong's** (Venice, CA) new headquarters as the new head of sales/new business development...**Diane Cote** joins **Middle Atlantic Products** (Riverdale, NJ) as Western regional sales manager...Also in that role, **Zon Vern Pyles** is hired by **Moog Music** (Asheville, NC), and will be based out of Phoenix...**RavensWork** (Venice, CA) has promoted **Chris Canning** to mixer...Part of a revitalization and expansion of its professional operations, **JVC Professional** (Orlando, FL) added **Robert Harris**, VP of marketing, and **Paul Kasparian**, Eastern regional manager...Joining the ranks at **Adamson Systems Engineering** (Toronto, Canada) is **Shauna Kennedy**, marketing communications manager...**Keith Watson** is heading up the **Soundcraft Group's** (Hertfordshire, England) marketing initiatives...**Tascam's** (Montebello, CA) new appointments: **Rick McClendon**, national sales manager; **Pete Snell**, Gi-ga sales and marketing manager; **Jeff Laity**, technical communications specialist; **Diane Gershuny Fleming**, advertising and marketing manager; and **Ron Koliha**, marketing.

CHRIS ANDROMIDAS, 1953-2003

Well-known composer Chris Andromidas passed away on Friday, July 11, 2003, in New York.

Up until his death, Andromidas was working on an African CD with **Pheeroan akLaff**. According to his wife, "Before he died, he told us that he wanted the project to continue because he had put so much work into it and it was important to him." View this work at www.akamidas.com.

As a music composer or producer, Andromidas' credits include more than 350 films. He scored documentaries for The Audubon Society during the past 15 years, and several dozen films for the National Geographic Society. He also produced and arranged the

National Geographic theme with the Munich Symphony Orchestra.

Andromidas also worked on the score for "Submarines: Life on a Boomer" (*On the Inside* series) for the Discovery Channel.



RAY DOLBY RECEIVES EMMY ENGINEERING AWARD

In recognition of Ray Dolby's career achievements—including practical noise-reduction systems to improve sound quality in a variety of pro/consumer environments—the Academy of Television Arts and Sciences will present him with the Charles F. Jenkins Lifetime Achievement Award at the 2003 Primetime Emmy Engineering Awards on September 13, 2003.



The Academy's Engineering Awards are overseen by the Technology and Convergence Awards Committee's co-chairs **Cristy Trembly** and **Brian Seth Hurst**. The Emmy Award is given to an individual, company or an organization for developments in engineering that either improve on existing methods or materially affect the transmission, recording or reception of television.

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NOTES FROM THE NET



APPLE'S ITUNES NABS LEAGUE OF EXTRAORDINARY GENTLEMEN SOUNDTRACK

The soundtrack to 20th Century Fox's *The League of Extraordinary Gentlemen* will be available exclusively in the U.S. at Apple's iTunes Music Store as an online-only release (i.e., no physical CDs will be pressed, distributed or sold in the

U.S.). The score is by composer Trevor Jones (*The Last of the Mohicans*) featuring the London Symphony Orchestra. The album also contains two new tracks featuring Ladysmith Black Mambazo. The album is available for \$9.99.

BUYMUSIC.COM LAUNCHES

A new Internet music download site for PCs debuted in July. Although BuyMusic.com will offer a catalog of more than 300,000 tracks from the Big Five, users will not be able to transfer music purchased to multiple computers and portable devices. Its selling point is its a la carte price-per-download: \$0.70 per song or \$7.95 for a full album.

Users who have access to Win-

dows Media Player (WMP) Version 9.0 can begin downloading songs immediately. The site will also store purchase information and bill a customer's credit card as they go. Users will also be able to preview songs for 30 seconds.

"We are doing things differently at BuyMusic.com," added company founder/CEO Scott Blum. "The new buzz phrase is no longer MP3 players but 'digital music players,' or DMPs, and refer to any device that is compliant with BuyMusic.com's format and DRM technology. In addition to offering more songs and catering to the PC industry, BuyMusic.com will also offer video tutorials explaining how

to use the BuyMusic.com Website, download music to a DMP or burn a CD. We wanted to make sure this store is the easiest place to download music."



EVIL TWIN PRODUCES RADIOHEAD SPOTS

Los Angeles-based Evil Twin Productions (www.eviltwinproductions.com) recently finished up TV and radio spots for Radiohead's latest release, *Hail to the Thief*. "We used minimal voice-over, allowing Radiohead's first track, 'There There,' to be the main focus," commented Evil Twin co-founder Harri Mark. Co-founder Kristin Armfield added, "We wanted the music to take center stage. We pretty much only used [Sonic Foundry's] Vegas: from the music edit to voice-over

recording and mix. Though in our opinion, it's the creative talent—editors, voice-over talent, producers—behind the equipment, not the equipment itself, that makes the spot. Oh, and dogs. We find it helps to have dogs in the edit room: They're our muse, if you will."

Evil Twin has also worked on spots for Lisa Marie Presley, Green Day, 50-Cent, Michelle Branch, Steely Dan, Nirvana and many others.

The Evil Twins production staff. Top row (L-R): Tom Snyder and Tyson Fitzgerald. Middle row (L-R): robot dog Monifa, Aida Rodriguez, with Bo Boos dog; Kristin Armfield, with Rug; and Harri Mark, with Max. Front row (L-R): Doug Major, with Lucy; Joe Buck; Chelsea Behrens; Tony Torres, with Tyrone.



ZIMMER WALKS THE PLANK WITH PIRATES

Academy Award™-winning composer Hans Zimmer recently mastered the *Pirates of the Caribbean* soundtrack at Santa Monica, Calif., Cups 'N Strings.

"It's a very delicate process," explained Bruce Maddocks, studio owner and chief engineer. "Hans selects the individual music cues from the film, which are sequenced with crossfades to build a very long, very lush musical presentation. You have one very large piece of music and the challenge is to create an album in the mastering stage with all of the individual elements blend-



Bruce Maddocks (left) and Hans Zimmer

ing seamlessly. The trick is to find a balance so that everything fits together to make a smooth-sounding package."

CORRECTIONS

In the "Fleetwood Mac Is Back" sidebar, "Digging Deeper," Mark Needham used an SPL Kultube and not a Charisma Tube processor.

The photographer for Allaire Studios ("Class of 2003," June Issue) was incorrectly identified. It should have read Randall Wallace.

Mix regrets the errors.

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~ Steve Parr
~ Sharon Rose

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~ Bob Ezrin

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World Radio History

The Road to Angel Mountain

By Tom Kenny

It is always inspiring, no matter the industry or field of creative endeavor, to find a story of someone who is living his or her dream. Some of those stories are rags to riches, some are blind luck. Some are the result of years of toiling. Others happen completely by accident. For Gary Sloyer, living the dream is simply a way of life, a life devoted to music. And as he sits in his office/composing room in the stunning new studio complex called Angel Mountain Productions, his story is a lesson for the thousands each year who aspire to a career in music and recording.

Located in Bethlehem, Penn., in the heart of the Lehigh Valley, Angel Mountain may have been four years in actual planning and construction, but it was 20 years in the making, its genesis in the tiny bedroom jingle/demo studio Sloyer put together as a music and communications major at Taylor University in Indiana. In 1982, he returned home to Bethlehem with a TEAC 80-8, Model 30 mixer, JBL 4301 monitors, Crown D75 power amp, Korg Lambda keyboard and a Yamaha CP30 piano in tow. He set up shop upstairs from his father's dentist office, intending to "shoot for rock 'n' roll and big-time jingles."

He had a small, marginally successful business, but the majors weren't exactly beating a path to Bethlehem. So he supplemented his income by giving piano lessons and directing adult and youth choirs at a local church, a job he thought would be temporary, but ended up lasting 10 years. Meanwhile, he upgraded the studio to a Tascam MS16 recorder, added some outboard gear and a few more keyboards, and then moved the facility to his new home.

In 1992, Sloyer left the choral director job to concentrate full time on the studio and writing. A year later, he met George Hajioannou, a man who, in a roundabout way, would have a profound influence on the development of Sloyer's career. "George was selling Pro Tools, essentially out of the back of his station wagon, for a music dealer in Ohio," Sloyer recalls. "He called me one day and said he had a client in the Philadelphia area who was having all sorts of MIDI problems. Could I help out? I did, and over a few years, I migrated from doing just MIDI to helping this guy and a few others with Pro Tools situations. I became George's customer service department!"

When Hajioannou left for a job with



PHOTO: DAVE BING

Studio A as seen from control room A, looking out into the tracking room for studio B, which can effectively increase the size of a scoring session or double as a Foley room.

Digidesign, he turned his Pro Tools dealership over to Sloyer but stayed in touch. One of Sloyer's early Pro Tools clients was a nearby studio/theater organization known as Sight & Sound, a massively successful production company that puts on original shows based on biblical themes and plays to 3,000-seat capacity five days a week. Sloyer became friendly with the owners and engineers, and opportunities soon arose to do some original compositions—first rewrites, later full-blown productions.

It would be simplistic to say at this point that Sight & Sound, a true anchor client, bankrolled the facility that sits on this month's *Mix* cover. But that wouldn't be true. Yes, they were steady, and yes, they paid well, but more than anything, Sloyer learned that while he was devoted to Sight & Sound, he was all tied up and had to turn away business. His facility, he decided, needed to grow. And to differentiate himself from competing home studios, he wanted a proper acoustic space.

Soon after deciding to expand, Sloyer met studio designer/acoustician Martin Pilchner at an AES convention. Pilchner, of Toronto firm Pilchner Schoustal, built him a control room, a small studio and an iso booth in a converted garage. The dealership was going well, the production arm was going well, but within a

couple of years, Sloyer was already dreaming of a bigger space.

PRE-PRODUCTION AND WORKFLOW

When you walk into a finished facility as functionally efficient, aesthetically stunning and acoustically accurate as Angel Mountain, it's easy to forget the amount of creative and physical labor that goes into creating an 18,000-square-foot technical complex. The newest incarnation of Angel Mountain began in 1999 with a phone call to Pilchner.

"Gary sent us a wish list of all the different sizes and types of spaces he wanted in a facility," Pilchner recalls. "We started doing an area analysis and attaching costs and came up with a big number for that size of facility. I sent it back to him, and he was like, 'Whoa!' It was much more than he anticipated. But his frame of reference was the smaller studio in his house, and here you had much more infrastructure and other pieces that are required."

Pilchner sent back a scaled-down proposal to fit the budget; Sloyer returned volley with a "what if we saved costs here?" Pilchner modified, Sloyer compromised and before long, they were back to nearly the original size. Pilchner says he looked for ways to "sys-

tematize functions to make them less costly." Sloyer jokes, "I watched every cost, right down to the plastic forks!"

While plans were being drawn in 2000, Sloyer began hiring staff, among them Mike Horvath, then international sales manager for Martin Guitar, as director of sales and marketing; and Kim Fallon, who had no studio experience but Sloyer knew was a perfect fit as studio manager. "I hire the person, not the job," Sloyer comments. (That philosophy has served him well. On this writer's visit, despite being wowed by the facility, the lasting impression was of how friendly, capable and enthusiastic the entire staff was. These people like their jobs.) A few years prior, he had hooked back up with Hajioannou, who was now running the pro audio dealership.

The plans Pilchner came up with included Studios A, B and C; a large scoring stage with three iso booths; a smaller, adjacent 21x17-foot studio with Foley pits; two video edit suites; composition and sound design suites; a writing room for the owner that houses more technology than most full-blown studios; and a 30x40-foot THX-certified mix theater, which Sloyer refers to as the "you gotta be kidding me!" room. (He ends most tours there, and after being overwhelmed by the rest of the facility, visitors often utter that.) Because of the way Sloyer works, where up to 30% of the business comes from his "soup-to-nuts" compositions and arrangements, workflow issues were of primary importance.

"All of the spaces are connected through



The "You Gotta Be Kidding Me" THX-certified film mixing room, with Harrison Series 12 console.

a spine," Pilchner explains, "this major cable troughing system that runs through the building, branches off to each room and connects to the central machine room. All of the technical wiring happens at floor level; all of the actual power wiring runs from the ceiling down. And the spine, to a certain degree, reflects the circulation path."

On a first walk-through, the hallways and connections between rooms appear labyrinthine. On a second walk-through, it all makes perfect sense. Control rooms can share studio spaces; glass hallways, with four pieces of glass and six feet of airspace, surround Stu-

dio A, providing visual synergies and ingeniously dealing with transmission loss; writing rooms, right through the back wall, feed Control Room A. "Circulation was very carefully planned," Pilchner says. "You now can have these discrete areas everywhere in the building so that you feel on your own. At the same time, as you walk through, you feel a strong sense of connection between spaces."

STUDIO A

Because he is a relatively large pro audio dealer (the building includes a Pro Audio wing, with demo rooms), Sloyer knew that he could save costs on equipment. He outfitted each room with Quedsted monitoring, added some favorite pieces of outboard gear, and put in Studio Network Solutions' Fibre Channel drives to assist workflow. But he still had to meet budget, so he made compromises, opting for control surfaces rather than digital consoles in Studios B and C. The one place he would not compromise was Studio A, with its 72-channel SSL 9000 K Series console, five soffit-mounted Quedsted 412s (with two subs), Pro Tools|HD and iZ RADAR 48.

"If you're going to jump, you better not fall short," Sloyer laughs. "Let's face it, to roll a \$150,000 board into a room you've spent several hundred thousand dollars on, or a 60k set of speakers instead of an 80k set, to put up two layers of wall material instead of three, or six inches of insulation instead of 10—to do all that would be to land in no



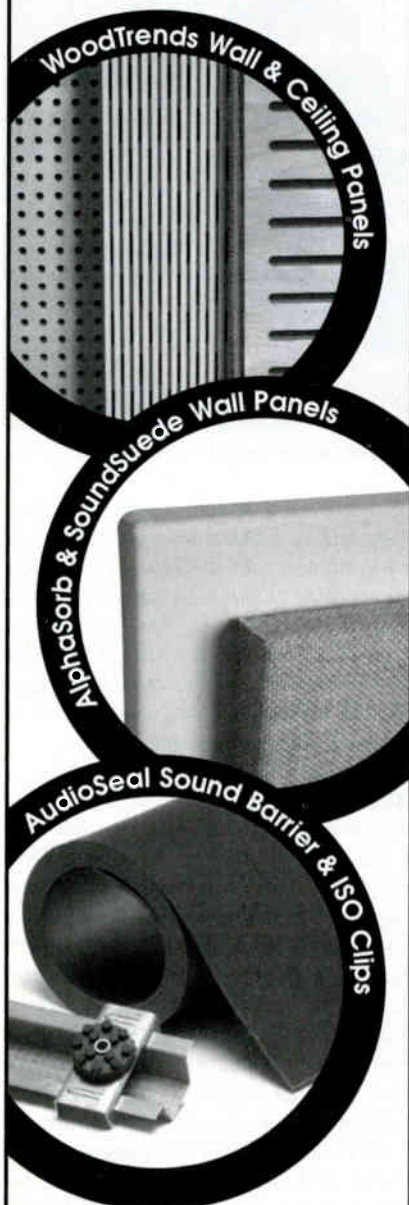
The Angel Mountain crew. Front row from left: Karen Sedler, Kim Fallon, Julie Miller. Second row: Craig Kutteroff, Eric Miller, Steve Skekel, Darin Hein. Third row: George Hajioannou, Carl Cadden-James, Philip Nowlan, Gary Sloyer, Mike Horvath and Sean Simpson

PHOTO: DAVE KING



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ON THE COVER

man's land. The big guys say, 'Well, that's a nice little room, but I can't work there,' and the little guys say, 'I could never afford to work there.' That was a scary proposition. I thought that if I have this one heavyweight room, we can get people's attention; we can bring people into the building and get them curious about the rest of the space."

Studio A is a beautiful-sounding room, with a relatively high ceiling, sloping back from the front at about 12 feet to a rear-wall height of about 18 feet. The hard shell of the front wall actually tilts at a slight angle; about midway back, the angle lessens, providing for the volume in the rear. A combination of Helmholtz resonators on the back wall and absorbers in the ceiling help control the low frequencies. But the attention to Studio A is perhaps most evident beneath the walls.

"It's framed out of 14-gauge metal studs on 1-foot centers and reinforced every four feet vertically," Pilchner explains. "So the raw framing was absolutely rigid, and we did that to get an absolutely stiff shell. Using conventional framing, the stiffness is based on the height. And if the wall is flexible, it becomes diaphragmatic and the room starts to become a low-frequency absorber. If you make the room super-rigid, the low frequencies you produce stay in the room. We took a structural criteria of L over 720, which is diagonal over length, with deflection at mid-span, and we actually went up from there. The framing is beautiful and it all gets covered up. No one ever gets to appreciate that. That type of framing ran through the entire audio portion of the facility.

"Another nice part of the design of Studio A is what we call our controlled-reflection geometry, where we can take the angles of the walls and control specular reflections," Pilchner continues. "For every speaker in every direction, the actual soffit faces as an extension of the front and back speakers are identical. So as you sit at the listening position, the radiating surfaces from the wall and speaker are identical in all directions."

BRING ON THE MUSIC

The shakedown session for Studio A, which can hold up to 50 pieces, was a local jazz band featuring jazz trombonist Bill Watrous, who was flown in from L.A. The shakedown for Control Room A was producer Jeff Glixman and the 5.1 remix of Marvin Gaye's *Let's Get It On*, due out this month. On playback from Pro Tools, the raw voice out the center with the lush strings all around—music magic. Glixman is already a repeat customer.

While music production forms the core, Angel Mountain was set up to be a full-



Control room B, with Control 24 worksurface

blown media production facility, reaching out nationally. "We essentially cover three core markets," says Horvath, director of sales and marketing. "Corporate media production, audio post for film and television, and music recording. One minute I'm on the phone with Sony A&R, the next minute I'm working with the Philadelphia Film Commission, and the next minute, I'm working with a local corporation who's looking to do their DVD and CD-ROM presentation. That's a typical hour out of my day!"

Still, everyone involved is fully cognizant that Bethlehem is not on every producer's destination short list, but they plan on changing that. "I think the industry today is much more transitory," Horvath says. "People will pick up and go almost anywhere for recording if they have a good experience. And we're very much about the experience here. That said, we're only an hour from the Lincoln Tunnel up Interstate 78; we're an hour from Philadelphia. L.A. just added a direct flight to Allentown. We're looking at the advertising market in Chicago and the Christian and gospel market in Nashville. From the day plans were being drawn, we thought of this place as reaching out nationally. If we can get people in and show them the space, the experience will keep them coming back."

With the dealership, the in-house projects and the three-prong multimedia productions, success is almost guaranteed. But financial success is only one measure of a life lived in music. "Quite honestly, I do this because I can't quit it. It is me," Sloyer says. "I can't conceive of ever saying, 'I've had enough.' There's no such thing as too low a point, because I've probably been there a dozen times in my career. I'm just too dumb to quit. There is no way to fail because you don't acknowledge success or failure. You're a success just by virtue of the fact that you're doing what you love and you can't quit it."

MIX
ONLINE
EXTRAS

Tom Kenny is the editor of Mix.

I like the ISA 428 very much indeed. It looks good, sounds fantastic, is completely bombproof and is a joy to use. In terms of technical performance, the card at least equals - and in most cases outperforms - other comparable converters.

- Hugh RobJohns, *Sound on Sound*, May 2003

respect the past

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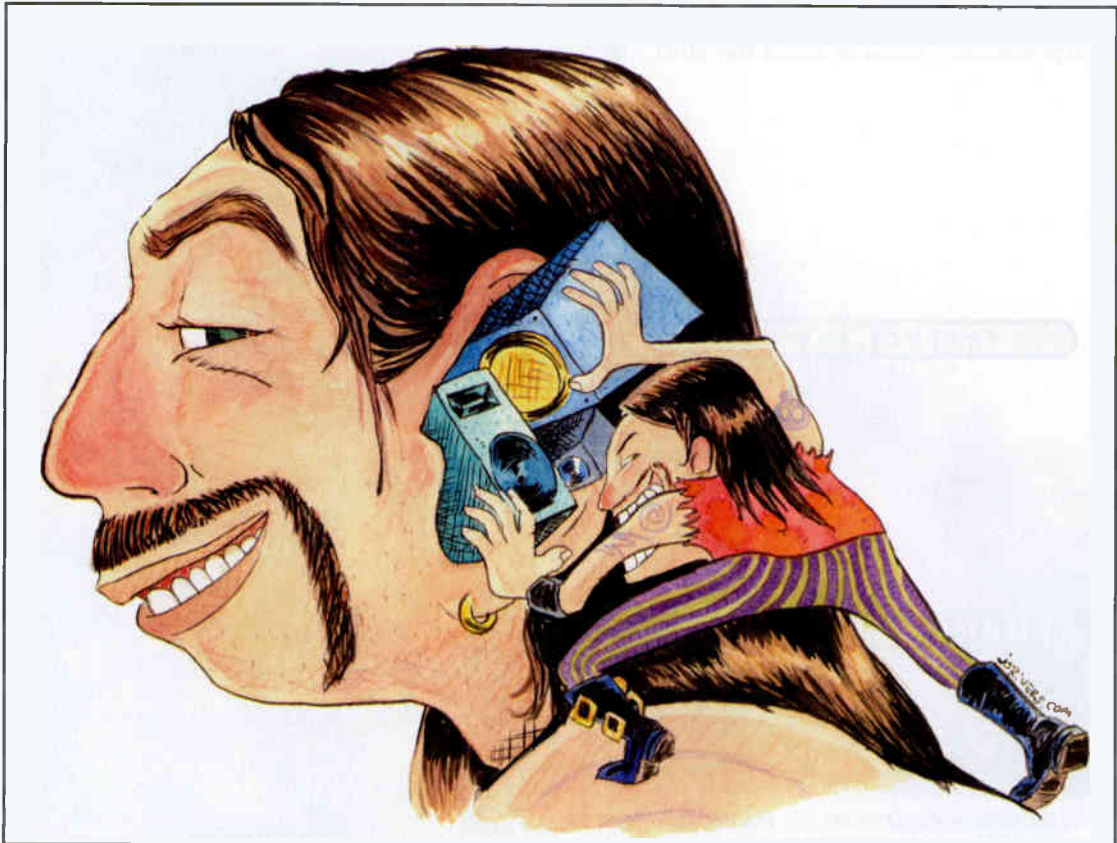
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In Your Ear

With Expensive Gear



ILLUSTRATION, JO RIVERS

Well, this one turned out to be much more of a challenge than I ever expected. *Much* more.

One day, years ago, I thought it might be interesting, and possibly useful, to have a set of custom in-ear monitors made and report my experiences to you. As you would guess, I would never report on the same things that others might. I would, of course, be interested in how the in-ears sound and feel, but I would also want to know how much they weigh, how sensitive they are to different signal sources, how much ambient sound they block, and, of course, if they would work on a straight-pipe Harley at 80 mph. And there is always that burning terminal-velocity question, as well. It's one thing to get a set of in-ear monitors to stay in at 90 to 120 mph—roughly the speed of a flared belly-down freefall—but, I assure you, it's quite another story at 200, an achievable head-first powerdive at top speed.

So, I went to Future Sonics at NAMM and had ear impressions made. That was fun. They had a nice lit-

tle video camera that they shoved in my ears and showed every metalhead, barely dressed “model,” business associate and “musician” who walked by exactly what was going on in there. Luckily, I am blessed with very attractive eardrums. (I know this because a Victoria's Secret, uh, employee told me that once. Don't ask.) Yes, they looked great up there, live on that TV monitor...Nah. Actually, they looked disgusting. Just like the Surgery Channel. The best part was watching the disgusted looks on the faces of passers-by who glanced at the monitor.

Another good thing was, I have this dislike for earwax. I can sense the smallest amount, and I don't find the feeling enjoyable. So, I keep my ears nice and shiny inside. All those years of hard work with Q-Tips paid off that day.

You know how your mother always told you to wear clean underwear when you went out, in case something happened to you and they had to cut your clothes off in some hospital? Well, *my* mother told *me* that. And she was right, but not exactly for that rea-

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son alone. Well, this is another one of those deals. I was very happy that I had developed this habit when my ear canals were exposed to all who cared to examine them.

But all good things must end, so I finally left their booth and bought my fifth E-Bow, promptly forgetting that I was even going to try in-ear monitors.

And then, two years later, I came across a *noncustom-fit* in-ear from DAP called Hearos. There were two models: a \$139 general-purpose and a \$299 tweezer for "golden ears." Well, golden or not, I knew my ears were at least *shiny*, so I called the place and got a set of each, along with some earplugs (no left or right, center channel only).

But after playing with these for months, I was left confused and curious, and not in a good way. It was clear that the time had come to hear the offerings from the established players. I needed some reference point—a reality check.

I had just been to Vegas to see *O*, and discovered that Ultimate Ears was there, so I called. (See how scientific the process of choosing who gets ink really is?) And,

of course, it didn't take long for me to realize that I should compare the two leaders, so I gave Future Sonics a call.

True rivals: each with its own technologies, each fighting for the longest and most impressive user lists, and each as

The problem is that most of you will not be lucky enough to try one of each of these custom molds, and I wanted to shed some real A/B light on them for that very reason.

nice and helpful as could be. Both of these companies really care about what they do, and that can be seen in everything from the way their products are made to their packaging. Of course, for

\$798 for the Future Sonics and \$850 for the Ultimate Ears, they had better do a good job. If you're gonna stick beans in your ears, I guess it should be a lot of them.

Future Sonics apparently had the foresight to make a stable mold from my impressions before they could fall apart, and they made my Ear Monitors® from those. But I went to my local strip mall and had new impressions made for my Ultimate Ears UE7 Pros™. Both companies told me how unstable the human ear canal is, and that I could not expect a good fit to last for more than a couple of years. Well, to make a long paragraph short, they both fit perfectly, even though the Future Sonics impression was taken long ago.

Future Sonics said that they use a hard material for the canal piece because it lasts longer, while Ultimate Ears told me that they incorporate a softer, more pliable material for more comfort and a better seal: different design attitudes. And what did I discover when I had them both in my hands at the same time? The materials seemed almost identical.

—CONTINUED ON PAGE 145



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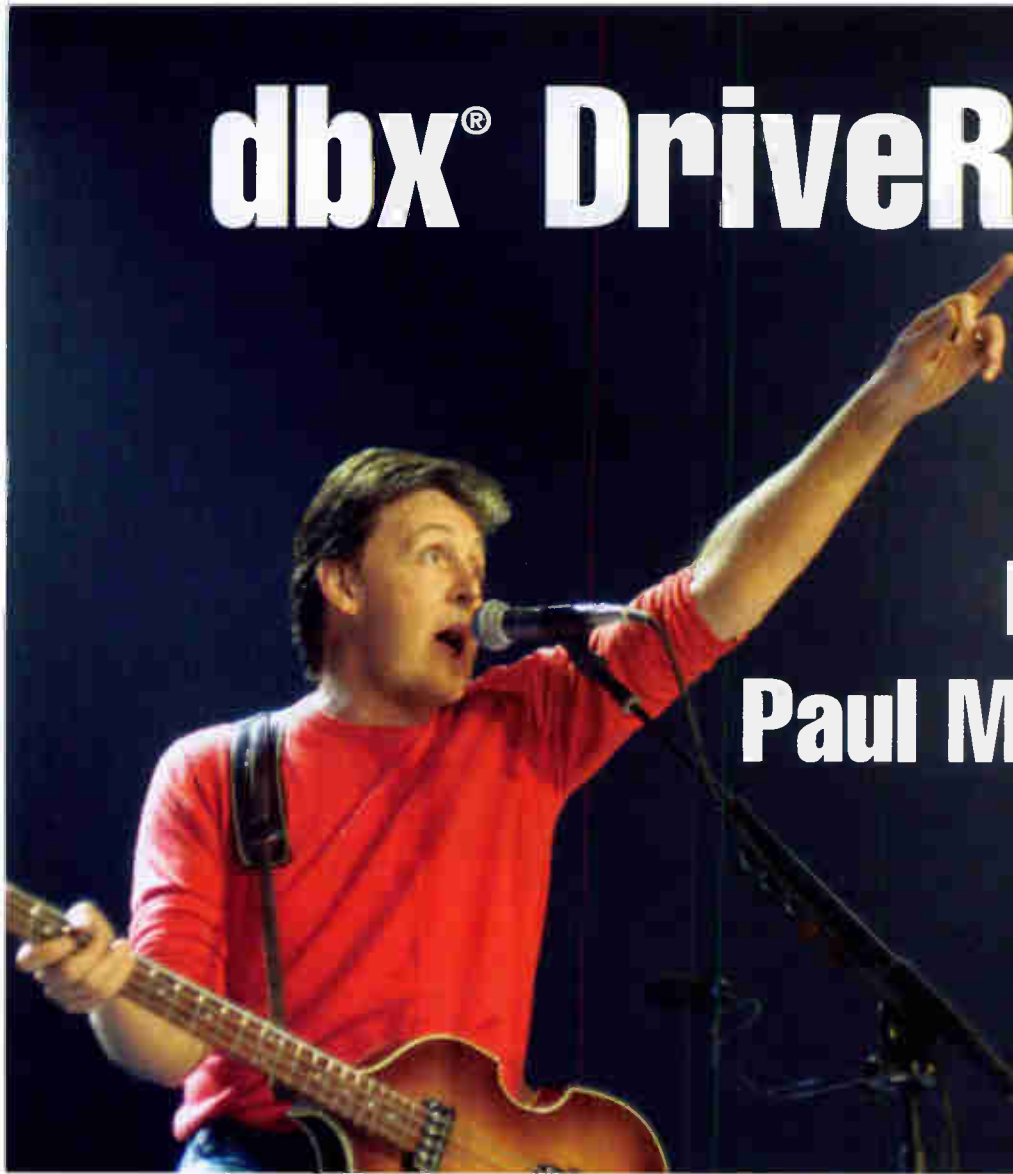
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Out of the Shadows of Motown

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No, it's not *Harry Potter and the Invisible Weapons of Mass Destruction* or *The Matrix Regurgitated*. For us in the music biz, this year's superhot multimedia property is *Standing in the Shadows of Motown*, a 16-year-long project that just keeps getting better and better. The latest incarnation is so good, in fact, that it actually inspired me to go out and buy a DVD player.

It all began in the late '80s when Philadelphia-based musician/writer/arranger/guitarist/fanatic Allan Slutsky, who publishes under the name Dr. Licks, decided to write a book about James Jamerson, probably the most influential bassist in rock 'n' roll history. Jamerson was one of the legendary jazz-trained Motown session players who called themselves The Funk Brothers, and whose work supported hundreds of hit records; as the opening titles of the movie (based on the book) tell us, the Brothers have "more Number One records than The Beatles, the Beach Boys, the Rolling Stones and Elvis Presley combined."

Jamerson never garnered much attention for himself, but as anyone (especially a bass player) who has

From left: Funk Brothers Joe Messina, Johnny Griffith, Joe Hunter, Bob Babbitt and Richard "Pistol" Allen performing at Baker's Keyboard Lounge.



James Jamerson and drummer Uriel Jones circa 1964 at the Detroit club Blues Unlimited

PHOTO COURTESY THE FUNK BROTHERS/PROPERTY OF ARTISAN ENTERTAINMENT

ever listened closely to his tracks knows, he was nothing less than a genius. He drove the Motown rhythm section with lines that were melodic, inventive and constantly in motion, defining the beats and harmonic structures by filling the spaces between them rather than simply coming down straight on them. Slutsky's biographical/instructional book, *Standing in the Shadows of Motown—The Life and Music of Legendary Bassist James Jamerson*, which came out in 1989 (and was covered in *Mix* in October 1990), supports Jamerson's reputation with the strongest possible evidence. Besides detailing Jamerson's life, which ended tragically at the young age of 47 after years of alcohol abuse, Slutsky's book also faithfully transcribes some four dozen of Jamerson's most amazing bass parts, from "Ain't No Mountain High Enough" to "You Can't Hurry Love."

And there's more: Recordings of the transcriptions, along with some great interviews of Jamerson's friends and fans, are featured on two CDs that are stuck into the back of the book. (In the first printings, these were cassettes.) The 24 players on the recordings include luminaries like John Entwistle, Will Lee, Jack Bruce, John Patitucci and Jamerson's son, James Jr., who also talk about their love of and respect for the Motown bassist's work. The recordings are in the old "music-minus-one" style: The bass part is on one channel and the rest of the instrumental tracks are on the other. Slutsky's book is still available, and for about the cost of a six-pack of rewritable DVDs, you can't ask for a



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But Slutsky, who knew he was onto a good thing, wasn't finished there. Paul McCartney's opening greeting on the CD remarks, "I hope this project goes on to greater heights." He didn't know how right he would be. After the book came out (and won a few awards), the author, having made friends with many of the musicians who worked with Jamerson, began to think about a more comprehensive project—aimed at a wider audience—that would involve all of the Funk Brothers. He linked up with documentary producer and director Paul Justman and producer Sandy Passman, and got financing from a couple of musician/fans of Motown. The team organized a series of live shows at the Royal Oak Music Theater in Detroit, featuring seven of the surviving original Brothers and a supporting cast of a couple of dozen other first-class players and singers. The musicians, who hadn't played together in years, rehearsed for a week, using Slutsky's transcriptions to support their own memories, some of



Stevie Wonder (center) with producer Clarence Paul (behind). Musicians (from left): Joe Hunter on piano, Larry Veeder on guitar, Benny Benjamin on drums, James Jamerson on bass and Mike Terry on sax.

which were hazy. ("Did I really play that?" Slutsky heard more than once.) The concerts were shot with multiple 35mm cameras and recorded and mixed by the redoubtable Kooster McAllister.

Surrounding the concert footage, we get to see the Brothers rehearsing, reminiscing and articulately explaining the elements of their musical success. Because many of the original singers are retired or dead, the lead vocals at the concert were

handled by some newer talents—Ben Harper, Meshell Ndegeocello and Chaka Kahn among them—but the point is well made that the vocalists in Motown were often not the most important factor in the label's musical success: It was the band. "You could take a chicken, bring him into the studio and have him squawk on two and four, and you would have a hit record," one of the Brothers declares in the DVD's supplementary material, and you realize that he's probably right.

There were, for example, three guitarists on many of the sessions, and when a new arrangement came in, they would divvy up their parts, virtually in seconds: one playing a riff down low, another the backbeat high up the neck, and the third a syncopated pattern in the middle. They created textures that were, well, funky and unique to Motown, which acolytes—even those as brilliant as The Beatles and the Stones—could only hope to approximate, never duplicate.

The performances from a mad-hatted

—CONTINUED ON PAGE 147

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What if you're in the middle of the mix and your client says, "Can you make it sound a little more...*exotic*?" If you're at a loss for inspiration, effects plug-ins—able to morph your sounds with a single

mouse-click—can come to the rescue. And while there's nothing amiss with standard delay, pitch shift, distortion or dynamics plug-ins, of course, sometimes you're looking for something more out of the ordinary. If verbs such as morph, carve, decimate, diffuse, granulize, transform, resynthesize, freeze, shuffle, trash, warp, scratch and freak pique your curiosity, then read on.



Cuan Technology Wider 1.2

by Randy Alberts

That Audio!

Certainly one of the more exotic plug-ins around is *kantos* (\$299) from **Antares** (www.antarestech.com). Available for RTAS, VST, DirectX and MAS Macintosh platforms, *kantos* provides a range of soft-synth functions and new ones specific to audio control. Dual wavetable oscillators, envelope generators, LFOs and chorus generators are standard enough in nature, but controls over timbral articulation are unique to *kantos*. This module takes harmonic content and formant information from an internal or external input signal and dynamically applies it to the synthesized signal.

Arboretum Systems (www.arboretum.com) always-evolving Hyperprism effects processing plug-in suite (\$299 for Hyperprism Gold) is now in Version 2.5. It has added OS X compatibility, plus some fairly twisted new effects in this X-Y parameter-controlled environment. New to Hyperprism Gold is *Dispersion*, a frequency-dependent delay that adds delay to specific bands, converts transients into useful "chirps," and interpolates the delay of each frequency band between user-controlled high and low values. *Inharmoniques* is a perpetually rising and falling flanger/phaser combined with multiband limiting that acts as a comb filter to provide more variety and control over modulation motion than a traditional flanger/phaser. *Makka-Delay* is an advanced filtered feedback delay incorporating a chain of filters and waveshaping distortion.

BIAS (www.bias-inc.com) released V. 1.2 of its *Vbox* (\$99 stand-alone and VST plug-in; *Vbox SE* included with *Peak 4*) multi-effects control environment for VST plug-ins. Now supporting Windows and working as a stand-alone Mach-O application on OS X, *Vbox* integrates as a VST



Cycling '74 Pluggo 3

shell plug-in for any VST host program. Users can create millions of sonic solutions in the *Vbox* plug-in matrix, as well as with a virtually unlimited number of VST plug-ins, dozens of which come bundled with the package. Effects are combined, routed and mixed in parallel, series and series-parallel combinations, and are instantly hot-swappable on-the-fly when things get really exotic. Used as a stand-alone app, *Vbox*, which comes bundled with *BIAS Peak* and *Deck* as *Vbox SE*, can load and process .AIFF, Sound Designer II and .WAV audio files.

An X-Y parameter controller and 31 effects processors have been added to the loop-crazed Fruityloops environment in *FL Studio 4 Producer Edition* (\$209) from **Image-Line** and distributed by **Cakewalk** (www.cakewalk.com). Working stand-alone and as a DXi soft synth on Win-

dows, *FL Studio Producer* includes *Wave Traveler*, a .WAV file DJ scratcher, and a granular synth fittingly called *Fruity Granulizer*, which splits, stretches and morphs samples. *BeepMap* generates some wild stuff by creating sounds based on imported image files. Recently added to **Cakewalk's Project5** soft synth, sampler, effects and loop-editing platform was *Spectral Transformer* (\$429), a DX effects processor employing phase vocoding and "frequency mutation" to come up with all things warped. It was designed as a real-time instrument with six effects of its own, including transposer, accumulator, exaggerator, lo/hi filter and tracer, the latter thinning a sound until only a trace of its original audio signature remains.

From Ireland comes *Wider 1.2* (\$299) by **Cuan Technology Studios** (www.cuan.com). Just what does a "spatial audio

Scratch, Trash, Freeze That Audio!

sculpture" plug-in do for Mac and PC Pro Tools? Plenty. Wider carves up and re-assembles audio sources as time-, space- and frequency-dependent elements, allowing users to spread thin-sounding takes by utilizing band splitting, delay and panning controls to tune the directional radiation pattern of a given instrument. Position-dependent ambient reflection patterns can be made to vary with the pan of audio at Wider's input. Pro Tools |HD, TDM and RTAS versions are available.



Emagic Spectral Gate

Looking for lots of exotic, one-of-a-kind processors? There are 100 such tools and more in Pluggo 3 (\$199) from Cycling '74 (www.cycling74.com) from Macintosh VST, MAS and RTAS environments. Joining the original 74 Max4/MSP2-developed

plug-ins are Granular-to-Go, a granular synth processor for stuttered vocals or purely abstract timbres, and Noyzckippr. The latter actually multiplies an input signal using bandpass-filtered white noise to provide nonlinear effects, including fairly odd tremolos when the center frequencies of the filter are very low. Included with Pluggo 3 is the Plugmaker 2.0 application for those rolling their own Pluggos with the company's MSP application. And due from Cycling '74 this fall is MODE (\$295), an OS X plug-ins suite of three synths and a pair of effects called Wash and Spin, the latter being a rhythmic processor with state-variable filter, panning, gating, delay, distortion and bit-reduction controls that promise to produce sounds ranging from "subtle modifications to extreme abuse."

Another DIY sound builder is PizzaFX (\$50) from D-Mute/Azymute (www.d-mute.com; www.azymute.com). Creamware Pulsar, Scope and Luna2 users who want everything on their sonic pizzas can make their own by combining any Creamware- or third-party-created inserts effects and saving those combos as effects presets.

The legacy cross-synthesis TDM plug-in duo Bruno/Reso (\$395) from Digidesign (www.digidesign.com) turns any Pro Tools audio source into a range of uniquely textured new sounds. Supporting Mac OS 9 and X, and all Windows platforms with up to 96kHz sampling, Bruno/Reso incorporates 24 voices to layer and manipulate a wide spectrum of tones. An on-screen keyboard allows users to latch keys and produce multiple notes from each audio event.

DUY's DSPider (\$1,195; dist. by Digidesign, www.digidesign.com) is a modular Mac TDM/HTDM plug-in creation tool that comes with 40 modules that the user links together to create virtually any sort of processing device. More than 250 effects presets are included to get you rolling, including compressors, reverbs, EQs, and synthesized and special effects. Also available from DUY is ReDSPider, a read-only version of DSPider that allows

Something for (Almost) Nothing

There must be a law somewhere that says that the weirder a software app is, the less it should cost. In the audio world, there are plenty of bizarre shareware and freeware plug-ins out there to help you construct—or deconstruct—your mix. Of course, the quality of these effects ranges from professional to home-grown, so choose wisely! Here are a few free or low-cost goodies to get you started.

If you're into digital delay processors, check out the **More Feedback Machine** from Urs Heckmann, who wanted more control delay control than he "had available or could afford," so he built it himself, creating a VST application that offers four delay lines that can be fed back into themselves and each other via a 4x4 feedback matrix. More than 100 parameters are available; features include delay filters, limiter/compressor/saturators, LFO oscillators and a step sequencer. Delay times are up to 2,000 ms. Go to www.u-he.com/mfm/mfm01.html. A donation of \$20 is requested after 14 days of use.

Coagula 1.6 Lite freeware from Rasmus Ekman is an "image synth," meaning it can both create and manipulate images and uses image information, such as color and pixel position, to generate sound from those images. Use Coagula to generate complex synth sounds with drawing tools. Windows 95 or later is required. Download a copy at <http://hem.passagen.se/rasmuse/Coagula.htm>.

Sound 2D Warper, a freeware application from Victor Khashchanskiy, takes the image-to-sound process a step further: It loads .WAV files and converts them to images. Then, you can add image effects and resynthesize them as sounds. Free at www.webcenter.ru/~vsoft/SndWarp.htm. When you're on the site, check out Enrhythimizer, which acts like an amplitude or phase modulator by applying rhythm patterns over a source sound. It also provides a built-in noise and sine generator for test purposes.

The CREATE group at the University of California, Santa Barbara, offers **Pulsargenerator 2001**, a real-time interactive sound-synthesis program that employs pulsar synthesis (which generates and manipulates "trains" of sonic particles) and lets you use your computer as a controller. For Mac OS 9. Download a free copy at www.create.ucsb.edu/PulsarGenerator/.

Last but not least, AudioNerdz (www.audionerdz.com), a group of four students in the Netherlands, is the team behind **Delay Lama**, a VST instrument that offers vocal synthesis via a 3-D "singing monk" real-time, animated interface. The plug-in emulates the sound of an Eastern monk, with real-time, high-resolution control over the vowel sounds, complete with 3-D animation. A built-in X-Y controller (or your MIDI keyboard) allows simultaneous control over pitch and vowel sounds. For Mac and PC. Although Delay Lama is freeware, AudioNerdz encourages satisfied users to donate to the International Campaign for Tibet.

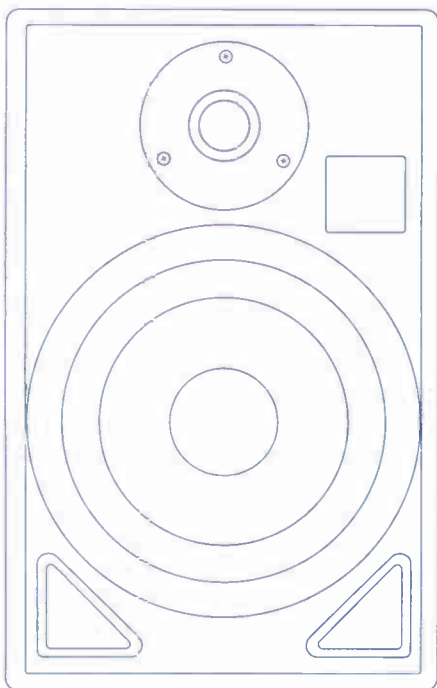


AudioNerdz Delay Lama

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access to all of the latter's preset effects.

Included with the latest version of Logic 5 is Spectral Gate, one of Emagic's (www.emagic.de) new 32-bit, floating-point proprietary audio processing plug-ins. Users define a frequency range, and then make different parts of the audio source signal separately audible above (called Super Energy) and below (Sub Energy) the threshold level. The company describes the isolated monitoring of Super Energy as vocoder-like.

Effects don't have to be new to be innovative. Maybe you've thought up some crazy scheme to tweak your mix with a classic phasing effect. Or how about a flanger? Eventide (www.eventide.com) has released plug-in versions of its '70s favorites—Instant Phaser and Instant Flanger—as part of its new Clockworks Legacy bundle, which also includes the Omnipressor and H910 and H949 Harmonizers. These virtual goodies take the studio classics to the next



iZotope Trash

level with features like automation and resolution of up to 192k.

From FXpansion/GForce Group and distributed by Digidesign (www.digidesign.com) is MindFX Volume 2 (\$499) for Mac and PC RTAS and HTDM users. Included with this six-pack of new plug-ins is Snippet Resynthesizer, a hybrid real-time granular/wavetable tool that creates wavetables on-the-fly from any audio input signal; Hyper Channel, a standard gate/compressor/EQ/reverb channel that assigns each of 12 internal states per processor to a MIDI key for smooth effect morphs; and Evolver, a multidirection, FIR-based convolution filter with real-time morphing and transformation capabilities that cut and boost selected frequencies "in ways both surgical and bizarre."

Developed by Ina-GRM (www.grmtools.org) and distributed worldwide by Electronic Music Foundation, the GRM Tools family of audio processing plug-ins is included with the GRM Tools Classic (\$549), which is now available for Mac OS X. Freeze allows users to freeze three-second segments of a signal and scrub them with a 2-D controller to reveal unheard-of sounds and create loops of varying sizes and pitches. Doppler creates that classic "police siren" effect, and Shuffling controls the durations and attacks of signal fragments—and their related pitch and density—to create distinctive resonance or reverberation to fill audio spaces with overlapping fragments of a sound.

If the unterminated wires of this plug-in's cool interface are any indication of what's under the hood, Trash (\$229; \$199 download) from iZotope (www.izotope.com) can strip any incoming signal of its protective sheath to reveal untold dirt, grit and distortion. This 64-bit DirectX effects processing plug-in goes beyond a typical guitar amp simulator with 35 cabinet models, 48 types of multiband distortion and dynamics, and 36 LFO- and enve-

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Propellerhead Scream 4, from Reason 2.5

lope-triggerable LFOs. Also from iZotope is Spectron (\$99), which employs a spectral-analysis engine to split incoming audio into thousands of independently affectable frequency bands before resynthesizing it all into something entirely different.

Midifier (\$49 download) from knz-audio (www.knzaudio.com) is a DirectX and VST Windows audio plug-in (Mac version in the works) that converts monophonic audio tracks to MIDI data in

real time. A polyphonic and percussion version is also expected. Need to generate synth harmonies from a vocal track long after the synth player is gone? Midifier can also be used to convert existing audio material into MIDI lines, as well, and a simple built-in synth allows auditioning of the results, even if the host program doesn't support incoming MIDI

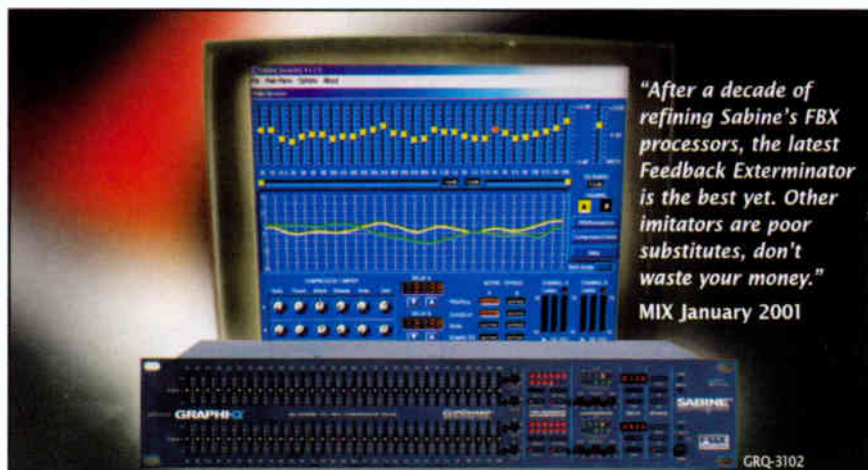
from audio plug-ins.

Native Instruments (www.native-instruments.com) announced a rewritten audio engine and enhanced performance features to NI-Spektral Delay 1.5 (\$299). If tweaking feedback delays for 160 bands per stereo side and interacting with drawable filter curves and an edit graph mouse window aren't enough to find your tone, then you might want to reconsider how you're making a living! Unusual processing options, such as rotation of the frequency bands or reverb simulations by smearing the amplitude course of each band, take NI-Spektral Delay far beyond your typical multitap tool.

Propellerhead's (www.propellerheads.se) Reason 2.5 (\$399) adds a number of new effects processors. Joining the rack is a high-quality reverb, a CV and gate signal splitter, an '80s-era Unison button synth emulation and the Scream 4 Sound Destruction Unit. The latter's 10 different "damage types" are great for overdriving, distorting, fuzzing, tubing, tape-saturating, feedbacking, modulating and warping the heck out of any audio or synth track you feed it. A unique dynamic effect can be created using the amplitude-responsive envelope follower to control the effect's scale parameter, and Scream's Damage Control knob pretty much says it all. For more, see the "Field Test" on page 112.

PiWarp (included with \$449 VST Bundle) from Prosoniq (www.prosoniq.net) is a unique VST/DirectX frequency-warping plug-in that creates generous amounts of special effects, atmospheres, dense ambient sounds "of alien worlds or space ship environments" and more. Users can employ PiWarp to generate interesting counter-melodies and effects when it is applied to dry vocals and drum sounds. Version 2.0 of PiWarp, recently announced, now offers Mac OS X support.

SFX Machine RT (\$99) from Sound Guy (www.sfxmachine.com) is a real-time version of the audio effects plug-in platform. Hundreds of conventional and not-so-conventional effects presets in SFX Machine make the creation of just about any sort of effect possible, many of which include a pitch tracker or envelope follower to allow the effect to respond to the input signal's characteristics. Notably exotic are presets such as VelvetChimes, a series of bandpass filters tuned to various chords; FreezeBoing,



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a granular synthesis; Theremin Envelope Follower, which uses the pitch of a solo instrument to control an oscillator's pitch; and PitchTrack, which translates a singer's or solo instrument's pitch up two octaves and then uses that to modulate the cut-off frequency of a bandpass filter and add white noise and vibrato for a totally convincing whistle effect that follows the source track.

Does a massive 3-gigabyte core sound library with 3,000 patches and more than



Swar Systems SwarPlug VSTi

38,000 samples provide enough sound tools for a convincing turntable and DJ emulation? You bet. The Spectrasonics Stylus Vinyl Groove Module (\$299; dist. in North America by Ilio Entertainments, www.ilio.com), available for VST Mac/PC, MAS and RTAS, is the first Groove Control instrument developed for Pro Tools RTAS, LE, TDM and HD. Groove elements, loops, samples and a powerfully intuitive user interface allow the creation of convincing DJ, turntable and scratch grooves.

If playing a nagara, bansuri, tanpura or other traditional Indian instrument is what you're looking for, then go no further than the SwarPlug VSTi suite of 21 instrument plug-ins (\$195, Windows/Mac) from Swar Systems (www.swarsystems.com) in India. Built on the acclaimed 24-voice polyphonic LinPlug CronoX 2 sampler engine, each SwarPlug instrument offers over 1,000 MIDI loops performed by renowned Indian musicians. Classical and folkloric repertoires are covered, and the Swar Systems Website includes a rich Indian music and lifestyle links page.

The recently upgraded Spark FXmachine (\$199) and Spark XL (\$599) from TC Electronic (formerly TC Works, www.tc-electronic.com) allow users to build custom modular synthesizers, mastering processing and massive multi-effects processors with the included effects and/or any VST effects or instrument plug-in. Spark FXmachine 2.8 for Mac OS X and Windows—free to existing registered owners—now offers Audio Unit OS X support, mouse wheel support for enhanced parameter control and 22 plug-ins, including

the new Sonic Destructor, which is a free download upon registration. Built-in effects also include a resonance filter with envelope follower, an analog distortion emulation, and Grainlizer, a modulated downsampling delay unit.

USB (Ultimate Sound Bank, www.usb-sounds.com) released the latest in the company's line of UVI Engine-based plug-ins: the Xtreme FX (Mac/Win). A virtual Foley and sound effects box, Xtreme FX provides instant access to a library with literally thousands of effects and sounds. The UVI interface makes twisting and shaping each sound to taste a breeze for any music, multimedia, game, broadcast or post application. Mach Five compatibility allows MOTU users to open library sounds directly in the company's new sampler, and all parameters can be saved and recalled within any Pro Tools 5 or higher session.

FilterFreak 1.0 (\$249) is the first in a new series of exotic and everyday audio plug-ins to come from the SoundToys division of Wave Mechanics (www.wavemechanics.com). Inspired in design by the classic Mutronics Mutator and Sherman FilterBank, FilterFreak takes analog-modeled filtering to heights its predecessors only dreamed of years ago. The core of FilterFreak is a way steep 48dB-per-octave analog-modeling filter with adjustable filter slope, resonance and



TC Electronic Sonic Destructor

filter-shaping tools. If the extensive routing features and the ability to create radical filtering effects with the unit's tempo-locked LFO, envelope follower, random LFO, ADSR and triggered random-stepper controls with FilterFreak aren't enough, users can also build custom LFO patterns and shapes to lock to any tempo or groove. ■

Randy Alberts is a frequent contributor to Mix.

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The emagic logo is located in the top right corner of the advertisement. It features the word "emagic" in a lowercase, sans-serif font, with a blue swoosh above the "i".

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A woman with blonde hair is walking towards the camera on a city sidewalk. She is wearing a long, white coat with a vibrant, multi-colored floral pattern. Underneath, she wears a light-colored, knee-length dress and high-heeled sandals. The background is a blurred city street with other pedestrians in business attire.

sex
the and.
City

Creating Clear Dialog, Natural Effects for HBO's Hit Series

TV can be a sensual experience, and very few shows appeal to the eyes—and ears—more than HBO's *Sex and the City*. Although the alluring leading ladies, sharp story lines and racy title get most of the credit for the show's multiple Emmy Awards and a huge following, superior production values are key to making *Sex and the City* such an attractive package. Supplementing the show's rich visual style is a crystalline, punchy and enveloping audio experience that's among the very best on television today, created since season one at New York's Soundtrack Film & Television by a tight-working sound editing team that is overseen by mixer Bob Chefalas.

KEEPING THE AUDIO REALISTIC

"We take a lot of pride in the fact that the same production and sound mixing crew have been on the show from the start," Chefalas says. "What we do that's different from a lot of TV shows is we treat each mix as if it's a reel of film. Everything's covered, in that we give it a full sound, whereas other TV shows don't get the time to do that. Plus, we don't have a laugh track: Everything is dialog, music and effects."

Supervising sound editor Chic Ciccolini agrees that the Soundtrack crew has something special going for *Sex*. "What makes our show great," he says, "besides the writing, is that we put everything we do into the screen. Nothing comes at you unrealistically, unless it's designed to do so, but, otherwise, everything is blended and mixed so well. We don't want you to think, 'Here's a car horn,' or 'Here's a busby.' We're not saying, 'Okay, audience, here it is!'"

While Chefalas is the mastermind behind the mix, as he's been since the show's first season, he has plenty of sonic support from veterans like supervising sound editors Ciccolini (sound effects), Louis Bertini (dialog) and Dan Lieberstein (music). Making things even better is their brand-new facility in New York City's fashionable Chelsea neighborhood. The studio boasts two mix stages and an ADR/Foley stage, which provides the team with the perfect environment to craft the show's sound.



The two-position Euphonix System 5 in the Jeff Cooper-designed mix stage.

VOICE-OVER CHALLENGES

Working with a Pro Tools front end and a Euphonix System 5 digital audio console in his spacious, Jeff Cooper-designed stage, Chefalas has the process of mixing *Sex* down to a science. His multiple TV and film credits include features such as *Apollo 13*, *Ransom*, *EDtv* and *Dude, Where's My Car?* under his belt, so Chefalas knows dialog and, naturally, it gets top priority. "Whether it's a TV show or feature film, the first thing I want to do is a dialog mix," says Chefalas. "*Sex and the City* has a lot of voice-over, and I mix it in the whole show in its entirety, going to each spot where there's a VO and mixing and EQ'ing it at the normal VO level from beginning to end. I found that if something came in later, I wasn't always consistent, so [now] I go right from beginning to end and record dialog at the same time. I also get VOs that were recorded in more than one location: You may have a VO split in half, a pickup line

and a new location from a different studio, different room, different mic and levels, so you've got to treat it so that it sounds the same."

Careful handling of the voice-overs of Sarah Jessica Parker, playing the part of sex columnist and narrator Carrie Bradshaw, is a crucial task that calls for restraint, good taste and precise handling of compression. "We don't treat [voice-overs] like on radio, where sometimes you might want to take a VO, put it over the top and make it really big," he says. "I try to make the VO a part of the show, not above it, almost like production dialog. It's just a processing thing: You don't want to over-process it or add a lot of bottom to it. You want to hear it loud and clear. Sarah has got a very sweet, nice, smooth voice, and you don't really want to do a lot to it. It mostly comes down to compressing and containing it, but you don't want to over-compress it. It has to pop through TV speakers, so you find the frequencies that are little delicacies, reach for it, and that's what brings the VO to life."

BY DAVID WEISS

sex and the City

Chefalus is willing to share his secret weapons for getting a clean sound: "The Waves L2 UltraMaximizer is a secret in this industry," he says. "In mastering, you can feed music through it, contain it and still make it sound loud. I use that on my dialog to give it extra punch, but it won't go past what they'll allow. The compressors on-air won't start compressing my dialog, so I can limit my dynamic range and not make it overly loud. I use a combination of that and the Neve 33609 as a soft compressor, which, with a 2:1 ratio, is smoothing out the dialog and not overly compressing it. Then the L2 will hit and contain any of the peaks."

MAINTAINING CLARITY IN PRODUCTION DIALOG

On the first day of a four-day mix, Chefalus turns his attention to the production dialog. Capturing that on New York's

bustling streets brings its own set of hurdles. Although the multiple location shots provide plenty of challenges with their varied camera angles and mic setups, that's not the toughest aspect of this phase. "You've got to smooth out the traffic," notes Chefalus. "The most work you will do is on exterior scenes in Manhattan, because you can't stop the traffic and you've got to get the dialog out."

"Then there's scenes shot on sets, but we don't want it to sound like a set, so you add a little room to it with reverb, primarily the TC Electronic 6000. It's also taking out noises, because in a supermarket or restaurant, you'll end up with AC noise and fluorescent light hums and you have to notch that out."

When Chefalus comes in and fires up the system the next day, it's time to attack the ADR and loop group, adding backgrounds of people talking and forks clink-



Mixer Bob Chefalus leans on the Euphonix System 5, surrounded by his crew (L-R, front): Travis Call, Ginger Geary, Antonia Ellis. Standing: Louis Bertini, Pam Demetrius, Katherine Miller, Danny Pagan, Dave Ellinwood, Chic Ciccolini, Dave Garcia. Not pictured: Dan Lieberstein and Missy Cohen

ing, all done with unusual attention to detail. "There are a lot of phone calls, for instance, and you've got to treat each phone differently," he says. "I've tried boxes that can make it sound like a phone, but I've found those make every phone sound the same. I'll bring it through the System 5, use a highpass/lowpass filter, find out if it's a cell phone, answering machine, etc..., and then compress and squeeze it down a lot. I have presets to start off with,

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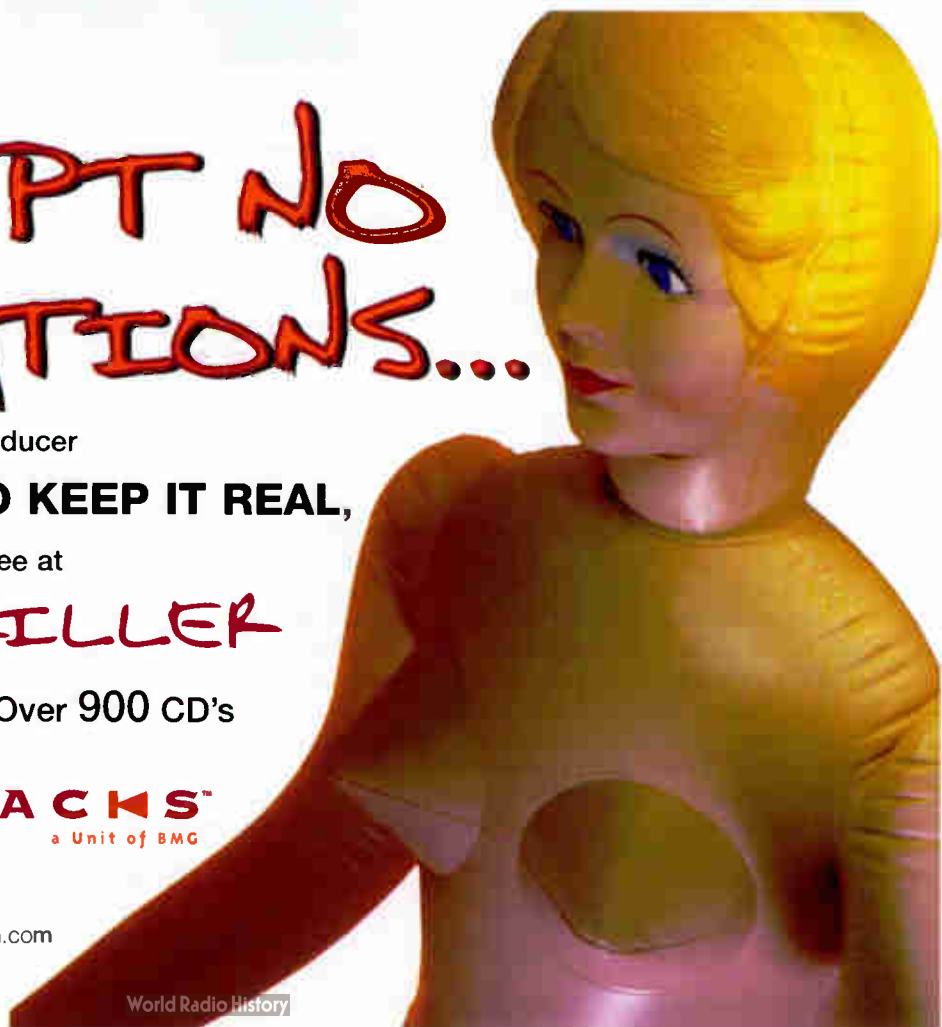
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World Radio History



but each phone is a little different, even though it takes a little longer than plugging in a box.

"It's the same thing when we go to restaurants. Every show has a diner scene, but we don't just copy and paste a diner background: Each one gets treated like new, with new ADR, new loop group, new backgrounds. For one diner scene, we may have six tracks of loop group: the dialog, dish clinks, silverware clinks, background traffic noise and Foleys for all of the movement going on. The diner's activity comes out of the emotion of the dialog. If it's a very upbeat, fast-paced dialog back and forth, you'll find a very lively background, but if it's a very serious piece of dialog, we'll treat it accordingly. You don't want all these happy people in the background for a sad scene."

ADDING EFFECTS, FINALIZING THE MIX

The next two days are spent finalizing the music, sound effects and dialog mix, with Foley coming in last. Then it's time to play back for the editors and producer Antonia Ellis, get their notes, tweak and do a final playback for executive producers Michael Patrick King, Cindy Chupack, John Melfi and Jenny Bicks. During the playbacks, Ciccolini and Bertini work at Pro Tools stations that flank the System 5 for up-to-the-second changes and easy collaboration. A 5.1 mix is generated with

minimal fuss from the stereo mix via Dolby surround algorithms.

With almost 100 inputs to fuse together in a typical show, Chefalas depends on a surprisingly tight gear list to do his job. Supplementing the previously mentioned compressors and effects, for noise reduction he uses Cedar DNS1000 and Dolby 430 Background Noise Suppressor. An SPL De-Esser, dbx compressors, Avalon Vt737sp and Eventide Harmonizer Orville are also at work. Monitoring comes through Auratone monitors and his new fave-rave, the HHB Circle 3. "I found that my EQ curve is matched closer to my film speakers, which are JBL theater speakers. They're a couple of notches better than the Auratones, but not overpowering to have on the console; small, but with a really big sound."

Now in his second season with the Euphonix System 5, Chefalas finds it gives him a lot of what he needs for both film and TV work. "I like the sound of the console, as well as the visual feedback," he says. "For example, when you go to EQ, you get a curve on the bridge that tells you where it is, so you can go down the board and see what the EQ is doing, and you don't have to read the knobs. It's the same for dynamics: As you start doing the threshold, you can see the knees and where it'll start to hit it."

Chefalas finds that he works at the same pace whether his console is digital or analog: "Reaching for an EQ and finding it takes the same amount of time on analog or digital. The beauty of the Euphonix is it will back up and automate any busing, EQs and dynamics and remember your moves, so when you go back to make changes, it's all there for you."

Although *Sex and the City* is now in its final season, Chefalas and crew don't have to wonder what they're going to do next. The mixing stage at Soundtrack F/T is already booked with feature-film work through January 2004, meaning that Chefalas will continue to have his hands full with faders and cue sheets. For a mix engineer with sharp ears, that's as sexy as it gets. ■

David Weiss, founder of www.dwords.com, writes and records as much as humanly possible in New York City.

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PHOTO: CHRIS BLANDHORN/RETNA

The Decca Tree

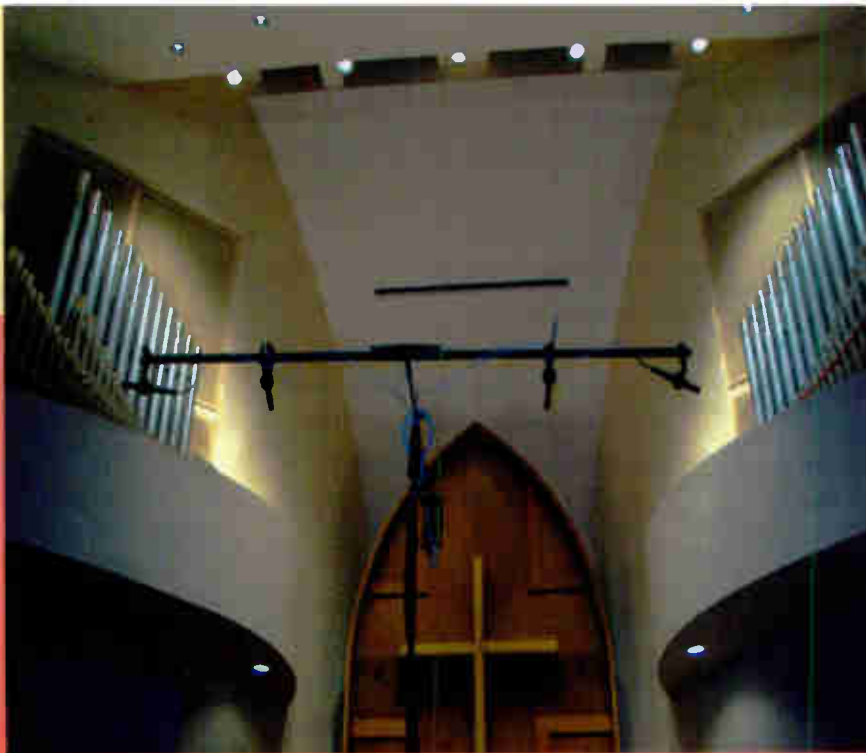
IT'S NOT JUST FOR STEREO ANYMORE

Ever since the 1930s, when early experiments in stereo transmission techniques were conducted on both sides of the Atlantic, two basic but radically different approaches to stereophonic recording—coincident microphones vs. spaced microphones—have coexisted. Each has its own camp of followers who champion its particular attributes and often denigrate those of the other.

One of these techniques employs *coincident* microphones to create a stereophonic pickup based entirely on the *intensity* differences generated between a pair of microphones as the soundwave passes by. Its claim to fame relies on the strong stability and clear articulation of the stereophonic image that it creates. Its primary drawback, however, is a somewhat constricted image width and what some people consider to be a tendency to sound "dry" or "sterile." The other approach uses two (or sometimes three) spaced microphones to capture and reproduce both the soundwave's *intensity* and *time-of-arrival* cues as it passes by the microphone array. A natural result of these time-of-arrival cues is a greater sense of "spaciousness" than can be achieved with solely intensity-derived techniques. The drawback, however, is a lack of articulation across the stereophonic image and what many listeners consider ambiguity in the center imaging.

Thus, these two camps have staunchly opposed one another: coincident microphones vs. spaced microphones and articulation vs. spaciousness. And in the age of multichannel, surround sound production, listeners demand both an articulate image and spatial envelopment from the soundtrack. The logical solution, therefore, is to employ techniques that combine the best attributes of both coincident and spaced microphones. Choose your compromises wisely.

BY RON STREICHER



A stock Audio Engineering Associates' Decca Tree bracket (fitted with two optional "slider" mounts for the two rear surround mics), as used for a 5.1 pipe organ recording. A SoundField mic in the front position provides front/center pickup; the two outside mics handle L/R. All mics are individually shock-mounted, and due to the size/weight of the array, a heavy-duty Floater shock-mount (from Munich's Ambient Systems) supports the entire rig.

STARTING WITH THE BASICS: BLUMLEIN AND STEREO

In the early 1930s—when early experiments in spaced-microphone (left-center-right) stereo were being conducted in the U.S. by the engineers at Bell Laboratories—British scientist Alan Blumlein, working for EMI on the other side of the Atlantic, was developing the concepts of coincident microphone techniques. His pioneering work was codified in a patent that was issued in 1933, in which he defined and described a technique to create a stable and articulate stereophonic image by using just two crossed bidirectional microphones, a configuration that has come to bear his name: the *Blumlein* technique.

Blumlein realized that by using the unique cosine pattern of bidirectional (figure-8) microphones, the principal pickup axis of one could be precisely co-aligned with the axis of minimal pickup (the null-plane) of another, resulting in a very stable, extremely accurate and well-articulated stereophonic image, one that relies entirely on the differences in the intensity cues as the sound reaches each of the two microphones. (See Fig. 1.)

In the same patent, Blumlein also described a mathematical transformation of these crossed bidirectionals, which he termed the Mid/Side Technique. This also employs a bidirectional microphone—the Side microphone, which is oriented laterally with the null-axis aimed directly at the sound source—to provide the essential directional contribution to the stereophonic imaging. The Mid microphone provides the overall pickup. Its principal pickup axis is aimed directly at the sound source; again, co-aligned with the null axis of the bidirectional microphone. Although not yet a conventional stereophonic pickup, when the signals of these two microphones are combined via a sum-and-difference matrix system, left and right stereophonic signals result: Mid + Side = Left; Mid - Side = Right. (See Fig. 2.)

It is important to note that although convention depicts the Mid microphone as cardioid, it may be *any* polar pattern, from omnidirectional to bidirectional. At the same time, the ratio of Mid-to-Side signals introduced into the matrix can vary. By virtue of these two variables (Mid-mic polar pattern and Mid-to-Side ratio), an infinite variety of "virtual stereo pairs" can be created using this technique.

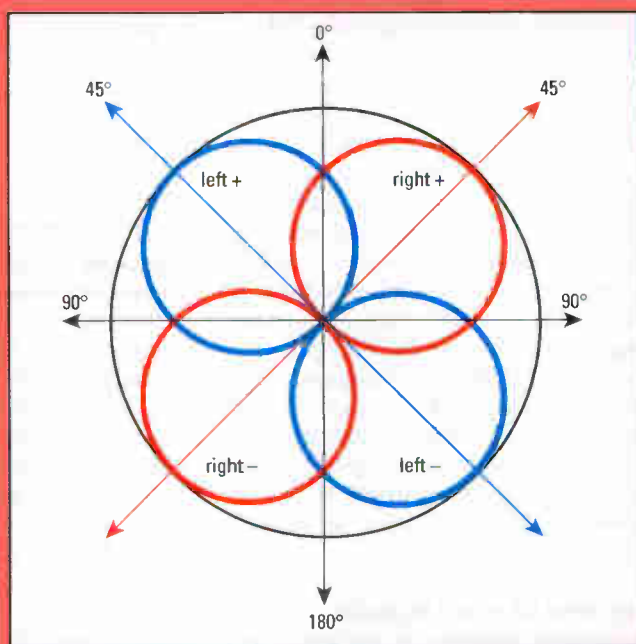


Figure 1: Pioneered in the 1930s, the Blumlein array uses two crossed bidirectional (figure-8) mics to create a wide, even, natural stereo effect.

THE DECCA TREE:

A HISTORICAL PERSPECTIVE

Since its inception, the Decca Tree has been widely used for large-scale recordings and is a favorite among film scoring mixers because of its ability to maintain excellent imaging and separation even through the various matrix-encoding systems used to distribute film soundtracks.

We can trace its origins to March of 1954, when engineers Roy Wallace and Arthur Haddy at the Decca Studios in London prepared for a recording session with the Mantovani Orchestra. Always experimenting in the then-new medium of stereo, Wallace assembled a T-shape steel array (shown in Fig. 3) and attached Neumann M49 microphones to each of the three ends. (The left and right microphones were "hard-assigned" to their respective channels, and the center mic was assigned equally to the two channels but at a somewhat lower level to avoid "center buildup.") He then suspended the entire array from a large studio boom, above and slightly behind the conductor's podium. Wallace recalls: "It was a crude attempt to re-create the artificial head that I spent about a year making." When Haddy first saw the array, he remarked: "It looks like a bloody Christmas Tree!" The name stuck.

In later revisions, Wallace and Haddy used Neumann KM56 microphones, sometimes experimenting with a "Blumlein shuffler" (custom EQ employed to augment the low-frequency content of the difference information in a stereo signal). Further refinements by Decca engineers Ken Wilkinson and Stan Goodall evolved the classic "Decca Tree" as we know it today: three Neumann M50 omnidirectional microphones arrayed as shown in Fig. 1.

Because the sound arrives at the center of the tree—forward microphone slightly earlier than the left/right pair—the Law of the First Wavefront guarantees that this central image will be strongly focused and clear. This results in a significant improvement over previous spaced-microphone configurations, which were criticized for presenting poor or diffused central imaging.

THE BEST OF BOTH WORLDS

A frequent criticism of the coincident Blumlein and Mid/Side pickups is that their stereo imaging tends to be con-

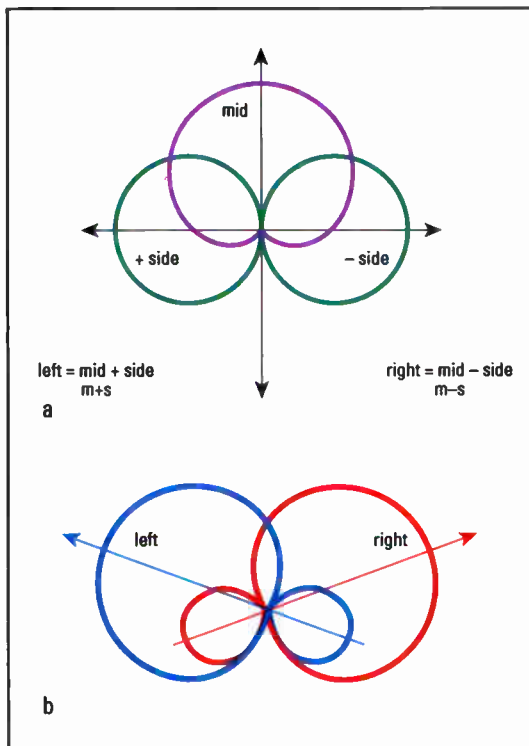


Figure 2: The Mid/Side (M/S) technique uses a front-facing (mid) cardioid mic combined with a lateral figure-8 mic to capture stereo signals. Later, the two channels are "decoded" by running the mid signal into a center-panned console channel and splitting the side mic into two signals (reversing the "phase" on one side) and routing these into L/R-panned inputs. Adjusting the levels of the three faders provides a huge range of stereo spreads, from mono to the wide stereo shown in the lower figure.

stricted and lacks the spaciousness provided by near-coincident or spaced arrays. Conversely, spaced-microphone techniques are criticized for not providing the same clear, articulate image that can be obtained with coincident configurations. An easy and obvious solution to this con-

same capsule design. Various spacings were tried, both front-to-back and side-to-side, which were determined by the size of the performing ensemble and of the performance space. I created configurations that ranged in size: from a "mini tree" that was one meter wide and a half-meter deep, to the "full-size" tree with the standard spacing of two meters by one meter.

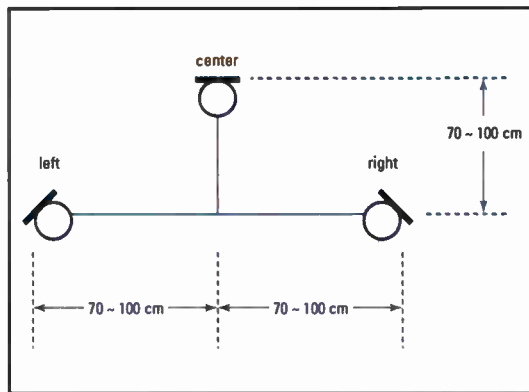


Figure 3: The "classic" Decca Tree arrangement used three identical Neumann M49 omnidirectional tube mics.

trovery is to combine the desirable attributes of both techniques.

Long an advocate of Mid/Side recording, I began experimenting in the late 1980s with a variation of the Decca Tree that used a M/S microphone pair—rather than a single omni—as the front-center pickup. (See Fig. 4.) My goal was to maintain the vitality and articulation from the M/S pickup, while "broadening" it slightly and providing the spaciousness that could be had only from the separated, flanking microphones. To preserve the sonic in-

THE EVOLUTION OF THE "SURROUND SOUND" DECCA TREE

Building on my experiments with the Decca Tree, I have developed an expanded surround sound configuration: a Mid/Side microphone—or, for a more complete surround experience, the SoundField Mk-V microphone—as the front/center pickup and two pairs of flanking microphones on the rear bar. One of these pairs is aimed forward (toward the sound source) and serves to "flank" the center-stereo pickup in the front left and right channels, as described above. The second pair is aimed at the rear and provides the essential signals for the surround channels. This microphone configuration can combine several discrete stereophonic pairs into a complex and widely variable complement of conventional frontal stereo and/or surround pickups. (See Fig. 5.)

An important attribute of this array is

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that all of the microphones are relatively closely spaced so that minimal phasing anomalies or cancellations result if/when these signals are mixed down to "smaller" formats, such as conventional stereo or even mono. Remember, with all spaced-microphone techniques, phase cancellations are unavoidable and some comb filtering will inevitably result. However, due to the relatively close proximity among the microphones on the Decca Tree, these effects will be less obvious than with more widely spaced arrays.

For a conventional stereophonic (2-channel) recording, the surround microphones in Fig. 5 can be mixed with the other mics' signals to add ambience and/or natural reverb. This will also be reasonably coherent because it is well within the "fusion zone" of the primary stereo signals. An ideal choice for these surround microphones is a pair of hypercardioids with a good off-axis response (such as the Schoeps MK41 or Neumann AK50 capsules). Because the rear lobes of these hypercardioids tend to "cross" the channels of the front stereophonic image (i.e., the left microphone picks up the right side and vice versa), a "purist" might prefer to use cardioids. To me, this cross-channel effect actually increases the sense of envelopment in the total sonic perspective, particularly if the null angle of each of these surround mics is aimed directly at its opposite; very much akin to the crossing of the nulls in a conventional Blumlein pair.

When a SoundField Mk-V microphone system is employed as the front/center pickup, additional options for surround sound recording are available, because this unique microphone inherently provides a surround sound pickup in its own right. With the SoundField SP451 Surround Sound Processor, the system produces a full 5.1 surround array with complete variability of the balance and sonic perspective. By combining the SoundField's coherent surround signals with the 2&3 and 4&5 spaced-microphone pairs in Fig. 5, it is possible to create an even broader spectrum of stereophonic and/or surround sound images, while at the same time, satisfying the de-

sire for both articulation and accuracy of the sonic image, as well as breadth and spacious envelopment of the listener: the best of both worlds.

ASSEMBLING AND USING THE SURROUND TREE ARRAY

It is possible, of course, to configure a surround sound Decca Tree array by placing (or suspending) each of the microphones

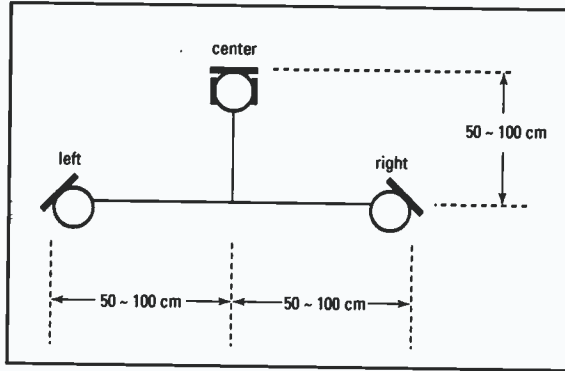


Figure 4: One of the author's early variations on the Decca Tree substituted an AKG C426 M/S stereo mic in the front position with AKG C414s as the outside flank mics. The arm spacings were dependent on the size of the performing ensemble.

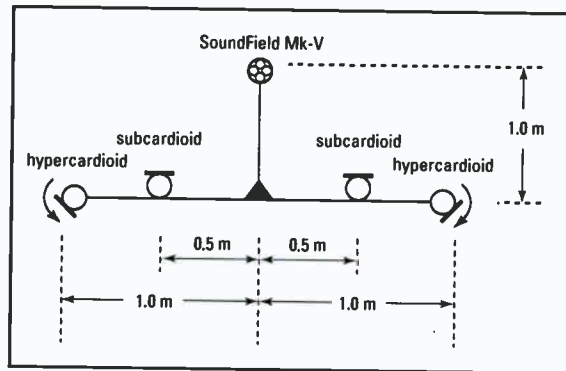


Figure 5: This surround Decca Tree variant puts a four-capsule, remotely controlled SoundField Mk-V mic out front, flanked with an outside hypercardioid pair and two rear-facing subcardioids, allowing the creation of any array, in stereo, LCRS, 5.1, 6.1 or 7.1 configurations.

individually in the appropriate relationships to each other. This can, however, be cumbersome and time-consuming, because it requires five stands or hanging rigs. A more convenient method is to mount all of the microphones onto a common Decca Tree fixture and then support the entire array from above or below as appropriate. Stand-mounting provides the most ease and flexibility of placement, but the array can be "flown," as well.

As shown in Fig. 5, a SoundField Mk-V serves as the front/center microphone pickup; two subcardioid microphones are the 2&3 pair; and a pair of hypercardioid microphones is the 4&5. Of course,

any microphones can be used. Experiment for yourself and have fun. After all, creativity is the essence of the recording experience.

5.1 AND BEYOND

The basic loudspeaker arrangement for 5.1 surround systems has been defined as a front pair, a center and a surround pair, plus subwoofer. Many advocates of surround sound systems, however, urge even more channels and loudspeakers. Many home-theater systems now offer a 7.1 configuration, adding two loudspeakers directly to the side of the listener. These additions enhance the sense of envelopment by providing increased early-lateral (reflection) signals. When the surround sound Decca Tree employs the SoundField Mk-V microphone as its front/center pickup, the array can provide sufficient discrete directional information to generate a 7.1 surround system, because either the SoundField or the rear-facing microphones (or a combination of both) can be used to derive the side or surround signals, or vice versa. If the surround sound Decca Tree is combined with a second pair of ambience (or additional surround) mics, then the surround depth and/or the number of channels can be expanded geometrically.

CONCLUSION

Combining the various elements of the surround sound Decca Tree is a matter of personal and/or professional taste. If a more articulated image is desired, then the coherent or coincident components should dominate the mix. To achieve a more "spacious" sound, the L/R2 and L/R3 pairs may be increased. Additional microphones can also be added to the mix to highlight individual sections or soloists and/or to augment the surround experience. Technology, like creativity, knows no bounds.

The author wishes to thank Roy Wallace, Michael Gray and Tony Faulkner for their kind correspondences that provided unique personal insights into the historical background of the Decca Tree development.



President-elect of the AES, Ron Streicher wears many hats: a noted classical engineer/producer, educator, lecturer and author of the landmark text *The New Stereo Soundbook*.

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Product Hits From Summer NAMM

From July 18-20, 2003, a record-setting crowd of more than 20,000 attendees packed the Nashville Convention Center and Arena for the NAMM Summer Session. For a "small guitar show," Summer NAMM '03 was anything but: The mood was up, buyers were buying and there were plenty of cool technologies to check out. Here are a few highlights.

Moog Music's (www.moogmusic.com) booth was packed with people checking out the Moog PianoBar. The system attaches in minutes (without modifications), turning any piano into a MIDI controller. Its \$1,199 price includes an 88-key scanner bar, pedal sensor, and control electronics with MIDI and audio outs for its 200 onboard sounds. Studios will love this one.

I didn't think it was possible, but Yamaha's (www.yamaha.com) Motif ES is an improved (!) version of its acclaimed synth/sampler/sequencer/workstation, with 128-note polyphony, more DSP and new filter algorithms.

Hammond Suzuki (www.hammond-suzuki.com) followed up last year's "New B3" digital tonewheel organ re-creation with the "New" Portable B3, an easily transportable version. A longtime maker of B3-emulation modules, Voce (www.voceinc.com) unveiled a full keyboard version, with dual waterfall manuals, four sets of drawbars, that classic sound and a "your-roadies-will-thank-you" 60-pound package.

FreeHand Systems (www.freehand-systems.com), maker of the MusicPad Pro, announced that it acquired Sunhawk Digi-

tal Music, the world's largest collection of digital sheet music. The combination offers a seamless experience of searching, purchasing and downloading sheet music online.

New mics were everywhere! Yamaha (www.yamahadrums.com) redefines the term large-diaphragm mic with its Subkick, which uses the microphonic properties of a 10-inch woofer mounted inside a 10-inch maple tom shell that sets up in front of any kick drum, outputting ultralow frequencies to a standard XLR jack. This signal can be used alone or combined with a traditional kick mic for more variety. M-Audio's (www.m-audio.com) Luna mic is a striking design, featuring a large lollipop-style top with a cardioid 1.1-inch condenser capsule. Peeking under the "stem," I was impressed to note its all-discrete, Class-A FET electronics. Luna's now shipping at \$249/retail. Audix's (www.audixusa.com) OM-11 is essentially a re-issue of its classic OM-1, which is not only a great dynamic vocal model, but one of my all-time fave snare mics. SE Electronics (www.seelectronics.com) unveiled its H3500 cardioid studio mic with a huge body that houses its large-diaphragm condenser capsule. Retail is



Yamaha's Subkick

\$599. SE also showed its \$249 half-rack Ghost TB101, a single-channel tube pre-amp/DI/compressor/3-band EQ. Trident Audio's (www.oram.co.uk) M-101 is a large-diaphragm, multipattern condenser that's UK-made and features custom John Oram-designed electronics. CAD (www.cadmics.com) adds two side-address condensers to its popular Equitek mic line. The e100² is a supercardioid model, and the e200² is a three-pattern (supercardioid/omni/figure-8) mic; both feature onboard re-chargeable batteries that provide a huge current reserve or allow up to six hours of remote use without phantom power.

AMPZI!

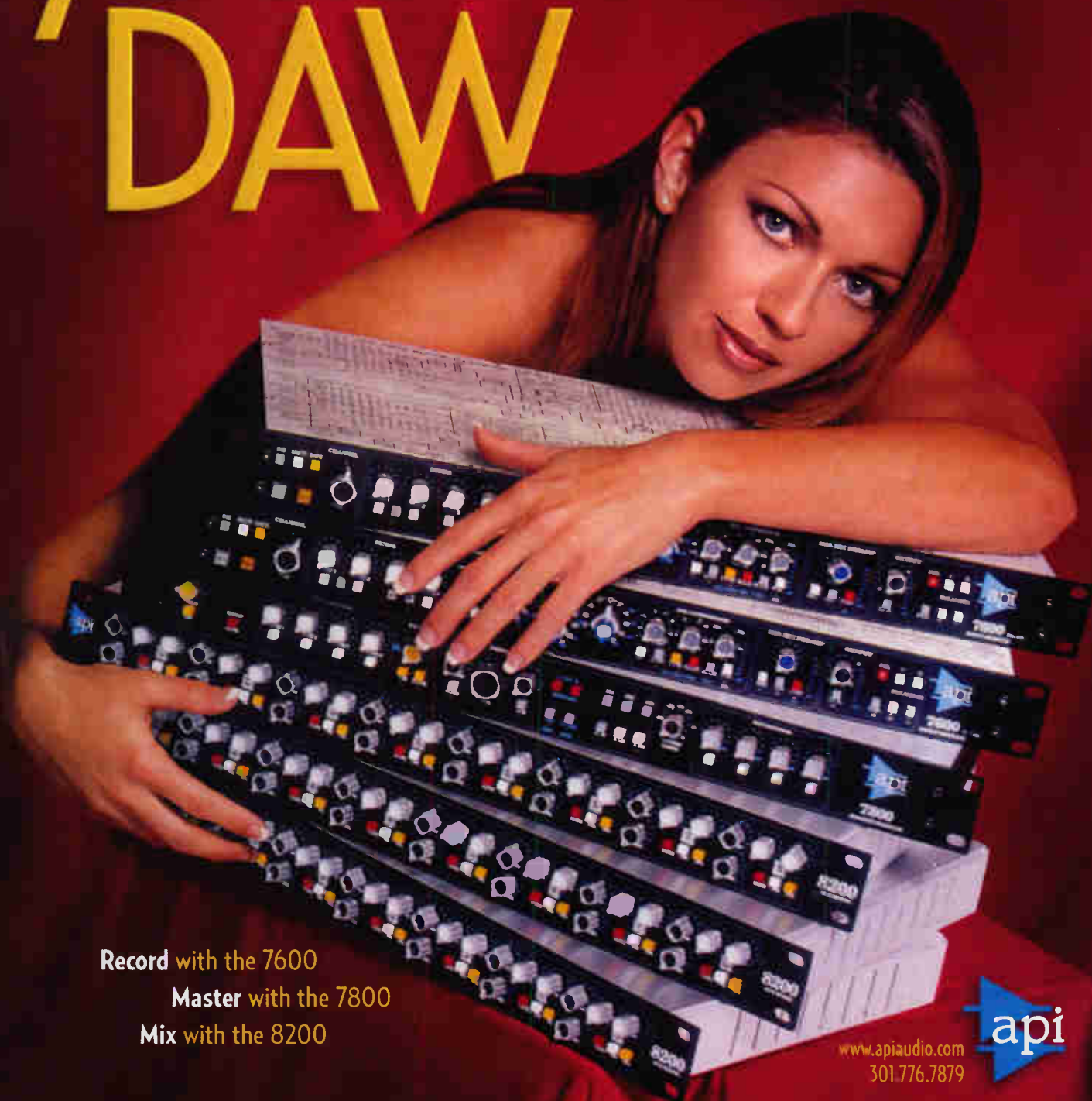
NAMM had plenty of slick new amps, from Vetta II, the next generation from Line 6 (www.line6.com); Fender's (www.fender.com) new Cyber Champ;

Alesis' (www.alesis.com) SpitFire line of DSP amps; Behringer's (www.behringer.com) V-Tone amps based on its V-Amp boxes; to Vox's (www.voxamps.co.uk) ToneLab, putting the punch of its Valvetronix amps into a console-top unit. I liked Zoom's (dist. by Samson, www.samsontech.com) Fire-60: a 60-watt modeling amp with a single-12 and onboard effects; it has three mic elements built under the grille cloth with built-in mic/direct mixing. Cool!

BY GEORGE PETERSEN

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Following up its slammin' AdrenaLinn guitar effects processor, AdrenaLinn II from Roger Linn Design (www.rogerlinndesign.com) features improved amp modeling and effects, a simpler user interface and the ability to sync to the onboard drum machine. Yamaha's SPX2000 features 96kHz audio and both AES/EBU and analog I/Os. But what had showgoers wowed was the sound, with 97 sparkling reverb/effect programs (many using the REV-X algorithm) and another 27 presets based on classic SPX90 sounds. Wave Distribution (www.wavedistribution.com) now distributes SRS Labs' Circle Sound line of pro surround-encode/decode tools and Studio Electronics' line of no-compromise analog gear, including the C2s, a discrete Class-A compressor/limiter combining 1176-style dynamics with a Neve 1272-type output stage.

Taylor (www.taylorguitars.com) unveiled the K4 Equalizer, a Rupert Neve-designed outboard EQ designed to work with its Expression System-equipped guitars. The K4's low-Z, transformer-coupled I/O connects to an ES guitar's balanced



Moog PianoBar

out, adding bass and treble controls, two parametric mid-bands, pre/post-EQ effects loop, phase invert, Mute switch and more.

Crest's (www.crestaudio.com) slick CP-6210 rackmount program mixer has six channels, with mic inputs (with 2-band EQ), stereo line ins and RIAA phono inputs. Stereo-cueing to monitor any channel from the booth or headphone outs is standard, as is 4-band output EQ. An expander unit adds a three-frequency, DJ-style bandpass EQ on each input channel, and direct switching to the A/B crossfader buses or program bus.

MONITORS

"Affordable" was the keyword when it came to new studio monitors at NAMM. Alesis

(www.alesis.com) was showing its ProActive 5.1 System (reviewed in this issue) and debuted the ProActive 2.0, a compact, two-way biamplified unit with 6-inch LF, 3/4-inch tweeter and 65 watts of onboard power. KRK (www.krksys.com) is shipping its low-cost ST6/ST8 unpowered near-fields, with 6- or 8-inch aluminum woofers, 1-inch silk-dome tweeters and mag shielding as standard. Trident Audio's LS101s are compact, \$799/pair near-fields, with shielded, dual 5-inch woofers, 1-inch dome HF and a stated 30

to 22k Hz response. Designed for smaller studios or as NS-10-style surround references, M-Audio's (www.m-audio.com) Studiophile LX4 systems are available in stereo (2.1) or 5.1 packages, based on a 60-watt powered sub and 27 watts to each two-way (4-inch LF/1-inch HF) satellite speaker.

DAWS KEEP COMING!

Korg (www.korg.com) has taken its D Series DAWs to the limit. The new D32XD and D16XD feature 16/24-bit recording at up to 96kHz, large TouchView display, eight analog compressors, digital mixing, 4-band EQ on every channel, onboard 40GB drive (up to 188 track-hours), CD-RW burner and analog/digital I/O options. Both units offer up to 16 simultaneous track recording, eight XLR mic ins with phantom, eight line inputs, DI guitar input, 128 (D16XD) or 256 (D32XD) virtual tracks, and full cut/paste/undo editing with normalizing, fade, time comp/expression and three digital effects processors, along with full mix automation with 16 moving faders assignable to inputs/buses (56-channel/14-bus in the D32XD).

Cakewalk's (www.cakewalk.com) Home Studio 2004 offers: 24-bit, 96kHz capability; ASIO, ReWire 2.0 and DXi 2.0 support; and the ability to use multiple hardware channels simultaneously. An "XL" version adds plug-ins and loop libraries. An all-in-one solution is Roland's (www.roland.us.com) MV-8000, featuring 16 velocity-sensitive pads, sampling, sequencing, onboard effects, mixing and CD burning. And from Roland's BOSS (www.bossus.com) group, the new BR-864 8-Track Digital Studio offers eight main recording tracks, 64 virtual tracks, COSM effects and 128MB Compact Flash card for 60-plus minutes of recording. Battery power and PC/Mac USB interfacing of its .WAV/.AIFF files add to the fun. The coolest lil' sketchpad? Zoom's PS-04 Palmtop Studio packs a 4-track (10 virtual) DAW with program-mable drum/bass sounds, 94 effects, SmartMedia storage and five-hour recording on four AA batteries in a palm-size case.

There were more hot products from NAMM, so watch our new-products sections. Meanwhile, Winter NAMM is slated for January 15-18, 2004, in Anaheim, Calif. Book those hotel rooms now! ■



M-Audio Luna

Hits You May Have Missed

BBE's (www.bbesound.com) DI-1000 active/passive direct box combines its Sonic Maximizer processing with a Jensen transformer, mil-spec parts and a bulletproof aluminum housing with red baked-enamel finish.

Broadjam's MetaJam (www.broadjam.com) software lets artists organize their songs, photos, gigs and events; build a Website; create press kits; and simply batch-upload music to the Internet.

Jellifish (www.jellifish.com) is a \$9.95 guitar pick with molded-in, stiff bristle "fingers" that make your guitar strum emulate 12-string/dobro/cello/dulcimer/zither sounds. Weird!

Korg's (www.korg.com) microControl is a USB-compatible, compact MIDI controller with a 37-note mini keyboard; assignable controls include eight sliders, eight rotary encoders, 16 velocity-sensitive pads, four-way joystick and LEDs to display parameter names.

Lynx's (www.lynxstudio.com) AE516 provides 16-channels of 24-bit/192kHz AES/EBU (single- or dual-wire) interfacing on a half-size PCI card, with SynchroLock jitter elimination and PC/Mac mixer software. Price? Only \$695, with XLR/BNC breakout cables and ADAT expansion optional.



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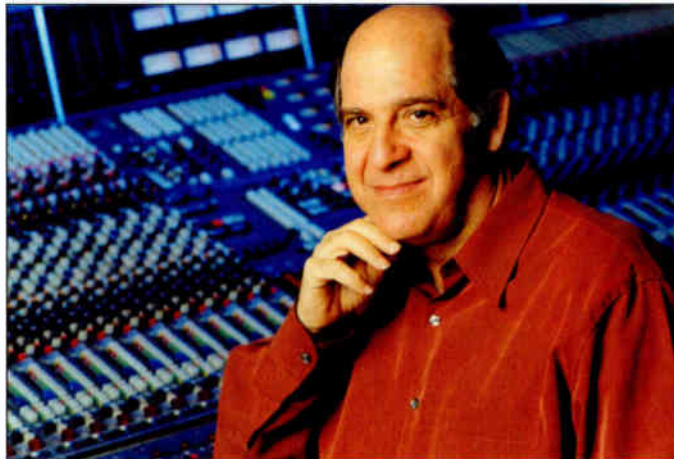
World Radio History



Lee Dichter

New York's Top Film Mixer on Life in the Trenches

After 40 years in film sound—half of those working at Manhattan's premier post-production house, Sound One—Lee Dichter has earned his reputation as the Dean of New York Re-Recording Mixers. Dichter has seen the business go from mono to stereo to 5.1; from small, hardwired custom consoles to the impressive Neve DFC he works on today; and from optical film to Pro Tools. Along the way, he's amassed a staggering list of credits in television, documentaries, and both independent and big-budget feature films—more than 130 in all. He is known far and wide for his expert attention to film dialog, which is why he has been tapped so often to work with directors who care deeply about such matters: He's done 17 films with Woody Allen (every film since *Hannah and Her Sisters*, except for *Curse of the Jade Scorpion*), three with the Coen Brothers (*Miller's Crossing*, *Barton Fink* and *The Hudsucker Proxy*), a pair with Robert Altman (*Short Cuts*, *Pret-a-Porter*), a few with Barry Sonnenfeld (*Get Shorty*, *Men in Black*, *Big Trouble*), and countless others with such talented directors as Robert Benton, Mike Nichols, Nora Ephron, Lasse Halstrom, Bob



Fosse, Francis Coppola, Brian De Palma, M. Night Shyamalan, Frank Oz and Tim Burton, to name just a few. He's just as comfortable working on big films like *Signs* and *Sleepy Hollow* as he is with subtle, character-driven shows like HBO's powerful *Wit*. And Dichter has never stopped working on documentaries: He's plied his craft on such acclaimed films as *Harlan County USA*, *The Times of Harvey Milk*, *The Atomic Café*, *The Life and Times of Hank Greenberg*, *Wild Man Blues* and a host of Ken Burns' films and series, including *Baseball*, *The Civil War*, *Jazz* and *Mark Twain*. When we spoke in late June, Dichter had recently completed Woody Allen's latest, *Anything Else*, and was busy working on *Angels in America*, directed by Mike Nichols for HBO.

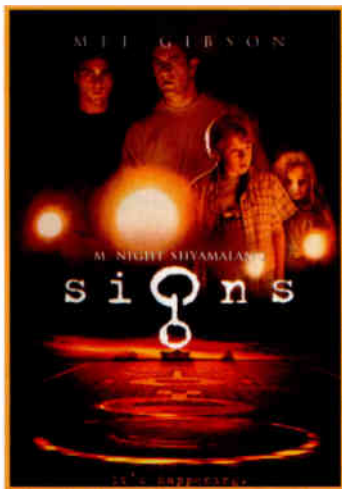
A New Yorker through and through, Dichter was born into the business. His maternal grandfather,

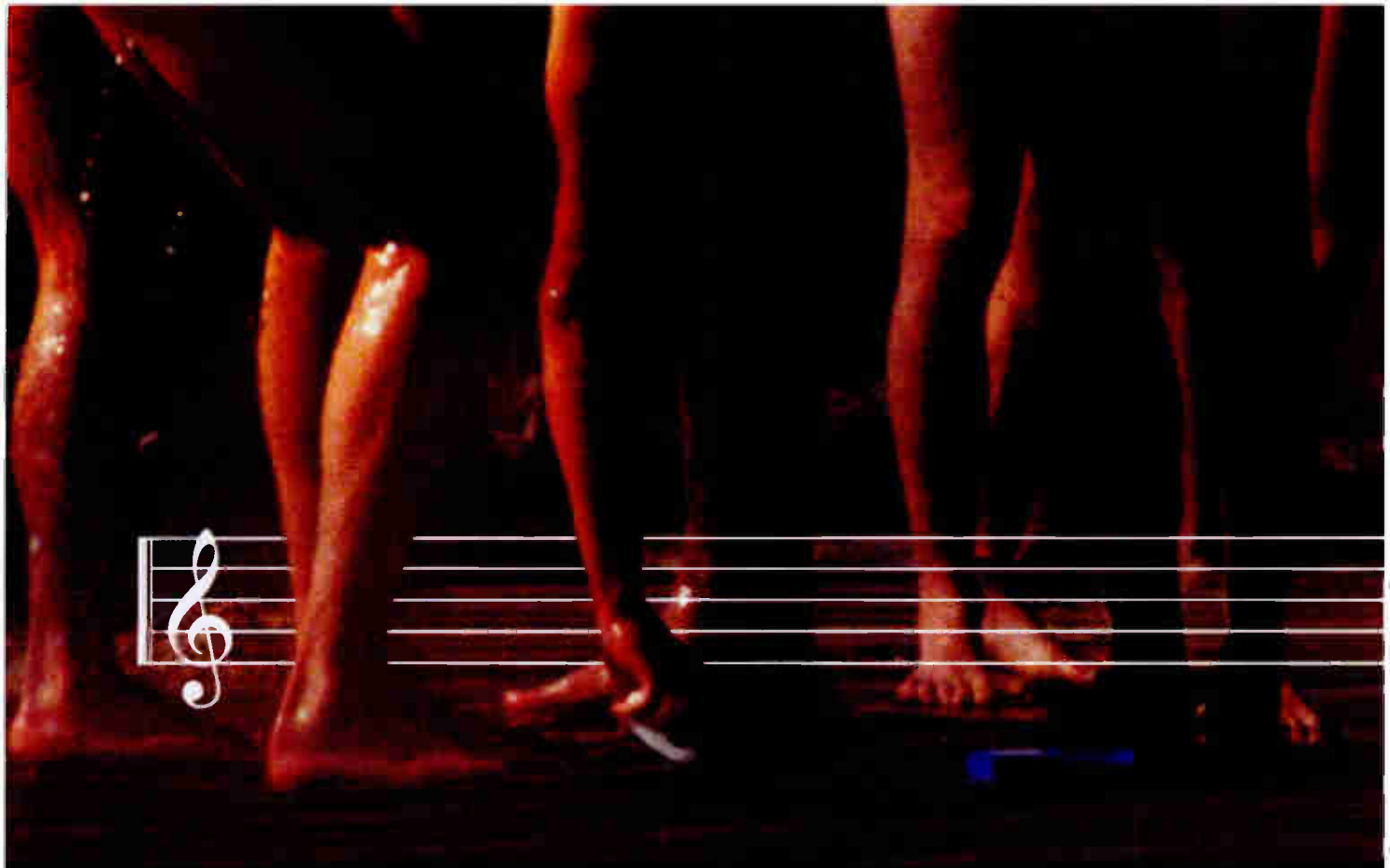
Joseph Seiden, had been involved in the theater in his native Hungary and then, after immigrating to New York, became a producer of silent Yiddish films in the '20s. Dichter's father, Murray, was an electrical engineer. He eventually went into the family business, doing sound for Yiddish films in the '30s and '40s (including a Yiddish *King Lear!*). "Then they started realizing that, to get a wider audience, they had to go to English," Lee says, "so the films switched over to English with a Yiddish accent." Eventually, Murray Dichter broke away and, in the late '40s, started his own company, Dichter Sound Studios. The business was focused on commercials for that upstart medium known as television. "I used to hang out there on weekends," Lee remembers, "and I found it very interesting and exciting." Murray Dichter also did sound work on a documentary series for CBS called *Eye on New York*.

Lee spent a year in college at Case Tech (now Case Western Reserve), but "I didn't really connect with it," he says; instead, beginning in 1963 when he was 19, he went to work with his father in the sound business. Our interview picks up the story here.

I notice that in the IMDB [Internet Movie Database—imdb.com] entry under your name, they don't list any credits for you until 1972. What kind of work did you do between 1964 and 1972?

I did a variety of different things for the company. He was a wonderful artist and a great technician. Eventually, in 1964, my father joined John Arvonio in a company called Photomag, which, like my father's, also specialized in commercials and short films. When I joined up, I was doing one-to-one transfers, which led to equalized copies. Slowly, they let me start mixing





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some easy commercials—three or four tracks: narration, music, a couple of effects. And from that, I started getting into some documentaries. The independent film community was always looking for younger mixers, rather than people in their 40s or 50s.

Or who would charge a lot of money.

Well, that too. But my reputation started growing from that.

Here's the key. I learned how to mix on TV commercials, where every word and every syllable was so important, because they only had 30 seconds or a minute to get their message across, and if you couldn't hear or understand a single word, you were *gone*. I found out early on that the producer would say, "Lower the music, I can't hear that word." And sometimes I'd say, "Well, let me *work* on the word. Let me equalize that word differently so it rises in the mix, and then we don't have to lower the music." So working with different techniques with equalization and compression, I learned how to handle dialog very well, and I learned techniques that I could use later on with documentaries to really enhance what was on the track.

I'm familiar with tools that big recording studios were using for that during that era: 1176s and LA-2As...

I don't even know what those are. I never really got that much into the technical end. All of this equipment would come in, and I'd just say, "What can I do with this? How can I use this to improve the sound?" *What would you use for equalization?*

I don't think it even had a name. It was built into the console, which was custom-made. It was the coolest thing, though. It had nine little toggle switches sticking up in a row, and you could just slip-slide them so you'd actually get a sort of graphic readout by seeing which way the toggle switches moved to what kind of equalization you were putting in the track. I had compression, too, but it wasn't so sophisticated the way it is today. My father also built a combination compressor and de-esser, which was very cool.

You say you're not technical, yet all of this work involves minute work: to go in and EQ certain words, and de-ess others...

Well, when I say "technical," I mean I don't know the names and the numbers. For years, a friend of mine was talking always about "Cat 43." I didn't know

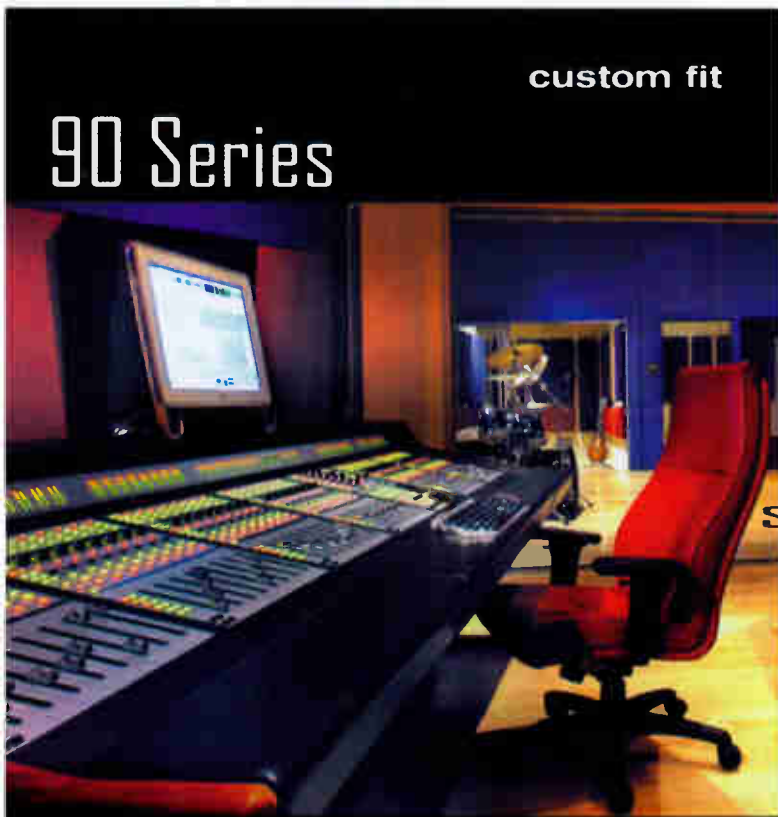
what the hell that meant. Then I found out it meant "catalog number 43 Dolby noise suppressor." I could never remember all of the numbers. I just wanted to know what the piece of gear could do for me.

So much of what you do as a re-recording mixer is dependent on the quality of the work of the original location recordist. What has your relationship with those engineers been like?

Unfortunately, there's always been something of a disconnect with location recordists through the chain of mixing. Once their work is done, we rarely hear from them. Occasionally, the location recordists might try to get some input from us in advance, but it's unusual when that happens.

When you work on a documentary, is it significantly different from working on a feature film in terms of the actual requirements of the job?

Not really. The main thing is the budget. You don't want to make compromises, of course, but you have to go as fast as you can. With documentaries, you're usually limited to the production track; you're not going to do any looping. But you use the



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At the same time, though, there's usually a lot less material to mix in a documentary. There aren't going to be seven dialog tracks; it's more like three or four. Most of those early documentaries I did in a day or a day-and-a-half. *Harlan County* was the first one where it went more than two or three days. It was a five-day mix, and we even had overtime in there. These documentaries are always a labor of love for the filmmakers and for me. They're working on them two or three years, so you want to make it as good as you can without breaking their budgets.

When you started doing bigger feature films in the early '80s—The Verdict, Sophie's Choice, Star 80—did the requirements of the job change or the time you were given?

Definitely the time expanded, since they were more complicated.

So all those were done in New York?

Well, finished here. They might be shot all over. Usually what dictates whether it's finished here is where the director lives.

Where did you do most of your work back then?

Back in 1983, I joined Sound One. The first feature I mixed there was *Star 80*. From then on, I was basically mixing features and documentaries.

What sort of equipment did they have at Sound One in that era?

They had a new mixing studio with a Neve console, and then they had an older console in another room, which doubled as a Foley stage. I'm not sure of the model number, but I think it was a music Neve with 48 ins and six outs. Up until then, I hadn't mixed a film in stereo. Photomag had only mono equipment. In fact, *Star 80* was mono. My first stereo film was *Beat Street*, which was a break-dance film.

You also did Cotton Club with Coppola around that time.

On *Cotton Club*, we didn't do the finish. We did about six or eight weeks of pre-mixing, and then they took it out to San Francisco where Coppola lived. But the editing crew and the picture editor lived here.

It seems that the way the profession has evolved over the past several years is that, more and more, there are sound design teams that are out there recording every type of civil war musket ever invented, or 10 kinds of rainstorms, or 20 different makes of cars crashing. There's this obsessive hunt for verisimilitude in sound. At the same time, there's been a closer alliance between sound designers and re-

I learned how to mix
on TV commercials,
where every word and every
syllable was so important.

recording mixers. When did that trend really start to kick in?

Of course, there have *always* been people who wanted to get the most realistic

sound for the films they were working on. But I think that for what you're talking about, the real beginning was *Apocalypse Now* [1979]. Certainly, there were big sound jobs before that, but that was the film where they really let the sound crew loose. I have friends who worked on that film. The post-production was something like nine months or a year, which was unheard of. And the reason it went that long is Coppola was constantly recutting. But he could do that because it was his movie; he was the producer. If the director is working for the studio, you're not going

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to get that.

When I started mixing features, it was usually a two- to four-week mixing schedule. Sometimes, an extra week was added for more complicated films. I remember when I worked on *Star 80*: After six-and-a-half or seven weeks, we still weren't finished. I was very upset about it. My father had died the previous month. I went over to [director] Bob Fosse, and I said, "Bob, I've been upset about my father, and I really feel that part of the reason why we're not finished is because I'm going too slow." And he said to me, "Lee, you know the film

Sweet Charity? We mixed 17 weeks...and it's *still* not right. [Laughs] So don't worry. We'll get some extra time and finish the picture." And we did. But like Coppola, he had the power to make it go longer.

Getting back to *Apocalypse*, what happened was he gave his guys the green light to really go investigate all of the different sound techniques and let them experiment. And they mixed it in 6-track, magnetic 70 millimeter. So that was the beginning of this new era of sound design.

Now there are a lot of California mix-

The process of mixing gives me so much joy. I get great satisfaction being emotionally involved with the film, trying to bring it all together and making the director happy.

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ers who have created their own niche and do a lot of recording themselves, too. And that's great, because they can follow the picture from beginning to end. But the way I've always worked is I come on pretty near the end. I'm not recording effects. *You started working with Woody Allen on Hannah and Her Sisters in 1986. What was he looking for sonically? Obviously, his films are always dialog-driven. I would imagine he wants to hear every word clearly, unless it's for some effect.* That's right. Well, he's the writer, too, so, obviously, the words are very important to him, as they are to me. With his films, you know that the soundtrack is going to consist basically of the production track and not much else. He lets us use very little added sound; only when necessary, only when we *have* to. And then there's the music.

And you know what that's going to be like, most likely some mono jazz or pop track from the '30s or '40s.

Pretty much. And if you look at his films, you'll see that sometimes he'll do a montage that's *all* music and he'll drop the location sound altogether.

Is he very hands-on with the sound?

No. He's not in the studio that often. A lot of directors love the process of film mixing, and some directors would rather you just mixed it yourself with the sound crew and the picture editor, and then he'll come in for playback and make some corrections and then come back three days later for another reel. Woody is that way. He usually wants us to copy the scratch mix. So we usually don't try anything too new [in the final]. And since he doesn't use sound effects, it's very easy to follow that format because, basically, I'm working on maximizing the dialog and constantly choosing filters and equalization to accomplish that.

He likes the dialog in the forefront at

all times and wants nothing competing with it. And he doesn't use ADR.

A lot of actors and directors hate looping. That's right. It happens all of the time that the line that's looped is not looped well. Usually, it's the performance: The voice pitch might be different, the timbre, the volume. The actor might be in the wrong key with the wrong emotion. It's a tough situation. The actors usually don't want to be there. Often, it's months after they shot the scene, there's the anxiety of getting the performance correct, and then the second anxiety of getting it in sync. Some actors have a wonderful ear and a good attitude and they're very good at it.

All we want, as mixers, is a fighting chance. Now, of course, we have more tools to match things. Now we can get into pitch change. We can't change the push, but we can change the pitch. *Obviously, you become intimately involved with every film you work on. Can you tell if a film is bad?*

Sometimes. But what I learned to do way back, in my early years, is separate my feelings about what's on the screen and my work. If I'm not really into the film, I

never let it affect my work. I still have to do the best job that I can. I focus on the process and make sure that my input into the film is helpful and makes it better. The *process* of mixing gives me so much joy. I get great satisfaction being emotionally involved with the film, trying to bring it all together and making the director happy.

Do you find that there's great variety in how involved directors are with sound? Oh yeah. It runs the gamut: Sound is very

important to some and less important to others. Either way, I still have to do what I do as well as I can. It's just a question of how much input you get back from them. *Where do the Coen Brothers fall in that regard? I know you did Miller's Crossing and Barton Fink...*

The Coen Brothers are the rare writer/directors who actually write sound montages into the screenplay. *So you'll look at the script of Barton Fink and it will actually read, "We hear the*

Lee Dichter Selected Credits

A Bronx Tale (1993)

Carlito's Way (1993)

Celebrity (1998)

Changing Lanes (2002)

Cradle Will Rock (1999)

Deconstructing Harry (1997)

The Devil's Own (1997)

Far and Away (1992)

The Hudsucker Proxy (1994)

The Hours (2002)

"Jazz" (2001)

Just Cause (1995)

Lewis & Clark: The Journey of the Corps of Discovery (1997)

The Mambo Kings (1992)

Michael (1996)

Mighty Aphrodite (1995)

Primary Colors (1998)

The Score (2001)

The Shipping News (2001)

Small Time Crooks (2000)

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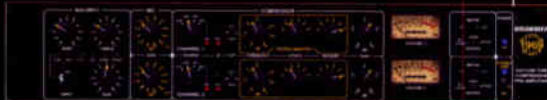
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MIX INTERVIEW

sound of the wallpaper peeling of the wall”?

Yes. With *Barton Fink*, the sound was so important to the overall feeling of the film. The footsteps and the buzzing and the wallpaper coming off of the wall, all that was written in and then they shoot it with that in mind. More typical in a screenplay is it'll just say something general like, "You hear the sound of the birds in the morning." But the Coens get into some very specific things; it's part of their overall cinema vocabulary. It's fantastic.

There's a part near the end of *Star 80* where there are all of these camera clicks. They're taking still shots of Dorothy Stratten, and the sound of the camera shutter was composed of four different elements, and then Fosse had us move the elements around to different positions—we're talking a half-frame, quarter-frame—to get just the right sound he wanted. He was one of the few directors I know who was involved in every aspect of the soundtrack.

Have Pro Tools and other digital systems made your job easier?

Yes. There's more accessibility to different sounds, and that opens up the palette. You can access many things more quickly, almost as you can think. It opens up more avenues of experimentation and creativity. I remember before computerized mixing, the director might say, "That sounded great: that whole sequence you did with the sirens and the water and the car-by. I just want a little *more* on that line of dialog." So I'd have to try to re-create it step by step. You'd try to remember exactly how you did each element, and then you'd raise the dialog 2 dB. And usually some stuff wouldn't come back. You'd get it *close*. Now, it truly is repeatable. So by having more control, the sound track is better.

The double-edged sword, though, is that because there are so many possibilities, there's a tendency to futz with things a little longer, maybe go overboard trying different things. You have to exercise some self-control to not work on it endlessly, because now you can.

That's absolutely true. Like I said earlier, when I worked on documentaries, you would have serious time constraints. Now, the time has expanded, although, obviously, there are still constraints. And the sound is so much more complex that it takes you six or eight weeks now. A big movie—a sound-driven movie—can go 10 or 12 weeks, and you might be running two stages sometimes. It's mind-

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boggling what's going on, because of the amount of information coming in, the choices, the different levels and layers, and now, by having the 5.1, it's that much more complicated. It's exponential.

Are you enjoying 5.1?

I love it. It really has opened up the soundstage, and you can really heighten the impact of certain scenes by having so much dynamic range and having speakers that totally envelop you.

Somehow, I can't see Woody Allen embracing 5.1.

[Laughs] No. Here's a Woody Allen story. Up until some time in the '80s, Woody's films were always released in mono. By the time I began working with him, we were starting to find out that playing a mono optical on a Dolby pickup head in the theaters was degrading the sound even more than it would normally, so we finally convinced him to start mixing his films in the Dolby format so we could match the industry standard, as far as the release was concerned. I think it was [the film] *September* in 1987. We were pushing for years to try to change him over, but he had his screening room set up for mono. So we had to get Dolby involved to help push this along and help to entice him to switch over. He finally agreed.

So there we were. We were sitting there knowing we were going to release *September* in the Dolby format: left, center, right and mono surround. The opening-credit music came on and it was in stereo, and I had the pan pot wide open, and he says, "You know what, Lee, that sounds interesting, but it's a little too wide. Can you pull it in a little?" So we went back and brought it in a little. "Can you pull it in a little more?" And this went on and on until it was finally dead center and he said, "I like that. Do that for the whole movie." I said "Woody, that's mono." He said, "No wonder it sounds so good!" [Laughs]

Blair Jackson is the senior editor of Mix.

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Techno: It's not just for clubs anymore. Composer/guitarist Brian Tarquin writes the highest electronica that helps drive a wide variety of TV shows, including MTV's *Road Rules*, NBC's *Extra* and *Celebrity Justice* and, of all things, ABC Daytime's *All My Children*. This may sound surprising, especially to those who disdain the soaps, but Tarquin's cues inject youth and edge into the dramatic formula, and he (along with music supervisor Terry Walker and other composers) was recognized with the Daytime Emmy Award™ for Outstanding Achievement in Music Direction and Composition for a Drama Series this year.

"They're trying to broaden the demographics of the show, and they're getting a whole new sound," Tarquin says. "I think people think of soap opera music as traditional: orchestral music, *organ* music. But they have become more sophisticated than that, and I'm able to give it a more techno, hipper soundtrack."

Tarquin writes and records in his own Jungle Room Studios (L.A.), which is fitted with a Soundcraft Spirit Studio console, and Tannoy PBM Series and Yamaha NS-10M monitoring. He has also done film work (*The Hot Chick*, *Chill Factor*, *Desert Heat*, *The First 20 Million Is Always the Hardest*), and he makes his own electronica albums with partner Chris Ingram under the band name Asphalt Jungle, but he spends 50% of his work time on *All My Children*. He works on a monthly schedule with the program, during which time he develops a library of cues that may be used in different ways, following a plot. "They send me some scenes and I put some sketches together: different tempos, varying feels," Tarquin says. "I do a lot of light orchestral moving into more of a hip hop groove or a techno drama, and then add a nice stinger on the end. Each sketch is about two or two-and-a-half minutes, and then I give them breakdowns. I'll take lead melodies out, and sometimes I'll give them the tags and the strings by themselves. I work on Pro Tools and they have Pro Tools, so they can load the session right in and cut and paste what they like.

"I use mostly Roland stuff when I'm working for the show," Tarquin continues. "The JV-1080, and I just got the MC-909. Roland has some really great lush pads. They have more realistic violins and cellos. On the 1080, I use the orchestral expansion cards a lot. I also use the E-mu Proteus 2000, and I have the [Access] Virus C and sometimes I use that for nice, pulsating things in the background. I control everything through the [Akai] MPC2000; that way, I can cut, paste and track, and usually have the groove coming from there, too, because things I do for *All My Chil-*



Composer/guitarist Brian Tarquin inside Jungle Room, and his latest CD, *Asphalt Jungle*

dren are very groove-oriented.

"If I do some guitars, I have the Akai slaved to Pro Tools, so once I have the body of the song ready and the MIDI section, I put the guitar parts on Pro Tools. That way, Pro Tools controls the sequencer, and I can cut, paste and mix from there."

The drum parts of Tarquin's creations come mainly from his own drum library: He brought a drummer into his studio to record some loops, and now he has a great selection of live rhythms that he can manipulate and incorporate as he wishes. "I had him do one or two bars of things, different grooves and tempos. I also have some other live CDs. I did one from Big Fish Audio, *Guitar Studio*, and I like a couple other live drum CDs like the *New York City Drum Works* is nice: live drummers doing one- and two-bar phrases, and it has the actual room ambience. I use those live drum recordings unless I'm programming a trip-hop thing."

Tarquin delivers on Sound Designer II files, complete with four breakdowns per "song" to allow the music director maximum flexibility with the material. Each monthly session includes between 10 and 14 songs. "Then I get their input before I do the final mixes," Tarquin says. "A lot of times, they don't even know a specific piece will work for a scene until they get the scene. They only work two weeks ahead, so it's pretty tight."

But tight schedules aren't cause for worry for a composer who came up in New York City jingle houses and now successfully balances his work time between multiple TV shows, his own music and the occasional feature film. "You have to allocate your time correctly," Tarquin says. "Musicians can waste hours on a kick drum, so you have to be careful of stuff like that. With TV, especially, you have to be good at making decisions as you hear them." ■

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8th Annual Mix



Yamaha joined the Mix L.A. Open for the first time this year as the official golf ball sponsors. From left: Jahn Canard, Galen Walker, David Bergstrom and Val Garay.



Barry Goldberg, Donald Ruby, Phil Wagner and Steve Rodriguez represented perennial sponsor, Record Plant.



Steinberg, official sponsors of the 19th Hole, was represented by (from left) Rammel Narvasa, Aaron Fisch, Ferdinand Santos and Brian McConnon.



Team TC Electronic was represented by (l-r) Kristian Barup, Doug Stanny, Peggy Stanny and Ted Stanny.



Hat sponsor Shure Inc. fielded a team comprising (l-r) Jack Kantney, Al Hershner, Aran Levine and David Margan.



Mix associate publisher Erika Lopez (left) and Mix Foundation president Hillel Resner (right) present Scott Marshall with his prize for winning Closest to the Pin.

A DAY ON THE LINKS FOR

June's unpredictable weather made for an especially memorable event, as nearly 150 audio professionals gathered on Monday, June 9, 2003, at the Malibu Country Club for the 8th Annual Mix L.A. Open. Cloud cover, gentle mist and wisps of fog transformed the course, making the lush Malibu fairways seem more like some of the legendary links of Scotland than a California club.

There were fresh faces aplenty this year as newcomers tried their luck against those who'd previously battled the challenging course. As always, playing skills ranged from near-professional to casual duffer, and good-natured ribbing abounded as teams sized one another up. After a putting contest and a fortifying buffet breakfast, players revved up their carts—sponsored by KRK and equipped this

year with GPS systems to accommodate the navigationally challenged—and headed out seeking fame, glory and the elusive hole-in-one with its prize of a BMW roadster from Steve Thomas BMW.

Out on the links, many generous sponsors provided moral support: box lunches by Royaltone Studios, beverages by Moonlight Mastering and Firehouse Recording Studios, cool hats from Shure, shirts by The Village and Quantegy, and golf balls by Yamaha. Numerous traffic jams ensued at Hole 10 where shoulder massages were ongoing, courtesy of Warner Bros. Studios. Other sponsors included Absolute Music, CE Pickup, Design FX, Firehouse Recording Studios, Record Plant, Steinberg and TC Electronic.

Back at the clubhouse, high-quality schmoozing ensued, as foursomes returned with tales of epic shots

Text and photos by Maureen Dronery

L.A. Open



Audio-Technico was represented by (l-r) Russ Kunkel, Michael Edwards and Jeff Simcox.



L-R: Steve Smith, Steve Meyers, Joe Edwards and Rocky Rieger played on the Quantegy team.



It was a family affair as (from left) Michael Greene, son Andy, nephew Darren and son Will took home first-place honors.



The team of Ron McCarrell, Scott Thurston, Ed Cherney and David Was took home second-place honors, shooting a 58.



The Design FX team, best known for their Dove bars at hole 7, was represented by (l-r) Gary Ladinsky, Chris McGeary, Forrest Smith and Jeff Welch.



L-R: Kirk Marshall, Candace Stewart, Jim Scott, Scott Marshall and Bob Nuccio in the clubhouse. The Marshalls and Nuccio are members of The Plyrz, currently being produced by Jim Scott at Cello Studios.

H E A R I N G C O N S E R V A T I O N

and multiple eagles and perused the silent auction biddables, which ranged from Blue and Audio-Technica microphones to a Nuendo 2.0 Media Production software package, a Gibson Les Paul Special guitar, JBL speakers and some extremely rare bottles of wine.

First-prize trophies were awarded to the all-in-the-family team of Michael Greene and sons, who boasted a score of 17 under. Second-place statues went to David Was, Scott Thurston, Ron McCarrell and tourney honorary chairman Ed Cherney, who scored 14 under. House Ear Institute's Jim Boswell, Ron Osbrink, Ricardo Solano and William Finestone snagged third-place medals at 13 under.

Supervising sound editor Paul Huntsman, winner of the putting contest, took home a Tour Edge St. Charles putter. Audio-Technica's Mike Edwards

awarded a Cleveland Launcher driver to Andy Greene for Longest Drive. Al Hershner took home a Scotty Cameron Futura Putter for Longest Putt, and Scott Marshall collected a Cleveland Tour Action Series 900 for Closest to the Pin.

The Mix Foundation for Excellence in Audio thanks not only the sponsors, but all those who came out and made this year's tournament a successful and fun event. At a time when funding for many important causes is lacking, support for one that's critical to our industry—hearing health outreach—is especially appreciated. Proceeds from the tournament help to fund programs at both the House Ear Institute and H.E.A.R., which provide education on the importance of hearing protection, as well as help for music and sound professionals with hearing disorders. ■

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News



Opera in the Park, Madison, Wisc.

Boasting a lineup that included Moby, Badly Drawn Boy and The Hives, Rock im Park Music Festival (Nuremberg, Germany) equipped its stage with Martin Audio's W8L Line Array to cover the 20,000-person crowds... Stateside, in Madison, Wisc., 5,000 opera aficionados gathered for the annual "Opera in the Park" concert. Sound was supported with Bag End gear provided by Full Compass, including six Crystal midrange, high-output speaker systems, flown in a stereo array; three Quartz quad-18 subwoofers; and four Opal delay signal speakers... Fenway Park (Boston) has a revitalized sound due to the recent installment of an

EAW KF900 line array, implemented by WJHW Consulting of Texas, Boston Light & Sound and EAW. The centerfield main cluster comprises two KF910s and two KF913s (highs), eight KF920s (mids) and a 3x3 cluster of KF930s (lows)... Synergetic Audio Concepts (SynAudCon) announced its fall seminars, to be conducted from early September to late November, in the following cities: Minneapolis, Dallas and Washington, D.C. For more information, go to www.synaudcon.com/sempage.htm... The newly built Tulalip Casino (Marysville, WA) features Turbo-sound speakers in its Las Vegas-style live music and nightclub venues, including TFL-760s (lows) and TSW-718s (subs).



Tulalip Casino, Marysville, Wash.

Phish



PHOTOS: STEVE JENNINGS

Mix caught up with Phish and spoke with FOH engineer Paul Languedoc, who told us what the band is carrying this time out.

"For this tour, I'm using two Crest Century Vx 40-channel consoles, slightly modified with Burr-Brown preamp chips. We have about 46 inputs from the stage, though I need to have lots extra, as the band is apt to invite guests and/or bring in new instruments on short notice. We can feed up to six stereo zones with crossovers, delay and EQ.

"Our P.A. system is from Snow Sound from Berlin, Conn. Paulo Rodrigues is the sound crew chief. The Snow Sound Eagle system is built by McCauley. We usually carry about 32 cabinets per side, as well as eight flying subs and four ground subs per side, along with miscellaneous small fill

speakers, as needed. Processing is BSS 366s and Varicurve 920s for EQ. The amps are Crest.

"I carry less rack gear these days. I still use compression, mostly Aphex Expressors, plus Summit DCL-200 for vocals, TC Electronic 1280 for lining up bass DI with the mic, Lexicon 960L running as four stereo machines and an Eventide H3000 for effects.

"Also, we have been using 48 channels of Grace Design 801 mic preamps onstage for several years, and I credit them with a major improvement in signal integrity. Generally, as far as mixing the show, I pay close attention to gain structure and let the band control their own dynamics."



FOH engineer Paul Languedoc

FixIt

As the FOH mixer for acts such as Bon Jovi, Enrique Iglesias, John Mellencamp and Sheryl Crow, Dave Eisenhauer knows about dealing with noise levels created by cheering fans. We caught up with him as he was setting up the mix position on the 50-yard line at Giants stadium for the last two dates of Bon Jovi's Bounce tour.

"Many venues—particularly sheds and open-air shows—can sound reasonable if you keep the volume down. Many younger FOH engineers mix too loud, trying to blow the place down. I like to mix at about 102 dBA, leaving plenty of headroom. So what do you do when the screaming fans put the level at 110 dBA—even in-between songs? One thing to do in such cases is to bump the level of the first song way up and then bring it down, which gives the audience an impact up front, and then gives them a chance to settle down. Another thing is to keep the bass in perspective, with a balanced ratio of lows/mids/highs. I try to tune the P.A. so it sounds like Genelec in a studio, and a lot of the newer venues can actually sound good if you keep volumes reasonable and work with—rather than against—the room."





Oops. We did it again!

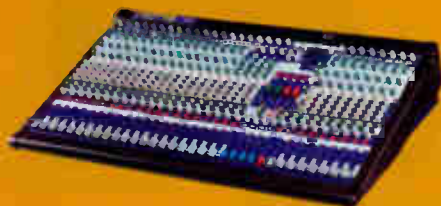
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On the Road

Paul Mitchell

Known for years of live and studio work with artists such as The Crusaders, David Sanborn and Marcus Miller, FOH mixer Paul Mitchell is out with The Crusaders again, this time featuring a reunion of the band's co-founders, Joe Sample and Wilton Felder.

What are some of the challenges in working with The Crusaders?

With this band, I'm proud to say that there's no processing: no gates, no compression. Joe Sample's been working on dynamics for 50 years, and it seems unfair to plug in a piece of gear and lose those dynamics. The approach to sound is totally honest and natural. I just set the gain structure and let the band go.

Is there any "must have" gear you travel with?

All I travel with are mics: all Audix, except for Shure wireless on sax and vocal. We do a lot of festivals where hooking up a piece of gear can be a problem. I don't use a lot of [effects] processing anyway. I send out riders, and if I have a 480L, great, but I can also work with a PCM 70.

What's different about this tour?

We're multitrack recording every show, going to Pro Tools|HD at 96 kHz to a single external 200GB FireWire drive. It's all in three small racks: one for the 192 converters, one for the computer/flat-panel display, and one for cables and drives.

What do you do when you're off the road?

I'm out 200 days a year, so when I'm home, I try to spend as much time as I can with my wife and kids. But, thankfully, I'm in a business where I'm off the road between Thanksgiving and Valentine's Day.

Now Playing

Godsmack

Sound Company: Showco
FOH Engineer/Console: Tony Pieras/Showconsole
Monitor Engineer/Console: Frank Sgambelone/Showconsole
P.A./Amps: Showco Prism System/Crown amps
Monitors: Showco SRMs
Key Outboard Gear: TC Electronic M-One, D-Two, Triple-C and Voice Prism
Selected Mics: Sennheiser E 602, E 604, E 609 Silver, E 664, EW 565

Gladys Knight at the Flamingo, Las Vegas

Sound Company: Promix Electrotec
FOH Engineer/Console: Michael Martin/Yamaha PM4000
Monitor Engineer/Console: Elliott Peters/Midas Heritage 3000
Monitor Tech: John W. Wrote
P.A./Amps: Meyer MS14s, SB650 subs/Crest amps
Monitors: L-Acoustics ARCS and 115FMs, headsets
Key Outboard Gear: BSS DPR-901 II, Yamaha SPX-990, Summit TLA-100, Lexicon PCM80
Selected Mics: Shure WH30 wireless/headsets, Shure SM98, 91, 81, 57, KSM32, 57

Joe Jackson

Mix covered Jackson's tour when he played San Francisco's Fillmore; gear listed here was for the Fillmore date. Read a full "Tour Profile" at www.mixonline.com.
FOH Engineer/Console: George Cowan/Crest X-VCA
Monitor Engineer/Console: Al King/Midas Venice 320
P.A./Amps: Meyer M3D arrays (self-powered), Meyer DF4 and CQ-2
Monitors: Future Sonics in-ears
Key Outboard Gear: TC Electronic D-Two (vocals), Smaart room-analysis system
Selected Mics: Neumann KMS 105 (lead vocal)

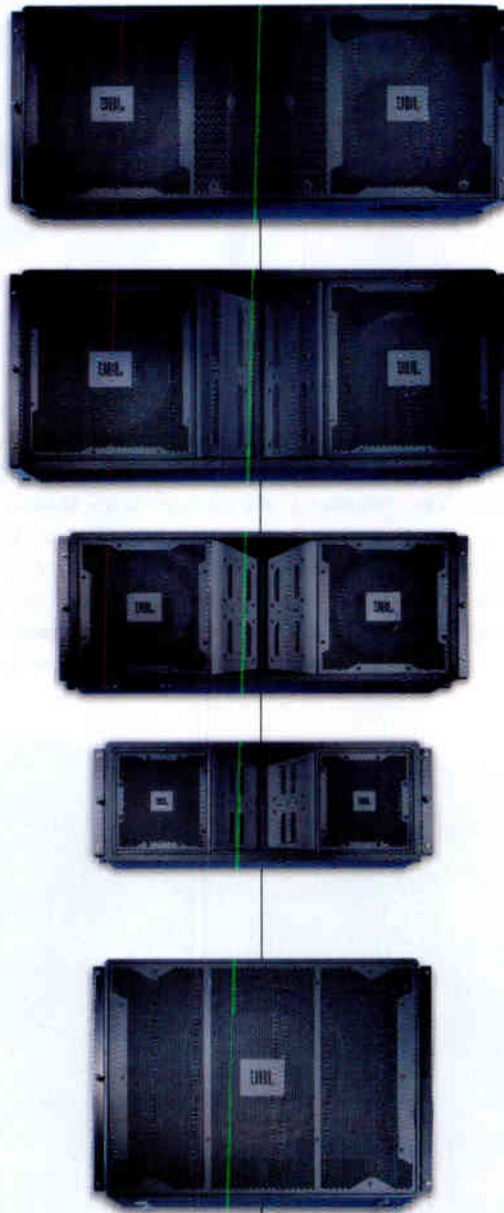


PHOTO: STEVE JENNINGS

EAW Offers New Online Deals, Resources

Difficult times call for creative financing, and EAW (Eastern Acoustic Works, a division of Mackie, Woodinville, Wash.) has responded with its new Touring System Payment program. TSP gives extended payment terms and a full year of 0% interest to qualified buyers who purchase more than \$25,000 worth of gear. Customers can visit the EAW Website at www.eaw.com/tsp, where a program overview, instructions and an application form are available.

Also online at www.eaw.com is a resource for members of EAW's Acoustical Performance Partnership (APP) program. A new APP Web page provides easy access to technical information and documentation, including white papers, datasheets, user's guides, wizards, EASE data and software downloads to assist members with installation and use of EAW products. Membership is free, and the site includes an application for non-members who wish to join.



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Vans Warped Tour

Text by Sarah Benzuly and Breean Lingle

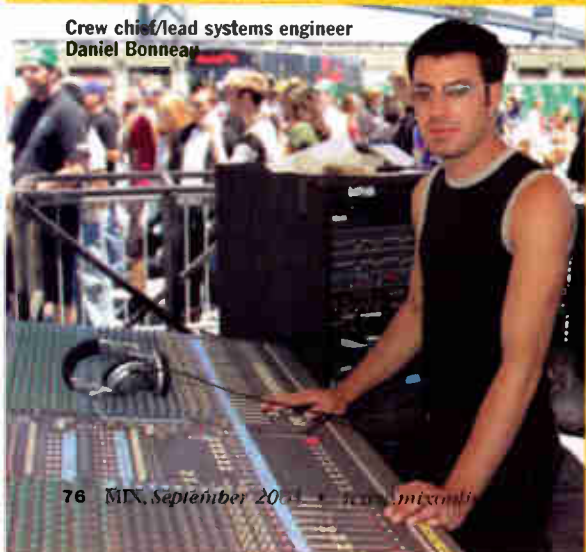
Photos by Steve Jennings

The Vans Warped Tour is reportedly the largest festival tour currently running in North America, bringing the top names in modern punk—Rancid, Andrew W.K., Sum 41, Dropkick Murphys, The Used, Pennywise, Less Than Jake and so many others—together on four stages. Showgoers also kept an eye on the daredevil skateboarding tricks on the half-pipe that loomed adjacent to the two main stages.

The tour began its cross-country trek in mid-June, making stops along the West Coast (where *Mix* caught it at Pier 30/32 in San Francisco), and then continuing into the heart of the Midwest and wrapping up in New Jersey. Crew chief and lead systems engineer, as well as monitor engineer for Simple Plan, Daniel Bonneau has been handling this festival for the past two years; tour company Industrial Sound has been supplying the equipment for nine years.



Crew chief/lead systems engineer
Daniel Bonneau



Daniel Bonneau reports that the two main stages are running Yamaha 4000s at FOH, while the smaller stages rely on a 3k. "We've had so much rain, wind and dust, those consoles hold out through everything," he says. "I've had two gallons of water dumped on one of them. In the morning, I just dried it up, pulled out a few modules and dried those up, and we're good to go for another day." Bonneau says that the mixes are straightforward, and he uses only a few pieces of outboard gear: two Yamaha SPX-990s, and a TC Electronic M2K and 2290 delay.

FOH Engineers

Jon Martin
Jaramah Ball
Jason Michaels

Monitor Engineers

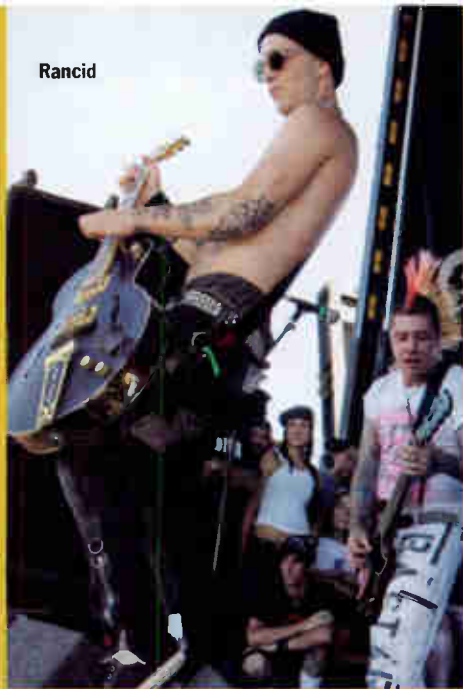
Jeff Eastland
Tim Illian
Alex Fletcher

Patch Masters

Dave Gibney
Josh Bolin



Less Than Jake



Rancid



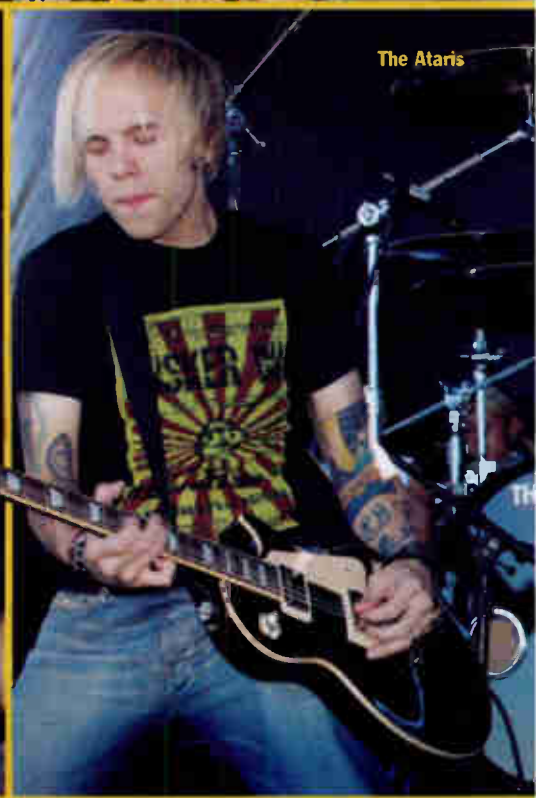
Andrew W.K.



The Used



Pennywise



The Ataris

Each band gets a standard mic setup: Vocals are SM58 (though Dropkick Murphys use OM7s) and Beta 58s, all supplied by Industrial Sound. Bass gets a Beta 52 on the cabinet, JDI direct boxes and a passive DI line. Guitars are all 57s. Drum mics include SM98s on toms, 52 on the kick, Beta 91 inside the kick, and hi-hats and overheads are 81s.

With so many bands playing during one day, Bonneau reports that there are no sound-checks; instead, each band gets a line check. The P.A. consists of EAW 850s with six subs a

side, which are proprietary enclosures from Industrial Sound.

An Adamson 840 console handles monitor world, again for durability. All of the wedges and sidefills are driven by Crown amps. The speakers themselves are all proprietary enclosures from Industrial Sound with JBL components. Most bands are not using in-ears, except for Andrew W.K.'s drummer and Sum 41. "They're coming in with their own consoles, and we're just giving them a third split," Bonneau says. "They're getting every input into their own con-

sole, and then from there it breaks out."

Most of the bands do not have the luxury of bringing their own monitor engineers. Instead, Bonneau relies on the Industrial Sound crew. "All of the guys I have out here have been around for a long time, so they're helping me out," Bonneau concludes, "and it's really a learning experience for a lot of engineers out here, and for myself. This is pretty big for me; I'm enjoying it. As long as the weather stays on our side—no more hail, no more tornadoes!"



JOHN & COUNTING MAYER & CROWS

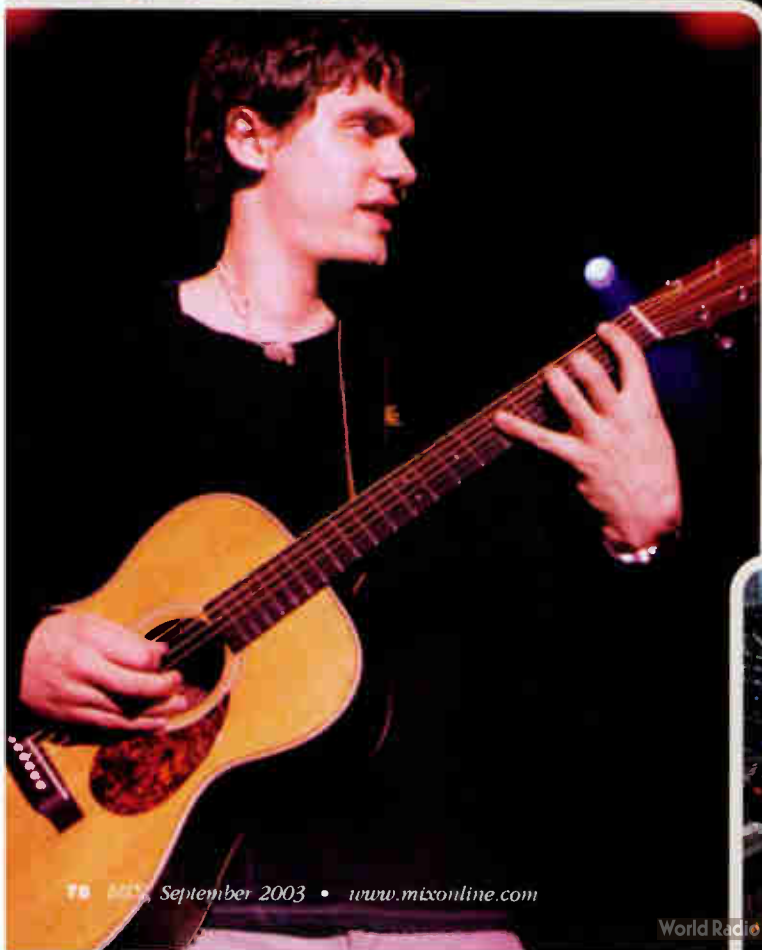
Breezin' Down the Road



By Heather Johnson

Photos By Steve Jennings

You can rest your bones on me," reads a large, white sign held by one of the thousands of 20-something young women who jammed Concord, Calif.'s Chronicle Pavilion to hear guitarist/songwriter-turned-pop-wunderkind John Mayer. Dressed in baggy jeans and a long-sleeved, black T-shirt, Mayer, along with co-headliners the Counting Crows, had the packed house swaying and singing to their respective



Pictured from left: Scott Frey (Showco engineer), Chad Franscoviak (John Mayer FOH engineer) and Bruce Jones (Counting Crows FOH engineer).

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- Wayman Tisdale, Jazz Recording Artist and Musical Director of Friendship Church in Tulsa, OK

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Pictured from left: Kory Carter (Counting Crows monitor engineer), Andrew Baldwin (Showco system tech), Jonathan Edmonds (monitor tech) and Adrian Silverstei (John Mayer monitor engineer)

sets of familiar hits, well-crafted album cuts and outta-left-field cover tunes.

The 26-year-old Mayer built a vast network of MP3-downloading, tape-trading fans through rigorous touring

and well-received efforts such as the acoustic EP *Inside Wants Out*, a 1999 DIY project reissued last year by Aware/Columbia. His sudden leap from AAA darling to Grammy-winning pop

artist, however, occurred in 2001, when Columbia released the now-triple-Platinum *Room For Squares*, a full-band effort showcasing his emotive songwriting and fluid melodies. This summer, Mayer hit the road in support of *Any Given Thursday*, the Platinum-selling live DVD/CD released on Video Aware in February. He's also giving fans a taste of the Jack Joseph Puig-produced *Heavier Things*, which hits stores in September.

FOH engineers Chad Franscoviak (John Mayer) and Bruce Jones (Counting Crows) both worked on Harrison's Showconsole, Dallas-based Showco's touring version of the Harrison Live Performance Console (LPC). The digitally controlled, analog audio mixing console features one centrally located, 16-fader subgrouping and auxiliary master section, flanked by two 20-fader input sections capable of controlling up to 80 live inputs. The console's instantly recallable settings, combined with a sophisticated dynamics section, 4-band parametric EQ and highpass filter, easily accommodated the three-act

Do Zaolla cables reduce latency?

Sjoerd (Sjoko) Koppert's NGS Productions is one of the top digital rooms in the USA. Whether tracking or mastering, he only uses the best available solutions.

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tour, which also included an opening slot shared by Maroon 5 and Graham Colton.

"It's a great-sounding, intuitive console," says Franscoviak, an Atlanta-based studio and live engineer who began working with Mayer when he was still an up-and-coming club act and occasional session musician. "Like any computer, though, you've got to speak kindly to it; make sure you're on its good side that day."

Frequencies leaving the console are monitored with Metric Halo's Spectra-Foo software, which Franscoviak runs using the Metric Halo Mobile I/O and a Macintosh G4 laptop. "You can visually reference how the speakers, crowd and environment are influencing the mix, among other things," he says. He also uses an Earthworks omni mic for room monitoring, and he records each concert using Tascam DA-78HR DTRS recorders.

Franscoviak keeps outboard gear to a minimum, using the Showconsole's onboard dynamics for most of the band's guitars and keyboards. Electric guitars are captured using a combination of Shure SM57 microphones and the Hughes & Kettner RedBoxes. For David LaBruyere's bass, Franscoviak opts for a Summit TLA-100A tube-leveling amplifier, while J.J. Johnson's drums are run through a pair of Avalon SP737 tube preamp/EQ/compressors. "I run the entire mix through an Allen Smart C2 Compressor," he adds. Franscoviak also uses a Lexicon 480L R, TC Electronic M2000 Reverb and 2290 Delay, and an Eventide H3000 for effects.

When it comes to outboard gear and microphone choices, Franscoviak admits to "an incredible amount of experimenting" on Mayer's 40-date shed tour. "Almost every day I throw different mics up on something." For this particular concert, Franscoviak chose a Beyer TM88 and a Shure Beta 91 microphone for the kick drum, a Neumann KM 184 on the hi-hat, a Shure Beta 98 for the toms and an AKG 414 for the overheads. A Shure SM57 captured the snare drum from the top, while another AKG 414 took care of the bottom. Franscoviak also used a Shure Beta 98 as a snare-rim mic.

Bass and acoustic guitar both ran through the Avalon U5 Instrument DI/preamp. Electric guitars were miked with Shure SM57s, while backing vocals ran

through Shure Beta 58s. Meanwhile, Mayer's own deep, breathy voice translated well through a Shure SM86. "John's vocals have a lot of low-mid and high end, but not much midrange, and getting that requires a fair amount of soft compression," Franscoviak says.

Keeping Mayer's rich vocals audible above a full rock band and a cheering, singing audience presents yet another challenge. "John's fans hang on every word, but that doesn't keep them from being pretty loud themselves," Franscovi-

ak says. "On the last tour, we played indoor venues, and the level coming from the crowd would overpower the P.A. A lot of the fans sing along with the set, so keeping the band up is always an interesting dilemma."

For the outdoor tour, the Mayer crew relies on Showco's PRISM Sound System, paired with the Clair iO loudspeaker controller manufactured by Lake Technologies. Showco also provided invaluable tech service and support. "From my experience, it really performs

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Live mix

best if you don't carve it up," Franscoviak says of the PRISM system P.A. "It's all about the right mics, direct boxes, pickups, all of that, as opposed to hacking away at the EQ. It's the most well-thought-out P.A. I've used, and gives very even coverage."

At the Chronicle Pavilion, the PRISM loudspeaker system included five columns of four Showco cabinets (they tour with eight columns of four per side), four front fills, four underfills and six subwoofers per side.

According to monitor engineer Adrian Silverstein, the Clair iO DSP speaker controller provides excellent EQ for the Sensaphonics In-Ear monitors, worn only by Mayer and the technical engineers. "John sings so soft that the wedge just doesn't help Chad out sonically," says Silverstein, who worked for St. Louis-based production company Aircor Audio before hitting the road with Mayer last year. His career also includes a brief stint with Bon Jovi and the Goo Goo Dolls, under the guidance of engineers Raza Sufi and Jon "Boo" Bruey. For Mayer and band, Silverstein runs eight monitor mixes from the Shure PSM 700 belt-pack transmitter/receivers through a Clair Bros. RF Power Amplifier, fused with Professional Wireless Systems Helical antenna.

Silverstein also uses a TC Electronic M5000 reverb—found next to the second Showconsole in the area affectionately referred to as "Monitor World"—on Mayer's vocals. In fact, the M5000 is about the only piece of outboard gear Silverstein uses, due to the Showconsole's array of channel dynamics. "In my opinion, if you keep it simple, you're going to get better results," Silverstein says. "There's less room for error and you're going to get a more natural tone."

With minimal outboard gear, Silverstein created a natural-sounding monitor mix, one that's able to "breathe" with the music, yet remains audible. FOH mixes for both acts sounded balanced and, mercifully, far from ear-splitting.

Like Mayer, Bay Area rockers the Counting Crows evolved from club-crawling road warriors to a chart-topping arena act, bolstered by landmark success of the 1993 *August and Everything After*. With a backdrop of mountainous Northern California behind them, the seven-piece played a half-



Counting Crows frontman Adam Duritz

acoustic, half-electric set that included favorites from their vast catalog ("Mr. Jones," "Hangin' Around" "Rain King"), as well as a spirited cover of the Grateful Dead's "Friend of the Devil."

Bruce Jones, a 30-year live sound veteran whose credits include REM, David Bowie, Rick James, Ted Nugent and Santana, among others, had his hands full accommodating seven musicians, four of whom change instruments from song to song. Guitarists Dan Vickrey, Matt Malley and David Bryson switched between bass guitar, banjo, mandolin and pedal steel, while keyboardist Charles Gillingham played acoustic grand, Wurlitzer, Hammond B3 and accordion. "Then, of course, everybody wants to hear Adam's [Duritz] vocals right out front," Jones adds. "You have to keep your hands on the faders at all times."

Duritz's distinctive voice stood out with the help of a Shure Beta 87 microphone and Sony MU-1 reverb. Jones double-mikes the guitars, using a combination of Shure KSM 32s, Beta 56s and SM57s. Two Shure 91s and a 309 cover the kick drum, an SM57 captures the top of the snare and an 87 catches the shell

"to get that fat snare sound," Jones adds. Audience mics were also Shure models.

Jones keeps two mixes going, one for the live audience and another, with drums and vocals down, for the audience at home. "We release CDs of every show," he says. "People can go to the Website and get the CD from the board. I burn straight onto a Sony recorder."

For monitors, engineer Kory Carter faces the daunting task of keeping the seven-piece sonically happy, especially one reportedly particular lead vocalist. Six of the seven bandmembers wear Ultimate Ears in-ear monitors. "We have three floor monitors onstage, and all the rest is in-ear," Carter says. His mix fills more than 50 channels, but like Silverstein, the Los Angeles-based engineer uses minimal outboard gear. "We don't use a lot of compression or gates because it's all in the Showconsole," Carter says, adding, "anything to keep it smaller!" He does use a

Lexicon PCM 80 reverb and BSS DPR-901 EQ on Duritz's vocals, however.

Carter, who has worked with Counting Crows for more than seven of his 12 years as an engineer, has accompanied the band to small clubs, festivals and stadiums, including memorable dates with The Who, the Rolling Stones and Santana. "A lot of the crew has been here as long, if not longer, than me," he adds.

Though different in style and background, both the Counting Crows and John Mayer place high value on the live performance, and they allow fans to take the experience home with them, whether it be via downloaded CD or taped in person. Mayer encourages and allows audiotaping, though no sound board or power feeds are provided. On this tour, like others from Mayer's career, fans will have more than enough set lists and stories to exchange. "I haven't seen any two shows performed the same," Franscoviak says. "It's different every night... although John's gotten a lot better about following a set list." ■

San Francisco Bay Area-based freelance writer Heather Johnson is a frequent contributor to Mix.

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New Sound Reinforcement Products

ALCONS TS SERIES

Alcons Audio's (www.alconsaudio.com) new TS Series of compact loudspeakers is designed for basic reinforcement, fills or under-balcony applications. Both the TS 3 and TS 7 feature a 6.5-inch, mid-bass driver with a 1-inch, soft-dome tweeter on an optimized wave guide. Peak power for the TS 3 is 400 watts, with an efficiency of 89 dB (1W/1m) and a frequency response of 66-20k Hz. The TS 7 offers peak power of 800 watts, with an efficiency of 92 dB (1W/1m) and a frequency response of 66-20k Hz. Other highlights: Speaker components are matched by an audiophile-grade crossover network, and baffle reflections have been eliminated by flush-mounting the components and perforating the sides of the grille. The TS 3 and TS 7 feature double Speakon connectors and a variety of mounting accessory options.



MARTIN W8LS LINE ARRAY SUB

Martin Audio (www.martin-audio.com) rounds out its benchmark W8L Line Array system with the new, compact W8LS Line Array Subwoofer. The W8LS is designed to augment the W8L in large-scale applications where the sub-bass must be flown. The W8LS is a high-power, dual-long-excursion, 18-inch direct radiator design that produces 138dB continuous and 144dB peak, with an extended response from 32-180 Hz (± 3 dB) and a usable response to 28 Hz (-10 dB). The cabinet contains twin 1,000-watt, 18-inch (460mm) drive units with magnet structure and suspensions engineered for maximum linear excursion. The drivers are reflex-loaded by ports at either end of the enclosure; substantial internal bracing minimizes energy absorption by the cabinet walls. The W8LS measures 51.7x19.3x29.7 inches and weighs 238 pounds.



SHURE DISTRIBUTES COUNTRYMAN MICS

Shure Inc. (www.shure.com) is now offering Countryman's B6 omnidirectional lavalier and E6 omnidirectional EarSet microphones as an option to its wireless systems. Countryman will provide a limited one-year warranty that covers defects in material and labor for any B6 or E6 products purchased through Shure. The units are compatible with most Shure bodypacks; the earworn mics (models WCE6B and WCE6T) have a suggested retail price of \$488.50, while the lavalier units (models WCB6B and WCB6T) list for \$408.50.

JBL SFI INSTALLATION LINE

JBL Professional's (www.jblpro.com) new SoundFactor Install (SFi) speakers have installation versions of two models: Both of the new SF12Mi and SF15i have the same value/performance as their ground-bound counterparts. Each new model has three M10 threaded suspension points, and the speakers are supplied with three forged, shouldered eyebolts. Both models have two suspension points on top; the SF15i has a pullback point on the lower rear panel, while the SF12Mi's pullback point is on the bottom panel. The handles, pole-mount socket and feet have been removed for a clean, uncluttered appearance.



RENKUS-HEINZ COBRANET BREAKOUT BOX

Renkus-Heinz's (www.renkus-heinz.com) CobraNet™ Breakout Box lets users connect non-CobraNet products to a CobraNet network without purchasing special amplification or retrofitting existing systems with CobraNet technology. The unit provides six fully balanced analog output channels on miniature Phoenix output connectors (supplied); all outputs are muted via power on/off to prevent system thumps. Also included are an output for the company's R-Control system, a standard pair of RJ-45 Ethernet connectors that allow for redundant signal transmission and two balanced line-level analog inputs.

SENNHEISER EXPANDS EVOLUTION 800 LINE

Sennheiser (www.sennheiserusa.com) introduced three new vocal microphones to its 800 Series of entry-level mics. The E 815S, E 816S and the E 817S are cardioid mics housed in rugged metal bodies for performance durability and suppression of handling noise. Each mic comes with an XLR/XLR or XLR/ $\frac{1}{4}$ -inch cable and a mic clip.

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And I Thought the Salsa Was Hot!

Activity Heats Up in the Chip War Trenches

Chips, they're everywhere: in your toaster, in your car (quite a few, in fact) and, of course, in your DAW. This month, we begin a two-part series to revisit the age-old PPC vs. Intel debate and look into the new 64-bit crop of CPUs, which will have a significant impact on host-based DAWs.

To go forward, we must go into the past! Yes, cast your mind back to last March, when "Bitstream" discussed single- vs. double-precision DSP processing. If you recall, run-of-the-mill DSPs typically store numbers as a floating-point, 24-bit mantissa and an 8-bit exponent. Some fancy-pants DAWs double up the data and perform double-precision calculations, with a 48-bit mantissa and a 16-bit exponent. This larger number of significant digits allows more signal processing to be performed before rounding errors are introduced.

Okay, fair enough. But to generalize, most arithmetic processes are more precise with double the word length, including the general-purpose CPUs that are the soul of Win and Mac computers. In Windows world, those general-purpose Intel CPUs we take for granted began their evolution as the 4004, introduced in 1971. The 4-bit 4004 wasn't much fun, but its children—the 8-bit 8008 (introduced the following year) and the 8080 (in 1974)—paved the way for the 8086, which, it could be argued, spawned the whole personal computer industry. The 8086 ran its 16-bit words at a blazing 5 MHz, could address a fat 1 MB of memory and formed the computing core of IBM's first PC. MITS' Altair, the first personal computer, used an 8080 and came to market in 1975 for \$395. Notice the trend: 4, 8 and then 16-bit computers. By the mid-'80s, Intel had a 32-bit processor: the 386.

By the early '90s, Intel was working on the first Pentium, and users of the other common flavor of microprocessors—Motorola's MC68000 Series—realized that they also needed a next-generation shot in the arm in order to compete. In 1991, Motorola, IBM and Apple Computer formed the PowerPC (PPC) Alliance, and so the PPC's RISCy ying to Intel's CISCy yang was born. Though the first product of the PPC Alliance, the 601, was a 32-bit microprocessor, it had both 32- and 64-bit registers and a 64-bit FPU (Floating Point Unit).

Four years later, the PPC Alliance released the second-generation 620. With 64-bit internal data paths and 32-bit I/O, it was the first (though partial) 64-bit implementation of the PowerPC architecture and set



Intel's latest—the Itanium² processor—began shipping in August.

the stage for things to come. In a very smart move, the PPC family was designed as a 64-bit cruncher with backward binary-compatibility for 32-bit applications. It would take awhile for Intel to learn the backward-compatibility lesson, but, with the ability to chop its spectacular profit margins and still make a tidy penny on its CPUs, Intel countered the PPC threat with lower prices, while starting a dizzying spiral of ever-increasing clock rates to compensate for inherent CISC performance limitations.

A big physical difference between the PPC and the Pentium is the PPC's Reduced Instruction Set Computing (RISC) character. Relative to CISC (Complex Instruction Set Computers), like the original Pentium, RISC architecture—with fewer instructions baked into silicon—sacrifices complexity for increased speed: the lean and mean approach. Another factor, according to IBM, was that "...the Power Architecture was unique among the [six] existing RISC architectures in that it was functionally partitioned, separating the functions of program flow control, fixed-point computation and floating-point computation." The architecture's partitioning facilitated the implementation of a "superscalar design," a now-ubiquitous feature, which made it possible to execute multiple instructions during a single clock cycle. Intel, while clinging to its x86 architecture, has its own superscalar family called the i960, which is used for embedded application and not general-purpose computers like the Pentium. Not to be outdone by the competition, the Pentium has increasingly cribbed pages from its i960 brother, adding a RISC core with CISC trimmings to make it backward-compatible with older x86 processors.

However, during the past decade, there is one met-

And They Thought We Weren't Going To Make Another One...



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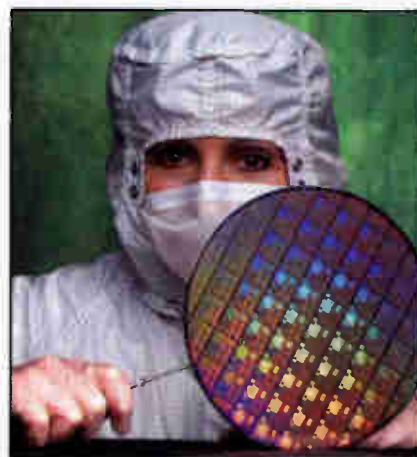
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ric that CPU powerhouse Intel has emphasized in its saturation ad campaign: Faster is better! Intel latched onto clock speed as the defining selling point for its products. Unfortunately, clock speed alone is a false measure of real-world performance and can only get you so far, because architectural decisions by the Intel design team have forced them to ramp their clock to the limits of heat dissipation in order to improve execution. Indeed, current draw (and subsequent heat generation) is the limiting factor in the go-fast world of Intel. It's not uncommon to find

all sorts of exotic cooling methods used by manufacturers and hobbyists to keep their Pentiums from doing a "Three Mile Island" on the motherboard: Heat pipes, active refrigeration (both solid-state Peltier heat pumps and old-school compressed gas versions) and even water cooling has been pressed into service to chill those huge, power-hungry chips.

When asked about the current range of 32-bit Intel processors and how they hold up to current PowerPCs, digital audio pioneer James A. Moorer (now of Adobe Systems) doesn't have any qualms about



IBM's Power4 chips form the basis of Apple's new G5 processors. Pictured here is an IBM software engineer examining a full wafer of chips.

stating that, "the PPC is light years better and faster than any of the others. The P4 [Pentium 4] is pretty close, but still quite a ways off. The big thing is that the PPC chip has 64-bit data paths, and *all* of the Pentium chips are 32-bit data paths only. That makes the PPC chip more than twice as fast; it yields more than twice the data rate. Every benchmark I've done comes out with a difference of a factor of four times over the fastest single-processor Intel processor I could find. My benchmark is pure double-precision, floating-point crunch-power, with big, sprawling data structures. My FFT routine [Fast Fourier Transform, the basic math trick that powers all audio DAWs] generally incites the worst-case behavior of most processors' address-prediction hardware."

Address prediction? The whole PPC vs. Intel debate, in a way, boils down to prediction and how designers go about auguring upcoming processing requests. However, that discussion will have to wait till next month. The stage is set to discuss a chip feature that mainframe, scientific workstation and Apple customers have long enjoyed: 64-bit and longer data words. Longer is better for "sprawling data structures," and such big-league computing is starting to make an impact on the Windows desktop, as well.

Next month, we'll delve further into the Intel vs. AMD and Itanium vs. Opteron tussle, while looking at IBM's 970, the fifth-generation PowerPC destined for Big Blue's servers and Apple's new PowerMacs. ■

Drop by www.seneschal.net for deeper threads and illustrations concerning this month's topic.

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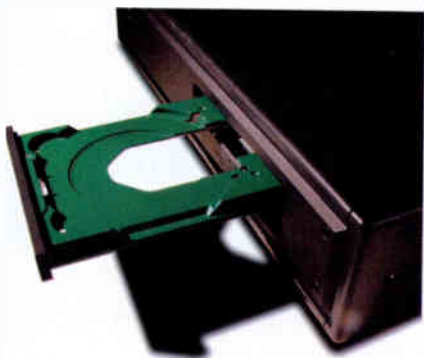
World Radio History

Tools of the Trade



API 8200

The new API (www.audiotoys.com) 8200 mixer provides eight inputs, each with level control to the stereo bus, pan and two auxiliary sends per channel, all in a single-rackspace unit. The 8200 is designed to operate with one or more API 7600 Input Modules and the 7800 Master Module to create a custom, easily expandable portable console. Each channel uses API 2510 op amps, and includes a balanced input, balanced insert point, and front-panel Mute and Solo switches. Price: \$1,995.



SONIC STUDIO CD-R

Sonic Studio LLC (www.sonicstudio.com) is now shipping the CD.1, a professional CD-R imaging device with matched media that is optimized specifically for music mastering. The new drive, with 1x and 2x burning, features a customized TEAC 512 in a fortified and shock-mounted rack enclosure. Drive mods include an upgraded quartz-crystal oscillator (instead of the standard ceramic) and a laser tuned for use with a specially formulated, Sonic Studio-branded Taiyo Yuden media. Price: \$2,495.

EVENTIDE CLOCKWORKS LEGACY PLUG-INS DEMO

Eventide announced the availability of fully functional, time-limited demos,

downloadable from www.eventide.com. The demo includes the Omnipressor, H910, H949, Instant Phaser and Instant Flanger plug-ins for Digidesign Pro Tools TDM systems. During the seven-day-trial demonstration period, users will enjoy unrestricted use of all five plug-ins until the demo period is over. Further use will require purchasing the software, which is available through authorized Eventide dealers worldwide. [See the review in *Mix*, July 2003.]

EMERSYS MAVEN3D PROFESSIONAL

This new audio editor for the PC platform operates at up to 24-bit/96k, is surround-capable (5.1) and offers 64 tracks. It comes with seven built-in plug-ins, including several 3-D sound effects and a room simulator. DirectX, DMO and VST plug-in support allow for added functionality, while ASIO 2.0 driver support provides low latency in playback and recording, and hardware versatility. Video-referenced editing supports playback and audio extraction from five video formats, as well as saving to AVI. Windows Media Audio 9 and WMA9 Pro file encoding are also fully supported, while AC-3 and AAC encode/decode can be purchased as an option. Price: \$399.99; AC-3 module, \$299; AAC, \$499. See more at www.maven3d.com.



STORCASE ULTRA320 SCSI INFOSTATION

For those of you with an insatiable hunger for hard drives, StorCase (www.storcase.com) introduces the new 14-bay, three-rack-unit InfoStation. Each enclosure supports up to 14 low-profile

SCSI Ultra320 SCA drives, and is downward-compatible with earlier SCSI Wide technologies. The enclosures are constructed of corrosion-resistant steel, and each includes two redundant power supplies, two variable-speed fan modules, and 14 removable and locking drive carriers, all hot-swappable. The User-Interface Module on the center of the unit provides feedback on chassis configurations and communication status, and adds an RS-232 connection for environmental monitoring, configuration and control. Prices start at \$2,695.



DISC MAKERS MACELITE DUPLICATOR

Disc Makers (www.discmakers.com) released Mac OS X-compatible CD and DVD duplication and printing systems. The MacElites feature an easy-to-use interface that allows users to design disc-label artwork, copy CDs and DVDs, and archive images of frequently copied titles to their hard drive. The systems include a 2,400-dpi inkjet disc printer, and are available in configurations ranging from one to four CD-R or DVD-R drives. Prices start at \$3,990.

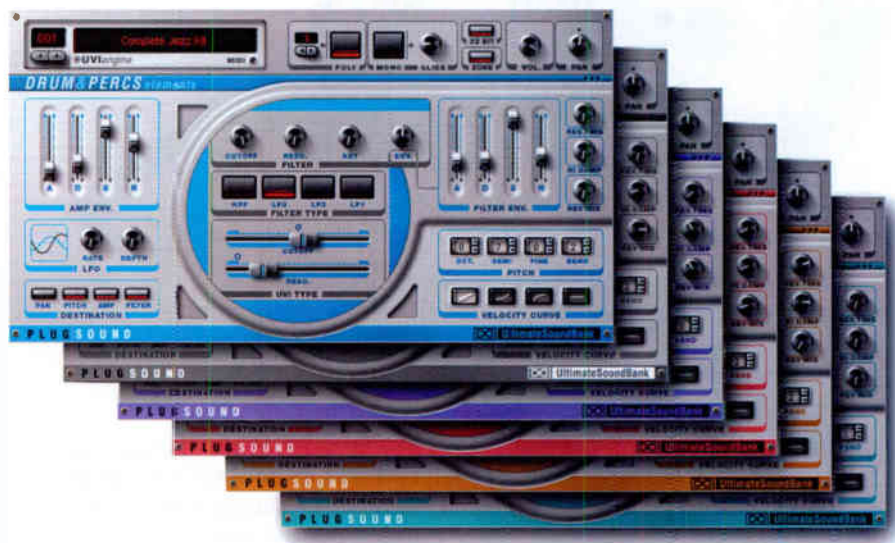
OMNIMOUNT ARC SPEAKER FRAMES

Especially useful in surround situations, the new ARC frames from OmniMount (www.omnimount.com) enclose the

monitor on four sides and are held together by a dual set of aircraft-quality cables, with a unique tensioning block. From there, wall, ceiling or tripod mounting is available with the well-known OmniMount clamp, jaw and ball assembly. The five available kit sizes will handle some of the smallest monitors, up to the largest, including loads of 250 pounds. Price: \$219.95 to \$319.95.

TC WORKS TC TOOLS 3.6

Now available for Pro Tools, the TC Tools 3.6 bundle from TC Works (www.tcelectronic.com) comprises the Mega Reverb, Chorus/Delay and EQsat plug-ins. Operating at up to 96k, the plugs tap into, and even improve upon, the TC Electronic M5000 processor's core technology. The plug-ins will work on both HD and 24 MIX systems (Mac OS X and Windows XP), and use an iLok for authorization. TC Tools is distributed by Digidesign (www.digidesign.com).



effects processors. The unit features the interface and programs that so many of us are used to, but now, Yamaha has added 24-bit/96k operation, advanced navigation, an advanced REV-X reverb algorithm and more. Analog I/O is provided for via XLR and 1/2-inch connectors, both with a +4dBu/-10dBu selector switch, while digital I/O is AES/EBU

white or gray, is 23 3/4 inches square and 4 1/4 inches deep and comes two to a box for \$200. Visit www.rpginc.com for a full dealer list.

PLUGSOUND 1.8 SAMPLE LIBRARIES

Ultimate Sound Bank (dist. by Ilio, www.ilio.com) has rolled out the all-new Plugsound 1.8 family of sample libraries. Version 1.8 features a new graphical interface and a built-in Reverb function. The line consists of six volumes including Keyboards, Fretted Instruments, Drums & Percussion, Hip Hop Toolkit, Synth Collection and Global Plugsound. Each library is compatible with a Macintosh and Windows-based PC, and can be purchased individually for \$99, or as a specially priced six-volume box set for just \$499.

EVENT STUDIO PRECISION 8 SHIPS

Event (www.event1.com) has rolled out its new flagship monitor, the Studio Precision 8. The new monitor features an 8-inch, low-frequency driver; a 1-inch, soft-dome HF tweeter; and comes in either passive or active versions. The active 8s are powered by 200 watts on the low end and 80 watts on the high, and feature continuously variable low- and high-frequency trim controls, a continuously variable input-sensitivity control and a switchable 80Hz highpass filter. Dual large-diameter bass ports reside on the front, and connection is made via balanced XLR or 1/2-inch inputs.



DE MEDIO DME103 PREAMP

Audio designer Frank De Medio (www.demedioengineering.com) has recently released the DME103 dual-channel mic preamp. Capable of providing up to 67 dB of gain at a frequency response from 10-50k Hz, the unit features a four-position attenuator, continuously variable gain, individually switchable phantom power and large illuminated VU meters. The unit has balanced outputs, and is available directly from De Medio in Sun Valley, Calif. Price: \$2,500.

YAMAHA SPX 2000

This past summer, Yamaha (www.yamaha.commercialaudio.com) released the next generation of the SPX line of multi-

(XLR). There is also wordclock input (BNC), MIDI In/Out/Thru, and USB connectors for remote control and data management using computers, digital consoles or any MIDI device. A foot-switch connector for effects tempo control is located on the front panel. In the works for an October release is a cross-platform (Mac and PC) editor that will allow manipulation and storage of programs and parameters offline.

RPG HEMIFFUSOR

This new, low-profile, 2-D, RPG-signature diffusor is now available in an easy-to-install version for the project studio. Suitable for either wall or ceiling applications, the diffusor comes in either



STUDER ONAIR 500

Studer (www.studer.ch) adds another notch to its broadcast belt with the release of the OnAir 500, a compact console designed for small, live, on-air applications and for outside broadcast operations. The OnAir 500 features six channel faders, two master faders, an integrated routing system, and comprehensive monitoring and talkback facilities for control room and studio. The integral power supply may be backed up by an external 24-volt DC supply, ensuring continuity of programming and easy mobile use. The OnAir 500 integrates easily with Studer's DigiMedia broadcast system and the RCS Master Control automation system.

MACKIE UAD-1 3.1 AND CAMBRIDGE EQ

Mackie Designs (www.mackie.com) announced the release of UAD-1 Version 3.1 software and the availability of a new Powered Plug-In: the Cambridge EQ. Version 3.1 enables multcard support on the Macintosh platform and compatibility for the Cambridge EQ on both Macintosh-

and Windows-based systems. Cambridge is a new a 5-band, fully parametric EQ featuring a wide variety of filter types and curves.

MINNETONKA SURCODE FOR PRO LOGIC II

Minnetonka Audio Software (www.surcode.com) has announced a new encoder for Dolby Pro Logic II, which allows broadcasters, game developers and audio professionals to easily encode surround sound into stereo-delivery formats. Currently available as a stand-alone, Windows-based application, it will soon be available as a standard VST plug-in, allowing it to be used on a number of popular DAWs. All versions are \$495.

FURMAN SRM-80A

Furman Sound (www.furmansound.com) has released the new SRM-80A signal router/monitor. The new unit provides the flexibility and capabilities of a large-format console's monitor section in a single-rack-unit device. The SRM provides signal routing and monitoring for four stereo mixdown devices, and three

sets of studio monitors and/or headphone amps. The unit simplifies bouncing of stereo info between formats via its Source Select switches, and offers stereo metering on the front panel. Price: \$699.

MAXVISION MAXPAC8020M

MaxVision Corporation (www.maxvision.com) has released the new MaxPac8020M Pro Audio transportable workstation. The 8020M is a full-performance, shock-mounted, Pentium 4 desktop workstation specifically designed for mobile use. The unit provides the necessary PCI slots, high-performance dual hard disk (up to 290 GB), DVD/CD-RW burner and a brilliant 17-inch display, in less than 27 pounds and 1 cubic foot of space. Prices start at \$5,000.

TOFT AUDIO ATC-2

The ATC-2 is a dual-channel mic preamp, compressor and 4-band EQ designed by Trident Audio founder Malcom Toft. Each channel in the two-rackspace unit is switchable between mic and line input, and includes phantom power, a polarity switch and a direct input. Primary I/O connection is via balanced XLR or TRS. The EQ section features two sweepable mid-bands, while the low and high bands are shelving with two selectable frequencies per band. A low-pass filter fixed at 50 Hz is also included for each channel. The FET compressor has adjustable Attack, Release, Ratio and Gain, and can function independently or be linked for stereo operation. Price: \$1,299.99. Toft Audio is distributed by PMI Audio Group, www.pmiaudio.com.

STUDIO ELECTRONICS C2S

SE (www.studioelectronics.com) has just released the C2s, an 1176-type FET dual-channel compressor/limiter that has "pro" written all over it. The unit features discrete Class-A design, balanced I/O, a relay hardware bypass and gold XLR, switch contacts and internal connections. The front panel sports Input, Output, Attack, Release and Ratio controls, along with two dual-purpose "rainbow" meters that let the user judge gain reduction and output at the same time. SE is now distributed by Wave Distribution. Price: \$2,495.



CAMBRIDGE EQ

NEW Cambridge EQ

A mind-bogglingly-powerful five-band, fully parametric EQ with high precision filter structures and proprietary algorithms to give you a rich, warm analog sound.

(Sold separately at mackie.com)



PULTEC PROGRAM EQ



JAMES 'FLASH' HUSTED, *Universal Audio*

REALVERB PRO

COMING SOON DREAMVERB



Reverberation

NEW DreamVerb™

Developed in the award-winning tradition of RealVerb Pro, DreamVerb gives you all-new reverb sounds from an international team of producers and sound designers. With highly adjustable filters, separate envelope control on early reflections and late reverberation, adjustable air-propagation, and presets galore, this is as good as it gets.

RealVerb Pro™

It's been called the most flexible and natural-sounding reverb plug-in on the market. We agree.

What the #@*! does *Mackie* know about plug-ins?

At Mackie, we know a lot about mixers, speakers, amplifiers and digital recording. But we've never claimed to be effects code gurus. That's why we partnered with the experts at Universal Audio to bring you the UAD-1 Powered Plug-Ins™ card – the best-selling third-party DSP plug-ins card in the world.

The Secret To Our Success

Thanks to a super-computing-grade DSP chip and a team of highly trained physicists (no, really), the UAD-1 gives you the most powerful, complex and natural-sounding suite of plug-ins ever offered on a PCI card. And you can use the UAD-1 with most major audio software, and combine up to four UAD-1 cards on a single computer – all without significant drain on your host computer's CPU.

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This award-winning guitar processing software gives you endless combinations of stellar amp and speaker models.

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TELETRONIX LA-2A LEVELING AMPLIFIER

Classic Compression

1176LN™ Limiting Amplifier
This is the only authentic digital emulation of the 1176LN, accurate right down to the last resistor.

LA-2A™ Leveling Amplifier
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ALESIS PROLINEAR 820DSP

The new 820DSP from Alesis (www.alesis.com) features an 8-inch Kevlar woofer and a 1-inch, silk-dome tweeter powered by an 80-watt and 40-watt amp, respectively. The monitor features adjustable digital parametric EQ that can be altered onboard via the built-in LCD, or from a computer. The included software offers control of up to 16 ProLinear 820DSPs, storage of user settings and modeling of various monitor types. Price: \$1,499 pair.

API 5006B LUNCHBOX

It's not a free lunch, but it's certainly bigger and less expensive than its predecessor: The new API (www.apiaudio.com) 5006B includes its own built-in power supply and is designed to accommodate six API 500 Series modules, including the 512C mic preamp, 525 compressor/limiter, 550B switchable EQ and 560 graphic EQ. Price: \$495.

**CREAMWARE****SCOPE FUSION PLUG-INS**

SCOPE Fusion users will jump for joy at the news that CreamWare (www.creamware.com) has ported three new plug-ins for the platform. First, the B-2003, a B3 emulator that accurately models key

clicks, tone wheels, percussion and rotating-speaker effects. Next, the Sequential Circuits Pro-One (remember that?) keyboard, including the original step sequencer and arpeggiator. And rounding out the hat trick is the Interpole filter from the Minimax synth. Price: TBA.

UPGRADES AND UPDATES



Soundscan, in partnership with Ilio, unveiled a new Website, www.soundscan2.com. The new site allows users to demo and purchase products from the new Soundscan 2 Series...Waves (www.waves.com) announced expanded support of Mac OS X with the addition of Audio Units compatibility. Audio Units-format plug-ins will require Waves V. 4 software, available for free to all users enrolled in the Waves Update Program (WUP)...Roland (www.rolandus.com) released Mac OS X drivers for the M-1000

tion drivers already installed in the Audio MIDI Setup menu; updated XP drivers are available from the PreSonus Website...Dynaudio has upped the functionality of its AIR Series with the new AIR V. 1.10 software; the update allows the AIR Series to operate at 192 kHz. In addition, enhancements to existing features like bass management have been made, along with inclusion of a single parametric EQ for the sub channel and preset storage of setup information... Apple (www.apple.com) has shipped Fi-

nal Cut Pro 4. The latest version introduces more than 300 new features, including enhanced audio editing capabilities with multitrack audio mixing and multichannel audio output. It is available from Apple retailers for \$999 or for \$399 as an upgrade...GRM Tools' flagship gang of eight plug-ins for TDM has now been ported for OS X. The plugs can be downloaded for a trial or purchased from www.cdemusic.org... Sennheiser (www.sennheiser.com) is now offering a version of its HD 280 headphones with silver earcups, called the HD 280 Silver. Designed to "allow the headphones to be easily found in dimly lit environments" (what, they don't glow in the dark?), the Silvers offer ergonomically designed earpieces and easy replacement of all wearing parts, ensuring long life even in tough studio environments ■



The A-16 Personal Monitor Mixing System™

16 Channels • 16 User Presets • Unlimited Expansion • Easy



The Perfect Monitor Mix

Face it – your monitor mix is never right. Stage volume is often out of control. A poor monitor mix makes performing tedious.

Now you can get a great monitor mix for every performer. Whether you use in-the-ear monitors, powered speakers, or headphones, the Personal Monitor Mixing System allows each performer to adjust their own monitor mix settings. Aviom's easy-to-use system can help you get your stage volume under control.

A Simple Solution

Aviom has developed a revolutionary monitoring system that can transmit sixteen channels of audio over a single, inexpensive, and readily available cable. Each device in the system can be up to 500 feet apart. Setup takes only a few minutes. The simple user interface allows the performer to control channel volume, pan, and muting for sixteen channels of audio. And best of all, mixes can be saved in memory as Presets for recall at the touch of a button.

Hear better with Aviom.



Carl Cadden-James
Angel Mountain Studios

As Chief Engineer for a state-of-the-art music and production studio, Carl Cadden-James needs a cue system that is both flexible and expandable. "The A-16 is so easy to set up and use that it gives me more time to concentrate on creating a great sounding recording."



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AVIOM™

To Each His Own

Digidesign Pro Tools Version 6

OS X Support and Beyond

Version 6 of Pro Tools is more than simply an update to make it compatible with Apple's new OS X operating system; there have also been many important new features added. Most of these changes affect both LE and TDM systems, but there are some slight differences. (This "Field Test" covers the TDM enhancements; see page 98 for the critical LE improvements.) Though Version 6 is optimized for HD, MIX systems can partake of the update on a Mac running OS X, Version 10.2.3 or later. Hot on the heels of 6, an upgraded Version 6.1 (free as a download to current 6.0 owners) has been released, bringing this newest version of Pro Tools to PC (Win-XP) users.

The Mac I employed was a dual 500MHz G4 with 1 GB of RAM carrying a Pro Tools | HD2 and a single 192 I/O. Storage was handled by a Glyph Trip2 FireWire drive system, the MIDI interface was a MOTU MTP AV Mark II, and the control surface was a Mackie HUI.

My initial installation of OS X and Version 6 presented various problems, which took me a good deal of time to weed through. I was reasonably sure that my problem wasn't hardware-based because everything previously ran perfectly under OS 9.2.2, so I'm going to point my accusatory finger at OS X. After several attempts to remedy the situation by re-installing Pro Tools Version 6.0.1, I eventually conceded defeat and started from scratch. I wiped the entire system, reformatted all of the drives, swapped out the computer's RAM, re-seated the HD cards and re-installed OS X. It was an extreme solution, but it worked. I am writing this now only after the system has been running fine for more than a month, with no crashes.

LOOKING GOOD IN OS X

The Pro Tools GUI has received a major overhaul, adding attractive shading effects and redesigned controls to match the look and feel of OS X. The new look is appealing and has a lot more personality than the Version 5 GUI.

The Selector tool has finally been updated so you can now click and drag



Pro Tools 6 has a redesigned, OS X-friendly interface.

tracks over vertically and horizontally to make a selection. You'll never lose the playbar again with the new Playback Cursor Locator feature, a small arrow that appears in the Main Timebar Ruler. It shows up on the ruler's left when the playbar is pre the area displayed in the Edit window, and on the ruler's right when the playbar is post this area. Grid mode can now be temporarily suspended by holding down the Command key when trimming or moving audio and MIDI regions. This is a very convenient new feature when you're working in Grid mode, because it circumscribes the need to switch to Slip mode whenever you don't want an edit to snap to the grid.

A Relative Grid mode has been added, allowing regions to be moved while retaining their position relative to the nearest beat. For example, a region whose start point falls 500 samples after the beat can be moved without causing the region to automatically snap to the beat, as it would in Absolute Grid mode. This feature is particularly handy for moving regions that have a unique groove, where

the regions are not falling squarely on the beats. However, I was disappointed to discover that Relative Grid mode does not extend to audio regions when a session's tempo is changed. That is, audio regions do not keep their relative bar:beat:tick positions like MIDI events do after a tempo change.

PLUG-IN REPORT

Pro Tools' stock bundle of DigiRack plug-ins now includes the DPP-1 pitch correction and D-fx effect plug-ins. An AudioSuite version of D-Verb has also been added. Though these plug-ins have been around for some time and have often been given away in various promotional bundles, it's nice to have them officially added to the core package. A handy click plug-in, aptly dubbed Click, is now included (RTAS and TDM). Volumes of the accented and unaccented clicks can be independently adjusted, and there are several click sounds to choose from, including an MPC click. Click is very convenient and doesn't suffer from MIDI timing delays. All that's missing now to round

TL Audio's new Ivory 5052 Dual Tube Processor is all you need to add the unique sonic signature of vacuum tubes to your recordings. You can track instruments and mics in mono or stereo, with compression, parametric EQ and limiting on both channels. Then simply switch to stereo linked mode to fatten and sweeten your final mix.

Features · Tube preamp stage accepts mic, line & instrument sources · Tube compression section with fully variable parameters · Four band parametric tube EQ stage · Brickwall output limiter · Stereo mode allows channel A to act as master · Flexible VU metering · Optional DO-2 card provides 24-bit SPDIF output.



IVORY 2 Series

4-IN/2-OUT TUBE PROCESSORS

Designed and built in Britain, the TL Audio Ivory 2 Series has become the benchmark in affordable, flexible, high quality tube processing. Standard issue in leading project and commercial studios the world over, the Ivory 2 Series comprises:

5001 Quad Tube Preamp · 5013 Dual Tube EQ · 5021 Dual Tube Compressor · 5050 Mono Tube Preamp / Compressor · 5051 Mono Tube Processor · 5052 Dual Tube Processor



5052

DUAL TUBE PROCESSOR

PUT SOME SOUL INTO YOUR STUDIO

M3 Tube Tracker

8-INTO-2 TUBE MIXING CONSOLE

Perfect for bringing the digital recording process to life, the M3 is a small format 8/2 tube mixer that features discrete tube mic pres, four band EQ, two aux sends & returns, and a simple but flexible master section that features tube stages in the mix buss plus an optional stereo digital output.

The mixer is suitable for 19" rack or table top mounting, and multiple units can be linked so that stereo, PFL and aux busses are connected - enabling 16 or more channels to be run together.

"The EQs are super-sweet and beautifully voiced ... Time after time, the EQs imparted just what was needed and nothing more. In case it isn't obvious, I love this mixer."

Barry Cleveland, Mix, December 2002.



TL Audio

Based in Letchworth, England, TL Audio has built an enviable reputation for developing tube processors and mixing consoles of exceptional quality, at down to earth prices. In a cold, clinical, digital world, TL Audio pro audio products bring warmth, life and soul to the recording process. Find out more at your TL Audio dealer or visit www.hhbusa.com



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FIRST WE LISTEN

out Pro Tools' stock plug-in bundle is a virtual synth.

Plug-ins can now be inserted or removed during playback on HD and Mix systems. You do, however, need to stop playback to drag/copy a plug-in to a new location, add a sidechain, enable automation parameters and change a plug-in's format (change from a TDM to a RTAS plug-in). The ability to insert and remove plug-ins in this fashion is a huge time-saver, especially during mixing.

To make the upgrade from Mix to HD, every third-party plug-in had to be updated. Unfortunately, the same is true

once again with the step up to OS X. When I first received Version 6, many of the most essential third-party plug-ins weren't available. However, by the time you read this, that will have changed, as more and more are shipping every month. Because Waves' Version 4 plug-ins were ready at the tail end of this test, I installed them straightaway and they worked beautifully. You can still manage your plug-ins by manually pulling them in and out of the DAE Plug-Ins folder; only in OS X, that folder is now found in Library/Application Support/Digidesign.

FUN WITH MIDI

Now that Apple's CoreMIDI is supported, say goodbye to OMS. Setting up your MIDI studio connections in CoreMIDI is a piece of cake, especially if you are familiar with OMS: A similar type of icon to patchbay routing is employed. Once everything is properly connected, your MIDI devices show up in Pro Tools as usual. The Input Filter, Input Devices and MIDI Beat Clock menus all remain basically unchanged. However, there are now four virtual Pro Tools inputs that appear among the Input Devices. These inputs are for sending Pro Tools MIDI data from other supported applications running on the same computer (such as Ableton's Live program). I was able to get the Propellerhead Reason program and Pro Tools synchronized through CoreMIDI with the help of a handy shareware application, MIDI PatchBay, by Pete Yandell (www.pete.yandell.com/software).



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Earthworks ZDT preamps are perceptually perfect, *wire with gain!* Coloration: none (2Hz-100kHz ± 0.1 dB), Distortion: <0.0001%, EIN -140dBV @40dB of gain. Clean quiet gain, nothing less. Earthworks Sigma 6.2 speakers' 40kHz Time Coherent response reveals *all* the detail in your recordings. Their sound and image is like being there. Why settle for less, reach for Earthworks!

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Version 6 Features for Pro Tools LE:

- 32 voiceable tracks
- Increased track counts (128 audio, 128 aux, 64 master, 256 MIDI)
- Inactive tracks are now supported
- Time Trimmer tool has been added
- New key commands and shortcuts
- QuickTime DV playback

[Editor's note: Pro Tools 6.1 will accomplish this synchronization without the need for a third-party app.]

Also new is Groove Quantize. It comes with a nice selection of groove templates called DigiGrooves that includes grooves in the style of Logic Audio, Cubase and the MPC (the perfect companion to the Click plug-in's MPC click). In addition to using the supplied grooves, you can also extract one from a MIDI or audio track and apply it to a different MIDI or audio track. The functions for extracting a groove from an audio track or groove-quantizing audio regions are now part of Beat Detective. Its improved trigger detection and new trigger-point editing features make groove extraction from a recorded performance a snap. Unfortunately, because Beat Detective is only for TDM systems, the LE groove quantize is limited to MIDI tracks.

Up to 256 MIDI tracks are now supported per session, and when the Digidesign MIDI I/O interface is employed, sub-millisecond-accurate MIDI



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Everything you need for the most sonically sophisticated audio processing. Platinum provides you with essential daily tools, sweetening and mastering processors to sound design mindbenders. Combines all the processors from the award winning Gold bundle, plus new Masters and Renaissance Maxx.



"Platinum rocks, plain and simple. Simply a must-have for serious Pro Tools users. You better have this bundle in your rig if you want to do serious work!" Rich Tozzoli, Senior Editor Surround Professional - Blue Oyster Cult, Marsalis Family, Billy Squier, David Bowie.

"Waves Platinum is a standard part of my production and every day I rely on it...it's the most used portion of my system." Scott Martin Gershin, Sound Design/Supervisor, Soundelux

"Doing any kind of computer based audio without Waves plugs is like trying to drive the most souped up hot rod on earth without wheels." - Lars Fox of Everclear

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- Renaissance De-Esser | Renaissance VOX

Renaissance Channel

"Renaissance Channel is a dream to use. This module should be on the top of the shopping list... I'm sure it will fit virtually every need mixed up in it" -AudioMedia



- SET Compression Curves
- SET EQ/Dynamics Order
- SET Sidechain Routing



Version 4

From high end Pro Tools|HD systems, to cost effective native audio tools, Waves has the superior audio tools for the job: equalizers, compressors, limiters, reverbs, noise-removal tools, vocal processors, bass enhancers, stereo and surround imagers, and special filtering tools.



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timing can be achieved. MIDI performances can now be flattened, locked to their current state and then restored to this state at a later time using Restore Performance. This ensures that there's no chance of losing that last, best performance. Editing MIDI notes in Pro Tools is a little bit easier now that the Trim tool can trim note durations, even when the MIDI track is set to Velocity view. The Pencil tool can now draw and trim MIDI note and controller data, and the MIDI Operations, Tempo and Meter dialogs have been made into floating windows.

BROWSERS TO BRAG ABOUT

The options for importing tracks from other Pro Tools sessions have been greatly expanded. The Import Session Data window offers a place to select the type of track data that you want to import. The choices are pretty comprehensive, from voice assignment to pan. Track Offset Options and Sample Rate

Conversion (SRC) options have not changed. With the DigiTranslator (\$499) extension installed, OMF files can be imported, as well.

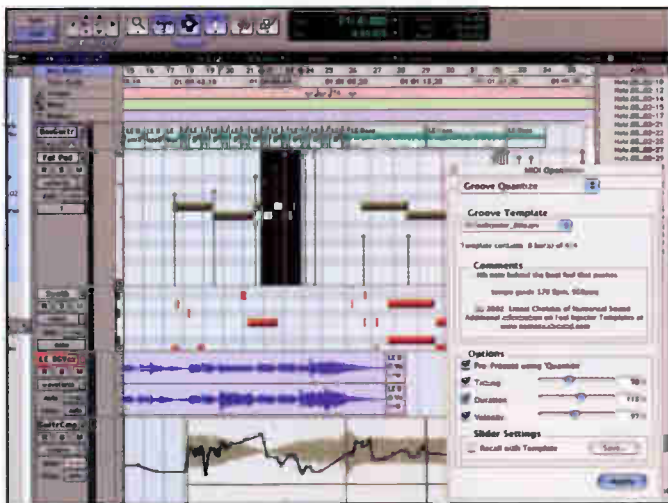
DigiBase is a new built-in file-manage-

and manage all of the files in your current session, no matter where they are located. A powerful search function, available in either window, lets you hunt for files according to a range of criteria, from file

type to metadata. Best of all, files can be dragged and dropped directly from the browsers into your session. DigiBase becomes second nature after a short time. It offers a great way to keep your sound libraries organized right from Pro Tools. In short, it's extremely convenient.

Another nice new feature is the Task Window. Here, you can view and pause background tasks, such as file conversion, copying and relinking. This is nice for managing your system resources during those delicate operations (like recording through effects) when

you need to be sure that there are no processor time-outs. AudioSuite rendering has not been made a background task, so this operation still ties up your computer.



New MIDI features in Pro Tools 6 include Groove Quantize.

ment system that's super cool. There are two main floating windows: a Workspace Browser, for managing files and folders across several drives at the same time; and a Project Browser, where you can view

The Family Jewels

[Whip'em Out At Your Next Session]



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VTB1 Variable Tube Mic-Pre

Analog or Digital, Our Roots Run Deep

You won't find TDM HD plug-ins, an award-winning channel strip, and an audiophile converter all at one pro audio company unless you check out Universal Audio. Few pro audio companies have the deep rooted recording industry heritage of Universal Audio, a heritage that is now carried into the digital domain with the release of the **2192 Master Audio Interface**, and our new line of plug-ins for Digidesign's Pro Tools HD system.

The EQ Magazine Blue Ribbon Award winning **2192** represents the perfect marriage of analog heritage and digital innovation; a discrete class-A analog signal path with ultra-stable clock, the 2192 supports practically any digital format, in & out, and doubles as a master word clock generator.

The **6176 Channel Strip**, which also won the EQ Blue Ribbon award, merges the legendary 610 Preamp/EQ with the World's best loved compressor, the 1176LN, for a tone that has defined "golden channel" almost since the inception of the recording industry.

The highly anticipated **TDM Plug-Ins for Pro Tools I HD**, including UA's critically acclaimed emulations of the LA-2A and 1176LN compressors and the Pultec EQ are also available at a UA dealer near you:

www.uaudio.com/dealers

analog ears | digital minds



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Universal Audio Pro Tools Plug-Ins



2192 Master Audio Interface



6176 Channel Strip

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TIME TO SYNC

The Session Setup window has been re-organized to present more information, including timecode and Sync I/O or Universal Slave Driver (USD) settings. There are now three different session start offsets available that can be set individually or linked: MMC, 9-Pin and Sync (the currently selected synchronization peripheral). A new feature, called Redefine Current Time Code Position, lets you drop your cursor any time within a Pro Tools session and enter a new timecode location number. Pro Tools will then instantly reset your whole session so that the event will cor-

respond with the new timecode number. There are several 9-Pin Emulation Mode enhancements with Sync I/O and the MachineControl extension. In Remote 9-Pin Deck Emulation Mode, Pro Tools will generate frame-edge-aligned timecode at 1x speed or can be set to receive 9-pin record and track-arming commands while chasing LTC. Track-Arming Profiles for different 9-pin machines can now be created from the Create Track-Arming Profile window, saved and opened in other sessions. Sync I/O is nicely implemented in Version 6. My only gripe is that MachineControl costs an additional \$799.



Most plug-ins have already been ported over to OS X.

CONCLUSION

The newest version of Pro Tools is a wonderful update with many features that I am quickly growing attached to (like Digi-Groove and DigiBase). With Digidesign's smart vertical marketing strategy (graduating users from Pro Tools FREE to LE and, finally, TDM), its continued push to provide real-world content-creation features, and its position as one of the few cross-platform digital audio sequencers around, Pro Tools is arguably one of the best applications on the market. But for those of you who prefer to use a different front-end application without giving up the powerful DAE engine, Logic Audio and Digital Performer (promised in Version 4.1; should be available by the time you're reading this) both still support DAE mode in OS X.

The price to update to Pro Tools Version 6 and enter the realm of OS X is very reasonable: \$75 for LE or \$195 for TDM. With the release of Version 6.1, even more great features are available, including ReWire support. There's no looking back now.

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Let's face it, monitor reviews are tough. Trying to describe with words how something sounds is like the old tale about the four blind men and the elephant: Each one has a completely different idea of what it is, based on what part of the beast he's touching. In discussing speakers, no matter what music and methods you use to base your judgments on, your chances of finding common ground with a majority of people are pretty close to nil.

But despite being the single-most subjective item in the studio, monitors are, beyond a doubt, the most indispensable. Whether we're painstakingly tweaking the EQ on a high-resolution orchestral master or slicing and dicing 12-bit loops on a hip hop track, we make our decisions based on nothing more than how it sounds. And, finding a set of speakers that will tell the truth, time and time again, is somewhat akin to unearthing the Holy Grail.

The concept of powered monitors is unarguably a great one. An amp and speaker perfectly matched, with an absolute minimum of cable capacitance between them, opens a world of possibilities for new sonic-performance benchmarks. The convenience factor's not bad either, with less cable and easier setup and calibration, particularly in creating a surround system.

The HR626 monitors (MSRP: \$899/each) are the latest in Mackie's line of powered near-fields, aimed at filling a niche between the larger HR824 and the more diminutive HR624. The HR626 employs two 6-inch woofers, the design concept being to maintain the more midrange sonic characteristic of the smaller, lower-mass cone while achieving greater low-end extension than a single six. The HR626 sports the same passive radiator technology as the HR824, which also helps the bottom end. A 1-inch domed tweeter sits between the woofers. A 100-watt amp powers the bottom end, with a 40W amp for the tweeter.

TAKING THEM FOR A SPIN

I worked with a pair of the HR626s in my project room, a large (30x18) and relatively live space. I set the speakers on de-

coupled pedestals about three feet in front of a treated flat wall. Mackie incorporates a three-position switch to adjust low-frequency response based on whether the monitors are placed in a corner, against a flat wall or away from vertical surfaces. Input connections were courtesy of a pair of matched Mogami cables with ¼-inch Switchcraft connectors on either end, connected to the outputs of a Tascam FW-1884 audio interface. The bulk of my source material was final mixes played back via S/PDIF from a Denon CD player, as well as their original multitrack sessions in Steinberg's Nuendo.

I chose an intentionally eclectic variety of source material, including neo-'90s grunge, acoustic-flavored jazz, punky post-'80s ska, and theater music featuring both a string quartet and synthetic textural atmospheres. For reference's sake, I would occasionally A/B the Mackies with the familiar monitors I've mixed on for nearly a decade: an exceptionally accurate speaker built by Bob Norberg, the mastering guru at Capitol Studios in Hollywood.

Generally speaking, the differences to the Norbergs were subtle. The Mackies offered little by way of surprises, and that's a good thing. Low-frequency content was tight, without being boomy (though I can certainly see where a sub would be useful in some bass-heavy contexts). Higher frequencies were clear without being overly shrill, and imaging was spot-on, with subtle nuances in the mix turning up right where I remembered them.

Mackie's documentation suggests that you can mount the HR626s either vertically or horizontally. In practice, I found the center sweet spot to be a bit too narrow when using them in the vertical position; if you tend to swivel in your chair now and then (okay, I admit to it), some center-panned aspects tend to move with you a bit too much. I noticed little of this with the speakers in a horizontal orientation, where the sweet spot was more generous.



The HR626s really shine in the mid-range, where many monitors, particularly powered ones, tend to falter and miss the mark. Some systems under-compensate, producing a tone with warmth but lacking in subtle definition. Others are too aggressive, with a brightness that, after a few hours, is like fingernails on a chalkboard. But even after working with the Mackies for over eight hours, I felt very little in the way of that all-too-familiar fuzzy and fatigued feeling.

As for how loud they'll go, I don't do a lot of earbleed mixing, but I pumped them up to 11 for a few minutes at a time. The 626s have a compressor-based safety net to keep the components from being damaged at high SPLs, but I never really heard it kick in at a high level. I'm sure that there's a point where it becomes operational, but it seems to be pretty close to the pain threshold.

SUMMING IT UP

No amount of verbiage will substitute for your own ears. For my part, I'd be quite comfortable having the HR626s as my primary monitors. They translate well across the full spectrum, have a nice tight image and don't get in your face. Personally, I couldn't ask for more.

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Daniel Keller is a Southern California-based writer, musician and audio geek. He is currently installing a surround system to better monitor the voices in his head.

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Vienna Symphonic Library

Taking Sample Libraries to the Next Level

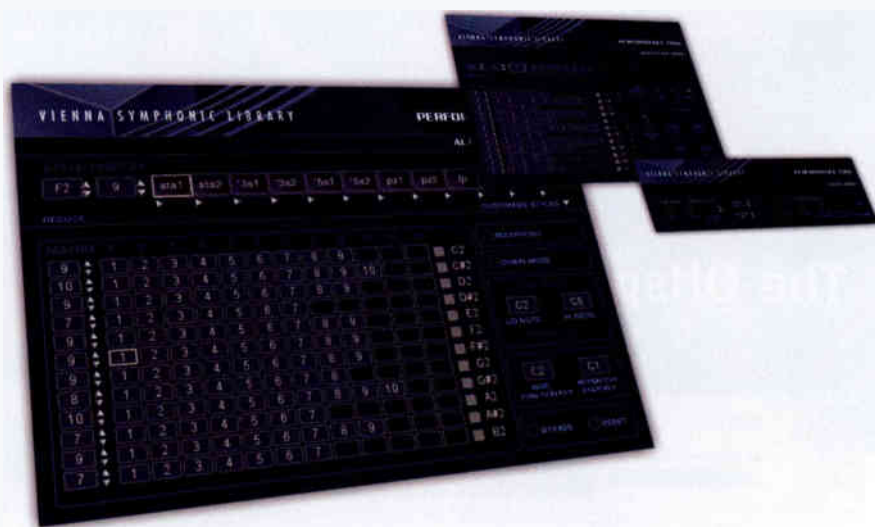
Imagine waking up one morning and saying to yourself, "I'm not happy with what's out there. I think I'll just...*sample* an orchestra." Austrian musician/composer Herb Tucmandl took this notion several hundred steps further: The Vienna Symphonic Library (VSL) is by far the largest and most ambitious sample library ever developed: Even the initial 16-bit/44.1kHz version comes on 14 double-layer DVDs, taking up 94 GB—yes, gigabytes—of hard disk storage. Anyone who's heard the library's online demos knows that VSL is something special, in both quality and quantity. Every instrument has been meticulously recorded in stereo, playing a staggering number of articulations, making it possible to sequence highly expressive and realistic orchestral performances. Variations include notes of various lengths, all kinds of dynamics (accents, crescendos/decrescendos, etc.), and effects such as tremolo strings and flutter-tongued winds and brass, trills, rolls—all recorded at various tempos and mapped to the keyboard in different combinations.

And more VSL instruments and articulations are coming in the near future with the upcoming Pro Edition (which should be shipping by the time you read this), bringing the total up to about 250 GB. What's more, the library was recorded at 24-bit/96kHz resolution, and will be released in that format when it becomes practical, automatically swelling it to nearly three times the current size!

THE PRODUCT LINEUP

VSL's initial offering consists of four products. Each section can be purchased individually: strings (including harp), woodwinds and brass, and percussion. These sections are bundled as the *Orchestral Cube*, a 42GB collection with all the bread-and-butter single-note articulations that you need to sequence elaborate and convincing orchestrations.

The fourth product is the 42GB *Performance* set, which is made up of more specialized elements. Its *pièce de résistance* is the legato performances, which are sam-



The *Performance* tool is a suite of MIDI utilities for creating realistic-sounding musical passages.

ples of each instrument playing single notes and the transitions between every two notes within an approximately three-octave range (depending on the instrument).

These are controlled by a MIDI utility program called the *Legato* tool. Play one key and hold it down until you've played the next, and the *Legato* tool causes the sampler to substitute a recording of the musicians playing those two notes in one bow or breath. If the first key is released before the second one, then you get separate notes. This is a brilliant solution to the problem of how to account for the transitions between notes—not just the notes themselves—and the result is stunning.

The *Performance* set also includes ascending/descending octave runs in both legato and spiccato variations, up and down every major and minor scale, with and without the first and last note (so that you can start and end on longer notes); same-note repetitions that are also controlled by a MIDI utility program, which I'll explain later; woodwind grace notes; horn glisses; and much more.

Both the *Orchestral Cube* and the *Performance* set could stand alone, but the *Performance* set programs seem to be intended more as a supplement to the *Cube* programs: There's no percussion in the *Performance* set.

I've been working with both the Emagic EXS and Tascam GigaStudio versions of the *Orchestral Cube*.

THE RECORDINGS

A low noise floor is especially important for sample recording. VSL was recorded in the *Silent Stage*, a custom room essentially devoid of reverb. (See sidebar on page 108 for more on the VSL facilities.) It has early reflections—the instruments are recorded with plenty of air—but reverb tails would have prevented the *Legato* tool from working properly. Plus, not having reverb allows you to add your own and blend the VSL instruments with others very easily.

So if you hear the VSL dry, it sounds completely wrong! But it's not intended to be heard that way. Only after running it through a good reverb program do you realize just how outstanding the recording quality is across the entire library: miked closely enough to be detailed, back far enough to sound right in an orchestral context, well-managed dynamics; it's just really satisfying to play. I've been getting excellent results running VSL instruments through some of the hall programs in Audio Ease's *Altverb*, a sampling/convolution reverb processor.

Looking at the individual sections, the strings are powerful, large sections, recorded with just the right amount of rosin. Sampled harps are usually recorded with mics way too close, but not this one: It's just outstanding. The brass is more refined than gritty, but it still has power to go with its clarity; both solo and four-person sections are available.

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For now, the woodwinds are all solo, but VSL is planning to release alternative performances for making choirs. Piccolo is really the only standard orchestral instrument missing from the initial release, but it will be among the instruments in the forthcoming Pro Edition, along with solo strings and many other instruments and articulations. (I heard a beta of the solo violin from that set and it's absolutely stunning.)

The percussion is uniformly spectacular, and it includes some really nice exotic instruments such as spring drum and Japanese singing bowls. There are samples of cymbal rolls played with various

weapons, but cymbal crescendos are missing from the collection.

Looking at the 16-bit/44.1kHz first-edition files in the spectrograph of Metric Halo's SpectraFoo program, you can see quite clearly that they were reduced to 16 bits from their original 24 with noise-shaped dither. The audio quality is as spectacular as the recordings themselves.

THE LEARNING CURVE

The VSL is likely to inspire awe when you first load up some of its instruments and start playing. That's especially true after you first try the portamento strings in the

Performance set, which are that set's most dramatic feature.

After that first blush, though, it took me a few days to feel confident getting around the library, almost like learning a familiar, but new, instrument. The library is organized with consistency throughout all of the instruments. In fact, you can pretty much substitute the instrument being played by a sequencer track without much performance tweaking.

For real-time control, the VSL uses keyswitches and the mod wheel only; no other controllers are used (although you can use Controller 11, Expression, as a volume control in both Giga and EXS). Keyswitches are on-the-fly program changes, triggered by notes in an unused region of the keyboard.

The first programs in the file list for most of the instruments are Basic Instruments, which are "toolbox" programs that make concessions to lower the RAM requirements and therefore allow you to load a lot of programs. (Even though they play the bulk of the samples from a disk, streaming samplers still need "head-start" RAM buffers, and memory for loading programs is the first resource you run out of.)

The regular, high-quality programs add additional samples to the ones used by the Basic instruments: They're sampled at every note instead of every other one, and they have more velocity layers. To give you an idea of the VSL's depth, let's use the violins as an example.

The violin has about 20 "bundle" files—gig files or EXS folders—each containing about 20 programs. These consist of three kinds of staccato notes, each with two variations (up/down bows, in this case).

Then there are combination programs that might employ mod wheel crossfades between layers, or keyswitching between different articulations or between the two variations. Plus, there are programs with release samples that are triggered by note-offs when you release the keys.

The programs that offer the most real-time control—and, in general, use the most RAM—include the Dynamic Layer programs, which use the mod wheel to fade between two to four layers (instead of keyboard velocity). The transitions between the string layers are exceptionally smooth, but the brass transitions don't work quite as well.

This is especially true in the EXS24 Dynamic Layer brass programs, which tend to be programmed with slightly rougher

Vienna: The City, The Music, The Library

Music has been an important part of Vienna's culture since the late-18th to mid-19th centuries, when the city was the music capital of Europe. During this time, a great succession of masters—Haydn, Mozart, Beethoven, Schubert, Strauss and Brahms (and, later, Mahler, Schönberg and others)—established a musical legacy there that continues to this day. It's no wonder that a place this rich in music tradition is also the birthplace of the Vienna Symphonic Library.

Composer/film director/Vienna Philharmonic cellist Herb Tucmandl developed the VSL concept in 1995, but it took a few years for technology (and investors!) to catch up with his ideas. Today, production is in full swing at the Silent Stage, a recording facility in a quiet Vienna suburb built from the ground up for the sole purpose of recording the samples, focusing on complete noise isolation and an exceptionally low noise floor for miking orchestral instruments. Four identical editing suites at Silent Stage are also designed expressly for working with samples. No consoles or racks of outboard gear here; the rooms are built around Magix Sequoia workstations and Genelec monitors (and, of course, tuners). At the company headquarters in Vienna, more editors work in identical suites, preparing the final edits.

At VSL, the key to sample "quality control" is total uniformity. Every step of the recording and editing process is both standardized and painstakingly documented, from naming/organizing file versions to measuring the placement and positions of the Schoeps mics used on each session, to painting musicians' chair, foot and stand positions on the floor. Maintaining this consistency means a steady gig for these elite musicians, who are chosen from Vienna's top performers: Many are kept on a year or longer.

A day at VSL's Silent Stage almost seems more like a psychological experiment than your typical studio session: Each variation of each performance—tone lengths from one to six seconds, with vibrato or without, various dynamic levels, crescendos, diminuendos, trills, etc.—is always repeated several times, although, the editors joke, the first take is usually the keeper. When *Mix* visited the Silent Stage, a percussion ensemble was capturing various 9-stroke snare rolls. After listening for some time, it was easy to see why musicians and editors work in three-hour blocks: to preserve their stamina—and sanity. But there's definitely a buzz of enthusiasm about the facility, as 30 editors, three musical directors and five recording engineers eagerly work around the clock expanding the library, inching toward that ultimate goal of 1.5 million sam-

ples. (At last check, the Website's "Sample Counter" was at 954,925.)

—Sarah Jones



Recording double-bass samples at the Silent Stage

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transitions between zones than their Giga counterparts. But you really need to switch zones in between two brass notes anyway, because louder, buzzy brass notes don't crossfade politely to smooth quieter ones (or vice versa). Plus, you'll sometimes hear one or more players making quick intonation adjustments, especially on the lower notes; you can't crossfade into that.

As an alternative to using the mod wheel to move dynamics, you can use actual crescendo and diminuendo performances, mod wheel crossfading between the two when necessary (and that does work well). While you can't control how quickly the brass gets into and out of the buzzy tonal range, there are recordings of different lengths to choose from.

In general, the VSL plays very well at the keyboard. My biggest complaint about the mapping is that some of the short-string programs bite all of a sudden when you trigger the higher-velocity layers. However, the folks at VSL have demonstrated that they're both interested in and responsive to user suggestions.

Users complained that the strings aren't looped, making them hard to use

for suspense cues. The company is looping them. The Performance legato violins don't go all the way up to high C. VSL is recording more samples to extend the range. The oboe is German-style, not the more goat-like French sound that we're used to, although samples from a French-style oboe player are planned. And so on.

ALTERNATION, REPETITION AND LEGATO TOOLS

Keyswitches allow alternating between the variations (such as upbows/downbows, left/right-hand percussion strokes and "upbeat and downbeat" woodwinds/brass) available for many *Orchestral Cube* articulations. The Alternation tool can automate the keyswitching process between the two variations in up to 12 programmable 12-step patterns (1-2, 1-2-2-1, etc.); you can use this to program paradiddles on snare drum, bowing patterns on strings and so on. It works by intercepting the incoming MIDI data and then managing the Giga or EXS24 keyswitches, and is simple to set up and use.

When the Performance set is added to the *Orchestral Cube*, the Alternation tools are incorporated into a similar program called the Performance tool. This tool pro-

vides two additional modes: Legato and Repetition.

To avoid having repeated notes sound identical—i.e., to make them more realistic—the VSL includes recordings of the same note played a few times in succession; these are available in various tempos, articulations and dynamics (including crescendos and decrescendos). The Repetition tool allows playing these notes at, or faster than, the tempo at which they were recorded.

The Repetition feature ranges from only subtly different from using the Alternation tool (at the expense of quite a bit more tweaking) to very natural when you use the crescendo and decrescendo repetition performances.

The amazing Legato tool is easy to use and quite versatile. For the string Performance Legato programs, for example, the VSL includes both standard and portamento (gliding) performances. These are only available with a single-velocity layer in each program, but there are "p" and "f" versions, and the company is reportedly working on layered programs, as well. The Performance Legato performances in the initial release are all long tones, but I checked out

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a beta program of short-note performance legato violins that's really great.

VSL has done an excellent job of making this huge library and its legato, repetition and alternation features playable. And this is the area of sampling technology with the most room for growth. Even with keyswitching and MIDI tools, you still have to use multiple sequencer tracks routed to different articulations on different channels a lot of the time. That's where you get into *programming* rather than *performing* parts.

There aren't many ways around a lot of this, of course. But we could stand to see

more intuitive ways of having the articulation that we want come up in real time. To me, the samples are mature, while the performance interface remains in its childhood. The VSL people say this is a limitation of the software samplers' RAM capacity.

MACHINES

The first step toward performance nirvana is to have all of the articulations you want loaded up in Giga or EXS, ready to play. As of this writing, that requires more RAM and polyphony than a single computer provides, so many composers run multiple-computer setups. However, the next gen-

eration of computers promises to consolidate these setups considerably. The newly announced G5 Macs will load up to 8 GB of RAM, for example.

The VSL Performance instruments are RAM-intensive, yet you can load *a lot* of the *Orchestral Cube* into a single Mac or Windows machine: 32 different programs of varying complexity might be typical for a CPU loaded with 1.5 GB of RAM.

There's practically no difference in the amount of VSL on my two test machines: One runs Logic/EXS24, the other is running GigaStudio. GigaStudio's polyphony is fixed at a maximum of 160 mono voices, while I was able to run roughly 180 stereo EXS24 voices off a FireWire drive. Multiple-machine GigaStudio setups are more economical than multiple Logic/EXS24 Macs.

The differences between the EXS and Giga versions of the VSL are small. GigaStudio has the ability to adjust the times of release samples (which are note tails triggered when you release the key). EXS can load more key-switchable programs onto a single keyboard. VSL takes advantage of these features in a few programs, but there's really nothing between the two versions.

To get more mileage out of the VSL, at least while composing, convert its programs to mono. This effectively doubles what you can get out of a single machine. There's an excellent program—available for both Mac and Windows—that does this (in addition to converting sample libraries between a large number of formats): Chicken Systems Translator Pro.

CONCLUSION

Sample library reviews usually conclude with comments like, "I was surprised at how much of this disc was actually usable." Well, the VSL is miles beyond those considerations: Every articulation of every instrument is not just usable, it's for real.

Taking nothing away from the other excellent libraries on the market, I consider the VSL one of the most important products in the history of modern music technology. Reviewers are supposed to keep their distance, but even with my eyes wide open, I have to confess to having fallen madly in love with it. It's awesome and inspiring to work with.

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Nick Batzdorf is an independent writer/engineer/producer based in Southern California.

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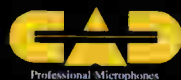
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Propellerhead Software Reason 2.5

Same Application, New Toys: Effects and More

For many, Propellerhead's Reason is the go-to application when your creation requires a whole lot of virtual synthesis and sampling horsepower. This app was the first of its kind and has become the de facto standard as a "virtual rack full of modules." Reason provides both "MIDI" and "analog" sequencers; these terms are in quotes partly because the gear is virtual, but mostly because the outputs are unusable anywhere outside of Reason. Notes can be entered from an external controller, but MIDI cannot be transmitted outside of the computer in real time (although MIDI can be transmitted to other applications). Reason Version 1.0 offered the reMIX virtual mixer, Subtractor virtual analog synth and Redrum, which is essentially a traditional Roland TR-909 drum machine on a steroid overdose. The NN19 was Reason 1.0's virtual sampler, and Dr.Rex yielded a ReCycle file player. There was also a very nice array of reverb, dynamic, EQ and other signal processing available. The ReBirth Input Device in Reason allowed users to easily stream audio from, and synchronize with, ReBirth. Reason 2.0 added Malström, a new "grainable" synthesizer (a hybridization of grain and wavetable synthesis), and the NN-XT, a very advanced version of the original NN19. Enter Reason 2.5.

THE 2.5 RUNDOWN

Reason 2.5 (\$449/free upgrade from 2.0) keeps the favorites while presenting new toys, including the RV7000 Advanced Reverb, Scream 4 Distortion, BV512 Vocoder, UN-16 Unison processor, and the ability to mult both audio and CV signals via the Spider Merger/Splitter boxes.

Starting at the top of the rack is the MIDI-In Device, a virtual MIDI interface. The next module down is the Audio Out, a virtual audio interface that allows the user to route Reason's signals out to any of 64 hardware outputs or via ReWire 2.0 to other applications. MIDI-In Device and Audio Out are permanently affixed in the topmost rackspaces.

From here on down, the configuration is up to you. You'll need to start with a

mixer to get your signals together via the new and improved reMIX. It gives you 14 stereo inputs summed to stereo at the master with an improved 2-band shelf EQ; four auxiliaries (now in stereo with number four assignable pre-fader); four stereo returns; and mute, solo and panning per channel. Very tidy. Are 14 inputs not enough? Add another mixer, or two or three. The only limitation with Reason is the CPU and RAM. While the channel EQs are nice, I find myself frequently dialing up one of Reason's 2-band parametrics for extended tweakability.

HOT NEW EFFECTS

The BV512 Vocoder is a new feature in Reason 2. This is a powerful device that includes both traditional vocoding (4, 8, 16 or 32-band) and a new FFT process. The FFT mode requires a higher CPU overhead but yields exceedingly intelligible results. As Reason's manual explains, however, part of the charm and art of vocoders comes from the grittiness of lower-resolution operation, yielding warm and crunchier sounds. I do want Ralf and Florian's sinister robot sometimes!

The traditional processors in Reason are precisely what their names imply, including high-quality delays, reverb, dynamics, EQ and so forth.

The new processors require some description, though. First is the RV7000 Advanced Reverb. This is a major step forward from Reason's original reverb unit. Among other things, it is a true stereo reverb that does not sum left and right inputs to mono before processing. Nine different fundamental algorithms are the starting point for the development of storable patches. There are also EQ and gate



Just a few of the applications in Reason's virtual rack, including Mixer and MIDI-In Device.

controls to further custom-tailor your presets. The quality of this reverb far surpasses the original Reason version.

Reason 2.5's second new effects unit is the Scream 4 Sound Destruction Unit. As its name implies, this is a distortion processor that does a bit more. It has three main sections: Damage, Cut and Body. Damage is the unit's distortion part, Cut is an EQ section, and Body creates a resonant environment around the signal (essentially, cabinet and speaker simulation). I used Scream 4 on drums and a Malström synth riff in a down-tempo, lo-fi loopy thing that I developed and found to be quite useful. Even just using the Cut and Body sections can provide unique character and extra fullness. Very nice!

The last new addition to Reason's effects rack is Unison. This has a similar effect to when an analog synth's voices are monophonically tasked to one note. There is a lush, chorus-y richness that is not exactly like chorusing. Unison actually creates four, eight or 16 clones of the signal and detunes and delays each slightly. It literally sounds like you have that many versions playing at once. This is a really hip effect.

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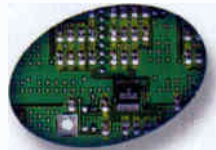
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Photo courtesy of Ed Dzubak, three-time Emmy winner and enthusiastic REALTRAPS customer.

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SIGNAL ROUTING WITH STYLE

There are two other devices available in the Reason 2.5 rack that are, in my opinion, possibly the most important. Prior to this version, mults did not exist. If you wanted, for instance, to send the output of an analog sequencer to multiple synths, you had to literally provide a sequencer for each synth. This causes tremendous CPU taxation. Now, with the Spider CV and Spider Audio Merger/Splitter boxes, you can mult or merge CV or audio any which way (up to four splits per unit). Merging audio via Spider is primarily Reason's clever way of subgrouping, but yields other handy utilities, as well. Splitting audio is handy to create quasi-stereo effects, etc. Splitting CV is an interesting solution for the aforementioned problem, while merging CV can give you wild effects like combined LFOs at different frequencies. The Spider boxes open up huge new worlds of creativity.

I love Reason's new ability to detach the MIDI sequencer window and slide it over to my second monitor. The rack lives on the left and the sequencer on the right. Beautiful! Also, the LFOs are MIDI-synchronizable and there is much improved editing of MIDI and automation data. The original version was well-planned, and Propellerhead is now down to micro-tweaking a mature and well-developed application.

ALL THE REASON YOU NEED

Applications like Reason are making it increasingly difficult to justify to my wife the amount of space taken up by my hardware synths, samplers and drum machines. I find that I am turning on my hardware less frequently during recent months. Frankly, I can accomplish most of what I need to do with a scant handful of applications, with Reason being central to that handful. During the past two years, two different friends who wanted to get into electronic-music production without breaking their bank have approached me. In both cases, I recommended that they use Reason, expecting to spend a lot of time tutoring them (long distance, in one case!). However, they were both able to create truly amazing tracks in short order with very little assistance. That's one of the truly brilliant aspects of this product: It is equally useful to beginners and seasoned professionals.

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

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Alesis ProActive 5.1

Reference Surround Speaker System

At Winter NAMM this year, after giving Alesis' ProActive 5.1 system a quick listen on the noisy show floor, I thought this 450-watt, THX-certified surround system was "nice," with its five mini satellites, powered subwoofer and remotes (wired and IR) for system and I/O control. The \$499 list seemed reasonable. Alesis saw these as a home/PC studio product, but I thought they made more sense as the Auratones for the 5.1 era, offering a realistic representation of what most consumers listen to at home.

When I finally got a system to check out, I was impressed by both its versatility and sound. The Sound Control Module central controller is a paperback-size, upright unit with LCD status screen, Input/Mute/Level/Mode buttons, gain control, 1/8-inch headphone jack and 1/4-inch TRS stereo input to connect an MP3 player, CD Walkman, iPod, etc. The unit connects to the sub via a 5-foot, multipair umbilical with a 15-pin termination that carries all of the analog signals to the amps.

The rear panel has three 1/4-inch stereo jacks with provided 1/4-inch/RCA breakout cables to connect to a 5.1 (LCRSS+sub) analog source—such as a console or playback deck—as well as RCA coaxial and optical jacks to connect to PCM digital stereo or DTS/Dolby Digital/MP3/Dolby Pro Logic feeds from a DVD player, encoder/decoder or workstation.

Setup is (mostly) straightforward. The system includes all necessary speaker wire (not the best, but it's free) to connect the satellites to the amps built into the sub and small speaker stands that can be inverted for use as wall mounts. One installation mystery: The manual doesn't explain the color coding on the RCA breakout cables, so you're on your own when figuring out which of the front or rear cables is left or right, or center/sub. However, an onboard tone oscillator can pan through the system, ID'ing all of the speakers. As the system automatically creates a subwoofer feed internally derived from the stereo or 5-channel inputs, there's no need to connect to the subwoofer at all when mixing (uncoded) sur-



round material in the studio, unless you need to have a separate LFE feed.

The controller also includes an Effects mode, which allows the selection of input processing for Dolby Digital, DTS, 5.1 analog, stereo-only or "stereo x2." The latter routes the front stereo feed to the stereo surrounds, as well.

Once set up, I was ready to listen, so I fed in a hot new DVD-A from Hi-Res Music, a re-release of the Ray Brown Trio's 1985 classic *Soular Energy*, which sounds great in my home system. Oops! The digital inputs on the ProActive 5.1 do not support DVD-A streams. I switched to a DTS disc of Lyle Lovett's *Joshua Judges Ruth*, which was nice but way over-bassy. The subwoofer's 185-watt amp, ported 8-inch driver can overwhelm the 53-watt amps driving the satellites' 3-inch MF/HF drivers. The remedy was a couple presses of the controller's Level button. Turning the subwoofer level down to about 10% provided a nice spectrum. As another test, I ran the system with the sub turned off. Yick! Unless you're into some seriously hard-core rap, hip hop or metal, you'll need to cut the sub way back to create the right balance. A little bass goes a long way in making the ProActive 5.1 sound *just* right.

The system manual read, "Removing the satellite grilles will not affect sound quali-

ty." However, removing the grilles made a significant and noticeable improvement in HF response and clarity. The grilles are best used to protect the drivers during transit. The drivers in all five satellites are identical and have similar rounded, ported cabinets, except for the center channel, which has a larger—yet lower-profile—enclosure and dual porting. Despite the difference in cabinet design, the overall sound of all the satellites was identical, with the center better oriented for over/under-picture placement.

In the studio, once the bass was tweaked, the system provided rich, full and surprisingly high-SPL reproduction, and mixes translated well to large and small home speakers. True, it lacked some of the subtle detail of far more expensive systems (such as my Meyer HD-1s), yet at a fraction of the price, that's understandable. The point here is that the ProActive 5.1s go a lot further than Auratone Cubes, sounding a lot like NS-10s but with far more bass. As such, these are an excellent "real-world" reference for larger 5.1 studio monitors, providing a low-cost/high-impact system in an edit suite, MIDI room or with a desktop DAW. At \$499 for a complete system, these are ideal for studios of any size or budget.

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EMT Plate Restoration and DAT Archiving

I often find myself with one foot in the past and one in the present. Well, almost. In the repair biz, even the "present" can be a year or so behind. The following article details two examples of old school going new school. Minnesota Public Radio (MPR) recently had me spanning several decades with two projects: an EMT Plate Reverb restoration and a DAT-archiving class. MPR's downtown St. Paul, Minn., broadcasting facility includes the orchestra-size Studio M, which is home to three plate reverbs, one of which is a stereo EMT-140. Back in the day, it was "the standard" for spatial enhancement.

The MPR project started about a year ago with a request to "fix" the EMT's stereo balance. After the Model 162's electronics assembly and full documentation appeared on my doorstep, I thumbed through the docs and was especially amused by the shipping instructions. Gotham Audio, the distributor at the time, sent a manual in advance of the EMT plate arrival so that users could safely transport the unit from the street into their facility. (The trucking firm was only obliged to deliver to the door.) While the plate itself is 200 cm by 100 cm (6.5 feet by 3.2 feet), the shipping package measured 8 feet by 4.5 feet and weighed 400 pounds! It currently lives in Studio M's basement suspended by garage springs!

Anyway, back to the EMT electronics "package": It consists of a mono-drive amplifier (with optical limiter), a stereo FET preamp and a power supply. Like a tape machine, there is equalization on both the drive and pickup amps. With balance issues in mind, both preamps were scrutinized for any signs of "service." Many of the coupling capacitors had already been upgraded to Panasonic's HFC Series (now discontinued since the FC Series was introduced). All remaining balance-related components were replaced, including the remaining caps, plus critical resistors in the front end were upgraded to 1% low-noise metal film.

KIT SWAP

Coincidentally, a call came in for one of my LA-4 op amp upgrade kits from none other than James Cunningham of Echoplate fame. (James returned to his native Chicago after an L.A. stint working with Bill Putnam, prior to UREI being absorbed into the Harman organization.) Turns out, James is still in the "plate" biz (as JCC Associates, 847/831-5628), selling upgrade kits that include new pickups and tuning/tension clips. At that point, James and I simply traded our kits!

The preamp section was rather noisy, with plenty of hum and hiss; the former was exaggerated by the

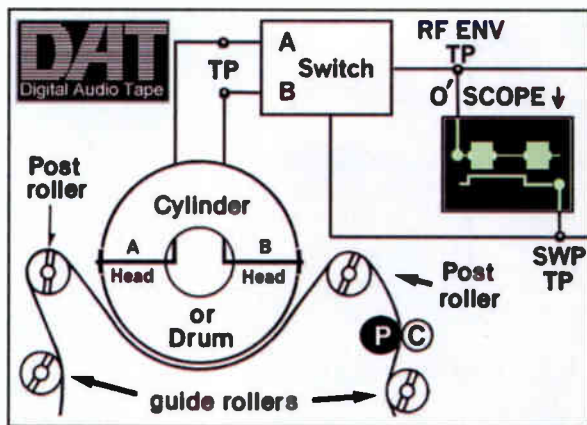


Figure 1: DAT test block diagram. Connect 'scope channel 1 (signal) to the RF envelope test point and channel 2 (trigger) to the SWP test point to view the signal from tope.

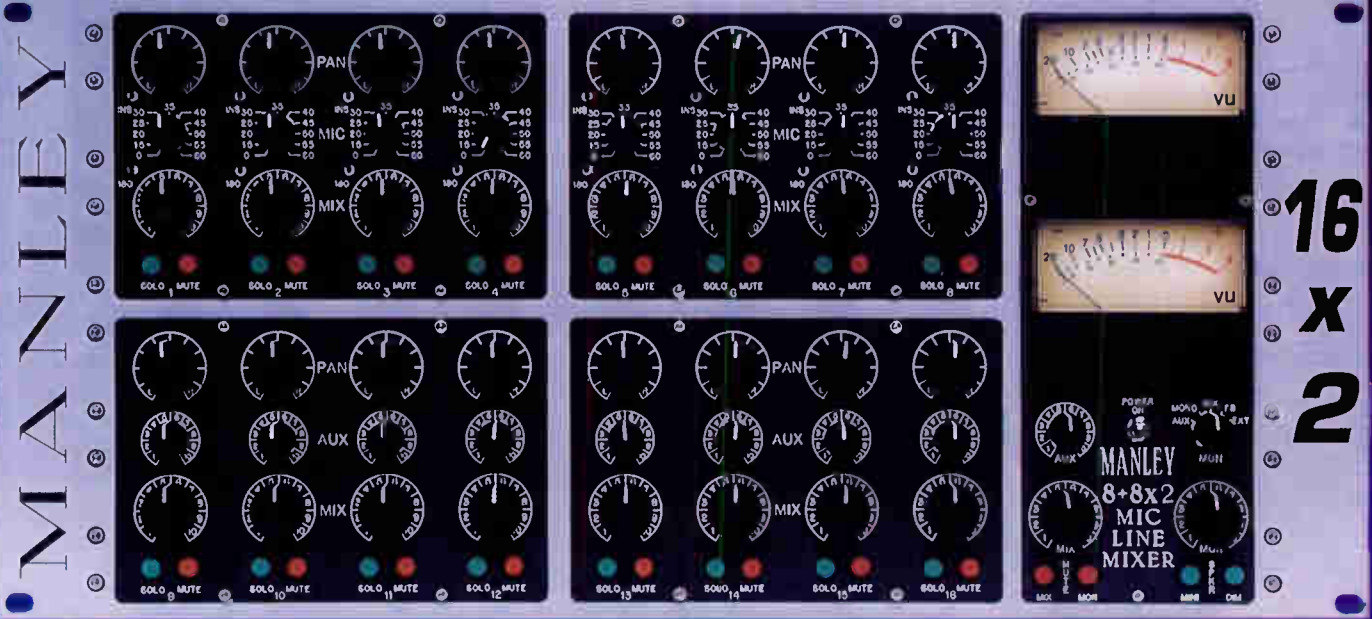
bass boost in the playback EQ curve, while the latter was more obvious on one channel. Hum is a non-issue because the JCC pickups have much higher output and better bass response; hence, the gain and low-EQ boost can be reduced. After removing the noisy FET, I installed a socket, anticipating that several FETs would be auditioned. As luck would have it, my one in-house spare made the "bad" channel quieter than the good channel. After installing the mods, I added trim pots so that the EQ could be dialed out on both the drive and pickup amps. I also noticed that the optical limiter was missing. The original lightbulb-driven photo-resistor network was upgraded to a faster LED-based device by Vactrol.

AH, BALANCE!

At this point, all of the electronics work was done and, even before the new pickups were installed, the channels were more closely balanced. The old pickups were unsoldered and the new pickups glued to the plate, a process that went just fine. I did have just a wee bit of trepidation about "tuning": Throughout the '70s and '80s, the tuning style evolved into a frightful over-tightening of screws until the support clips snapped, all to maximize brightness. People were using the brighter plate to "help" the snare sound, an instrument that is not naturally bright when closely miked, especially when low-tuned as was the '70s style. It is totally unnecessary now, even though James' clips are unbreakable.

The JCC kit includes a tension/tuning gauge that eliminates the guesswork, simplifies the process and is remarkably accurate. Tuning not only improved the channel balance, but Studio M's "objective ear and studio tech" Scott Liebers was able to discern a mere third-step difference between channels. Routing an electron-

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ic metronome impulse to the plate seemed the best way to judge the spectral response and decay time. At this point, making smaller-than-quarter-turn tension tweaks brought the channels into near-perfect balance. Studio M's engineer, Tom Mudge, who handles many of the recording projects, was about as relieved as I was that the process was a pleasurable experience.

For the final test, an acoustic piano track was auditioned through the plate without a dry signal. I think everyone was amazed. Not only did it sound real—like standing just outside the doorway of a nice

hall—it was oh so quiet and clean. I am not one to pit "digital vs. analog," but there was truly some magic in the EMT-140 that made just about anything else pale by comparison.

TASK NUMBER 2: DAT ARCHIVING

MPR is also in the process of archiving its vast library of radio broadcasts (such as "Prairie Home Companion") from 1/4-inch analog and DAT. While the studios of radio station KNOX are well-equipped with Sony PCM-2700 and PCM-2800 DAT decks, additional machines were required

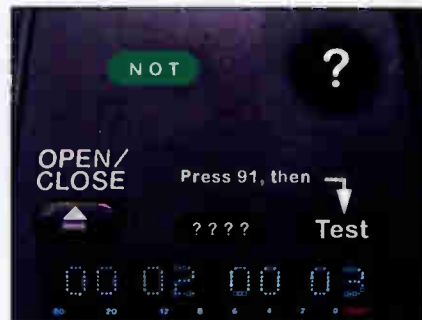


Figure 2: modified Sony PCM-R500 remote control. To access Error Rate, press "91" and then press the Test button. The machine's display (inset) should show two sets of four-digit numbers representing the "A" and "B" heads. The lowest Error Rate is displayed as four zeros.

to handle the volume of transfers. I specified the Fostex D-5 and the Sony PCM-R500 for the job; adding external connections to both machines allowed convenient oscilloscope evaluation of the signal from tape. [Note: The Fostex D-5 and Tascam DA-20 are essentially the same machine: Both were made by Pioneer and are now out of production. It may still be possible to purchase remaining inventory.]

Of the two modified machines, the Sony PCM-R500 would be used to evaluate problem tapes, while the Fostex D-5 was initially chosen for ease of alignment (after a minor modification). The D-5 has no mute circuit, making it far more tolerant of out-of-spec tapes than the R500. (It mutes if the Error Rate is too high.) The Fostex features a front-panel Error Rate button, while the Sony requires modifying the remote control for such "privileged info." (See Fig. 2.)

Once the modified machines were back on-site, I then taught a Tape Path class at MPR to explain how to interpret the oscilloscope patterns—what the signal should and might look like—and how to tweak the alignment, if necessary. Figure 1 details the block diagram. Monitoring troublesome tapes via 'scope may, in some cases, reveal the cause. Assuming the problem was path-related, hopefully a little mechanical tweak will be all that's necessary to complete the recovery process.

TAPE PATH 101

The essence of DAT travel is detailed in Fig. 1. Two guides, called post rollers, extract the tape from the shell and wrap it around the rotating head drum. Although it may not seem possible at first glance, these wobbly guides are spring-loaded and become precisely oriented once they are fully extended and under pressure.

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The drum generates two other mechanically related signals as it rotates: a Tachometer for speed and a Pulse Generator (PG) for positioning, the latter often labeled SWP and used to precisely control the timing of the A/B switch and trigger the oscilloscope. Note that the square wave's transition—from low to high and high to low—occurs at the beginning of each "slice" of information from the A and B heads.

Tape path for DAT and other helical-scan tape recorders is roughly the equivalent of head height (not azimuth) for analog recorders. Because the head drum (or upper cylinder) is spinning at an angle, the ingoing and outgoing guide heights are very critical. When all is right, the "envelope" is square, while an out-of-spec tape will have a "fish" shape. Of course, there are other issues, such as when dirt clogs either or both heads.

A CLEAR HEAD

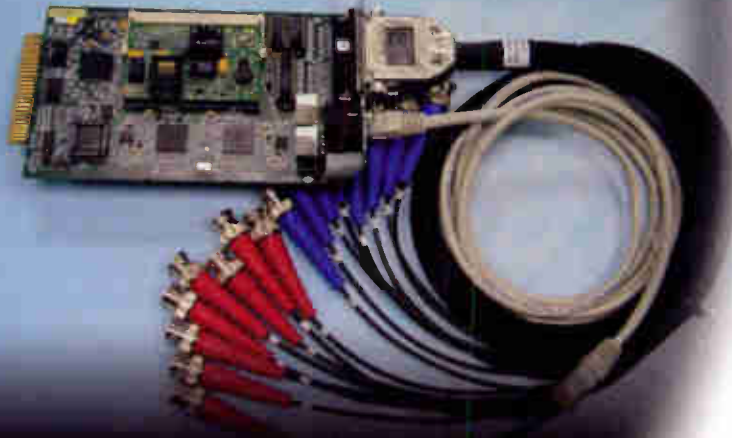
I have rescued several tapes during the past year where only one of the heads was actually recording. This lack of redundancy requires that every aspect of the playback machine be perfect. One of the KNOW tapes did not play on any of the Sony machines, yet its high Error Rate did not reflect a poor tape path (although the RF envelope changed as the machine struggled to automatically self-track). Most likely, the combined problem was dirty heads on the recorder attempting to record over previous material. Under normal conditions, the Error Rate should only be slightly worse than recording on blank stock. It should still be possible to achieve "all zeros," as shown in the lower half of Fig. 2.

While many machines can report the Error Rate, some permit an adjustable Error Rate sampling window. For example, most machines report on the entire RF envelope, while others, such as the Fostex PD-2, can selectively evaluate the subcode area (timecode and start IDs), audio data, etc. The downside of using the "widest" window is that previously recorded information may pop up between the "tracks" (head swipes) to make the Error Rate seem worse than it is, and intermittently at that. ■

Eddie invites visitors to get sucked in by the gravity at www.tangible-technology.com.

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PHOTO: DAVID GOGGIN

L to R: Jon Theodore (drums), vocalist Cedric Bixler Zavala, Omar Rodriguez-Lopez (guitarist/co-producer) and the late Jeremy Ward

THE MARS VOLTA

INSIDE THE COMATORIUM

By Mr. Bonzai

Perched high above Laurel Canyon is the supposedly haunted mansion chosen by the Mars Volta to record their much-anticipated debut album, *De-Loused in the Comatorium*. In 1991, it was the home of the Red Hot Chili Peppers while they made their classic *Blood Sugar Sex Magik*. Both albums were produced by Rick Rubin, and for the Mars Volta album, he chose engineer Dave Schiffman, who has manned the board for Audioslave, System of a Down, the Juliana Theory and the Peppers' *Californication*. Rubin also brought in Flea of the Peppers to take care of bass duties.

The Mars Volta are singer Cedric Bixler, guitarist Omar Rodriguez-Lopez, drummer Jon Theodore, bassist Juan Alderete and keyboardist Isaiah Owens. After the band's triumphant European tour this spring opening for the Chili Peppers, rave reviews at the Coachella Festival and more U.S. dates with the

Peppers, their electronics wiz, Jeremy Ward, died on May 25 at his home in L.A. But the band is carrying on and has been gaining momentum with each passing month.

Bixler and Rodriguez were known previously for their work in the El Paso post-punk band At

the Drive-In, aggressive art rockers famous for their energetic live shows and seen by some as "the next big thing." Following the dissolution of that band, the Mars Volta released *Tremulant* in 2002, a three-song EP that critics and fans compared to Pink Floyd, King Crimson, Yes and even Led Zeppelin. It was *big* music: long songs with broad strokes and cinematic detail.

However, Rodriguez cites salsa music as his main influence, along with such unlikely sources as Gang of Four, Miles Davis, the Mahavishnu Orchestra, Genesis and dub reggae. On the spiral staircase leading up to the dark rooms of the mansion, Rodriguez tells me he started out playing the bass at age 12, but at 15 switched to guitar because he "needed more strings."

When I asked Rodriguez about the difference between his previous work and the debut of the Mars Volta, he replied, "This one is fun! Just kidding. This is a lot looser, a lot more interesting for us, and there are a lot of different areas we are going into now."

Bixler says that Björk is his main inspiration as a singer; both have an affinity for dramatic and dynamic stage acrobatics. When quizzed about the mysteries of the old mansion, Bixler explains, "We really don't go up to that certain room at the top where the bell tower is. There are doors leading to the attic. I keep closing them, and they are always open when I go back. Weird."

In the secluded mansion, engineer Schiffman set up a control room complete with a vintage Neve console, priceless outboard gear and rare microphones from the renowned Ocean Way collection, along with his own stash of outboard engines. Drums were on risers in the grand ballroom,

—CONTINUED ON PAGE 130



"SONGCATCHERS"

MICKEY HART TRACES THE HISTORY OF FIELD RECORDING

By Blair Jackson

Mickey Hart, longtime percussionist for the Grateful Dead, knows a thing or two about world music and field recording. He's lugged taping gear to Egypt, outfitted a recording expedition to New Guinea, captured the Tibetan Gyuto Monks in all of their glory and searched out indigenous music all over the world. As a *very* active member of the National Recorded Sound Preservation Board at the Library of Congress, he has supervised the digital transfer of many historic recordings: everything from Leadbelly to Hawaiian *kahuna* chants. He has produced (and played on) numerous world music albums, and he has written three acclaimed books on the subject: the largely autobiographical *Drumming at the Edge of Magic*, *Planet Drum* and *Spirit Into Sound: The Magic of Music*. But his latest, *Songcatchers: In Search of the World's Music*, is the first to deal mainly with recording. Published by the National Geographic Society and co-authored by National Geographic staff writer Karen Kostyal, *Songcatchers* depicts the fascinating story of field recording by focusing on the brave and driven men and women who endured tremendous physical hardships—and technical limitations—to record "ethnic" music around

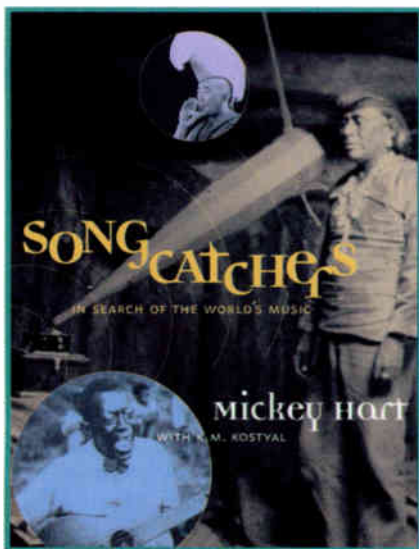


PHOTO COURTESY LIBRARY OF CONGRESS

This 1916 image of Frances Densmore and Blackfoot leader Mountain Chief (right) listening to a cylinder recording has become a symbol of the early songcatcher era. This image appears in *Songcatchers: In Search of the World's Music*, by Mickey Hart (National Geographic Books, June 2003).

the world, from the late 19th century to the present day. Copiously illustrated with photos, the book also traces the development of recording technology, from the first Edison cylinders through the introduction of the ever-dependable Nagra and beyond.

Hart speaks excitedly about the pioneers in the field: "I wanted to tell their story, because the work they did is so important. None of them *had* to do what they did. There was no money in it; far from it. But they did because they believed there should be a permanent record of these cultures, which were all starting to change and even disappear at the end of the 19th century and the beginning of the 20th century. I really believe that these are some of our greatest creations: the art of a culture. Thousands of years of evolution went into that. We base what we do on the things that have been done before us, and that includes music, of course. I mean, if there hadn't been any jug bands or blues, there might not have been a Grateful Dead or a Paul Simon or a Santana. That's why it's really important to hear these kinds of music and recognize them as great works of art. Recorded music has been a really important part of making us understand the dif-

ferences and sameness of us as a people, as a species."

Who are some of the field recording figures Hart particularly admires? "All of them," he says with a laugh. "Every one of them! The story starts in 1877 with Edison's seat-of-the-pants invention; brilliant, but very primitive. Thirteen years later, Jesse Fewkes gets a hold of it and starts this revolution: On March 15, 1890, in Calais, Maine, he became the first guy to walk out on the field and roll wax. He was an

—CONTINUED ON PAGE 134



PHOTO COURTESY ARCHIVE OF FOLK CULTURE, AMERICAN FOLKLORE CENTER, LIBRARY OF CONGRESS

A mobile studio—the trunk of John Lomax's car—was filled with the cumbersome equipment that he needed to record in the field. In the 1950s, the portable Nagra replaced such gear.

KIM CARNES' "BETTE DAVIS EYES"

By Blair Jackson

It was your basic "overnight success" story that was actually many years in the making. When 35-year-old, raspy-voiced singer and songwriter Kim Carnes charged to the top of the pop charts with the infectious, modern-sounding "Bette Davis Eyes" in the spring of 1981, it seemed as though she had come out of nowhere. In fact, she was already a veteran of both Hollywood and various facets of the music business.

At a young age, the L.A. native gravitated toward music, and by 18, Carnes was a working pro, singing on jingle sessions by day and playing at area clubs at night. During the mid-'60s, she also tried her hand at acting, appearing once on the popular *Patty Duke Show* and winning a decent role in the 1967 "youth" film, *C'mon, Let's Live a Little*, which also starred singers Bobby Vee and Jackie DeShannon—co-author of this month's "Classic Track"! In 1966, Carnes joined the popular New Christy Minstrels folk troupe (now best known as the inspiration for *A Mighty Wind's* New Main Street Singers), where she met two men who would be very important to her career: Kenny Rogers and Dave Ellingson. After her association with the Minstrels ended, Carnes and Ellingson became a formidable songwriting team, not to mention husband and wife (and parents).

Though the couple's stint as "Kim and Dave" was only marginally fruitful, Carnes kept busy writing songs, singing on demos and even backing up teen idol David Cassidy on a tour. Meanwhile, she put out her first solo album, *Rest on Me*, which featured James Burton, Glenn D. Hardin and a host of other great players; alas, it was not a commercial success. Through the '70s, she put out a number of albums that never quite broke through to the mass public (she did have a minor hit in 1978 with "You're a Part of Me," a duet with Paul Cotton), but her songwriting career was on fire: She had songs covered by the likes of Frank Sinatra, Nancy Sinatra, David Cassidy and her old friend Kenny Rogers. And when Rogers brought her onboard to sing a duet on "Don't Fall In Love With a Dreamer" in early 1980, she had her first Top 5 hit. And the hit album from which that single was extracted, *Gideon*, consisted entirely of Carnes-Ellingson songs.

Around that time, too, Carnes was recording an album of her own for EMI called *Romance Dance* with producer George Tobin. Unfortunately, Carnes and Tobin did not see eye to eye on a number of issues, and when it came time to complete and mix the album, EMI head Jim Mazza brought in producer/engineer Val Garay to do the job. The album made it to Number 57 on the charts and yielded Carnes' first solo Top 10 hit, a version of Smokey Robinson's "More Love." So it wasn't surprising when Carnes



asked Garay to produce her next album, *Mistaken Identity*, which included "Bette Davis Eyes."

It seems as though Garay could do no wrong in this era. The son of a well-known Latin singer, Joaquin Garay (who was Mexican, Basque and Mayan Indian), Val was a young songwriter and guitarist with an eye fixed on producing records when he encountered the great engineer Dave Hassinger (Rolling Stones, Jefferson Airplane, Grateful Dead), who, impressed by Garay's musical sense and good ears, offered to take him under his wing and teach him the studio craft. Garay assisted Hassinger on numerous sessions at the Sound Factory in Hollywood, and by the mid-'70s, was doing first-rate work on his own, including Linda Ronstadt's albums from *Heart Like a Wheel* on, and discs by James Taylor, Orleans, Andrew Gold, ex-Eagle Randy Meisner (who cut a duet with Carnes), Pablo Cruise, Bonnie Raitt and many others; he quickly became one of the busiest guys in town. He attributes his excellent song sense to "my aunt Tully, who was Cole Porter's personal secretary for many years, and having been around them when I was a kid."

At the dawn of the '80s, Garay also opened what would become one of the L.A. area's top recording studios: Record One in Sherman Oaks. "I built it during '79 so I could have my own place to work in," Garay says. "It opened in January 1980. Originally, it just had one studio, which was an API room. The control room was an identical copy—to the eighth of an inch—of the Sound Factory. I spent two-and-a-half million dollars building that place in 1979 and copied it board for board and it *still* didn't sound the same," he says with a laugh. "The [recording] room was a copy of Sound Factory, too: a long L-shaped room. I made it three feet deeper and four feet longer, but it had the same exact proximity to the control room." Besides the API console, the room boasted 24-track 3M 79 recorders—"which I still think are the best-sound-



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ing analog tape recorders ever made. They really had *the bottom*," Garay says—and a superb collection of mics and out-board gear.

It was during the search for material for *Mistaken Identity* that "Bette Davis Eyes" turned up. "[Songwriter] Donna Weiss called me one day and said she had a song that she had just finished writing with Bruce Roberts and could she come over and play it for Kim and me at my office," Garay recalls. "So she came over and played us the song, and Kim and I kind of looked at each other and we thought, 'Yeah, not bad.' But it wasn't what we were looking for. So she said, 'Well, you know, I have this other song I gave to George Tobin and nothing ever came of it.' And that was 'Bette Davis Eyes.' Kim had actually heard it and liked it but nothing had been done with it. So she played the demo for me, and it was *totally* different than the record. It sounds like a Leon Russell track, with this beer-barrel polka piano part. But I loved the melody and I loved the lyrics."

Actually, the song had a little history already. It was penned in the mid-'70s by Weiss and Jackie DeShannon and was first recorded by DeShannon, in a decidedly country setting, for her *New Arrangement* album in 1975. DeShannon once said that she had been moved to write this evocative portrait of a teasing woman after seeing smitten actor Paul Henreid lighting cigarettes for Bette Davis near the end of the classic film *Now Voyager*.

The architect of Carnes' more contempo arrangement of the song was keyboardist Bill Cuomo. It was he who came up with the catchy riff and also led the band, which "was a conglomeration of the guys I wanted and the guys she wanted," Garay says. "She kept Bill, [guitarists] Josh Leo and Steve Goldstein—who eventually became *my* keyboard guy forever, and played on all of The Motels' records—and [percussionist] M.L. Benoit. Then I brought in [drummer] Craig Krampf, [guitarist] Craig Hull and [bassist] Bryan Garofalo; those were my people. Then, after we'd already put the band together, the day before we started recording, Josh Leo got really sick so I brought in Waddy Wachtel to play guitar. So that's the band on 'Bette Davis Eyes.'"

"I took them into Leeds rehearsal studio in North Hollywood for three weeks and we rehearsed everything. Oddly enough, the night we were rehearsing 'Bette Davis Eyes' was the night John Lennon was murdered. Someone came into the studio in the middle of re-

Cool Spins

The Mix Staff Members Pick Their Current Favorites



Susheela Raman: *Love Trap* (Narada World)

She's more than just a vocalist capable of interpreting lyrics with emotional dexterity and fluency; she's more, even, than an innovator on the world music scene. Truly an artist, Susheela Raman has studied the history of her craft, and contrasts its roots—Indian devotional songs, sung in Hindi, Sanskrit and Tamil—with contemporary popular music. The result is an extraction of such deep, organic sound—vacillating from haunting to funky—that it should be classified as the newest form of blues or jazz. Her newest release, *Love Trap*, balances the power of her voice with the skill of her supporting musicians. Produced by Sam Mills and anchored by the core players from her debut album (*Salt Rain*, 2001), this album's instrumentation ranges from conga, saxophone and Hawaiian guitar to tabla, cello and kaval. Somehow, all of these elements come together, seamlessly, to reinterpret Joan Armatrading's "Save Me," the title track and this entire album of vibrant, sensually rendered aural heirlooms.

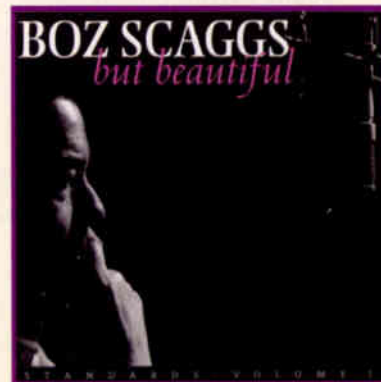
Producer: Sam Mills. Engineers: Stuart Bruce, Arabella Rodriguez (tracking and mixing), Renaud Letang (mixing). Studios: El Cortijo (Andalusia, Spain), Real World, (Wiltshire, UK). Mastering: Tony Cousins/Metropolis (London).

—Breean Lingle

Boz Scaggs: *But Beautiful* (Gray Cat)

The "standards" album has become something of a rite of passage for "ma-

ture" singers; usually, it's a lateral step to show their range and hopefully reach out to a more sophisticated audience. Some can pull off the intimate balladry required; others cannot. It turns out that Boz Scaggs is a natural; not too surprising, given his successful forays into torch territory throughout his career. On *But Beautiful*, Scaggs wraps his warm, rich voice around cherished nuggets by Ellington ("Sophisticated Lady"), The Gershwins ("How Long Has This Been Going On?"), Rodgers & Hart ("Bewitched, Bothered and Bewildered") and others, fronting a four-piece jazz ensemble. It's a very mellow affair, sort of the musical equivalent of sipping fine cognac at the end of a meal at an elegant restaurant. This is music for lovers, or for those contemplating the joys and sorrows of love. A couple of tunes with a little more bounce and *swing* to them would have been a nice addition to the CD (and



stretched the musicians more), but perhaps those will pop up on Volume II.

Producer: Boz Scaggs. Engineers: Jeff Cressman, Steve Macmillan, Michael Rodriguez, Chris Tabarez, Joel Moss (mixing). Studio: Meac (San Francisco). Mastering: Bernie Grundman/Bernie Grundman Mastering.

—Blair Jackson

Clem Snide: *Soft Spot* (spinART Records)

According to the band, while Clem Snide (Eef Barzelay, Jeff Marshall, Jason Glasser) were crafting *The Ghost of Fashion* (their highly acclaimed, chart-topping hit in 2001), two types of songs evolved from the sessions: the darker tunes that ended up on *Ghost*, and those with a slightly softer feel that punctuate Snide's latest ef-

—CONTINUED ON PAGE 134

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hearsal and told us. Very weird. Anyway, we cut 'Bette Davis Eyes' totally live at Record One: every note, the percussion, even the [electronic] Synare and Kim's vocals; there was never an overdub. I think we did three takes and the one we used was take one. I did a rough mix the night we cut it, and then I spent four days chasing that mix when we mixed the album later and I never could beat that first one. Thank God I had done the original mix to quarter-inch."

Garay recalls that for the live session, Carnes was stationed in a vocal booth adjoining the control room and she sang into "the same vocal mic I've used on every vocalist on every record I have made since my days at the Sound Factory: a Neumann U67 tube with the API in front of it. I've *tried* everything, but I always go back to the U67. When I built Record One, I made a smart move. I went to Neumann and said, 'Will you build me 10 new U67s?' and they said, 'Okay.' So I had 10 great new ones." Garay, who has always taken copious notes on all of his sessions, reveals that some of the other mics used on the session included a Sennheiser 421 on the bass drum, a Shure 56 on the top of the snare, a Sennheiser 441 on the bottom, Telefunken 251s on the toms and as overheads, and an AKG 452 on the hi-hat. "The drums are live, hot and bright—very tight-miked," he notes. Guitars were cut using Shure SM53s, "which is what I still use to this day. It's a warm mic with a lot of bottom; great for guitars." Synths were cut direct and with a mic on amp "because otherwise you get this harsh, homogenized synth sound I don't like."

Of the Synare, which was ubiquitous on hit records in the early '80s, Garay says with a chuckle, "Craig Krampf bought that thing, and he brings it to the rehearsal and every song we rehearsed he'd be playing the stupid thing and I was like, 'Craig, get rid of that thing!' It was the most annoying thing I'd ever heard in my life. But he was relentless and he kept at it, and sure enough, when he hit it in the chorus of 'Bette Davis Eyes,' it sounded *perfect*."

The song quickly became a smash: It hit Number One after just a few weeks; it was one of the biggest hits of the year. It also topped the charts in 31 countries around the world. The album *Mistaken Identity* also hit Number One. Two other songs from the record—the title track and "Draw of the Cards"—were minor hits for Carnes. "Bette Davis Eyes" won Record of the Year and Song of the Year at the 1982



Producer/engineer Val Garay

Grammy Awards" (*Mistaken Identity* was also up for Album of the Year, and Garay was nominated for Producer of the Year but lost to Quincy Jones.)

Carnes and Garay worked together on the 1982 follow-up album, *Voyeur*, which failed to match the success of its predecessor but was still a modest hit. In the two decades since, Carnes has made a few albums but mostly earned a very good living from songwriting. Since moving to Nashville in the mid-'90s, she's managed to land songs on albums by Reba McEntire, Vince Gill, Tim McGraw and Trisha Yearwood, to name a few.

Garay went on to work on The Motels' first two albums, Santana's *Beyond Appearances*, and albums for Joan Armatrading, Sarah Brightman, Dwight Twilley, Mr. Big, The Nylons, Michelle Wright, Crash Palace and various others. He sold Record One to Allen Sides in 1989, but now has a beautiful home studio on two rustic acres in Topanga Canyon (L.A.) with his longtime friend and partner Mark McNabb: "All of the front-end stuff is still API—I have *racks* of that," he says, "but now I record on Pro Tools." In fact, Garay has been a beta tester for Digidesign. He says that he hopefully had considerable input into their new Pro Control unit.

These days, Garay is most excited about his new line of drum sampling CDs, *Val Garay Tracked Drums*, created with composer Nic. tenBroek and The Wizardz of OZ. "There are a lot of drum CDs available and they all have a sound to them so they're only usable in certain kinds of situations," he says. "The ones we did are the way I record all of my drum sets: Fat and punchy, and then you can make them sound any way you want. Not only is it

multitracked—spread out over 11 tracks—it also has stereo mixes I did that are on the same grid." The drummer on the tracks is session ace Brad Polain.

"What we've done that nobody else has done," Garay continues, "is we have all of these in Rex files, too. If you have Logic, Performer or Cubase, you bring the stereo drum tracks into it, and if they're recorded at 70 beats a minute or 80 beats a minute and you want to change it to 114, you just move the fader to 114 and they change. Whereas in Pro Tools, you have to chop them up in Beat Detective in one-beat increments and that's a nightmare. Well, that's what we did for you! For every hour of recording, it's like 130 hours of editing."

For more info on the CDs, go to www.valgaraydrums.com.



THE MARS VOLTA

FROM PAGE 124

while guitars and stomp boxes festooned the adjoining chambers. A makeshift vocal booth was assembled from goboes and packing blankets. Smaller rooms and walk-in closets housed banks of amplifiers, while more recording gear filled an adjacent spa. Schiffman tells us about the complex process of recording the Mars Volta.

You've worked with producer Rick Rubin on a number of albums. Why do you think he picked you for this daunting project?

I think it's because we have a real good relationship; he likes things to sound a certain way. I know how he likes things to sound, and I can achieve that relatively quickly.

What is the difference between recording here and in a traditional haunted recording studio?

Basically, we had to build the recording studio from scratch, which meant treating the live room to dampen it down because it was like an echo chamber. Ocean Way's Classic Equipment Rentals, which we refer to as "Ocean Way to Go," provided the majority of the gear and technical assistance. We had to set up the control room and run all of the mic lines and bring everything up here, as opposed to a studio where it's all in place.

Do you get a distinctively different sound? No, I would say this setup sounds as good as a good recording studio. It definitely

has its own signature, but I would put it on par with the best rooms I've tracked in. *Could you tell me about the monitoring in your control room?*

Rick really loves ProAc monitors powered by Yamaha 2002 amps. Sounds great. It seems that with the ProAc's, the more wattage you send to each side the better; I think we're sending 250 watts per side. We also have a pair of Yamaha NS-10s, because I just know them so well and feel comfortable with them. I'm running a pair of BGW amps on those, 150 watts a side. *What do you have in the way of consoles?* The main console is a beautiful old Neve



Guitarist Omar Rodriguez-Lopez shows off his "toys."

8058 alongside a small Neve BCM-10 with 1066 mic pre's. I put all of the drums, guitars and keyboards through the 8058 faders, and the bass and vocals through the rack of outboard mic pre's. We have a big Pro Tools rig, running 96k straight to two FireWire drives simultaneously; close to a Terabyte of space. On the front end, we use Benchmark Media Systems AD2408-96 converters, running at 96k, 24-bit, 24 channels.

How did you record Omar's guitars?

We tracked using an old Marshall cabinet with Celestion drivers, with a Neumann U67. Then we got into some serious guitar science. We were on a quest for clarity. Omar's vision was of a very dense soundscape with a lot of complex parts. The challenge was to make it all come out clearly and still maintain the excitement and power. The first thing we did was address the amp issue. Omar had been playing live through an old SVT bass head into an old Marshall cabinet. For live playing, this setup works really well, but under the microscope, the tone was not punching through enough: not enough focus. We turned to combo amps.

A major portion of the guitar sounds came from an amazing Supro amp, a Fender Princeton and a very small Fender Tweed. We also used a Fender Super Reverb and a Vox AC30 for some songs, as well. The beauty of these small amps is that they cut through the track but don't overpower it. Also, because they don't push as much air as a cabinet, I can use tube mics and not be afraid that they will blow up. I used Neumann U67s with the -14dB pads in on all of the combos and stuck to a single mic per amp. Sometimes, I would put an SM57 in the back, but found the sound to be clearer and punchier usually without the back mic.

Because we were re-recording 96k/24-bit, I ran through a bunch of tube gear: a Fairchild 670, Pultec EQP-1 and sometimes a Distressor or 1176, or an LA-2A. With the higher sampling rate, the tube equipment sounded even better to me, because nothing gets lost in the murk of low-level analog tape or lower sampling rates. It was an awesome feeling to get a sound exactly how you liked it and have it sound identical on

playback time after time. 96k, I am sold! Omar's guitar pedal collection is massive, and we dove into it wholeheartedly. I own a couple of Roland Space Echos that worked great as tape delay and reverb for special effects, as well as slap. In keeping with our clarity mission, a lot of times we would record a part drier, less effected, and then double it with a heavily effected track playing the same or slightly simpler part, sometimes editing the part to work with the effect. A really nice result from this was being able to pan to two guitars hard left and right, and we would get this really lush, but clear, sound. Of course, Omar's arrangements really created the dynamic, but I think we outdid ourselves in creating some of these tones. The guitar soundscape of this record is very dense and complex, but I think we got everything to fit, and in listening back, it all makes sense. I learned so much about creating unique guitar tones; it was truly a gratifying experience.

For Cedric's vocals, I see you have a vocal booth made with goboes and blankets set up in the sunroom, with sight-

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lines into the main hall. What mics did you use for vocals?

I used a Shure SM-7 for the main vocal track with a 57 taped to it, which sent a feed to Jeremy, the vocal voodoo dude, which went into his mixer, through his toys and then back to me. Once we got into overdubbing vocals, we used a Neumann U67 for quieter sections and the SM-7 for louder parts. Also, I used a Neve 1073 for preamp and EQ, and an 1176 for compression. For Jeremy's effects tracks, we ran the comped vocal back to his pedals through a Little Labs distribution box, so he got the vocal at -10 and it came back to me at +4.

How did you record drums?

For the kick drum, I had a Sennheiser 421 inside and a Neumann FET 47 in front; for the snare, a Shure 57 on top, a Sennheiser 441 under; hi-hat was AKG 451; overheads were a pair of AKG C 12s; for the toms, a pair of AKG C 12As; the close mic is a Neumann P-47, a cool old omni mic that sounds great; and we had a pair of Neumann M-49s for the room. All the mics came from Ocean Way's mic locker.

Can you give me the details on recording Flea for this album?

For the bass, we had Flea play a beautiful '64 Fender Precision P bass through an SVT bass head and 8x10 cabinet. I used a Neumann FET 47 on the cabinet and a Demeter DI. I compressed with LA-2As on both channels. It was a slightly different sound for Flea, but he is such a talented musician that he fit in perfectly. The bass needed to be full and present, because, essentially, the bass was the foundation of every track.

What percentage of the entire project was done here at the house?

Just about everything, including vocals, with mixing taking place on Cello with mixer Rich Costey, just to get a different perspective...and automation, of course.

Did you spend much time with the band before recording?

No, I didn't. I usually like to go to one or two rehearsals to get the vibe of what it's all about. But for this project, I picked up the Mars Volta EP to suss from that, and I had conversations with Rick about what he was looking to get out of this situation. Then the band told me what they were looking for, we did a bit of searching and listened to a bunch of different drum kits tuned in various ways. All of the songs have very involved arrangements, very involved parts, and we wanted to hear it all together, so it was very important that the drums sound clear and precise. ■

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REMIX

"SONGCATCHERS"

FROM PAGE 125

ethnologist and he recorded all of these songs and tales of the Passamaquoddy Indians. He later recorded the Zuni and other tribes. So he's a major factor. Then there were people like Henrietta Yuchenco, who took a Presto disc cutter to the mountainous regions of Mexico. She has an amaz-

lots of stories like that. Right now, we're getting it by the bushel, and some of it is great and some of it is not so great, just like everything else. Just like Grateful Dead music, where some concerts are just not good and some border on the miraculous. Some of it is poorly recorded, sloppily played and has limited value. But we have to preserve and save what we can, while the saving's good.

"Plenty of it has been lost already," he continues, "and lot of it is endangered; it's in crisis. There are discs that have crumbled and tapes that have sticky shed and are basically unplayable. It's heartbreaking when you go into a collection and some of it doesn't play at all, or just a piece of it plays. It's really sad. Sometimes, it gives its life on the transfer. When I transfer it, I'll take it right to 1630, the digital domain, and that may be the last time it will ever play. But if we're lucky, we get it, or most of it.

"So what we're doing at the Library is identifying the collections in crisis and digitizing as fast as we can. You could call it triage. It's a race we'll never win, but we have to keep trying." ■

Cool Spins, FROM PAGE 128

fort, which is largely stripped of the group's more brazen, punkish leanings. It is readily apparent that singer/songwriter/guitarist Barzelay's recent marriage and child have influenced each of the 11 tracks' content: Soft rhythms flow around intimate yet assertive vocals and gently strummed guitars while

weaving in subtle orchestrations of keyboard, glockenspiels, conga and other various wind and stringed instruments—even a Fisher Price TV bell. But there are more upbeat and fun tempos, too: a country-rock "Action" (with Barzelay's typically humorous lyrics), the horn-driven "Happy Birthday" and the bossa nova "Tuesday, October 24." *Soft Spot*, as its name implies, warms the cockles of your heart—or maybe the subcockle region—where love blossoms.

Producer: Joe Chiccarelli. Engineer: Suzanne Kapa. Studio: Brooklyn Recording. Mastered at The Lodge by Emily Lazar and assistant Sarah Register. —Sarah Benzuly

Gongzilla: East Village Sessions (LoLo)

I won't pretend to have followed all the rivers and tributaries that have flowed from the sem-



inal fusion/progressive band Gong through the years; they are numerous and varied, and I've kept up with them only intermittently. Gongzilla is of the family and from the tradition; more specifically, it evolved from Pierre Moerlen's Gong and includes bassist Hansford Rowe, guitarist Bon Lozaga, and marimba and vibes player Benoit Moerlen from that group (along with drummer Gary Husband, formerly of ex-Gong member Allen Holdsworth's band, and N.Y. percussionist Phil Kester). This all-instrumental work-out—cut mostly live in the studio and entirely analog—is an exciting amalgam of styles and textures, from rock guitar pyrotechnics to the "world music" feel that the marimba adds to several tracks. The band handles the multitude of tempo and dynamic shifts deftly, neatly doubling parts in places, and letting Lozaga's guitar soar freely in others. There are also some gentle and spacey atmospheric pieces to offset the raging, jazzy rock that predominates. A fine effort all around.

Producer: Bonford Raga. Engineer: Chris Muth. Studio: Dangerous Music (NYC). Mastering: Chris Muth/Sterling Sound.

—Blair Jackson ■



PHOTO: LAURA LAENWAY

Author Mickey Hart, along with a masked Flora Purim and Airta Moreira, perform as part of Hart's "Planet Drum" experiment, which involved percussionists from cultures around the world.

ing story: bandits, romance, intrigue. Then there's Laura Boulton, who you see with Geronimo, with the aborigines in Australia, with the shamen in Siberia. And, of course, better known is the John and Alan Lomax story: Leadbelly and the great folk and blues musicians of the South.

"I view myself as an extension of those songcatchers, but obviously I haven't had to go through what they did: being out there for weeks and months at a time with primitive equipment. I didn't record 40,000 cylinders the way Bartok did in Romania, traveling around by donkey carts and canoes. I live in a different era, but I've had my adventures in the field, too."

Hart says that he also wrote the book to encourage the preservation of recordings yet to be discovered. "The major recordings are still in the attics of the world," he says. "The children and the grandchildren of the recordists are just coming to grips with their mortality. That's what happened with the Fahnstock recordings [recordings made in the South Seas in the early '40s, but "lost" until the '90s]. If the grandson didn't fall on that box of discs, it would have never gotten to the Library of Congress. There are



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L.A. GRAPEVINE

by Maureen Droney

Recording sessions at West L.A.'s Groove Addicts tend to be fast-paced affairs: for example, the one I sat in on: a series of soundtracks composed by Danny Elfman and orchestrated by Steve Bartek for Disneyland's *Where Magic Lives* television spots. Harpists, string and woodwind players, a percussionist—with full timpani—and a small choir bustled through the company's industrial-chic lobby, which was also crammed with road cases. In contrast to facilities that cater to advertising and end up with a vibe that's either self-consciously arty or just plain



Above: Inside Groove Addicts' control room
Right: Chief engineer Gerhard Joost (left) and Dain Blair

cold, Groove Addicts (with facility designer Boto Designs) has managed to pull off a streamlined, cool decor that's also musician-friendly.

Maybe that's because the company's principals are all musicians. Developed by Dain Blair in 1996 "out of the ashes" of *Who Did That Music?*, Groove Addicts has four divisions: commercial soundtrack production and sound design for such companies as Pepsi, Disney, Miller Beer and Nissan; and broadcast, which creates radio and TV imaging and IDs for networks including the BBC and stations as far away as Turkey, Germany, Italy, Japan and Kenya and—

back in L.A.—KIIS FM, The Wave and KLSX, among others. Groove Addicts also reps for television and radio composers including Elfman and Bartek, Stewart Copeland, BT, Jerry Goldsmith and Michael Kamen. A fourth division, under the coordination of Guillermo De La Barra, handles the Groove Addicts Production Music Libraries that licenses over 12,000 titles.

The 13,000-square-foot facility was a long time in planning, and it shows, from whimsical art to the lobby's practical, polished concrete floor and the blonde-wood studio furniture custom-designed and built in London by AKA Designs. "Although AKA does most of the major rooms in London, so far, we're the only ones in L.A. to have their studio furniture," comments chief engineer Gerhard Joost. "We sent our plans to them, and they literally did a 360-degree rotating 3-D perspective of what they wanted to do. The other companies who were bidding on the job were doing hand drawings



with magic markers: so, needless to say, we were impressed. And even with shipping, the cost from AKA was less."

Boto's Brett Thoeny collaborated with acoustician George Augspurger on the overall design. "They'd worked together before and really seem to enjoy it," comments Blair. "George knew immediately how to get the most out of the design without compromising it."

—CONTINUED ON PAGE 140

NASHVILLE SKYLINE

by Rick Clark

When digital recording first arrived on the scene in the '80s, Nashville was first in line to sign up for the format. Legendary producer and record exec Jimmy Bowen spearheaded the city's embrace of the new direction, and, when ADAT arrived and eventually DAWs, Music City bought into them in a big way, too—from commercial facilities to songwriter home studios.

Over the years, I had been watching the development of recording software that worked in native computer environments. One company that I always thought was onto a good thing was Steinberg. I always felt that it was a matter of time before personal computer power was such that one could run heavy-duty recording applications and do serious work. While Steinberg had some great programs, like Cubase VST and WaveLab, I felt that they really "arrived" with a program called Nuendo. I wasn't alone in that feeling, as Chuck Ainlay, one of Nashville's (and the recording world's) finest engineer/mixer/producers, jumped onboard with great enthusiasm for the program and its capabilities.

This summer, I was offered the chance to check out a Nuendo seminar that was put on by Nashville's Primal Gear. Primal Gear (www.primalgear.com) sells and supports a wide variety of new and vintage gear and is located on Music Row. The Primal Gear Nuendo Power Users School—which was held at Belmont University in The Mike Curb College of Entertainment and Music Business wing of the school—was conceived to provide a formal training to teach the ins and outs of the Nuendo program (for both Mac and PC), including the latest edition: 2.0.

"In selling the Nuendo system, we noticed that no training course had been offered by the manufacturer, Steinberg," says Primal Gear owner Duncan Rowe. "We presented the idea to the folks at Steinberg and they gave us their blessing to develop a curriculum and offer formal training.

"The first Primal Gear Nuendo Power Users School was held in December '02, also at Belmont, and it was a great success. Twelve people attended, making it a nice, intimate group, which gave us plenty of opportunity for individual attention," Rowe continues. "We are currently running the school each quarter with the next two-day course set for September 28 to 29. We find that with each course, we make improvements. We have each attendee fill out an evaluation form at the end of the course and ask for suggestions. We have had nothing but positive feedback so far, and our instructor, Steve Mabee, receives great praise each time."

From my perspective, Mabee was an excellent teacher. As an admittedly old-school kind of guy, I've never thrown myself into the whole DAW and recording software world. I've always just hired people who could work it. From the beginning of the session, Mabee covered all of the points and answered everyone's questions in as much detail as was needed in a very clear fashion. A half hour into the event, I was pretty stoked, as were the other students who represented a wide range: from young recording school graduates to more experienced engineers looking to keep up with new technology and introduce themselves to the DAW world. It was interesting to me that the

—CONTINUED ON PAGE 142



At Primal Gear, the attendees of the Nuendo seminar line up.

NEW YORK METRO

by Paul Verna

The allure of Allaire: By definition, "New York Metro" focuses on recording activities in and around the Big Apple. Whether a residential studio nestled in a sylvan paradise well beyond the city's limits qualifies for inclusion is open to debate. What's certain is that Allaire Studios in Shokan, N.Y., caters to some of the industry's top talent and offers an alternative to urban facilities. It's hard to imagine a recording environment more physically beautiful and more conducive to meditation and creativity than Allaire. The place is the epitome of the residential studio, in that it offers the best of all worlds: technologically and acoustically (a huge Neve tracking/mixing room and an even bigger SSL studio), peerless technical support and luxurious—though not opulent—accommodations.

In these days of tight budgets and creative (i.e., homespun) recording solutions, Allaire seems almost anachronistic. The studio's proximity to the storied hamlet of Woodstock, N.Y., brings to mind The Band's basement sessions at Big Pink. Allaire also conjures up images of the now-defunct Manor residential complex in the English countryside, where Mike Oldfield set the stage for the era of

indulgence by holing himself up for months to craft his masterpiece, *Tubular Bells*. It seems impossible that a new studio could be born in the 21st century with a concept that thrived in a bygone era, and has since been all but discarded. Nevertheless, Allaire makes it happen in the most convincing way.

Founded a mere two years ago by entrepreneurs Randall



Tony Visconti in the Neve Room, about to start working with Neil and Tim Finn.

and Jackie Wallace, the studio has already amassed an awesome credit list: David Bowie, Norah Jones, Tim McGraw, Joan Baez, the Gipsy Kings, Tim and Neil Finn, Cassandra Wilson, Sir James Galway, Guster and Natalie Merchant, to name a few. Many of these artists have sung the praises of Allaire in interviews, and Bowie has gone as far as buying a large tract of land in the studio's vicinity, according to *The New York Observer*.

Artists flock to Allaire because of its secluded setting, its breathtaking views, its giant acoustic spaces, its state-of-the-art equipment and its staff. The two-room facility—which was designed by John Storyk and George Augspurger—offers a wide range of options. The Neve studio, which houses an 8068 with Uptown automation and Fred Hill mods, is a 37x30-foot area with the console set in a corner of the room facing inward diagonally. There is no control room; just open space with an adjoining foyer and lounge (plus

—CONTINUED ON PAGE 143

SESSIONS & STUDIO NEWS

NORTHEAST

Boston-based party band Duke & The Drivers stepped into PIE Studios (Glen Cove, NY) to mix their new album, *Check Your Bucket*. The release was mixed by Joe Blaney and mastered by Bob Ludwig at Gateway Mastering (Maine)...Grammy Award™-winning Norah Jones was back at Sorcerer Sound Recording Studios (New York City) with engineer Jay Newland. Cyndi Lauper was in with New Orleans' Nathan and The Zydeco Cha Chas and engineer Bill Whitman for a Vanguard Records release...De La Soul returned to continue work on their album with engineer Joe Nardone and assistant Marco Polo at the Cutting Room (New York City). Nardone also worked with producer Diesel on new tracks for Tomi.

SOUTHEAST

Working on their third full-length release, Sckapegoat checked into Catalyst Recording with producer/engineer Rob Tavaglione and assistant engineer Walter C. Hines III...Singer/songwriter/guitarist Stephen Stills dropped into Stonehenge (Atlanta) after a recent performance at Atlanta's Music Midtown festival. Stills and producer/drummer Joe Vitale added vocals with Brooks Honnicutt. The cut was resurrected by Stills and Vitale from a 1979 session that includ-



Jazz legend Roy Ayers (left) was in Jamming Downtown Studios (New York City) with engineer/co-producer John P. Hopkins (right), label head Peter Adarkwah and A&R consultant Eddie Bezalel to lay down vibraphone and vocal tracks for an upcoming release on BBE Records. The record, Virgin Ubiquity: Unreleased Recordings From 1976-1981, will focus on rare, unreleased gems originally recorded at various studios.

ed Herbie Hancock on piano and percussionist Joe Lala. Engineer Jim Z and assistant Kelly Liebelt powered up the Studer analog decks.

SOUTHWEST

Motown/Universal artist Erykah Badu was recently in mixing and mastering her new single "Block on Lock" with mastering engineer Rob Wechsler and mixing engineer Tom Soars at Wex-Trax (McKinney, TX). Wechsler also handled producing/engineering duties on six songs for Favorite Nations artist Andy Timmons' upcoming solo release. Tracking was done at Palmyra Studios (Palmer, TX)...Hurricane Jane completed their debut release with producer/engineer Wes Sharon at AKS Recording (Oklahoma City). Mastering was done at Prairie Sun Recording (Cotati, CA) by Mark "Mooka" Rennick.

NORTHWEST

Brad Wolfe was at ARA (Palo Alto, CA) recording tracks for a solo release with producer/mixer Adam Rossi. Rossi also produced, recorded and mixed for San Francisco-based band ViV...Senior engineer Tom Carr recently finished up tracking with the Stanford Jazz Orchestra at The Annex (Menlo Park, CA). Also in at The Annex, Metaphor wrapped up their sophomore CD with engineer Christopher Scott Cooper...The Plant Recording Studios (Sausalito, CA) had RCA band Vue in Studio B with producer Nick Lounay. Jerry Harrison was in Studio A producing Warner Bros. artist Von Bondies.

SOUTHERN CALIFORNIA

Epic Records artists B2K mastered their newest release, *The Remixes Vol. 2*, with chief mastering engineer Stephen Marsh at Threshold (West L.A.). Also from Epic Records, Time Lapse Consortium mastered their *Live at the Roxy* performance with Marsh...Ry Cooder stopped by Sound City Studios (Hollywood) to work on overdubs in Studio A and Studio B with Rail Jon Rogut engineering and Miles



Recently in at Cartee Day Entertainment (Nashville), back row, from left: BJ Thomas (artist), Reggie Young (guitar), Bobby Emmons (organ), Chips Moman (producer) and Mike Leech (bass). Front row: Steve Crowder (engineer), Gene Chrisman (drums) and Bobby Woods (piano).

Wilson assisting. Also in Studio A, Kings of Leon tracked and mixed new material for their next release on RCA Records. Driving the sessions was producer/engineer Ethan Johns with Wilson assisting...The Mighty Stone (Brad Wilson, J.J. Garcia and Brian James) have been working in Cherokee Recording Studios (L.A.) for their newest CD, *STONE III*. The Robb Brothers production team manned the board.

STUDIO NEWS

Just seven months after Dungeon Recording upgraded its Studio C to an SSL 4064 E/G, Studio A now hosts an SSL 6040 E/G and a redesign of all acoustic treatments by the studio's staff. "We all love the sound of older SSL consoles: They rock. The EQ just works, period!" said Jeremy du Bois, chief engineer. The install was handled by Interface Audio (Nashville)...NP Recording Studios installed a set of JBL LSR28P monitors. Custom-designed stands were done in-house and fabricated by Jay Beauchesne...Manhattan Center Studios acquired two new Pro Tools|HD3 systems in its Studio 7. Other recent equipment upgrades include two Neve 33609s, a UREI 1176 (blackface), four PCM 42s and four Distressors; further upgrades are scheduled. ■

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L.A. GRAPEVINE FROM PAGE 136

Studio A is the facility's centerpiece. A 5.1 room fitted with JBL LSR 28P monitors, it was designed with several recording spaces, each with different sonics and all with clear sight lines to the control room. About choosing a Yamaha DM2000 96k console, Joost says, "I couldn't be happier. We produce music for radio, TV and film with some of the best musicians in town; the pace can be staggering. I find having a surface you can manipulate sounds on immediately is far more constructive to the final mix than trying to mouse around. My design concept for the room was to rely on the board as a front end for tracking, with Pro Tools HD as the ultimate mixing environment. But I kept the options open. We can also record into Pro Tools through outboard preamps using the DM2000 only as a monitor mixer, and I've also mixed entire projects relying solely on the console, including our first 5.1 spot, which I mixed for Nissan and the Creative Domain Agency, which just won a Belden Award."

Studio B is a multipurpose room for overdubs, voice-overs and mixing with

a Yamaha 02R console and Pro Tools. There's also a sound design room manned by Groove Addicts' house designer and remixer Robert Wear. Amenities at the facility include a full kitchen, pool table, large plasma-screen TVs, a spacious outside patio with gas barbecue and a comfy conference room where the walls are lined with guitars signed by such luminaries as Don Henley, Paul Stanley, Gene Simmons and Sting.

L.A. has an astonishing number of working musicians, along with an equally astonishing number of recording studios. In Van Nuys, I visited another new one, M-Pire: the very handsome home facility designed by Stephen Klein for (and with) singer/songwriter John M. A Nashville transplant who specializes in unpretentious, rootsy pop/rock, M. (real name Mollenhauer) has two well-received CDs to his credit and has been called by reviewers as "someone to keep an eye on." In person, he's as likable as his music, espousing a DIY ethic honed on his own projects that he now



Singer/songwriter John M. inside M-Pire

also applies to productions for others.

In a serendipitous L.A. story, M. reconnected with Klein—a friend from high school—at a reunion. "John told me he was moving to L.A. and would be building a studio," relates Klein, whose other recent projects include Honda R&D, Spark Unlimited Gaming, JBF Films and Ransom Records. "Small world: I just happen to design and build studios, and I'm based in L.A."

Construction faced more than the usual acoustic challenges: The house is adjacent to a busy thoroughfare: the 405 Freeway and the Van Nuys Airport-Heliport. "I told

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John it would make more sense to demolish the existing structure and start anew," Klein recalls, "but he wanted his dream studio, so the concept was born. I'm proud of his project, and happy to say it's quiet enough for the most critical recording, and versatile enough to accommodate any type of music production."

"We spent more money on soundproofing than we did on anything else," M. admits. "The walls are something like seven layers thick, with vinyl and air channels and two different layers of sound board. The project grew a little and the budget grew a lot, but I'm happy with what we got."

The studio includes a large control room, a good-size main recording room and two iso booths, one designed specifically for drums and one for vocals. Two specially outfitted amp closets add flexibility, and a machine room holds the in-



M-Pire's main recording space

nards of the RADAR recording system that M. prefers. Natural light was incorporated into the recording space using existing stained-glass windows, reinforced and soundproofed with glass bricks. The control room also has natural light that is provided by insulated Solatube skylights.

A striking component of the recording space is its Brazilian tigerwood floor; reportedly, the only one in Southern California. "It's expensive," M. admits. "But once I realized the kind of ballpark money we were in, just sounding good wasn't enough. The studio had to look good, too. Besides being beautiful, the tigerwood is incredibly hard. Actually, Steve wasn't sure we would even be able to drive nails in it! Not only is it a good reflective surface, you can roll pianos and road cases on it without marring."

The drum room boasts a percussion-friendly low-mid frequency boost that's tunable with movable traps. The vocal room is dry. The main tracking room is live, but neutral. The studio's "break-in" project was M.'s third record, *No Over-*

dubs, the bulk of which was recorded live in front of an audience. "I brought in about 40 people," he notes, "set up a P.A. and lights, and recorded."

His fondness for intimate venue recording is an outgrowth of another passion of John's: house concerts. They're a staple of his tours as he traverses the country in a Ford van. He's currently editing a documentary filmed during one of those tours. "We started in New Hampshire and zig-zagged across the country," he explains. "A film crew followed me and shot everything: the concerts, driving, eating at Denny's, staying at people's homes. It's about my tour and creating your own audience: finding people to let you come into their house, perform and stay."

The centerpiece of M-Pire's control room is a 48-in, 24-bus Otari Concept Elite console. "With the Otari, I got a very good deal," M. comments. "It also sounds great.

It has excellent A-to-D converters and preamps, and it's totally recallable with moving fader automation. It's basically an analog console with a digital control center."

Surround monitoring is through a Genelec 5.1 system; a MartinSound Multi-Max allows various stereo and surround configurations. Like many Nashville cats, M. is attached to the RADAR format. "I just think it sounds better," he states. "And it's much easier to use. I see

computers as a necessary evil; RADAR is a computer, but it doesn't act like one. It's as easy to use as an analog tape machine, but with the advantages of nonlinear hard disk recording. I do have Pro Tools, Logic and Digital Performer, but I got them mainly to be compatible to get in and out of RADAR and to make transfers for people I work with."

M.'s current favorite tools for singer/guitarist recording? "I'm a 'simple-ist,'" he states. "My favorite place to start is with a plain old Neumann 87 in front of a guitar with a Neumann 103 for vocals. On a recent jazz vocal project, I used an Audio-Technica 4033, mixed with a Neumann 184 as a distant, ambient mic, which gave me a nice, live, 'airy' sound. My Taylor 12-string is set up with a stereo direct line out, so I'll use that blended with a U87. DI doesn't sound anywhere near as good as a mic, but you get some of the clarity and detail. I like that combined with the ambient sound of the mic." ■

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Ross says

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Ross Hogarth Grammy winning Producer/Engineer - Ziggy Marley, Gov't Mule, Keb Mo, Coal Chamber, Jewel, Roger Waters, Black Crowes

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NASHVILLE SKYLINE FROM PAGE 137

school, just in its second session, has already attracted attendees from as far as Connecticut and North Carolina.

"I think the idea of the Nuendo School came from watching the way Nuendo users worked with the application," states



Blue Mother Tupelo performing at the NAMM Sound Stage event

Mabee. "In using the Nuendo software, I knew that most of our clients were only touching the surface of what it was really capable of. Most of our clients start working with Nuendo right before big projects and are so busy that they never have the chance to really get in depth with it. The idea was to educate the students about the application and make them understand how they can create the answers to their own questions. When the student leaves the class, we not only want them to walk away with the knowledge we gave them about the operation of the program, but also the knowledge to be able to answer their own questions in the future.

"In the writing of the curriculum, Wesley Bulla and I tried to focus on designing the course on real-world needs," adds Mabee. "We set up the classroom in a semi-circle and outfitted every two students with their own Nuendo rig. Every task I perform on the projector screen can easily be mimicked by the students, keeping the class highly interactive and less monotonous. We also set up two FAQ sessions every day where we attempt to interact with each student one-on-one, making sure

that the large amount of information is sinking in."

One of my classmates was engineer/mixer Bob Bullock, who has been involved with some heavy-duty projects over the years, including working with Robert "Mutt" Lange on Shania Twain's albums, as well as releases from George Strait, Reba McEntire, Waylon Jennings, Patty Loveless, The Tubes, Nanci Griffith, John Prine and Todd Snider.

"I feel I gained in two days what would have taken two months to learn any other way," says Bullock, who not only works in many of the main studios in Nashville, but also runs his own facility, The Dining Room. "I still feel I am a friend and a client to the professional recording studio. At the same time, I am glad I have Nuendo to work with at other studios, as well as my home."

On the second day, Primal Gear brought in Karl McBride of TechRep

Marketing, and he gave everyone the low-down on a number of software programs and libraries that interface well with Nuendo, particularly The Grand, Groove Agent, Halion String Edition and Virtual Guitarist (acoustic and electric editions). In the near future, Primal Gear is planning on augmenting the course with a DVD that should be completed by early next year.

I was told by Primal Gear that Steinberg was going to be putting on an event during Summer NAMM in Sound Stage Studios and SAE Institute.

One of the day's highlights involved a NAPRS-sponsored panel discussion, featuring producer/engineers Chuck Ainlay,



Robert Kosloskie of Clair Bros. mixing Blue Mother Tupelo

Jeff Balding, Gary Paczosa, Steve Bishir, George Massenburg and Tony Brown. This event marked one of the first public appearances by Brown, who suffered a near-fatal fall in April. The panel covered topics ranging from how DAWs have changed the production flow, getting started as an engineer, hi-res and surround (they all like it), the future of music and how it will be released (no one knew), and their first piece of gear. There was a surround demonstration at the outset of the panel, featuring work by each of the panelists. The sound was delivered through an NHT system that was quite impressive.

During the day at Sound Stage, Primal Gear offered an edited version of its Nuendo Basics School, while engineers Bishir and Paczosa demonstrated real-world applications of Nuendo with recording and mixing sessions. A common denominator for all of the engineers involved is their enthusiasm for Studio Network Solutions' A/V SAN, as they all have recently added it to their arsenal of



From left: Gary Paczosa, Jo Ainalay and Chuck Ainalay

gear. Studio Network Solutions was demonstrating its storage solutions in a workshop at SAE.

Besides Studio Network Solutions and Steinberg, there were also product demonstrations by NHT Pro, Apogee and Waves. Steinberg, however, was rolling out Nuendo 2.0, and one of the day's highlights involved a live Nuendo recording of a rootsy trio called Blue Mother Tupelo, which I was told was discovered by Brown. He introduced the band from the stage and, for the next couple of hours, everyone was treated to a set of spirited blues rock that included originals and a smart cover of Junior Kimbrough's "Meet Me in the City."

Audio-Technica provided all of the mics for the stage, and Clair Brothers Audio

supplied the incredible sound. Ainalay, Paczosa, Massenburg and Bishir took turns recording the live performance to Nuendo in Ainalay's studio, BackStage.

The idea for this event was born out of Ainalay's desire to offer some more pro audio options for Summer NAMM attendees. "I just thought it would be great to bring together some of the coolest gear that I use, good food and drink, and interesting discussion to fill a summer day. We hope to make this a tradition," he said after the event. ■

Send your Nashville news to MrBlurge@mac.com.

NEW YORK METRO FROM PAGE 137

a third room that can be used for isolation). For mixing sessions, gobos are arrayed behind the mixing position to tone down the "liveness" of the room.

Despite its impressive size and lavish equipment offerings, Allaire's Neve room is dwarfed by the Great Hall, the studio's centerpiece. Measuring 35x50 feet with a cathedral ceiling that rises to 45 feet, the Great Hall also features 20-foot-high windows that offer panoramic views of the Catskill Mountains. Unlike the Neve room, the Great Hall does have a separate control room, and it is as impressive as one might imagine: a 30x26-foot space with a Solid State Logic 9000 J, Pro Tools HD system, and all of the analog recording and processing gear a top engineer might specify.

The two recording studios and their nearby accommodations are housed in an estate built in the 1920s by Henry Pitcairn, a Pittsburgh-based industrialist who used the Shokan estate as his summer getaway, where he often entertained guests with musical ensembles.

The Wallaces bought the mansion in 2001 and promptly fulfilled their dream of turning it into a recording complex. One of their first and brightest moves was to hire Mark McKenna as studio manager. A veteran of the L.A. scene (most notably as a staff engineer at A&M Studios), McKenna found his groove in the early 1990s as manager of Bearsville, the archetypal Woodstock-area residential studio of its day.

Asked how his years at Bearsville prepared him for his role at Allaire, McKenna says, "People want to be treated well and professionally, and it takes a tremendous amount of effort to do that. When people come to a residential studio, you really have adopted them for the duration. You're dealing with every aspect of

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their existence: from their sleep to their diet to their laundry. Whether they get any sleep becomes your area of concern. Your areas of responsibility get spread out logarithmically.”

Of course, the payoff is that if you succeed in providing artists with such a profound level of service, then they reward you with lavish appreciation and repeat business, according to McKenna. “In this magical sort of environment, people can have an experience that’s much more memorable than they’d have in a facility in an industrial park,” he says. “Their heads are going to a different space. They’re getting away from the city, the suburbs, transportation, noise, hassles, etc. They’re being infused with the environment up here.”

Besides McKenna, other key staffers at Allaire include chief technical engineer Ken McKim, staff engineer Brandon Mason, property manager Britt St. John and office manager Susan Perrin.

A fond farewell: Dear readers, the time has come for me to move on. With a great mix of emotions (sorry, I couldn’t resist), I leave behind the post of New York editor—which *Mix* allowed me to fulfill on a part-time, freelance basis—to pursue a full-time position in the communications/marketing department at Avid Technology.

However, I will stay involved in the music recording industry through my production company and studio, Vernacular Music, which will remain active. I also intend to continue freelancing for *Mix*, albeit with less frequency than in the past three years. Whether as an engineer or journalist, I plan to stay in touch with all of you, and I encourage you to continue to keep me abreast of your activities. I can still be reached at pverna@vernacularmusic.com.

I would like to personally thank a group of individuals who have gone beyond the scope of their jobs to educate, entertain and, in some cases, inspire me. I owe them all a huge debt of gratitude and look forward to continuing my friendships with them.

In the New York PR sphere, I had the pleasure of working with Debra Pagan, Howard Sherman, David Steinberg, Daniel O’Connell, Bob Griffin and Robin Hoffman.

Among New York studio owners and

staff, I would like to acknowledge Troy Germano, Kirk Imamura, Dave Amlen, Steve Rosenthal, Randy Ezratty, Simon Andrews, Murat Aktar, Doug Levine, Hugh Pool, William Garrett, Oliver Straus, Andy Taub, Mark McKenna, Dae Bennett, David Hewitt, Karen Brinton, Tommy Uzzo, Andy



Gipsy Kings producer Craig Street (right) and engineer Husky Hoskuds like what they hear in Allaire’s Great Hall mix room.

Chase, Adam Schlesinger and Kara Bilof.

The region is populated with gifted producers, engineers, mixers, sound designers and other professionals. It was a great honor to work with so many of them on *Mix* stories, including Tony Visconti, Eddie Kramer, Phil Ramone, Frank Filipetti, Rich Tozzoli, Kevin Killen, Elliot Scheiner, Peter Hylenski, Paul Soucek and Greg Calbi. Other singularly talented folks who helped out include John Storyk, Francis Manzella and Benjy Bernhardt.

In the manufacturing community, Rick Plushner, David Kawakami, Bill Allen and Eric Klein deserve special recognition for their selfless contributions to my coverage.

Although the bulk of my work for *Mix* involved the New York area, the subject matter of my stories often transcended geography. Some of the non-New York people who had the greatest impact on my work at *Mix* are Chris Stone, Mr. Bonzai, Bob Ludwig, Gail Ludwig, Adam Ayan, Hank Neuberger, Lisa Roy, Bob Clearmountain, Betty Bennett, Nat Thompson, Lance Vardis, Joe Chiccarelli and the late Denny Purcell.

Finally, I would like to extend my heartfelt gratitude to the *Mix* folks who brought me into the fold, supported me, accommodated me and supplied me with a steady diet of fascinating work: Tom Kenny, Blair Jackson, George Petersen, Sarah Jones, Sarah Benzuly, Chris Michie and Barbara Schultz.

Thank you all.

—FROM PAGE 28, IN YOUR EAR

But here is the most important difference: The latest Future Sonics product uses a single more or less conventional coil transducer, while the new Ultimate Ears model uses *three* armature-type transducers, kind of like the things in (shudder as we flash on possibly needing them some day) hearing aids. They have two big ones for lows and a tiny one for highs. Right away, you know that this technology is inherently LF-challenged or they would not be using two for the bottom end. But before you rush off thinking where this is going, consider yourself hereby notified that the coil-transducer approach is actually HF-challenged!

So there we have it: Two companies, both popular, fighting for the same small and precious market, with different approaches and each having its own strength where the other has its weakness.

So, which to choose? Remember what I said at the top? It just ain't that easy. You would think that, with two products as different as these, one would surely emerge as the clear winner. By the way, that would have been best for me as well, because I would make one enemy for life and one friend for life, and the friend would just happen to make the thing I want. Follow that?

It doesn't matter if I lost you; this one didn't go that way. Like cars and microphones, "better" and "worse" are not applicable terms. Each has its strengths and limitations, and each has its own character, its own sound.

The problem is that most of you will not be lucky enough to try one of each of these custom molds, and I wanted to shed some real A/B light on them for that very reason. Who the hell else is going to get both made so they can compare and tell you?

You will hear things with either system that you don't hear on speakers or with headphones, like certain types of dynamic details and low level, low- to mid-frequency activity. Really. As a gross test, I found that in a certain mix, I can easily count more vocal echoes as they fade away than when any live room ambience is audible.

But you will miss things, too: high-frequency detail; that indefinable air and clarity you get from solid, phase-accurate, 20kHz-plus response; ambience interaction components; and, of course, your own outer-ear acoustic imprint.

The triple-transducer Ultimate Ears do

sound a bit boxy; perhaps from phase complications arising from the mixing of audio from multiple armatures and the passive crossover involved in that. On the other hand, the coil-based Future Sonics don't have quite the midrange presence. They have more of a hi-fi feel to them. Vocals won't pop as much in hostile live environments. I know groups that use both for live gigs; different members use the ones that best suit their situation and needs onstage.

They are both terrifyingly efficient. But how incredibly different they sound at high

levels on my iPod. The Future Sonics had absolutely unbelievable low end and a smooth but insistent HF roll-off, while the exotic 3-armature UE7 Pros had a tight, pleasant mid-bass and a significantly more generous high end.

Then I plugged them directly into my PowerBook and everything changed. They got *much* louder, and the Ultimate Ears got a pronounced midrange clarity that I found revealing. The Future Sonics, on the other hand, actually lost a bit of their thunderous low end and focused on the low mids. They were a bit more



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THE FAST LANE

"substantial" than the others—a little more "hi-fi"—not quite as ruthless on the mids.

The dynamics of both are quite interesting. Neither the iPod nor the PowerBook were really designed to drive these impedances (17.5 ohms for the Ultimate Ears, and 34 ohms for the Future Sonics).

I had no idea that the PowerBook and iPod output circuitry could be so different. This difference (with either of these in ear monitors) was almost as great as the difference between the two makes themselves. Amazing. And it's not as simple as impedances or drive currents. The *dynamics* changed. There are clearly nonlinear factors at work here. I have to tell you, with regular old cans, I never really noticed much of a difference as I did during the year I was listening to these two sources. So, keep in mind that the gear you use to source these babies is as critical as the earpieces themselves.

In-ears don't sound or act anything like earbuds, earphones or speakers. They are unique and probably not for the casual user. They are a commitment. They cost more than most of the equipment that will be driving them. They require maintenance, periodic refitting due to both ear canal-shape changes and breakdown of the material that goes into your ears. They are fragile, and can be damaged or killed with minimal effort.

But they are invisible onstage, stay in during helmetless skydiving, offer impressive acoustic isolation, get loud as hell, and offer no obstruction should you wish to lie down on your ear or snap a pair of ski goggles around your head. When they are properly made and fitted, the wearer feels virtually nothing, and they can stay in your ears a hell of a lot longer than earphones can stay on your head. Also, once you get used to it, their unique, intimate in-your-ear sound is quite pleasant, as well as useful.

Well, dear readers, that's all I can squeeze into this month's column. No doubt some of you may be a little disappointed or frustrated, while others are grateful and relieved. Either way, real-world (and not so real-world) observations and comparisons follow next month, after which I do promise never to visit this subject again, unless some new technological breakthrough warrants it. ■

SSC is bearing voices in his head. One is Bob Marley. No, wait, this one is Hendrix...

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R&B producers Terry Lewis (center) and Jon Nettlesbey (right) at West L.A. Music
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—FROM PAGE 32, OUT OF THE SHADOWS

Bootsy Collins on "Cool Jerk" and "Do You Love Me," and by an ecstatic Joan Osborne on "Heat Wave" and "What Becomes of the Broken Hearted" are fabulous, as is Tom Scott's alto sax solo on "Shotgun." But it's the Funk Brothers, cooking along on tracks that they defined 30 and 40 years ago, and the joy in their faces, who really catch your eye and put a lump in your throat. Drummer Uriel Jones says, "After so many years, we were all a little unsure about playing together. But we surprised ourselves...we had the Motown sound." Correction: They *were* the Motown sound.

The filmmakers do a fine job of framing the music in the context of the tumultuous world that inspired the sound. As the film's narrator notes, "Motown played a pre-eminent role in the cultural soundtrack" that accompanied, and commented on, the events of the '60s. When the film then segues into Chaka Khan's rendition of "What's Going On," arguably the pinnacle of the Motown era (and the first record on which the individual musicians were credited), it is at once joyous and chilling.

None of the Motown session players became rich, but they weren't ripped off as badly as many musicians of the time, and some were able to afford respectable middle-class existences on what they earned in Berry Gordy's studio and elsewhere. The movie, which was produced with Gordy's cooperation (he still controls a large share of the music, after all), treads lightly on this area, but in one interview, drummer Jones, who still does some music teaching, makes an apt allusion to the economic dichotomy: "The kids say, 'If you played on all those hit records, what are you doing teaching us?'"

While Motown was predominantly a black enterprise, not all of the players were African-American. Joe Messina was the "white boy" sitting between two black Brothers. "They called us 'The Oreo Cookie Guitar Section,'" he says with a laugh. But then he and percussionist Jack Ashford recall a tense moment after a late-night session in July of 1967, when tensions between police and the black community reached a fever pitch and Detroit was rioting. "Everything was burning down," says Ashford, "and you protect your family. These were my brothers here. I didn't think about color. I would have gone down for them, even at the hands of a black brother." Meshell Ndegéocello interviews white bassist Bob Babbitt, who breaks down when he recalls how he was

treated by the other players after Martin Luther King Jr.'s assassination the next year. "Had the role been reversed and we had been in a predominantly white area and something broke out, I would have took a bullet for Jack," he says.

There are many other poignant scenes, such as when the players visit the long-unused basement of Gordy's old Detroit home. Now a museum, the old Studio A at Hitsville USA was otherwise known as "The Snakepit." "It's still in there," says Ashford, referring to the spirit and prayers of Gordy and all who worked there.

There's great sadness and frustration associated with the place, too: Slutsky relates one tale when he was at a restaurant with normally articulate guitarist Robert White, who played the lead line on "My Girl." When that song came on the sound system, White started to tell the waiter that it was he who was playing on the record, but got too embarrassed to finish his sentence and, instead, just ordered his barbecued chicken. Says Slutsky, "I knew at that point, Robert desperately needed some recognition in his lifetime." That recognition is finally at hand, but, unfortunately,

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White didn't live long enough to receive it.

To see the movie in a theater, which I did last year, is wonderful. But even so, the DVD adds a lot to the experience. On disc, the film is divided into 35 intelligently chosen chapters, which makes it easy to jump around, and also makes it possible to just watch the music sequences. There are the usual extra audio tracks, which include 2-channel and 5.1 Dolby and 6.1 DTS surround, running commentary from Slutsky and Justman and a reasonably informative MST3K-style onscreen "trivia track." Extra material (much of which comes on a second disc) includes a black-and-white video of interviews with some of the Brothers (including White) from 1993 that helped raise funding for the film; biographical interviews; tributes to the Brothers who've died; scenes that had to be cut from the film due to time constraints; a bunch of onstage, club and studio jam sessions, some of which are done "multi-angle"; and a delightful and touching segment entitled "Dinner With the Funks," which I would have been happy to watch for an hour or more.

And the project keeps going. The



PHOTO: KAREN SASI/PROPERTY OF ARTISAN ENTERTAINMENT

From left: Joe Hunter, Eddie Willis and Joe Messina in the original "Snakepit" studio, recording "You've Really Got a Hold on Me."


Funk Brothers themselves have gone on tour around the U.S.; this fall and winter, they are scheduled to go to Europe and Australia. Slutsky is continuing to explore the old tracks, and is planning a release of some remixes of the original Motown multitrack masters, which will showcase instrumental parts and licks hidden in well-known songs that no one has heard before. "Pushing up faders and punching

mute buttons, and hearing all of this amazing stuff," he says, "it's a musician's dream."

...

From literally the other side of the planet comes news of another great loss to the music world: the death of Italian composer Luciano Berio on May 28 at age 77.

Berio was an extraordinarily prolific



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composer and wrote for all combinations of instruments and voices, including 14 *Sequenzas*: fiendishly intricate pieces for solo instruments. His monumental "Sinfonia" brought together the disparate forces of the New York Philharmonic and baroque-jazz group the Swingle Singers in the late 1960s. But in my opinion, his most amazing works were his early electronic pieces, dating back to the '50s: intense and evocative tone poems and collages that often featured the breathtakingly nimble soprano voice of his first wife, American-born Cathy Berberian. His works were as good a refute as you'll ever need to use against those who argue that electronic music was sterile and inhuman.

I was in high school when I stumbled across his 21-minute acid-flash audio horror movie *Visage* and *Thema*, his deconstruction of a part from James Joyce's *Ulysses*. *Thema* uses virtuoso tape-editing techniques that still elicit gasps of admiration from my students when I explain patiently to them that, no, Pro Tools wasn't available in 1958. (In fact, somebody once told me that when Berio was shown Pro Tools for the first time, he exclaimed, "So why did I work so hard?")

Up there with Varèse, Ussachevsky, Cage and Stockhausen, Berio was a god to those of us who listened to electronic music at the beginning of its evolution. I even got to work with him once in the early '80s. A local contemporary-music group putting on a concert of his music suddenly realized that they needed a small pipe organ for a piece and the hall didn't have one. For some reason, they knew I had a computer-based synthesis system that could do a reasonably good pipe organ imitation. (It was an alphaSyntauri system on an Apple II, which otherwise sounded awful.) Though the composer initially looked upon the contraption with an expression that alternated between horror and contempt, he smiled at me afterward and admitted that it didn't sound too bad. In fact, the whole concert was terrific.

As is true of Jamerson, there is much education to be gleaned from listening to the music of Berio. *Visage* and *Thema* are available on CD, although on the relatively hard-to-find Dutch BVHAAST label (www.xs4all.nl/~wbk/BVHAAST.html). Needless to say, it's worth hunting down.

Paul Lehrman's personal musical fanaticism can be viewed at antheil.org, while his past rantings are available at insideraudio.com.





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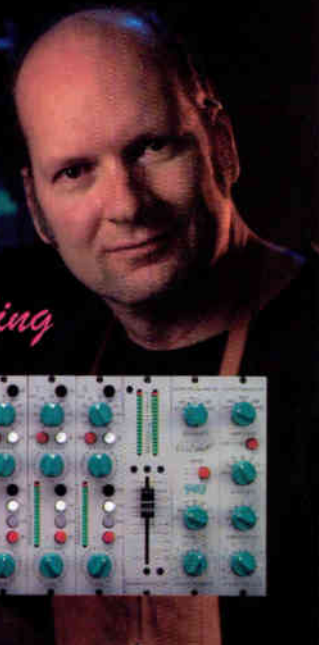
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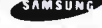
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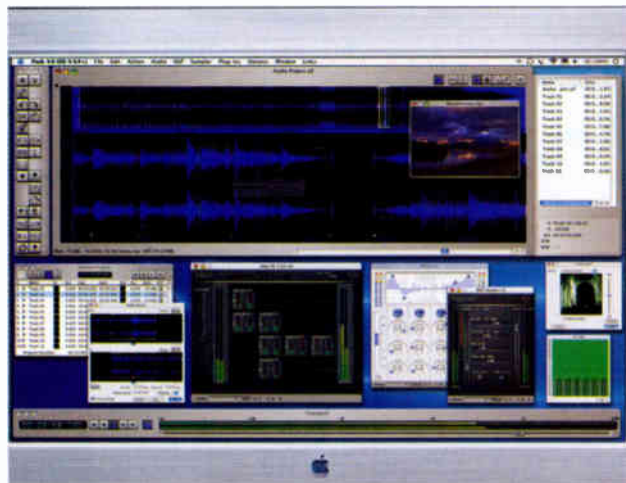
PowerCore FireWire takes the highly acclaimed PowerCore plug-in processing platform to a whole new level of power, versatility and mobility. PowerCore FireWire doubles the power of the original PCI PowerCore card and delivers state-of-the-art TC effects processing to your Digital Performer desktop with plug-and-play convenience. Classic PowerCore plug-ins such as MegaReverb and MasterX are now just a click away on your portable PowerBook Mac — or add PowerCore FireWire to your PowerCore-equipped PCI Mac and use them both at the same time. All processing is performed in the PowerCore hardware, freeing up precious host computer resources for virtual instruments and native plug-ins. Add TC processing to your DP4 studio today!



BIAS Peak 4 — 4 Is More

The ultimate waveform editing companion for DP4 and MachFive

Burns redbook CD's directly. Reads/writes MP3, MP4(AAC™), 24 bit WAVE & more. Batch process dozens or even thousands of files. Ultra fast waveform editing now even faster. Launch directly from DP4. Unlimited undo/redo with graphic edit histories. Unique DSP and looping tools like the stunning new sample based ImpulseVerb™, Change Duration envelope, Harmonic Rotate, Bit Usage graph, Grid Markers from Tempo, plus Repair Clicks, Loop Tuner™, Loop Surfer™, Guess Tempo™, Duplicate, and more. Improved Region Cross-fade Editor and new Content Drawer. Hot swap real-time effects using Peak's included VBox™ SE VST matrix. Supports Audio Units and Core Audio. Optimized for Mac OS X, multi-processors, and the Altivec G4 Velocity Engine. Includes new Squeeze™ pro compressor/limiter, Freq™ EQ, and more.



ADAM Audio P11A Studio Monitors

Two-way shielded active monitors for your MOTU system

With groundbreaking innovation in electro/acoustic transducers, no-compromise design, superior materials and the same A.R.T. (Accelerated Ribbon Technology) folded ribbon tweeter found in all ADAM monitors, ADAM's P11A two-way shielded active monitors deliver your mix with astonishing clarity. Connect a pair to the main outs of your MOTU 828mkII FireWire audio interface — or any MOTU I/O — to hear your mixes with unique imaging and outstanding transient response at a very attractive price point. Europe's "Keyboards" magazine held a studio monitor shootout between no less than 25 professional monitor systems, and the ADAM P11A's came out at the top of the heap. One listen, and you'll be hooked, too!



Upgrade your

MOTU Studio

To Mac OS X

DP4, MachFive and the new 828mkII lead an impressive array of new studio tools for Mac OS X



The new 17-inch PowerBook G4

17 inches of pure professional audio computing pleasure

With a display resolution of 1440-by-900 pixels, the new 17-inch PowerBook G4 delivers an eye-popping 1.3 million pixels on screen — the same viewing area as a 19-inch CRT monitor. You see more tracks, more mixer faders, more plug-ins, more virtual instruments, more everything in your Digital Performer virtual studio. At 15.4 inches wide, it sits perfectly on top of your MOTU 828mkII FireWire audio interface. The 1-GHz G4 processor delivers serious CPU horsepower — enough to run as many instances of MachFive and other virtual instrument plug-ins as you need, with plenty left over for your favorite plug-ins. Back up your projects to DVD-R with the built-in SuperDrive. The MOTU studio is now more powerful and portable than ever.

Remove the 828mkII's rack ears and slide it right underneath your TiBook — the perfect desktop system!



Waves Native Platinum

The ultimate Waves processing bundle for every MOTU studio

No studio is complete without Waves processing, and now Waves brings its entire line of award-winning plug-ins to the Digital Performer Mac OS X desktop. From the classic L1 UltraMaximizer to the exquisite Renaissance Series to the Masters and Restoration bundles — all of the Waves processing you've come to depend on every day can now be at your fingertips in the most advanced native audio recording system available. When only the very best signal processing will do, Waves plug-ins deliver.



Take Me to Your Master

Tips for Working With Waves Masters Bundle

Anyone who has worked with Waves Masters Bundle knows that the included plug-ins present a depth of functionality beyond what is offered by similar plugs. This breadth of control, along with superb sonics, is what makes this suite an engineer favorite. This article will explain some of the least-understood features of the bundle and provide some tips to get the most out of the plug-ins.

LET'S MAKE UP

Part of any diligent mastering routine involves optimizing the gain at the output of each stage of processing. The Linear Phase Multiband (LinMB) plug-in includes an Auto Makeup gain function that compensates for any gain reduction applied by the plug. Auto Makeup is not clip-proof, however, and should always be applied before using the Trim function.

The Trim function is available in both LinMB and both flavors of the Linear Phase Equalizer plug-in: LinEQ Broadband and LinEQ Lowband. Trim automatically adjusts the plug-in's output fader for 0.1 B headroom. That said, Trim cannot provide boost beyond unity make-up gain; it can only deliver overall attenuation.

It is always best to let a mix play through from start to finish before clicking on the Trim readout to initiate a headroom adjustment. Because Trim makes its adjustment based on the last instantaneous peak level it sees, inappropriate output levels can sometimes be produced if you click the Trim readout during follow-on soft passages or while working offline (i.e., with playback stopped).

In cases where two or more Masters Bundle plug-ins are instantiated, don't simply click on all of the Trim readouts at the end of each pass. Adjusting the Trim on an upstream plug may preclude the need to do so on plugs further downstream. Therefore, play the mix through from start to finish, click on the Trim readout in the first Masters Bundle plug-in in the processing chain, and then repeat the entire play-through-and-then-click process for the second plug-in and so on.

PLEASE RELEASE ME

It's always a good idea to manually set release times in LinMB in the early stage of the game, with the ARC™ (Auto-Release Control) function initially turned off. ARC does not set program-dependent release times but program-sensitive release times for all bands: ARC does not disable your manual settings but rather *modifies* them to better handle the program material and prevent pumping or distortion. For the best results, set your release times for each band as best you can with ARC disabled, and then switch on ARC for the final touch.

If you find yourself spinning your wheels down a blind alley and still not getting the mileage you want out of LinMB, it never hurts to call up a factory preset or two for fresh ideas. Your current threshold settings for every band will be left intact when you load a factory preset, allowing you to audition alternative release curves and such without having to adjust all controls from scratch.

LET'S RUMBLE!

Although LinEQ Lowband's sole focus is to treat bass and low-mid bands, it is not always the best choice for rolling off rumble or shaping the bottom two octaves of a mix. True, LinEQ Lowband offers resonant filters and corner frequencies down to 10 Hz in its lowest band, but the plug-in's wide-band cousin, LinEQ Broadband, offers far greater precision for sculpting the "weight" of a mix in most situations. Although it accords only V-Slope filters, LinEQ Broadband's special low-frequency band allows you to tweak the corner frequency of a filter in surgical 1Hz increments from 20 Hz to well over 100 Hz vs. LinEQ Lowband's 10- to 11Hz increments in the same range. That said, if you need to fashion very mild or extraordinarily steep filter slopes, LinEQ Lowband's wider-ranging



Linear Phase Multiband's Auto Makeup function should always be applied before using its Trim function. Never click on the Trim readout before a mix has played all the way through to its end, or while working offline.

Q control makes it the superior tool.

For all of Waves' pervasive genius, preset management for the Linear Phase Equalizer is a bit peculiar and unwieldy. LinEQ Broadband and LinEQ Lowband share the same presets menu, yet they cannot invoke each other's preset settings. The latter condition is understandable, considering the two equalizers offer a different number of bands and filter types. But if you mistakenly try to load a preset into LinEQ Broadband that was created in LinEQ Lowband, or vice versa, all of your settings will be nulled, leaving you with a flat equalization curve. Because there is no undo for preset recall, your only recourse at that point is to start over from scratch. To avoid this unpleasant surprise, I always append the characters "LB" (for Lowband) to titles when naming custom LinEQ Lowband presets. My custom LinEQ Broadband presets get "BB" tags appended to their titles when saving. That way, I know which Linear Phase Equalizer each custom preset is meant for at a glance. ■

Mix contributing editor Michael Cooper owns Michael Cooper Recording, located in beautiful Sisters, Ore. Cooper's studio offers a wide range of recording services, including mastering for CD.

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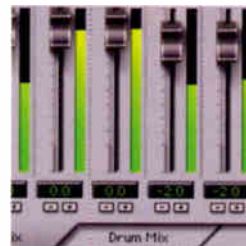
*Front-panel
programming*



*Stand-alone
operation*



*I/O and mixing
in one rack space*



*Software
control*

The 828mkII is not just a FireWire audio interface. It's also a 20-input 8-bus mixer. Run up to four separate 20-input monitor mixes while you track with your audio workstation software. Disconnect it from the computer, flip off the rack ears, tuck it in your gig bag and take it mobile as a stand-alone mixer. Need to tweak the mix? Make changes in seconds with the front-panel LCD. The 828mkII is your complete desktop audio interface and mixer.

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