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MIX

PROFESSIONAL AUDIO AND MUSIC PRODUCTION
JULY 2001, VOLUME 25, NUMBER 7

FEATURES

On the Cover: Denny Purcell of Georgetown Masters, Nashville, has now worked on more than 30 DVD-Audio releases out of his upstairs room, pictured here with its Sony DMX-R100 digital console and custom Nova monitors. But there's more to come in the build-out of Georgetown's 5.1 basement. Turn to page 14 for the full story. **Photo:** Ron Neilson. **Inset photo:** Steve Jennings.

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COAST TO COAST

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DEPARTMENTS

Get the MX-2424 Advantage!

"The 'Golden Ears' all found the TASCAM performed extremely well, nearly beating out a unit priced four times higher. The listening tests confirmed what I already knew: the MX-2424 is a solid performer at a great price."

- Glen O'Hara,
Pro Audio Review Magazine

"...the MX-2424 puts high-resolution sound quality and professional recording features at your fingertips."

- Electronic Musician Magazine,
2001 Editor's Choice Award

"...the TASCAM MX-2424 is a rock solid, excellent studio recorder that performs well, sounds great and is priced right."

- George Petersen,
Mix Magazine

"The machine alone is impressive enough to warrant close attention, but the implications inherent in the control and networking capabilities make it potentially astounding."

- Rob James,
Studio Sound Magazine

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MX-2424 24-TRACK 24-BIT HARD DISK RECORDER/EDITOR

* based on an average 3 1/2 minute song of 24 tracks at 24-bit/48kHz. Your mileage may vary.

† Offline CD-R backup is possible with an Ethernet-equipped computer. The $749 (USD) reference is based on TASCAM's CDR-Pro Bundle.

know that with thousands and thousands of use around the world, the **TASCAM MX-2424** most popular 24-track recorder ever made. might not know is that the MX-2424 offers huge that aren't available on other standalone hard disk regardless of price. Whether you're making the from analog and tape-based digital recorders or into recording, here's some info to help you truly the MX-2424 advantage.

Ph.D. in Nuclear Physics Not Required

If you've ever recorded before, you'll find the MX-2424 as easy to use as any multitrack recorder. Flip the Power switch, arm a track and hit the Record and Play buttons. Voila...you're tracking to its internal hard disk. Since TASCAM has been the world leader in multitrack recording for over 25 years, we know how to create gear that's powerful and sophisticated without making the learning curve too steep.

Edit How *You* Like: MX-View™ Waveform Graphic Interface and Extensive Front Panel Editing

One of the main reasons to get into hard disk recording is the incredible editing power versus tape. Running in native Mac and PC versions and connected via a fast 100Mb Ethernet interface to your computer, the upcoming MX-View is a powerful graphic editing interface that offers sophisticated, sample-level editing on par with full-featured digital audio workstations. You can drag and drop on the fly, get onscreen metering for up to six MX-2424s, set up custom configurable keyboard shortcuts, manage virtual tracks and much more. If you want to use the MX-2424 in the field, its extensive built-in front panel editing tools let you edit without lugging around a keyboard, monitor and mouse.

True Recording Power: Take the Punch-In Challenge

24-track, 24-bit digital audio requires a powerful hard disk recording engine. The MX-2424 is so strong that it allows for seamless, gapless punches across 24 tracks, with up to 72 tracks of throughput to accomplish this considerable task. If you're brave, try arming 24 tracks on any other standalone 24-track hard disk recorder and quickly punching in and out. It's just one example of the MX-2424's awesome dual-processor recording power and extremely fast SCSI bus. You can choose between TapeMode and Non Destructive recording, and access up to 999 virtual tracks per project with 100 locate points, 100 levels of Undo and much more.

Sound Designer II, Broadcast Wave Files and SCSI Drives for Ultra Flexible Compatibility

TASCAM understands the reality that you may need to interface your audio with other pieces of equipment. Since the MX-2424 writes Sound Designer II™ audio files to Mac-formatted disks and Broadcast Wave audio files to PC disks, it's easy to move sound back and forth between your computer and the MX-2424. With these standard time-stamped file types and professional SCSI drives, you're ensured sample-accurate compatibility with Pro Tools™, Nuendo™, Digital Performer™ and more. With compatibility being so important to MX-2424 owners, it's no surprise that its 24-channel interfaces are ready to connect to just about any console, digital or analog. Or that its analog, TDIF and AES/EBU interface modules are 96kHz ready.

Back Up Your Tracks: As Low As A Buck Per Song

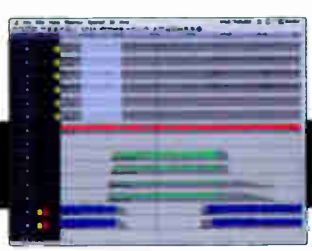
Media	Cost of Drive	Media/10 Projects	Total Cost
90 Minute IDE Drive	$299	10 Drives	$2990
Orb Drive	$299	1 Drive + 86 Disks	$2879
TASCAM DVD-RAM	$599	1 Drive + 20 Disks	$1739
Offline CD-R Backup	$749	1 Drive + 200 Disks	$959

If you're forced to use cheap disk drives to backup, you'll pay in the long run. DVD-RAM drives may be connected to the MX-2424's front panel or rear SCSI port, and offline CD-R backup via Ethernet transfer to your computer is the most cost-effective backup method available on any HD recorder by far.

Hard disks are great for recording...but not so great for archiving and transferring audio. That's why the MX-2424 gives you choices like 9.4GB DVD-RAM discs for your backup solution. Or simply transfer your audio to your computer and backup to CD-ROM for as low as one dollar for an average pop tune*.

Get the Advantage of the Most Powerful and Most Affordable 24-Track Hard Disk Recorder Available Today

There's much more to the MX-2424 than what fits on this page, like its award-winning sound quality, professional built-in synchronization tools and TASCAM's amazing online support forums. So if you're getting into the hard disk revolution, you might as well take advantage of the recorder with all the advantages. Just go to www.mx2424.com for the complete MX-2424 story, or check out the MX-2424 for yourself at any TASCAM dealer.



Available soon, the new MX-View graphic editing software offers DAW-style waveform editing power, drag-and-drop editing on the fly, control of up to six MX-2424s with metering and much more.

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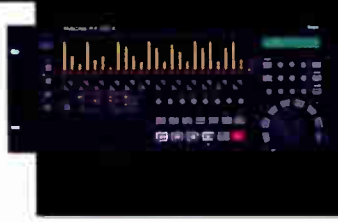

FROM THE EDITOR

THE FREE GEAR SCAM!

Most of us consider ourselves pretty street-smart. We're wary of scams and con artists. Few of us really think we're gonna win that sidewalk three-card monte game, or will give out ATM passwords or credit card numbers over the phone to someone posing as a "bank examiner." However, the audio industry is rife with self-interest to all degrees, and lately, audio scams have been on the rise.

Besides obvious crimes (such as credit card fraud), one popular scam is obtaining *free gear*. Targeted mainly at smaller, high-end manufacturers (but occasionally hitting larger companies), the scamster calls up a manufacturer and asks for some loaner equipment. There are several variations on this: One fellow called several companies from a ficticious audio magazine, saying they were just about to go into production on their first issue and needed some gear for a cover shoot. He went on to say that they already had gear from several prominent audio suppliers, but somehow company "XYZ" (your chief competitor) didn't deliver the gear in time. The scamster went on to say he was so upset with XYZ "flaking out" that he calls for your gear instead and needs it sent overnight. Mindful of this wonderful "cover" opportunity—and, of course, a chance to outdo a rival—the manufacturer sends the gear out, and it is never to be seen again.

Sometimes, people simply call manufacturers saying they need products to review in well-known magazines. In such cases, a quick call from the manufacturer to the magazine's staff can verify such claims. A somewhat more creative approach came from a person who claimed he was assembling gear to be spotlighted in a textbook on audio production. His M.O. was fairly slick—even going so far as to send a detailed book outline, making his scam appear more legitimate. Several manufacturers fell for that one.

If all else fails, the tried-and-true "steal-it-from-a-tradeshow-booth" method is fairly effective, especially at a show like AES, where anyone can walk in off the street, plunk down a couple bucks for an exhibits-only pass and leave with a coat full of microphones. AES has never required walk-up registrants to show proof of ID, so just fill in a phony name and no one's the wiser.

Studios are also on the hit list, and this goes well beyond the thieving bandmember who tosses a direct box into a gig bag on the way out of a session. Studios need to be vigilant, particularly about bookings from unknown people who may call requesting a late-night session when an engineer or studio owner is working alone. There have been numerous incidents—including a murder a few years back—where the intent was to rob the studio, and both larger facilities and project rooms are at risk.

The studio can be a fun, creative environment where the last thing we need to think about is getting ripped off. However, a little precaution—a serial number list, some extra locks, an alarm and maybe even a little common sense—pays off. *Mix* maintains an online Stolen Gear Registry list (www.mixonline.com), but, as always, an ounce of prevention is better than a pound of crime.

George Petersen

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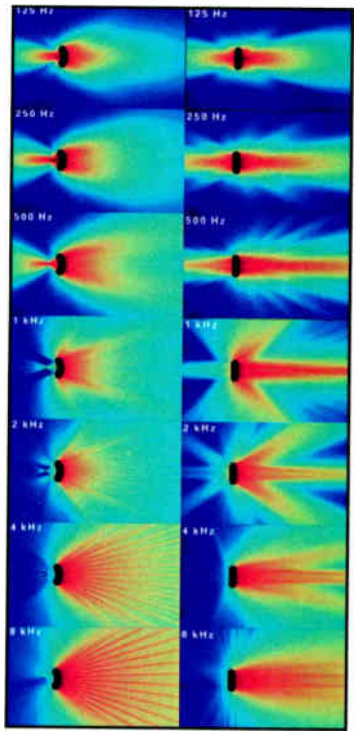

The vertical coverage of a curved line array (left) and a straight array.

DEMYSTIFYING LINE ARRAYS

Thank you for the excellent article on line arrays [March 2001]. We would like to further clarify the issues surrounding sharply curved "line arrays."

Real-world line array loudspeakers use "classical" line array theory only in the low and mid frequencies, where it is practical to control driver size and spacing so that constructive and destructive interference can provide directional control. At high frequencies, all use some form of waveguide (or horn). To prevent multiple arrivals and match the directional characteristics of the low and mid frequencies, this horn must have a very narrow vertical pattern and a wide horizontal pattern.

Because of this requirement, radically splaying cabinets in a line array system will necessarily result in hot spots and areas of poor high-frequency coverage. Indeed, every different degree of curvature would require a different horn design if smooth coverage is to be assured.

The accompanying plots illustrate this point. The left column shows the vertical coverage of a curved line array and the right of a straight array. In each case, the high-frequency horn has a 45° (±22.5°) vertical pattern, chosen in an attempt to make the curved array work.

For the curved array, the relatively wide vertical pattern of the horn aids in spreading the high frequencies, though at the cost of significant lobing. Furthermore, the array remains very directional at frequencies below 1 kHz, because the curvature is trivial relative to the wavelength. This behavior will result in very inconsistent coverage, with a large proportion of the coverage area "seeing" very little low-frequency energy.

The right-hand column shows that the wide high-frequency horn is unsuitable for a straight line array. While the lows are well-behaved, the pattern at 1 kHz and above features strong vertical lobes due to interference. These can be expected to excite the reverberant field excessively and thus destroy intelligibility.

Luckily, there is nothing special or different about the soundwaves that line arrays propagate. It is, therefore, entirely possible for skilled professionals, working with the right tools, to integrate other types of loudspeakers seamlessly for downfill coverage, as long as their phase response matches that of the line array elements. This practice eliminates the need for radical curvature and its attendant problems and properly uses the line array for what it handles best: long throws.

John Meyer
Meyer Sound

IMPARTIAL OBSERVER

I'd like to express how much I enjoy reading your magazine, and I want to say thanks, in particular, for the New Media Special in the February issue. The "File Transfer Technologies" article was quite well done, but I do want to comment on an item in the "Jargon Guide" that, in my opinion, only told half of the story.

You define Virtual Private Network as "...virtual private connections over an unsecure public network," but I know of at least one exception: The WAM!NET fiber network, marketed to the fields of entertainment media production/post-production by MasterMind company Broadness (where I just happen to be VP of marketing) is among the world's largest and most secure privately owned and managed fiber backbones. It offers password-protected private connections over a managed global network that utilizes multiple firewalls, security checkpoints and SSL password protection, and that monitors and reports any security breach attempts.

The media production community can securely store, catalog, view, retrieve and distribute digital assets (such as video or audio masters) via a "library" within WAM! BASE, a near-line digital archive housed in two mirrored, redundant, super-computing storage centers that are geographically distant from each other. I hope you'll provide clarification of the VPN category by including this letter in your "Feedback" section.

Andy Myers
Broadness, LLC

THE PRICE OF ART

As one who happily looks forward to my quarterly BMI checks, Stephen St.Croix's sermon regarding the proliferation of Internet music piracy had me initially saying, "amen."

And then, as the column segued into the writer's vision of a bleak artistic future, my mind began to wander, and I began to imagine an altogether different road we may take. As one who appreciates the positive power of music—and laments the sad state of the modern mega-corporate entertainment biz—there's something appealing about crippling the market-driven system that has loosed the likes of Britney Spears and the Backstreet Boys upon an unwitting world. Take away the profit motive, and the only people making and distributing music will be artists with something to say. The new stars will not be the fresh, sexy faces that the marketing department has decided to sell to teens, but songwriters and bands making art for art's sake. For that kind of future, I would gladly give up my royalties.

Mike Baber
Via e-mail

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CURRENT

PROFESSIONAL AUDIO NEWS AND EVENTS

HIT FACTORY CRITERIA GRAND OPENING IS A HIT

The Hit Factory Criteria Miami held its grand opening bash on April 23. The lavish party, held in the newly resurfaced parking lot of the six-studio facility, was a star-studded event. Many of the luminaries there underscored the history of Criteria Studios, the Miami landmark that the New York-based Hit Factory acquired in January 1999 and spent the past two years renovating and revamping (including the replacement of hardwood floors damaged by torrential rains last fall).

At the Hit Factory grand opening, from left: Janice Germano, owner of Hit Factory Studios, Troy Germano, executive VP at Hit Factory Studios, and Fred Davis, attorney at Davis Shapiro & Lewit

On hand was Tom Dowd, who has produced scores of hit records (Aretha Franklin, Eric Clapton, Allman Brothers) at the former Criteria since the 1960s. Criteria founder Mack Emerman (profiled in *Mix*, October 1999) was also present, as was engineer Eric Schilling, president of the Miami NARAS chapter. Not present and sorely missed was Hit Factory president Ed Germano, who was ill. Other Miami studio managers and owners were also in attendance, including Crescent Moon manager Kevin Dillon and Ocean VU owner Victor Di Persia.

At least one or two of the facility's six studios were online during the renovation, according to longtime studio manager Trevor Fletcher. The New York and Miami Hit Factory facilities are complementary, he added, noting that each location has many identical consoles, including the SSL 9000 J, Euphonix System 5, Sony Oxford and vintage Neve 8078.

—Dan Daley

NEW COUNTRY MUSIC HALL OF FAME AND MUSEUM OPENS

The grand opening of the new $37 million Country Music Hall of Fame and Museum in downtown Nashville opened on May 17, before a crowd of celebrities, industry execs and country music fans. Recording artists on hand for the event included George Jones, Vince Gill, Marty Stuart, Emmylou Harris and Kathy Mattea. Through new films, vintage video clips, live performances, dramatic exhibits and lots of music, the Country Music Hall of Fame and Museum will present the epic story of country music from its 19th century Southern origins to its 21st century global popularity. The building is open to the public, and admission is free.

NOTES FROM THE NET

Popular songwriters and recording artists Randy Newman, Tom Waits and members of the rock band Heart filed a $40 million federal copyright infringement suit in Los Angeles against San Diego, Calif.-based MP3.com Inc.

The suit alleges that MP3.com willfully infringed upon the copyrights of hundreds of songs written by these artists when MP3.com copied tens of thousands of CDs onto its computer servers as part of the My.MP3.com service.

In other news, Vivendi Universal acquired the company for $5 a share, or approximately $372 million in cash and stock. MP3.com will maintain its role as the premier distributor of music on the Internet and will continue to feature content from all record labels and from independent artists. Additionally, the service is also a candidate for Duet, the joint venture between Vivendi and Sony Music to create an online digital music subscription service due out this summer. Michael Robertson, MP3.com founder, chairman and CEO, will become special advisor to Jean-Marie Messier, chairman and CEO of Vivendi, with regard to Vivendi's digital distribution.

"We will continue with our current MP3.com pursuits, but also work with our new partners to innovate subscription systems and music offerings that reach a global audience across many devices," said Robertson.

The transaction is subject to regulatory approvals, approval by the MP3.com shareholders and other customary closing conditions.

Industry News

The new executive director of client relations for **Hit Factory** (NYC) is **Zoe Thrall**, formerly of Power Station/Avatar...**TGI North America** (Kitchener, Ontario) strengthened its professional sales team with the addition of **Bruce Myers**, who will work for Tannoy and DPA products. The company also announced the addition of **Peter Beacock** as marketing and technology manager...**SRS Labs Inc.** (Santa Ana, CA) welcomed back its original co-founder **Jim Lucas** as the new director of sales...Veteran sound mixer and engineer **Matt Foglia** joins **Postworks, New York** (NYC) as chief audio engineer...**Charles M. Salter Associates Inc.** (San Francisco) promoted **Brenda R. Yee** and **Eric A. Yee** to senior consultants...**EMusic.com** (Redwood City, CA) hired **Peter T. Johnsmeyer** as its new VP of sales...**Yamaha** (Buena Park, CA) promoted **Chris Gero** to corporate director of artist affairs...Bethlehem, Pa.-based **Angel Mountain Sound** welcomed **George Hajioannou**, new VP of the pro audio sales division...**Greg Hogan** has been promoted to **Lexicon**'s (Bedford, MA) technical sales manager/field applications engineer for North America, while **Scott Pizzo** was appointed product specialist for professional products in North America...Former regional manager for the Northeast, **Bob Belcher** was promoted to VP regional manager for the Northeast at **Guitar Center** (Agoura Hills, CA), and **Brian Thoryk** was promoted to VP regional sales manager of Southern California...**Steven A. Appel** joined **615 Music Companies** (Nashville) as manager of the Western region. In other company news, songwriter/publisher **Randy Hart** has been named regional sales representative for the Northeast region...**Polar Focus** (Hadley, MA) welcomed **Kevin Green** to its staff, where he will work in technical sales, CAD support and developing the company's new manufacturing facility...**Genelec** (Natick, MA) new appointments: **Bruce Bartone**, national sales manager for professional products, and **Tuomo Tolonen**, administrative assistant of sales and marketing for professional products...Working out of **Penn Industries**' Maplewood, N.J. office, **Frank Riordan** is the new national sales manager for the lighting and audio division.. The new inside sales manager over at **QSC** (Costa Mesa, CA) is **Gina Bergmann...Bay Roads Marketing** (Sharon, MA) will serve as sales representative for **Aphex**'s (Sun Valley, CA) products in upstate New York...Filling the newly created position of sales director at **CRL Systems** (Tempe, AZ) is **Henk Mensinga**.

ON THE MOVE

Who: Joe Lamond
New Position: president and CEO of NAMM
Previous Lives:

- 1998: joined NAMM, director of market development, where he developed a number of projects, including the "Einstein Advocacy Kit," Weekend Warriors program and the New Horizons Band project
- Executive director of the American Music Conference
- Executive VP of Skip's Music Inc. (Sacramento, Calif.)
- Performed on tour as a drummer
- Songwriting contract with CBS
- Production manager for Todd Rundgren and other touring bands

In my CD changer right now..."Dave Matthews Band *Before These Crowded Streets* (Carter Beauford is amazing!), *Grammy Nominees 2001* (required homework for communicating with my children), XTC *Skylarking* (magical combination of band and producer) Annie Lennox *Medusa* and Disney's *Tarzan* soundtrack (Phil Collins inspires another generation of drummers, including my 4-year-old)."

My favorite concert was..."Way too many to list. There is something primitively satisfying about hearing a kick and snare through a huge sound system."

I got involved with NAMM when..."I attended my first NAMM show in 1983, and had been a retail member up until joining the staff in 1998. To me, NAMM represents the unlimited potential of our industry to positively change the world through music."

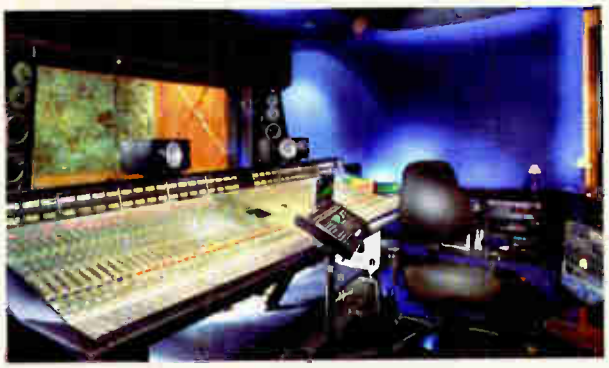
The best part of my job that I do each day is..."I get to work directly with the most talented, creative people in the world."

CORRECTIONS

In the May "Coast to Coast," the "New York Metro" misidentified personnel at Sound on Sound. Fred Samalin should have been Rich Samalin and Cynthia Davis should have read Cynthia Daniels.

In the "NAMM Report" (June, 2001), Bruce Davies' name was misspelled.

In the June "Class of 2001" feature, we ran an incorrect photo for Bogart Recording. Here is the correct photo of the room, with text:



This new studio in North Miami, Fla., opened in March 2000, was acoustically designed by Andy Munro of Munro Associates and Dave Malekpour of Pro Audio Design. The live room's 16-foot ceilings, stone walls and hardwood floors welcome the likes of the Backstreet Boys, Mariah Carey, Gloria Estefan, KISS and Prince. The control room is based around a 56-input SSL 4000 G Series console and two Otari RADAR II 24-bit digital recorders (48 tracks). Monitoring is through custom Dynaudio C4A and M1 near-fields. The studio is also equipped with Pro Tools 5.1 with Pro Control (64 tracks) and Apogee AD/DA conversion, as well as a healthy array of outboard gear.

Also in the "Class of 2001," the caption for Studio Atlantis incorrectly identified the console. The room, which housed a Neve, now features an SSL 9080 J Series console that was installed in June 2001.

In last month's NAB 2001 coverage, the caption for the Soundtracs D4 was misidentified.

Mix regrets the errors.

Georgetown Masters

by Rick Clark

In a time when many popular music releases equate the concept of good mastering with how loud the music can be, Denny Purcell's work exudes a dynamically rich and articulate musicality. Instead of having every sound in your face, Purcell merely refines the intrinsic nuances of the source so music can truly happen.

Since 1985, Purcell has been president and chief mastering engineer for Nashville-based Georgetown Masters, one of the finest mastering facilities on the planet. The upstairs room, pictured on this month's cover, has now seen more than 30 DVD-Audio projects pass through in the past year.

Over the years, Purcell has earned more than 500 Gold and Platinum albums. At various times, Purcell's work has shown up on as much as 50% of the country charts, 50% of the inspirational charts and 20% of the pop charts. With a work load that averages around 250 albums a year, Purcell's mastering credits total over 7,000 albums by artists including Neil Young, Garth Brooks, Paul Simon, Yo-Yo Ma, Willie Nelson, Keith Richards, Bela Fleck, Trisha Yearwood, John Prine, Phish, Chet Atkins, Mark Knopfler, Tom Petty, Faith Hill, Donna Summer, George Strait, Van Morrison, Vince Gill, 311, Cibo Matto, Kansas and Dire Straits.

"My upstairs room, thank God for Norbert Putnam [co-founder of Georgetown, along with Purcell and Ron Bledsoe], is backward to everybody," Purcell says. "It's also not a pro audio room. It's an esoteric room. You sit in my room with nothing between you and the big speakers. That's why you can hear everything. And then when you want to work on or check the music, you refer to the small monitors. When I first built this room, my clients would ask, 'Why is your console backward?' And I said, 'Because I don't want early reflections of the console. I want to hear the music solely through the speakers.' And then clients usually have this puzzled look on their face and say, 'Shit! I never thought about that!'"

With decades of this level of success, many of the world's finest high-end professional designers, inventors and manufacturers have sought to place their gear in Purcell's mastering facility. It's a case of quality attracts quality. Even though one can find gear by such manufacturers as M&K, Meitner, Microsoft, Nordost, Nova, Pacific Microsonics, Parasound, Pass and Sony, Georgetown is also exceptionally outfitted with one-of-a-kind proprietary gear. So, naturally, it's no surprise that Georgetown has, for the last four years, been at the forefront of the developments for surround sound.

Denny Purcell in the sweet spot of his future 5.1 home

It started four years ago, when Rory Kaplan (executive producer/A&R of DTS) came to Tony Brown (MCA Nashville president) with the intention of striking a deal where a number of MCA titles would be remixed 5.1 and encoded DTS surround. Brown had the foresight to get involved and handed the surround mixing work to ace mixer and producer Chuck Ainlay, who, in turn, entrusted the mastering to Purcell. The undertaking resulted in a windfall of surround mastering work for Georgetown.

"It was because of these people that I really began doing surround," Purcell acknowledges. "Thanks to DTS, I was able to do a large body of work at the onset of all these 5.1 releases."

Georgetown has been doing a considerable amount of DVD-A mastering, including recent jobs on legendary catalog titles such as Neil Young's *Harvest*, Van Morrison's *Moondance*, The Fabulous Thunderbirds' *Live* and more recent ones like Mark Knopfler's multi-Platinum *Sailing To Philadelphia*. Next up is John Prine's *Sessions* with Iris Dement. "These opportunities have come thanks to my good friends Elliot Mazer, Elliott Scheiner, Ed Cherney, Chuck Ainlay, George Massenburg, John Prine, Al Bunetta and Dan Einstein," says Purcell.

Georgetown is currently averaging one or two 5.1 projects per week. Until now, Purcell has had to move the 5.1 setup into his big 2-channel mastering room; a time-consuming undertaking for each surround project. But with the rapid influx of surround projects, it quickly became apparent to Purcell that Georgetown needed a permanent surround mastering environment. To help achieve that goal, Purcell brought in high-end audio whiz-kid, and old friend, Rick Loomis.

"Rick's an esoteric audio romantic and a really passionate music colleague," Purcell says. "Somehow, through the grace of his helping me, I think we're going to end up with a 5.1 room like no one has ever built." Purcell lights up with excitement as he talks about his new room, which will also be set up with a $75,000 screen and projection components.

"Basically, the Nova monitors in the downstairs surround room weigh between 300 and 600 pounds each. Each will be on tiptoes," continues Purcell. "Behind each speaker will be a sheet of granite with Parasound John Curl Signature Series monoblock amplifiers and two feet of speaker wire. The AD/DAs are exclusively Pacific Microsonics Model Twos connected to the Meitner switchman. All wire interconnects are done exclusively with Nordost Quattro Fil wire. There will be nothing in the room except a small-footprint digital or analog console if I am mastering. If Eric Conn, my editing engineer, is in there, he'll have a keyboard and a flat screen. That's it. So in theory, there's nothing in the room with you except monitors and a control source that operates the gear. All the machines being controlled are in a rear machine room with no windows, just color cameras with flatscreen monitors."

As of mid-spring, Georgetown has completed 29 surround projects, with many more coming. "We're getting ready to do Neil Young's *After the Gold Rush*, America's self-titled debut album and The Band's *The Last Waltz*," says Purcell, adding that shortly thereafter, he will begin work on the long-awaited first eight Neil Young albums. More to come...Updates to follow.

The Georgetown staff is: Don Cobb, studio manager; Denny Purcell, president/chief engineer; Carlos Grier, production/editing engineer; and Eric Conn, editing engineer. ■

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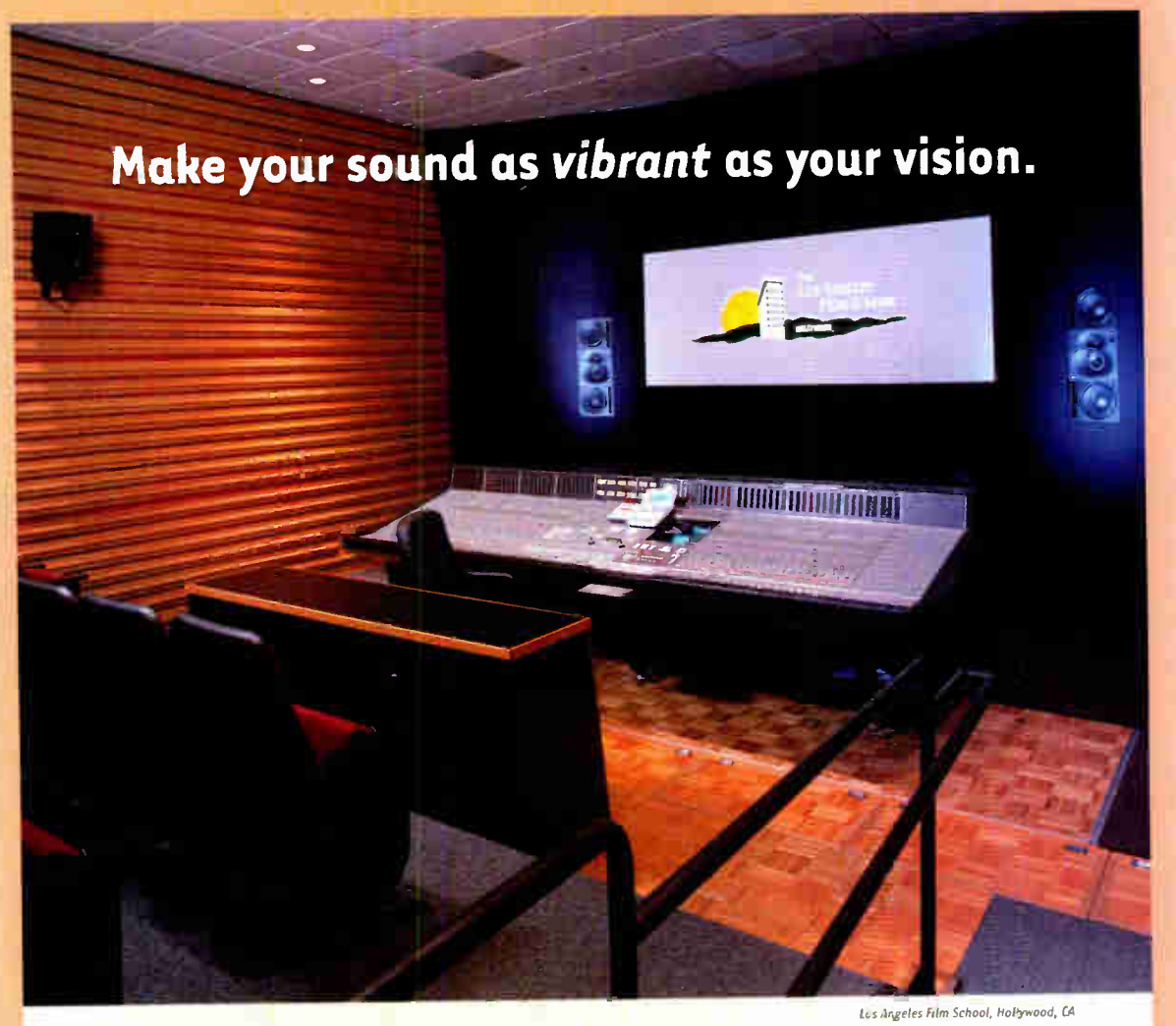

Los Angeles Film School, Hollywood, CA

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I HAVE A DREAM

JUST SAY NO

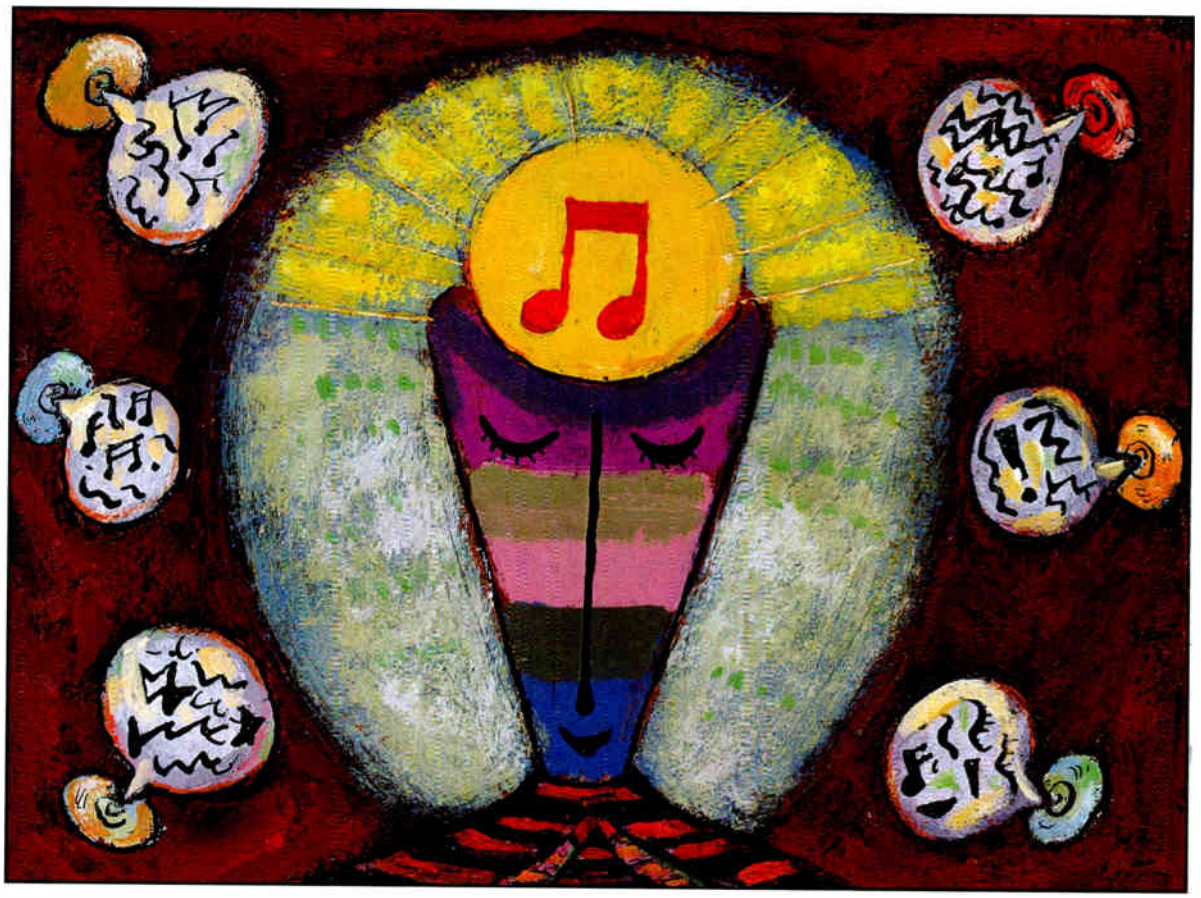


ILLUSTRATION: ANDREW SHACHAT

Let's stop all this screwin' around right here, right now. Let's stop inventing formats or, worse yet, accepting the ones that have been invented by confused, misguided marketing grunts who are only trying to make sure that their kids get to go to a nice private school where they won't be exposed to illegal drugs, and, if they are, they can bask in the comforting glow of knowing that they will be really, really *good* drugs.

Let's bring to a well-deserved screeching halt those endless hours—hell, those endless *weeks*—of learning our control rooms so that we can tell ourselves, and then our clients, that what we hear in our places today will translate perfectly to the end-user's system tomorrow. I mean, how much does it take to look your client in the eye and say, "I guarantee this will sound *exactly* the same *anywhere*. . . every day?"

Let's just say No to embarrassingly expensive mixing desks that promise to have the sweetest summing buses on Earth. No to the insecurity of working all night without knowing if the mix is really the "right" one to pop to the top.

Let's blow off all this 5.1, 7.1, 7.1.5, 9.05 LFE and any other multichannel bull. Admit it: If you exhibit any taste at all when you mix for 5.1, then you are accused of wasting the format's awesome surround potential or, even worse, of "not understanding" how to mix for surround.

But if you do use it and fly a few effects around or place some audience image behind the listener, you are a crass, gimmicky engineer who should certainly be banned from the local sushi bar. Not to mention the crap your kid is gonna catch from any non-hearing-challenged classmates who happen to buy the CD.

Nah. Let's don't do it anymore. Let's stop the insanity before it ruins our lives and we get so stressed that we all go out and buy Porsches in the midst of our pathetic mass confusion. Porsches! The Official Badge of the Misguided.

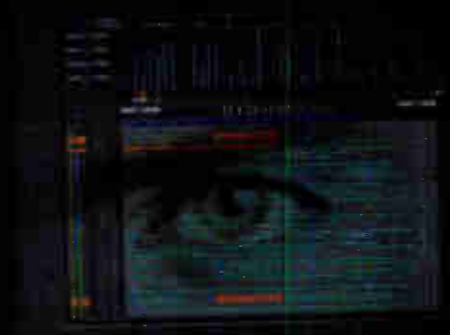
BY STEPHEN ST.CROIX

REMEMBER QUAD? WELL, DO YA?

Well, I do, and I have no intention of putting my family or my living room through *that* fiasco again!

So let's get to it. Let's refuse to mix for multichannel formats. Wait! Yeah,

YOU WILL BELIEVE IN MAGIC!



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that's it. Why be arbitrary? Why go halfway? Yes, it has all just become crystal-clear to me (even though I *didn't* go to private schools). Hear we go.

Let's refuse to mix at all!

No, wait, I'm serious. If we all band together, we can pull this off. And if we examine the ramifications carefully, we see that everybody benefits, everybody gets what they want, even if it's a porsche (ugh!).

Let me outline the myriad advantages of abandoning mixing altogether:

1. Engineers will be happier. Engineers spend a lot of time learning how to mike and track, how to compress, limit, EQ and gate. Then they spend a bunch more time learning how to mix—how to handle all the details technically, how to push the hardware for the right balance of interactive IM and other undefinable nonlinear factors. And good engineers spend lifetimes learning to predict what their mixes will sound like in every car, on every radio and in every room on Earth. Not to mention that they are constantly monitoring hit releases to see what "sound" is selling this week and then trying to figure out how they can do the same thing, only *not* the same…You know.

It's friggin' endless!

Now, if we didn't have to mix at all, we could just do the tracking and be done with it. No stress, no need for that embarrassing porsche. Win-win, for sure.

2. Producers will be happier. I never really got into my most heated debates with producers in the tracking stages. No, this usually happens while mixing, where you want the best possible mix, and they want—well, they have their own agendas. So I say, agenda, angina, let's call the whole thing off! No mix, no debate.

Engineers and producers living together in harmony. It *could* happen.

3. Artists will be happier. Here we go. Let's face it, the Talent is problematic. It's in their Genetic Contract.

Wait. Let me stop and take a moment here to tell you that I am one of those musician/engineer/producer/writer/tech guys, so I feel comfortable slamming each of these groups. You will *not* escape today, my friend.

So, on to the Talent. Musicians slave over a hot mic, tracking and tracking. They make every effort to set up their monitor mixes so they hear themselves 200 times louder than any of the other tracks. This makes sense, as they need to be able to hear details in their performances. But, because they get used to this, in the studio *and* onstage, after a while

—CONTINUED ON PAGE 201

We (the old farts) can mix albums the "Old Way" and show our kids what music used to sound like when it was still music. And they can show us the New "Grand Master" way.

IT'S STILL ROTTEN SOUND TO ME

THE AUDIO REVOLUTION WILL NOT BE STREAMED

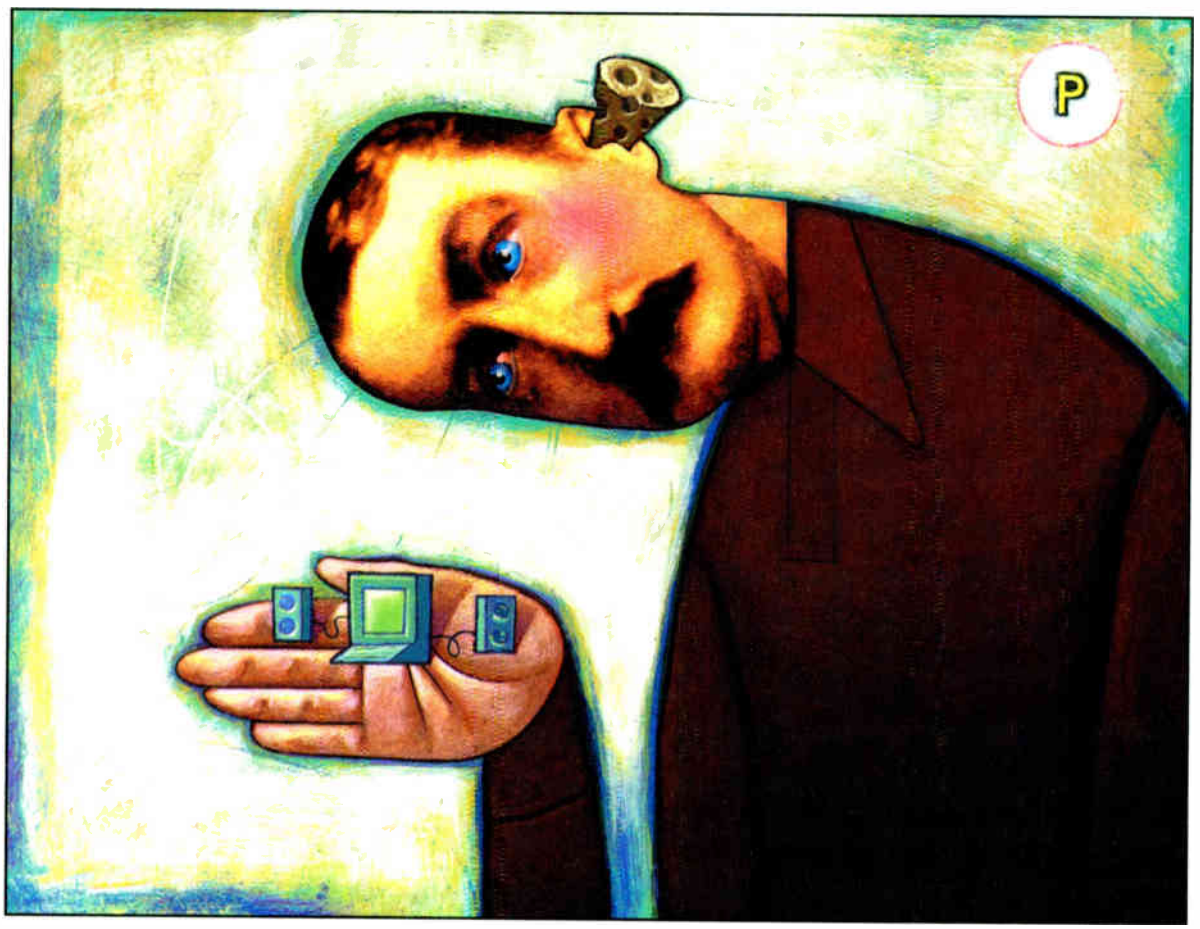

ILLUSTRATION PETER BENNETT

I got fat pipes in my house last month. No, I didn't redo the plumbing or buy an old church organ: I got high-speed Internet access. It's something I've been considering for a while, because I'm managing about a dozen different Websites these days, and the upload and download time on my 56k connection (which was usually running at more like 40k) was killing me.

The choice of what type of high-speed access to get was, alas, easy. Even though I get about a dozen e-mail and phone pitches each month for DSL, and even though I live only seven miles from downtown Boston and two miles from a large local switch, as it turns out, the switch that services *my* town is more than three miles away from me. So all of these breathless offers for DSL are worthless. Fortunately, my local cable system was picked up by AT&T in its recent multi-multi-billion dollar acquisition spree, and the company has been upgrading it, slowly but surely. Recently, that process included putting Internet access on the line that runs down my street.

It's $50 a month (it would be $10 cheaper if I had cable TV, but I'm completely uninterested in wasting any more time in front of a CRT than I already do), and installation was free. Thanks to the previous owner and his six children, cable was already running through the house, so all the technician had to do was put in a new drop from the pole on the sidewalk. He and I then tried to install AT&T's RoadRunner software, but we couldn't, because the central office had given me the PC version—although they knew full well that I was using a Mac (it was on the work order). But the documentation wasn't too bad (although it was wrong in one crucial place, which, fortunately, the technician knew about), and so I managed to configure my TCP/IP settings to recognize the new *Jetsons*-style modem connected to my Ethernet port and be up and running in less than an hour. ("You've done this before," he said.) Considering all the technological hells I regularly find myself in, I consider myself darn lucky.

BY PAUL D. LEHRMAN

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When it comes to moving text and, especially, graphics around, the improvement in performance the new service gives me is nothing short of astounding. When I encounter a 1MB PDF file I want to read, I no longer have to plan downloading it around my coffee break—I just push the button, and in a few seconds I've got it. I no longer cringe each time I see the icon that tells me a Flash animation is about to load. And what's really enlightening is to see how huge the differences are among Websites, which were masked by my old, slow connection: Some are as quick as my own desktop, while others are every bit as pokey as they were at 56k.

It's also allowed me to join the online music revolution. I can actually grope around Napster in real time and check to see whether any of my stuff is on there. (It isn't). And I can listen to Internet radio.

To take full advantage of my new pipes, I went out and bought one of those little "multimedia" speaker systems, with the cute subwoofer and the even cuter satellite speakers. It sounded very impressive with my portable CD player, so I hooked it up to my Mac's audio output and called up the site for my favorite local public folk-music station, which has such a weird radiation pattern that the $400 Sony digital tuner in my office can't pick it up.

Astute readers of this column may recall that four years ago, I complained mightily about the quality of Internet audio. Well, you know what? The sound still sucks. In those days—eons ago, in Internet time—it was remarkable that it worked at all. Like a talking dog whose grammar isn't very good, it was easy to overlook the crummy sound. But Internet audio isn't supposed to be a novelty anymore—heck, we produce a whole magazine devoted to it—it's supposed to be the delivery system of the future.

Well, if this is the future, I'll stick to the past. My favorite station sounds awful. It's compressed all to hell, the bass is ridiculously loud (I guess someone thinks the kids like that), there's no top end and I can't even tell for sure whether it's in stereo or not, because the separation is so weak. Worse, whenever I save something to disk (like right now, as I back this paragraph up), it stutters, and every five minutes or so it stops dead—sometimes for only 10 seconds while it rebuffers, and sometimes for 10 minutes or more because of "problems with your network connection." And, sometimes, it crashes my computer.

Other Net radio stations I've sought out, whether they're re-broadcasting over-the-air signals or are Web-only services, don't fare any better. Half of them are already going at full capacity when I sign on and won't accept any more connections, while half of the rest require some unnamed extra plug-in for my player, which, when I try to download it, "is not available" for my "browser's version." And one service that boasts 150 channels makes me listen to a goddamn 30-second commercial each time I switch channels—hardly encourages surfing, does it?

And while the Net was supposed to open up all sorts of new channels, as I write this, the selection of on-air radio stations is actually getting smaller. Some 500 commercial radio stations have recently been pulled off the Internet by their corporate overlords because of concerns over rights. This isn't a Napster-like problem, because the rights they're worried about are *not* those of the artists or songwriters, or even record companies whose material they play. No, it's concerns over the rights of the announcers and singers on the *commercials* they run, whose union is demanding that they get paid extra for the re-broadcasts. We do live in strange times.

Internet audio isn't supposed to be a novelty anymore—it's supposed to be the delivery system of the future.

But at least re-broadcasters actually sound like radio stations. When you listen to the Web-only channels, you have no idea where they're actually coming from. There's nobody home—wherever home is. There are no announcers or even ads; just generic IDs, which make them kind of spooky, in a Muzak-like way. There's supposed to be text on the screen that tells you what song is playing, but it often disappears after the first song (at least in my browser), and when it does re-appear, it's out of sync by several minutes. Despite the heavy compression, the levels jump around from song to song—another indication that nobody's paying attention. The classical channels are the worst: Not only are they heavily compressed (most FM stations that broadcast classical music make a point of *not* compressing it), but the audio levels are ridiculously low, so what's coming out of my cute little speakers sounds less like the Amsterdam Concertgebouw and more like the deep fryer at a greasy-spoon.

When it comes to a lack of imagination, these services make my local mega-media-owned-and-programmed "classic rock" station look like the Library of Congress—after three evenings of listening, I've heard everything in their rotation. One hundred and twenty channels, and there just ain't much on. To add insult to injury, every site that I even try to log on-to leaves a little RealPlayer dummy file on my desktop, so after a half-hour of searching for something decent to listen to, my screen looks like a flock of mutant blue pigeons flew over it.

One of analog radio's better features is that when the signal is weak, you can still listen to it. When I teach audio theory, I point to radio as an example of how analog audio allows us to perceive sounds below the noise floor, because as a radio signal degrades, the hiss level goes up, but you can still hear the music. Listening to a Net radio station degrade is a very different experience: When traffic starts to build up, the codecs make the music sound like it's being processed through one of those old tube-frequency shifters they used to create alien voices on *The Outer Limits*.

The really sad part about all of this is that it's not going to get any better any time soon. Part of it is the capacity of the Internet backbone. There will always be, as there always have been, a race between the Net's capacity to carry traffic and the amount of traffic it's being called upon to carry. Every year, some expert solemnly intones that, "in two years, we will have three times as much bandwidth as the nation will require," but, inevitably, the demand manages to catch up with, and usually exceed, the supply.

But that's not even the biggest problem. That would be—as it has always been when it comes to feeding new media to the home—the "last mile." The solutions available now, cable and DSL, are really stop-gap measures—ways for the local telephone companies (the "baby Bells") and cable companies to get high-speed Internet service onto existing copper without investing a huge amount of money. The long-term answer is going to be optical fiber. But getting a high-speed data signal on a fiber running underneath a main street is one thing, and get-

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George Petersen
Mix Magazine March 2001

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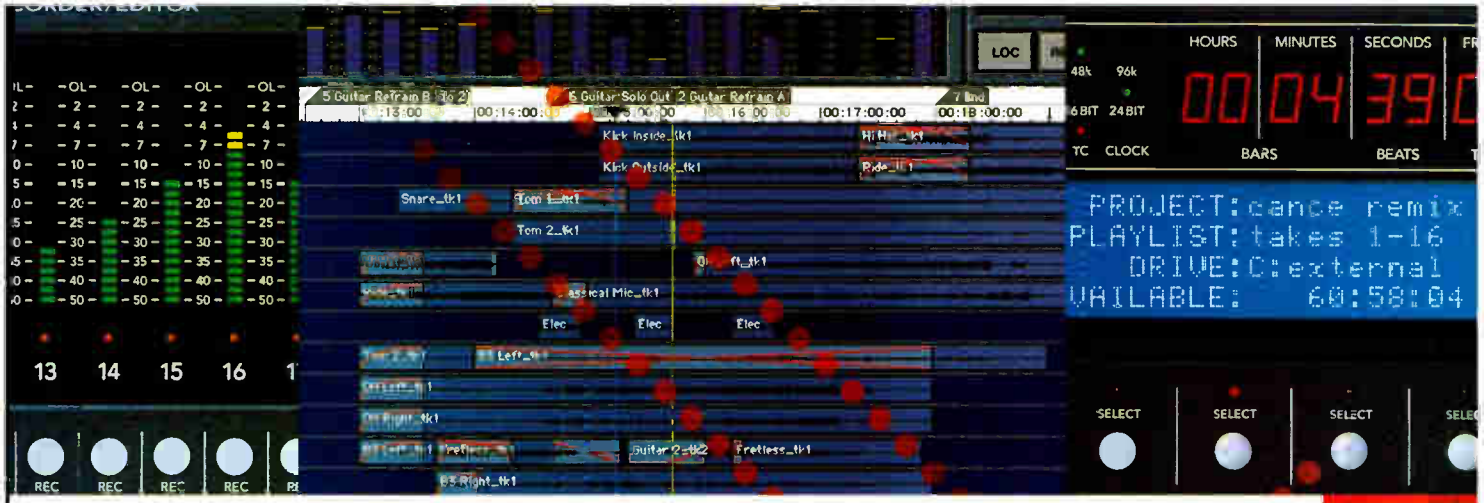

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gone…which makes doing "punch-ins" a dicey gamble. This is called *linear* (destructive) recording. Even some current hard disk recorders use this old-fashioned technology!

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Here's what ***Mix*** magazine had to say about the HDR24/96:

"…The HDR24/96 is a stunning development with excellent sonic quality…The unit offers an ease of use that should make disk-recording novices comfortable while including an impressive feature set that will appeal to seasoned pros.

"The recorder's faceplate holds few mysteries and most users can be up and recording just minutes after unpacking the HDR24/96."

According to Britain's ***Audio Media***, *"As a recorder (the HDR24/96) is transparent. As a tool, it's powerful. As a creative helper it's perfect. With focus on functional, inexpensive, simple-to-use 24-track recording, Mackie has hit the mark."*

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ting that signal inside people's homes is quite another.

Fiber in the home is going to be too expensive to be very common for some time. Not the cable itself, but the process of getting it inside. Streets and sidewalks and lawns have to be dug up and replaced, permits acquired, police details hired...Multiply that by 150 million or so homes and you run into some serious infrastructure expenses. And the financial returns on residential fiber just aren't good enough, even in large apartment buildings, unless they're being built from the ground up with high-speed access in mind.

The classical channels are the worst: Not only are they heavily compressed but the audio levels are ridiculously low, so what's coming out of my cute little speakers sounds less like the Amsterdam Concertgebouw and more like the deep fryer at a greasy-spoon.

As it is now, DSL and cable Internet are penetrating the domestic market very slowly—only about 5% of residential customers have high-speed hookups, two-thirds of them through cable and the rest through DSL. But that is all we're going to have for a while. And even they are going to stay expensive, which is going to make it hard for a lot of people to sign on. I can afford to pay $50 a month for a high-speed connection, because it's my business, but Joe Napsterphile—who's already shelling out $59.95, plus $20 for the box on the TV in the kids' room just so he can watch the WWF/XFL/NBA Battle of the Giants Ultimate Takedown Super Special—isn't going to look at that expense the same way.

"What about the competition?" I hear you cry. The local phone companies are supposed to let anyone who wants to lease their lines, and surely there are well-funded startups that are doing that and putting their own services on them, which eventually will force prices to drop. And cable companies are not supposed to be monopolies anymore either.

Well, it's true that the Telecommunications Act of 1996 was supposed to ensure that competing companies have access to the baby Bells' copper, thus (hopefully) allowing market forces to push down prices the way they did in the long-distance market 20 years ago, when AT&T was broken up. But the baby Bells have managed to hem and haw for years about the technical problems of leasing lines, and a lackadaisical FCC didn't do anything to discourage them. More than one legal expert has categorized the Act as "toothless."

Eventually, many companies that were trying to offer local service and/or DSL ran out of patience and money and gave up. Northpoint Communications and HarvardNet are just two of the larger DSL providers that have gone belly-up, and there are more not that far behind. One state watchdog official described the situation this way: "If the Bells can keep them on the ropes for a few months, they will be out of business."

In Illinois, the local phone company got into a tiff with state regulators who tried to force it to open its lines to competitors, and so they simply pulled the plug on DSL expansion. As the head of the office of consumer affairs in another state has said, "Guess what, guys—this really *is* a monopoly." With no competition and no incentive to either invest in a new infrastructure or to drop prices, the baby Bells see no reason to not let things stay just the way they are.

With the venture capital market in the toilet and last year's crash in tech stocks—the ones that deserved it and the ones that didn't—the baby Bells are sitting pretty. The new, even more regulation-averse FCC isn't going to touch them, and we can forget about Congress: The single largest contributor to the (unopposed) re-election campaigns of Representative Billy Tauzin (R-La.), chairman of the House Commerce committee (and former head of the Telecommunications subcommittee), and John Dingell of Michigan, ranking Democrat on the committee, was Verizon (aka Bell Atlantic), with SBC (aka Southwestern

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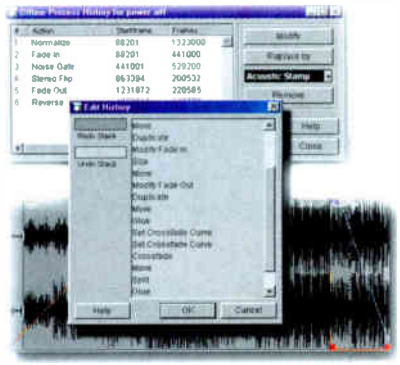

"The top grayed section of the Edit History window indicates events you can Undo or Redo, while the Offline History window behind it shows the various processes that can be modified, replaced, or removed for each audio segment."

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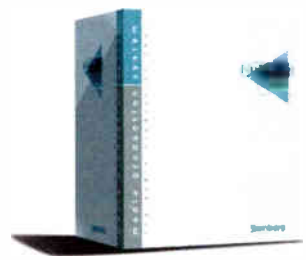

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Bell), BellSouth and the other baby Bells close behind. It is without a doubt that the best investment they ever made—and a lot cheaper than upgrading.

The picture on cable Internet access is not quite as clear (pun more or less intended), but the number of municipalities that have more than one viable cable company can probably be counted on one hand. Here in my part of the world, the once well-heeled RCN is struggling, a victim of the capital markets and the huge expense of duplicating somebody else's existing infrastructure. (What were they thinking?) With cities' hands tied (by the same Telecommunications Act) when it comes to controlling the cable monopolies within their midst, with rates for basic service reaching new highs while the regulatory bodies look the other way, and with consolidation of the nation's cable systems into a mere handful of companies like AT&T, Viacom/CBS/Infinity, and AOL/Time Warner/Reprise/Elektra/Atlantic/Netscape/CNN, there ain't much motivation to innovate there either.

But what about wireless? Isn't it going to bypass all of this limited technology and make an end run around the monopolies? I don't know about you, but my experience with what's supposed to be state-of-the-art cellular service makes me choke at the thought of trusting my Net connection to the people that built the network my new multimode cell phone communicates with. The thing goes into "Analog Roam" mode (at extra charge, of course) whenever I go into a building with a steel frame, and it won't work at all if I'm in a room with more than one computer (which I am most of the time). As one recording engineer, who prides himself on his conservative approach to jumping on bandwagons, told me recently, "This has got to be the worst technology I've ever bought into."

There's one more thing the Internet radio broadcasters haven't quite figured out. In conventional broadcasting, the more listeners you have, the better. One transmitter covers the same geographic area, whether there are 10 or 10 million people tuning in. But the more listeners a Net radio station has, the more expensive it is for them to broadcast, because each streaming server can handle only a finite number of listeners. Who's going to pick up the tab? Good question.

So I'm not holding out great hopes for the Internet to soon become a great medium for delivering high-quality music to large audiences. The stuff available now, with RealAudio and MP3 technology, may well do damage to the record companies (although they seem to be quite capable of shooting off their own toes) and, somewhat more sympathetically, record stores. But it may well happen anyway, and that could end up being a rotten shame, because it's going to give the next generation of listeners a very strange idea of what music is supposed to sound like. Ironically, as we put more bits and channels into our recordings, striving—as we always have—for that next level of realism and listener envelopment, the delivery system is getting crummier and crummier.

It reminds me, sadly, of a magazine ad that Fisher, the early hi-fi maker, used to run that showed a kid looking at a broadcast of an orchestra on a tiny black-and-white TV. The headline read, "Don't let your child grow up thinking this is what a cello sounds like." That battle isn't over: Let's not let our children think that what's coming out of their computer speakers is all there is to music. ■

Paul D. Lehrman can still operate at a relatively high bandwidth.

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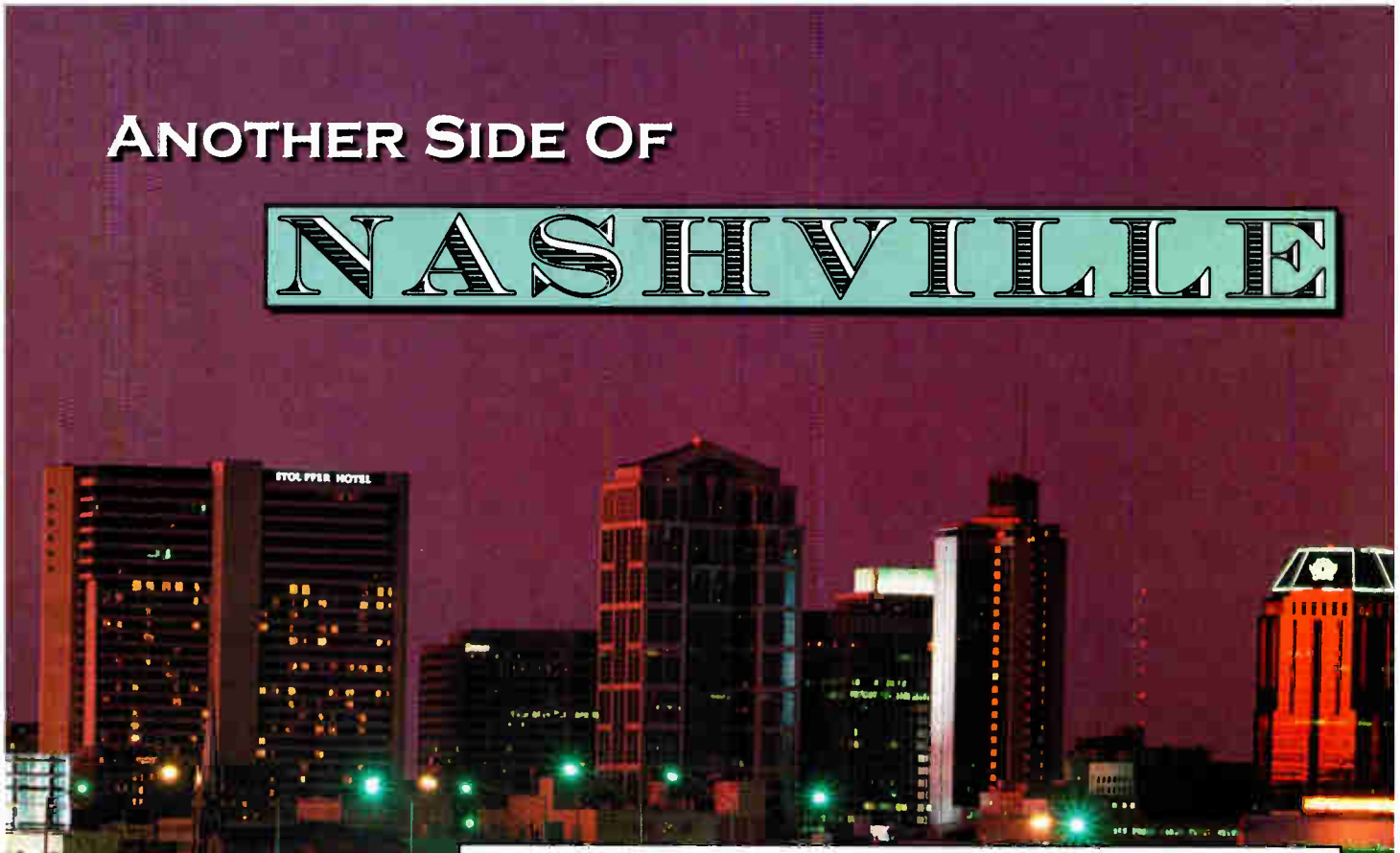


STUDIOS LOOK BEYOND COUNTRY

by Dan Daley

The ups and downs of Nashville's music industry have been well-documented in these pages over the years. The link between the city's recording studio infrastructure and the country music industry has proven a double-edged sword, bringing good times in the early 1990s as country music's market share doubled to more than 18% of a $12 billion music industry. Facilities proliferated in the wake of the genre's expansion. The inevitable contraction came, starting in 1995, though by the time a downward trend could be discerned, the studio base had become considerably overbuilt.

According to the most recent analysis by Nashville-based industry trade publication *Music Row* magazine, 53% of studio revenues at responding Nashville facilities come from country music, surprisingly higher than in years before. But, at the same time, the genre's sales have plummeted by half since a highwater mark in 1995, to 8.5% of retail record sales in 2000, according to SoundScan. That has contributed significantly to the lowest reported rate of studio revenue growth since the magazine started tabulating data in 1994: 10% in 2000, down from 26% in 1994. Not bad for many types of businesses, but for high-end studios, that's often not enough to cover the increased costs of new equipment and renovations.

Since mid-decade, consolidation has been the name of the game. Major labels, including Arista and Atlantic, closed shop; publishers merged; and studios, including some of Nashville's longtime anchors, followed suit, some being acquired by other facilities, some simply closing. It didn't help that country music's decline took place during an even wider period of disruption in the entertainment business. Some also have questioned the creative decisions of Nashville's music business brain trust, which historically has given credence to the notion that imitation is the sincerest form of profitability. Country labels have churned out Dixie Chicks knock-offs and anonymous handsome hat acts, with generally dismal results. Tony

Brown, president of MCA Nashville, and one of country music's most successful record producers, candidly told attendees at the annual South by Southwest music conference in Austin, Texas, in March, "For me, in Nashville our music is totally boring, and I'm partly responsible."

However, many positives are on Nashville's side. These include innovative responses to a changing market by major studio facilities; the fact that the Nashville area is also the center of the fast-growing contemporary Christian gospel music market; and a burgeoning alt-music scene that would welcome the de-linking of the city's name with country music's fortunes.

Seventeen Grand Euphonix control room

CHANGING WITH THE TIMES

Many of Nashville's anchor facilities have become more creative in reacting to changes in the business landscape. Emerald Recording, for instance, grew via acquisition, most notably with the purchase of the Masterfonics facility after the latter declared bankruptcy two years ago. Emerald CEO Dale Moore explains his desire to create a fully integrated vertical business structure, from preproduction through mastering, and at various budget levels.

Jake Niceley of Seventeen Grand

Other facilities and engineers have established themselves as specialists in specific fields, such as Seventeen Grand Recording and Nashville engineer Chuck Ainlay in the multichannel surround music market. Though Seventeen Grand co-owner and mixer Jake Nicely concedes that multichannel audio is still in the starting gate as a revenue source, he notes that the attention brings a significant value of its own in marketing and promoting the studio. "Along with Chuck, we've helped make Nashville a major center for surround music," he says.

Strategic alliances and new services are part of Sound Stage Studio's strategy. Studio manager Michael Koreiba notes that the six-studio facility recently added a large dedicated Pro Tools system, along with three smaller rigs that float throughout the complex. Sound Stage also opened a new format transfer service on site. "What we're doing is looking for other legs to stand on," Koreiba explains. "It's about diversification, and it's definitely a shift in strategy, because if you just sit back, you're going to get run over."

Sound Kitchen owners John and Dino Elefante used geography as a defining strategic element. They situated their multistudio facility in prosperous, suburban Williamson County, where many of Nashville's more successful artists and producers have migrated. "There are producers and artists who have their own home studios, which we've encouraged and helped them build," says Dino Elefante, pointing to producer Michael Omartian and country artist Steve Wariner as two examples. "We want them to start their projects at home, and overdub them at home, and then come here to track and mix. And that's what's been happening."

A TRULY FAITH-BASED INITIATIVE

The contemporary Christian/gospel music market is growing and has emerged as a significant force in music recording in the Nashville area. Some in the studio business go so far as to speculate that the genre could supplant country as Nashville's core music type. If that happens, though, it will take place less on Music Row and more in the sprawling Franklin and Cool Springs suburbs to the south.

"It wouldn't surprise me at all," says Jeff Baggett, owner of Franklin Mastering, one of a number of studios in the area that rely on contemporary Christian and gospel for the majority of their revenues. "As a genre, Christian has nowhere to go but up over the long term. And what I especially like about that music is that the younger, edgier bands and artists are starting to make the traditional Christian music industry take notice. Indie [Christian] labels like Inpop are really putting a bang in the music. Indie labels racked up a lot of wins at the Dove Awards this year, too, and that tells you that the youth end of that market is still growing."

The numbers on contemporary Christian and gospel music do look good. Last year's slight downturn in Christian music sales—44 million units sold vs. nearly 48 million in 1999, according to SoundScan—was the first slip after five straight years of growth. The Gospel Music Association, which is based in Nashville, attributed the drop in sales to a coincidental lack of new studio records from the stars of the genre, such as dc Talk, Jars of Clay, Steven Curtis Chapman, Sixpence None the Richer, Amy Grant and Point of Grace. However, many of those artists have new releases scheduled or already out for this year, and several, including Amy Grant and Sixpence, have penetrated the pop market, fueling the genre's sales. (Sales are likely much higher than the SoundScan numbers, as is the case with many niche genres, where many sales are non-retail. In the case of Christian music, many recording artists also have ministries that sell their CDs.)

Other harbingers of growth: Christian music video sales experienced an 11% increase in 2000 over 1999; contemporary Christian and gospel music saw a record number of RIAA Gold, Platinum and multi-Platinum certifications, 25 in all; and the broader Christian entertainment industry continues to gain larger shares of other media, most notably the "Left Behind" series of End Time-themed novels, which have

not only made best-seller lists but have also spawned feature films. Finally, Christian/gospel music is not a Deep South phenomenon anymore; the GMA's list of Top 10 markets for the music is telling: ranked in order, they are New York, Los Angeles, Chicago, San Francisco Bay Area, Philadelphia, Boston, Washington, D.C., Atlanta, Detroit and Dallas-Fort Worth.

Entropy Recording owners from left: Bob Thompson, Jim Stelluto and Shane Gue

What this all means for Nashville-area studios is a steadily growing base of music clients. But there are asterisks. First, Christian and gospel music have migrated to the suburbs; of Music Row facilities are not the primary beneficiaries. Omnisound Recording, a veteran facility off of Music Row, had more than half of its revenues coming from Christian and gospel as recently as five years ago. "Now I can't remember the last Christian artist we had in here," says studio co-owner and manager Steve Tveit. "When studios in Williamson County, like Sound Kitchen and Dark Horse, started opening up and expanding about five years ago, the Christian work on Music Row dropped like a rock." Also, Tveit adds, Christian artists and producers were ahead of the curve in project and home recording, which contributed to their exodus from the Row. "You would talk to the cartage guys and the musicians, and you'd see that that work was going into people's homes in the suburbs," he says.

That trend actually provoked a showdown between the Nashville A. F. of M. musician's local and Christian record labels two years ago, when the union demanded that Christian labels become signatories to the standard recording contract, prompted in part by the increasing amount of below-scale sessions on Christian records. Ultimately, the labels—including Nashville-based Word Records, which has a commanding 57% of the Christian music market—agreed, but not before a stand-off that noticeably slowed the flow of Christian record work into all studios for a period of about six months. That likely drove Christian recording sessions further into suburbia, speculates Dark Horse Recording studio manager Ed Simonton. "We did feel it; I think we all felt it, because so much of our work comes from that market," he says, estimating it as high as 80%.

George Cumbee, owner of Classic Recording in suburban Franklin, says studio rates for Christian sessions have been able to hold reasonably steady over time. There are a few factors to note in this regard; aside from the overall growth of the industry, Christian/gospel's continuing penetration in pop markets has brought a new emphasis on quality recording, he says. Also, studios don't need to invest in the most expensive equipment to be competitive and attractive to Christian artists. "They're not making their studio decisions based on console 'wow' factors," says Cumbee, whose studio has a DDA Mark 24 console supported by 30 years' worth of vintage outboard gear and microphones. Also, budgets for Christian records are growing while those of pop records are shrinking. Studio owners are reporting budgets topping $100,000 for larger-selling Christian artists; paltry by pop standards, but at least they're on the rise.

Inside Entropy Recording studio

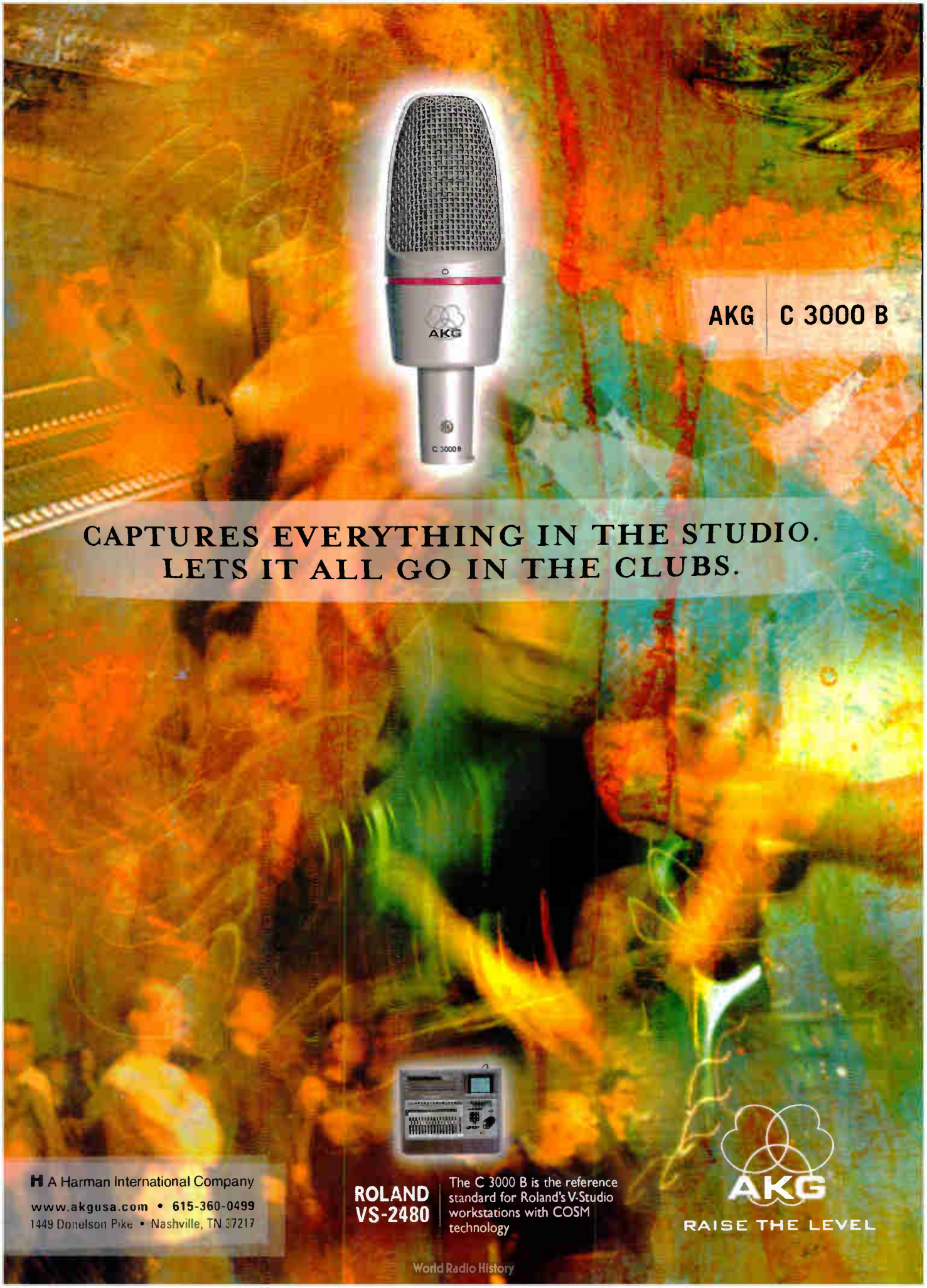
The bottom line is that the Nashville area, if not Nashville itself, is now regarded as the undisputed home of the genre. "This area has definitely become the national home of Christian music recording, just like Nashville had become the home of country music," says Cumbee. "I don't think there's any other place on Earth where so much Christian music is recorded."

NEW FACES

Country's recession is also opening more space for other music genres to develop, including rock, alt and jazz. Two jazz labels, Hillsboro Jazz and Eminent Records, opened in the city recently, both with acclaimed initial releases. The region has also spawned successful national alt-rock labels, such as Spongebath Records in Murfreesboro. These start-ups and their artists are looking for studios that fit both their budgets and their vibe.

Interzone is typical of the aspirations and mind-set of many in Nashville's next studio generation. Located in a turn-of-the-19th century house, the studio offers an American Gothic ambience with a 56-input Mackie console in the funky-chic and rapidly gentrifying East Nashville area, the neighborhood of choice for Nashville's GenX-ers. Owners Void Caprio and Keith Spacek—both New York transplants—saw in Nashville an opportunity to fill a market niche. "The one in between garage studios and Masterfonics," as Caprio puts it. "It's taken two years, but now the studio is self-supporting, with local non-country music artists, and it still lets us pursue our production ambitions."

At $350 a day, including a second engineer, there are plenty of potential takers, Caprio says. However, the long-term prosperity of the studio depends upon the long-term career success of that very client base, and Caprio feels the deck is still perceptually stacked against anything non-



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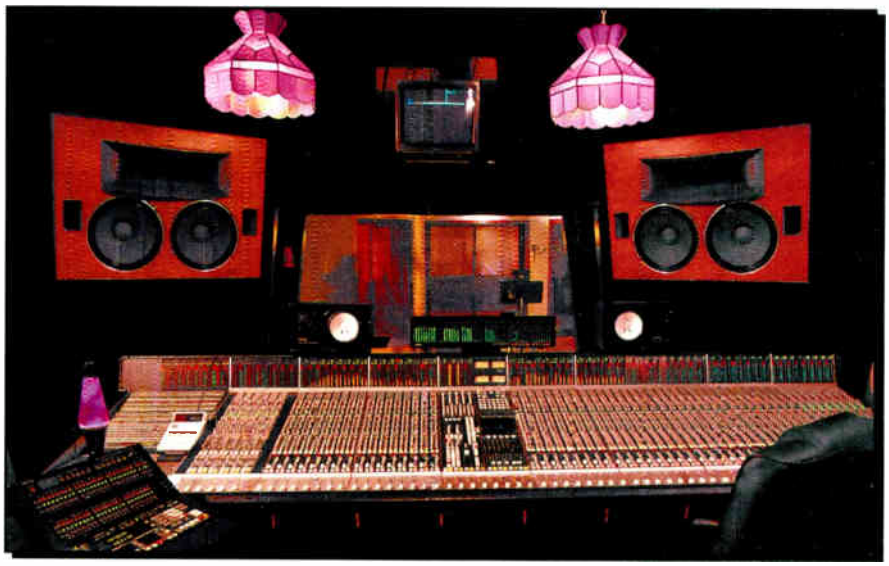
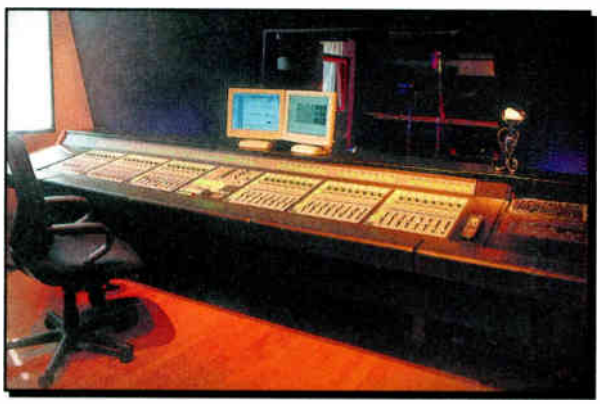


Sound Stage Groove Room

country done in Nashville. "It's always on the horizon, but Nashville never is able to quite break a big-name rock act," he says. "The music and the musicians are here, more so than perhaps anywhere else, and the studios that understand that kind of music are also establishing themselves. But we need to break free of the way people think of Nashville. We try to get people to listen first, before they ask where it comes from."

Entropy Recording began as a service to record rehearsals at the Soundcheck facility in north Nashville. Today, Jim Stelluto and his partners have a sizable control room equipped with a large Pro Tools system that can tap into Soundcheck's 80x40 room. In many ways, this is the quintessential new wave Nashville studio: large tracking space to hold bands the way music has traditionally been made here, and hard disk recording to record them.



Sound Stage Drive Through

Brett's Place Recording is owned by Brett Blanden, who previously was studio manager at Ocean Way Nashville. Equipped with Alesis ADATs and a Mackie console in a basement facility on Music Row, Blanden says he started out seeking as many types of clients as he could; alt music artists share the studio with jingle producers and sound effects work for toys. "But, on the other hand, other facilities at this level are specializing more," he says. "I've seen Avid video editing systems being set up in living rooms. The home studio can give me a headache. But, at the same time, there is a network developing [in Nashville] where projects get passed from small studio to small studio based on what the project needs at each different stage."

Nashville continues with its major transitions, feeling the effects of issues particular to the city and to country music; at the same time, it's as vulnerable as any other media center to the larger business and technological forces at work today. But it has resources few other such centers have. In addition to expanding other music genres, tradition counts here more than it might, say, in Manhattan, where the legacies of many notable studios have been erased by relentless real estate development.

Nashville remains a Mecca for musicians and songwriters who don't ask Bear Stearns for a market analysis before they move to town. They just follow their gut. And unlike Austin, another music magnet, Nashville has a sophisticated infrastructure ready and waiting, and now it's an infrastructure that is more comprehensive than ever before in terms of budgets, formats and attitudes. There are a lot of good pieces on the table. But they are still forming their final shapes, so it's too soon to tell what the ultimate picture of this puzzle will be. ■

Dan Daley is Mix's East Coast editor.

PRODUCERS' STUDIOS—THE ROCK IN THE SHOE

What every commercial studio voice in Nashville agrees on is the more intense effect of another long-time Nashville trend: top producers opening their own facilities. While facilities such as Loud, owned by DreamWorks Records president James Stroud, who also is one of Nashville's leading country producers, have been around for years, the music business here has seen the number and sophistication of producer-owned studios grow.

In the past two years, at least five significant Nashville producers have built their own studios, including Scott Hendricks, former president of Capitol and Virgin Records; Kyle Lehning, former Asylum Records president; and Doug Johnson, president of Giant Records (the label closed shop earlier this year). Some basic math, using very plausible numbers in Nashville, underscores studios' ire: Say five producers each do six major label productions a year, for a total of 30 productions. Tracking, overdub and mix costs represent about 25% of the $250,000 that an average first-record budget costs, or $62,500. That shows $1,875,000 a year that didn't go into for-hire studios. The figure is closer to $2 million when you factor in lost rentals, media sales, catering and other services.

"It has definitely hurt the market," says Sound Stage Studios manager Michael Koreiba. "It's taken money out of circulation. But there's not much you can do about it."

—Dan Daley

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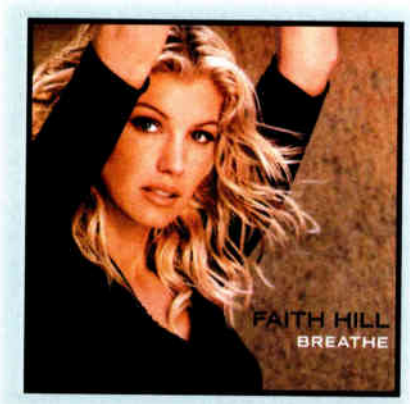
JULIAN KING

RECORDING NASHVILLE ROYALTY

Even in the hectic 21st century, the city of Nashville retains its easygoing vibe. In general, people still do talk a little bit more slowly, and there's an inherent friendliness and courtesy in the way they do business. So, it's notable that even in this generally laid-back atmosphere, engineer Julian King has developed a reputation as a particularly groovy guy to work with. King's winning combination of engineering chops and personality has put him behind the board cutting tracks and/or mixing for everyone from superstars like Faith Hill and Tim McGraw to rising stars such as Toby Keith and Jessica Andrews.

King recorded tracks for Hill's multi-Platinum album *Faith* and won a Grammy (for Best Country Album) for his work on Hill's *Breathe*. He also recorded McGraw's hit singles "Please Remember Me" and "Don't Take the Girl," as well as Toby Keith's smash album *How Do You Like Me Now* and Jessica Andrews' breakthrough, *Who I Am*.

His body of work also includes tracking and mixes for Brooks & Dunn, Clint Black, Randy Travis, Alabama, John Anderson, Clay Walker and the Neville Brothers, to name just a few.



We caught up with King at Nashville's Loud Studios, where he was taking a break between mixes for a new Toby Keith release. Initially a bit reluctant ("I don't think there's enough to say about me to fill more than a paragraph," he jokes), his natural friendliness soon asserted itself, and, after a little coaxing, he graciously shared some insights into his engineering style and techniques.

PHOTO ALAN L. MAYOR

Julian King at Ocean Way Nashville

I can tell that you're a Southerner, but are you originally from Nashville?
No, I'm from Charlottesville, in central Virginia.

Did you start out to be a musician?
Well, I kind of hate to say it out loud, but I started as a trumpet player. [Laughs.] It's not that I am ashamed of having been a trumpet player. It's because all I get now about trumpet is, "Daddy, put that away."

Actually, I did notice a trumpet credit in your discography.
I have only one album credit doing that, but that one album [Charlie Daniels Band's *Simple Man*] went Gold in its debut year! Charlie Daniels is such a generous man; he paid my entrance into the musicians' union so I could play on the one session.

BY MAUREEN DRONEY

You have a degree in music, though.
Yes, I went to James Madison University. I actually started off as a computer science major, but that only lasted about three-quarters of a semester. I got involved in music things there, and they had a music business program. It was a neat program, but it was simple. They didn't have a recording studio, but I met people and made some friends, and I found myself doing live sound for bar bands—that sort of stuff. Rich Barnett, my advisor there, set up an internship for me by way of Merlin Littlefield of ASCAP. They got me in with Jimmy Bowen at MCA.

At the time, MCA had a lease on Sound Stage Studios, and Bowen was producing, or overseeing the production, of almost everything on the label. So he had a big staff of engineers and assistants, and I did an internship with them. I guess I fit in with what they were doing, and they agreed to keep a job for me until I finished my last year of school.

There were five or six assistants and seven or eight engineers who did all the records—Reba, George Strait,

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John Anderson, Lee Greenwood, Waylon Jennings, Vince Gill, Steve Wariner and many others. It was a great place to learn. They used a very structured process, in that it was set up to where engineers were interchangeable. So, frequently you'd be on one project one day and another the next.

That'll keep you on your toes.

As an assistant, everything had to be very meticulously put together, so when a guy came in the next day who hadn't been on the session for two weeks, he could pick up and hit the ground running. I worked with some great engineers who I learned a lot from, like John Guess, Chuck Ainlay and Steve Marcantonio.

So is it still true that Nashville tracking sessions go really fast?

Well, I'm told that they go fast, but it's what I learned on, so I don't really have a basis to compare.

Typically, we do two three-hour sessions a day. And in those two sessions we'll cut at least three and maybe four songs. The musicians go from not having heard a note, and with no music notated, to having put together three or four really great pieces of music. I've worked with a lot of musicians all over the place; these guys are among the best—everything is improvisation, and it's amazing.

You're known for getting a very fat, punchy drum sound.

That's what I go for. James Stroud, who's a legendary drummer, is my primary client. He played on all kinds of records—everything from King Floyd's "Groove Me" and Jean Knight's "Mr. Big Stuff" to Eddie Rabbit's "I Love a Rainy Night" and Paul Simon's "Rhymin' Simon." Drumming was his first profession. When your main client is a drummer, you'd better be able to get drum sounds.

You frequently record tracks in The Sanctuary, Ocean Way Nashville's Studio A.

I love that room. I've been lucky to record in a lot of rooms here and in Los Angeles, and while I have several favorites, that's probably first on my list.

What is your drum setup when you record in that room?

I usually put a FET 47 on the kick drum, and that goes through a module of the big Neve 8078 that they have in there, and I use the Neve 33609 compressor on it and a Pultec EQ. For the snare, I'm pretty boring; I usually just use a [Shure] 57 with an API preamp.

The API because it's more sharp-edged?

Yes, it's a little more pointed, a little "crackier." Then I end up going back to the line-in on the Neve module where I still use the EQ. And usually I'll put a dbx 160 on that.

PHOTO: ALAN L. MAYOR

Engineer Julian King (right) at Loud Recording Studios' Sony Oxford console with producer James Stroud

You mean the original 160, with VU meters? How might you set that?

I don't squash the top mic too hard; it hits 2s and 3s at most. And I put another mic under the snare—typically an ATM 35; a little clip-on mic. I put it up close to the snares.

Clipped to a mic stand?

No, I clip it on the snare stand itself, so that if the drummer changes the drum and raises or lowers the stand, the mic chases the drum at the same ratio.

The hardest [instruments] to separate are steel and organ, because they end up getting in the same bandwidth a lot. I try to pan them away from each other if I can so they aren't fighting for the same place in the middle all the time.

Do you put that bottom mic out of phase?

Yeah, I flop that out of phase and smash the you-know-what out of it with another 160. In fact, you don't even want to look at that compressor. If the kick drum isn't triggering the compressor, too, then it's not smashed enough. Then I add just a little of that sound in, to get a bit of buzz from the snares rattling.

How about the toms?

The toms have the same mics that I put under the snare drum—the ATM 35s. I clip them right on the rim of the toms.

That's interesting, because your toms don't sound close-miked.

Those mics are awesome on toms. But don't print that—nobody else uses them much! They have a fairly tight pattern, and I get them close just trying to get control of the cymbals—so that there's not so much leakage from the cymbals in the toms. They're close, pointed pretty much at the middle of the drum, and then I add a little bit of EQ. They don't require very much, but I end up adding a tiny bit of bottom and taking out a little bit of low middle. No compression on the toms.

What else do you do to make it so live?

My overheads help with the fullness of the toms. Depending on how many cymbals the drummer has, I put up two or three [Neumann] 87s over the cymbals—fairly close.

Do you roll off the low end on the 87s?

No, I actually end up adding some low end to the overheads. Again, I take out some low middle, in the 200 to 300 area, but I end up adding some down low in the 100Hz area. A lot of times, I'll put a high-pass in so that I don't end up with some 20Hz trouble. I'll end up cutting out everything under 30, but I'm boosting some around 100, and that helps fill the toms out. You have to be careful and be sure to audition the phase in several different positions while you are setting it up so that you don't end up making it smaller rather than bigger.

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I put them side by side. Do they call that a coincident pair? They kind of point out—one at the hi-hat and one at the floor tom. It's not terribly scientific. They're maybe 10 to 12 feet back and nine or 10 feet high. They're squashed pretty good, too. I usually put the overheads through my API preamps and [UREI] 1178, and on the room mics, I'll use a pair of Distressors.

Except for acoustic instruments, the players are in with the drummer, right? How is that set up?

Typically, the bass is direct, although sometimes a speaker is involved. The guitar amps are off in a booth, and we build a big hut around the steel guitar amps that are there in the room, right behind the room mics. The acoustic instruments all have booths—there are lots of booths in that studio.

The typical instrumentation on a tracking session is...

It's usually a pretty big session, if I'm working with James [Stroud] or with Byron Gallimore. There's almost always drums, bass, piano—and the piano player usually is Steve Nathan, who brings an organ and a big synth rig in addition to the acoustic piano. Then there's an acoustic guitar player, two electric guitar players, a steel guitar, plus a fiddle player. That's eight. Plus the artist, of course.

How long does it take to get set up?

Typically, it takes them a good three or four hours to get it all put together. Just because there are so many bodies that come in the door. [Laughs.] The cartage parade alone is lengthy. Usually by the time I get there, they've got it all set up and they've phase-popped everything.

Speaking of setting up, I'd like to mention that I have five guys and gals in town who I work with a lot who are really the bomb. I am really cranky without them. There's Ricky Cobble, who I have been working with for a long time; Rich Hanson and Jake Burns at Loud; and David Bryant and Leslie Richter at Ocean Way. They all do a great job. When I have an idea in my mind, I look up and they're already plugging it in. I get to work in a lot of places all over the country, and if one of them doesn't go with me, it's much harder for me.

One of those five leaked to me that you like to use Gefell UM 70S mics on acoustic guitar.

I got that from Lynn Peterzell, who was my primary engineering influence. He was my mentor and I was his assistant. He started me on that mic, which has a really sweet midrange without being hard. I've heard people use them on piano, but I like them on acoustic guitars.

You also often take a direct out on acoustics.

If the guitar has one, I take it. It's a texture I wouldn't otherwise have that gives me a choice later. I may do something to it, like split it through Amp Farm and kind of bury it, or maybe put it way out on the edge where it just sounds like a dull double. It has a different dynamic characteristic; it's much less dynamic than the mic, obviously, so with regard to the level of the mic, which kind of goes up and down, the direct holds a more constant path. So if the acoustic goes soft on the mic, it may poke out a little more on the direct. And if you pan them away from each other, it kind of makes it move in the stereo image. That all being said, sometimes I don't use it at all!

But, one place in particular you can hear that kind of sound is in the beginning of "Breathe." Mike Shipley, who did the mix, used it panned out on the edge, and it sounds like there are two guitars playing two parts—you can feel it pulse left to right.

How do you record piano?

I carry a pair of Audio-Technica 4050s, and I have a pair of Calrec RQP 3200 modules that were Lynn Peterzell's. They

JULIAN KING: SELECTED CREDITS

E: Engineering; M: Mixing; R: Recording

John Anderson: *Paradise* (1996, E)

Jessica Andrews: *Who I Am* (2001, E)

Clint Black: *Nothin' But the Taillights* (1997, E/M); *One Emotion* (1994, E)

Brooks & Dunn: *Tight Rope* (1999, E/M)

Carlene Carter: *Hindsight 20/20* (1996, E)

Billy Gilman: *Classic Christmas* (2000, M)

Faith Hill: *Breathe* (1999, E/R); *Faith* (1998, E)

Tim McGraw: *Set This Circus Down* (2001, E/String)

Jo Dee Messina: *Burn* (2000, E)

Randy Travis: *Man Ain't Made of Stone* (1999, E/M)

Travis Tritt: *Country Club* (1990, E)

Various: *Songs of Jimmie Rodgers: A Tribute* (1997, E)

Various: *Tribute To Tradition* (1998, E)

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have a mic pre, a line-in, an EQ and a compressor, all in one module. I love them on piano. They're very hard to find; I've tried to rent them out in L.A., and nobody has them. Ricky or I end up carrying them out there when we work with Clint Black or do movie stuff.

Generally I use three mics: The two A-Ts close up over the hammers, low and high, and then I put an 87 back in the middle of the piano, pointed up at the hammers. I add just a little of that to fill in the middle. I set it, for lack of a better description, right over the ass of the piano. And, rather than pointed down at the strings, it's kind of pointed up like it's looking right at middle "C." I use a little bit of that, because sometimes piano gets "phase-y" when you put stereo mics over the hammers. If you add a little bit of that to fill the middle back in, it doesn't vanish if they are playing something in the middle of the piano. I compress that with a pair of the Neve compressors that are in the console—I can't remember the model. [Laughs.] The little inline guys everybody wants.

You've been mixing on the Sony Oxford console a lot lately.

I prefer to mix on the Oxford, absolutely. When James [Stroud], Blake [Chancey] and Paul [Worley] told me they were putting it in here at Loud, I didn't want anything to do with it. George Massenburg calmed me down by spending a little time with me right at the beginning, and the more I got into it, the more musical it became to me. The automation works perfectly—it's so simple. It doesn't look like a regular console: People walk in and say, "Oh my gosh, I don't want to learn that thing." [Laughs.] But I'd really just as soon they not come and learn it, because then they'll be working in here and I won't be able to get in!

What about the learning curve?

Once you understand the simplicity of it, it's not a problem. You get a good snapshot set up or have a good starting point on the console, and it's awesome. You can automate anything. If you want an EQ sweep, or if you want an EQ to pop out, you can set two EQ curves on any EQ and it has an A/B switch that you can automate. Which is great if you have a soft-textured verse of a song and you want to make a little different EQ for the verse without having to set up a completely separate module.

The automation and recall are the best, and that's a real asset, particularly with some of the producers I work with who wear a lot of hats. Several of the prime producers here in Nashville are also label heads; they have to do all the things involved with that, plus make records, so their time is really at a premium. With the Oxford, I can mix for a series of days, and since I have total recall ability, they don't have to be here. I can mix five songs, then they can come back for a day and we can close all five of those songs together in a day. It's also great for artists who tour a lot, for the same reasons.

You've been doing some producing yourself lately.

Here and there. I'm so busy engineering that there's not a lot of time. But there's a band I've been co-producing with James Stroud on Dreamworks called Emerson Drive, a very talented bunch of young guys from Canada who I'm really excited about. They played every note on the record themselves, which doesn't happen with too many groups out of Nashville. It's a six-piece band: electric guitar, a keyboard player, bass player, drummer, a singer and a fiddle.

Oh, I forgot to ask you how you mike fiddle. You know, we don't get that many fiddle players out in L.A.

Big vintage mics sound great on fiddles, like a [Neumann] 49 or a 47. We tried one of the Neumann 249s—the new version of the M49—the other day and loved that.

Do you put it close?

Fairly close; maybe eight inches. Most of

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the guys work the mic a little bit depending on the part they are playing. When I'm working at Ocean Way, it goes through the console, but I use a Distressor and a Pultec. I take a little bit of 5k out and add a little bit of 10k.

With all those players, what do you do to help give them each their own space in the track?

The hardest ones to separate are steel and organ, because they end up getting in the same bandwidth a lot. It can be tough to separate them sometimes. I try to pan them away from each other if I can so they aren't fighting for the same place in the middle all the time. And, hopefully, there are some subtle EQ adjustments you can make from one to the other, on a song by song basis, to try and make them fit.

Do you tend to filter more or add EQ?

I end up doing some of both. The FET 47 [on the kick], for instance, has got a lot of low end. I end up filtering way down low and even taking out some more at 30 Hz. I'll put a filter at 20 and then take out more at 30, and then I'm bumping up at 100 a little so I can get it to thump, but not blow the woofers right out. And I end up taking out a fair amount at 300, to try and get the "awnk" out of it. [Laughs.] How are you going to spell "awnk"?

Are you a Pro Tools user?

User and owner. In fact, the last several albums I've mixed have been straight out of Pro Tools. I like to get the color on tape during recording, then I dump all the tracks right into Pro Tools. It gives me more manipulative power later. I can stick Amp Farm on a mandolin and stuff like that. You can come up with a texture you might not otherwise have that's cool or a little more modern-sounding or something wacky. Or you may decide that what somebody played in the second chorus is better than what they played in the first and you can move it. It's great for doing mutes and things on toms so you can get control of the leakage. I do a volume graph and just turn the toms on when they're playing, so you can get it really tight but really smooth. It's not a linear "off." You can do little fade ups and outs so they don't sound so abrupt.

But you still track to a Sony 3348.

Yes, and after the tracks, I go digital through the Euphonix 727, which is a wonderful box. It's a format converter, and it removes the need for having 888s if you're working in the digital world. So I just plug my computer into the 727 and it spits a MADI word right out to the Sony console. I go "dig" straight from a Pro Tools rig, without 888s, to the 727, straight to the Oxford.

What's your favorite new piece of gear?

Right now, I'd have to say it's the new computer I got for my Pro Tools rig. I'd been nursing along this sorry old 9500 computer for way too long. Now I've got a G4 466. So, short term, that's my favorite new piece. Long term, I guess it is the Oxford! I also switched to KRK E8 speakers and really love them. Chuck [Ainlay] turned us on to those, as well as the big ATC monitors at Loud—they rock!

I know you have to get back to work, but tell us what's up next on your schedule?

The big thing on my calendar is a trip to Disney World and the beach with my wife and children. They pay a high price so that I can do a job I love. I know a trip won't get all those late nights and weekends back, but we sure will have a blast in Orlando! As far as the studio schedule goes, I hope to be working on a new Faith Hill album before long. We've not scheduled anything with her yet, but recording with Faith is always great. I hate to take on too much more, but if the right production opportunity came along, I would likely take it! ■

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

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HOOTS IN THE HOLLER

NASHVILLE COUPLE CREATES AFFORDABLE COOL

When most people show off their upscale personal recording studios, they'll sometimes brag about how much they spent on it. When songwriter Chuck Cannon and his recording artist wife and partner, Lari White, take you through theirs, they're especially proud about what they *didn't* spend. Maybe it's the onset of recession or, perhaps, just the native frugality of the country music culture. But when all is said and done, Cannon and White got more than they had initially bargained for, but in the positive sense of that phrase.

"Every bit of this studio was mapped out over and over again before we ever started construction," says White, whose career as an artist on RCA Records Nashville included three Top 10 singles in the mid-1990s. "By the time we started building, in 1999, all of the transformations the design was going to go through had been done on paper. That's the secret of not tripling your costs. And the money we didn't spend on changing designs after starting to build, we were able to put into the details." And, she adds, watching out for the pro audio equivalent of yard sales also works. "I got all of the rheostats from a closing studio for like 50 bucks each!" she exclaims. "It's a good way to balance things: You salvage one thing here, and that helps you buy something new there." Doors, chairs, even the rubber used to float the floors came from other studios. The result is a $200,000 facility that looks like a million.

Chuck Cannon

Lari White

The Holler—the Appalachian pronunciation of "hollow"—is aptly named. It sits in a secluded cove between two of the large hills that border Nashville's western fringe, inside a 2,000-square-foot former storage building on the couple's 47-acre property. The 20x15 control room sits at the nexus of three iso booths, a 20x18 main drum room with an 18-foot ceiling and a lounge/kitchen area. Custom cabinetry in the control room holds a Yamaha 02R digital mixer, and outboard gear includes Apogee filters, GML and Millennia mic pre's, and Fairchild LA-3A EQs. The main multitrack format is a 24-track Digidesign Pro Tools system, sold and installed by Frank Conway of Audio-One in Nashville. Monitoring is by Dynaudio M1 speakers, powered by a Crown Macro Reference amp. The microphone collection includes high-end Telefunken, Neumann, AKG and Audio-Technica units.

There wasn't a single designer for this facility; rather, it's the sum total of imagination, an experienced construction team's ingenuity and input from a few of the studio owners whom White and Cannon have known during their careers. It didn't hurt, either, that White has a degree in music engineering technology from the University of Miami. "I at least had some good basic design sense instilled in me," says White. "The design here was a matter of pooling resources."

Cannon, a successful songwriter who has penned hits for Boyzone, Trisha Yearwood, Lone Star, Dolly Parton and Randy Travis, among others, wanted a studio that would serve both as a songwriting suite and as a music recording facility. "It had to be simple enough for one person to come in and use it, yet sophisticated enough to make records in," he explains.

While Cannon and White specified and imagined, their ideas were cobbled together by a team headed by studio builder Chris McCullum, who had also built the spacious Tracking Room near Music Row. Cannon and White found McCullum and his crew to match perfectly with their vision. "Ten weeks into the project, and we were ahead of schedule and under budget," Cannon recalls.

The Holler is as comfortable as it is productive, adding a lot of the details that were collateral benefits from staying under budget. A reproduction of Michelangelo's Sistine Chapel fresco adorns the ceiling of the main recording room. Paisley wall fabrics are matched by the main computer monitor's screen-saver.

The Holler is a dream come true for the creative duo, but particularly for White, who says that she had envisioned a place like this for years: "Ever since I was in college, I wanted a house in the country, in the woods, with a glass-covered bridge that spanned a creek and on the other side was a studio," she waxed. "We've got everything but the creek and the bridge." ■

BY DAN DALEY

Dan Daley is Mix's East Coast editor.

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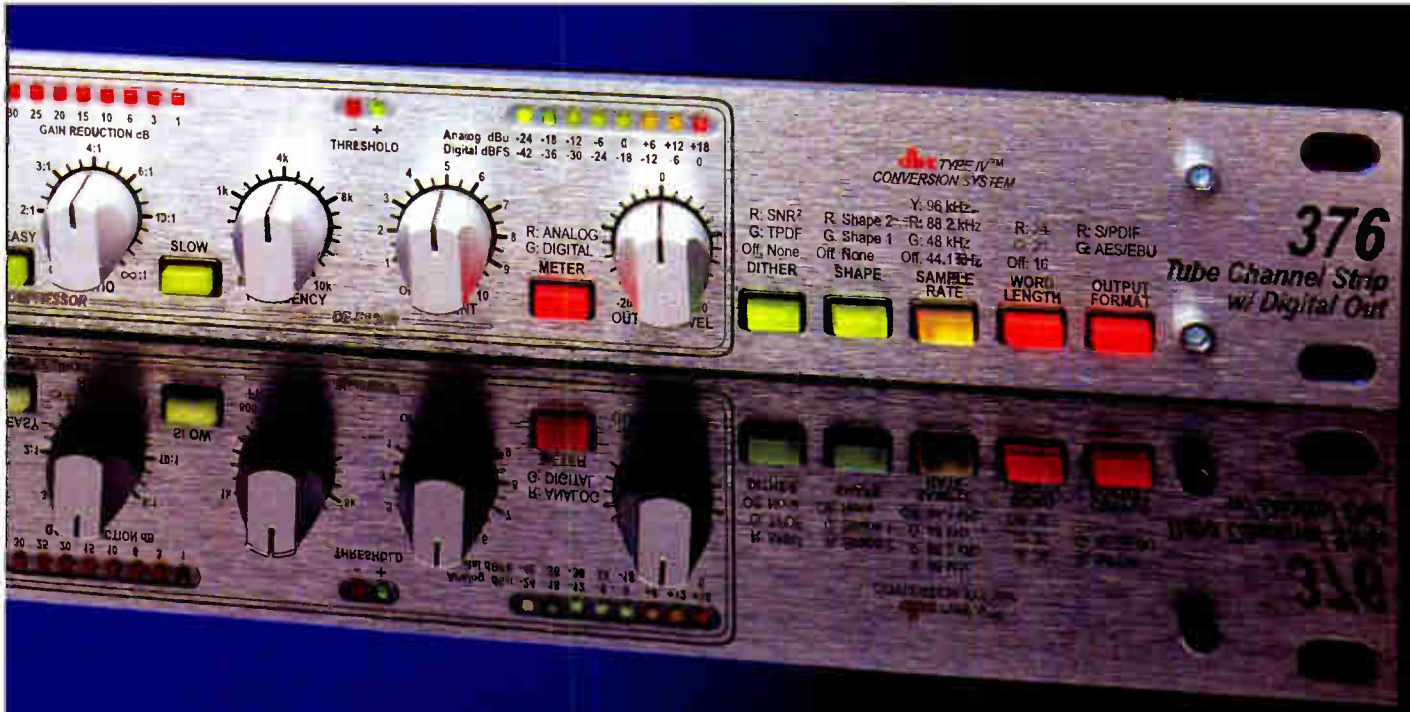

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BRINGING TIM MCGRAW'S "CIRCUS" TO TOWN

Producers Byron Gallimore And James Stroud Talk About Their Latest Hit

by Elianne Halbersberg

Tim McGraw will never forget the first time he appeared at Nashville's annual Country Music Fan Fair, where thousands of fans gathered in mid-June to meet their favorite artists and enjoy label showcases. McGraw, a newcomer, had not yet graduated to "artist booth" or "performance" status, so he was primarily an attendee. He blended so well into the crowd that a security guard mistook him for part of the crew and instructed him to clean up after a group of patrons who left their lunch trash on a table. He did as he was told. A year later, McGraw had a booth, a line of admirers and a near-catfight between female fans struggling to be first for his autograph.

His self-titled debut, released in April 1993, barely dented the charts. His second effort, *Not a Moment Too Soon*, volleyed him to the top, thanks to a lightweight hit single, "Indian Outlaw." The tune could have ended his career as quickly as it had started, but McGraw followed it with material that offered more depth and dimension. Today, his six-album catalog, which includes a greatest hits package, totals over 25 million albums sold, with 21 Top 10 singles—15 of them reaching Number One. His new project, *Set This Circus Down*, shipped Platinum in April.

McGraw was determined to go the extra mile with the entire package. In addition to ensuring that fans would get the highest-quality songs, he also included a 25-page booklet in the CD. "I wanted the fans to feel that they owned a part of this album," he says. "They are a part of the theme, a part of the entire project, and the feel of the liner notes is like reading a book." Remembering his own excitement as a youth when buying records, he adds, "Sometimes reading the album cover was as much fun as listening to the music."

Even the concept came naturally. "Once we recorded 'Set This Circus Down,' I knew it would be the title," he says. "Everything fell into place after that." That "everything" included hiring an illustrator to convey the concept of touring-band-as-carnival for the album's cover art. The booklet offers lyrics, thoughts and behind-the-scenes photos.

Integral to creating *Set This Circus Down* are Byron Gallimore and James Stroud, who have produced McGraw since his first album. You could call Gallimore and Stroud the most influential production team in Nashville, but they're too modest to accept such accolades. You could describe them as workaholics, but they make what they do—producing, engineering, recording and, for one of them, running a record label—sound like so much fun that it's almost a mistake to call it work. You could say that they're responsible for a large percentage of the hit records currently on the charts, but they'll reply that it's all because of the artists. You could even tell them that they have remarkable intuition and musical instincts, or use trendy words like "synergy," but they'd contradict that by telling you that they're "a hillbilly and a redneck; just some old farmer and a half-assed drummer who don't know shit!" Better to let the facts speak for themselves.

Byron Gallimore is currently Nashville's top producer. His productions have sold over 30 million albums, he produced 15 of the top 75 country albums on the *Billboard* charts, and his resumé includes everyone from Randy Travis to Faith Hill and Tim McGraw. He is also a key figure at the music Website Tonos.com. A guitarist and songwriter, he grew up in Puryear, Tenn., played in rock 'n' roll bands, graduated with an engineering degree from Murray State University, in Kentucky, moved home and became a farmer. Winning the Music City Song Festival changed all that, however. Gallimore relocated to Nashville and began his career as a recording artist, songwriter and producer. He also had an eye for recognizing talent, as he did one night in a club called, appropriately, Diamond In the Rough. There he saw a youngster named Tim McGraw and was convinced the newly signed singer was a superstar waiting to happen. "I watched him do six songs, and he was phenomenal," Gallimore recalls. "I wanted to produce him, but Curb Records [McGraw's label] wouldn't let me. So I went to James, and he was kind enough to go listen to Tim."

James Stroud, who has run DreamWorks Records' Nashville office since August 1997, is also legendary in Nashville circles. His productions have sold over 50 million albums. He headed Giant Records' Nashville office in the 1990s and has produced a veritable who's who of country artists: John Anderson, Clint Black, Toby Keith, Tracy Lawrence, Clay Walker, and non-country acts including the Neville Brothers and Melissa Etheridge. A studio drummer for pop and R&B recordings in Los Angeles and Muscle Shoals, Stroud's credits include Paul Simon, Bob Seger, Gladys Knight & The Pips and Dionne Warwick. Moving to Nashville led him to country sessions, then his production breakthrough, Dorothy Moore's 1978 hit, "Misty Blue." Stroud spent the '80s enjoying success as an independent publisher, staff producer, A&R executive, VP of Capitol Records/Nashville, then Giant and now DreamWorks.

"I went to Tim's showcase," he says, "and what hit me hard was his passion for what he wanted to do. We went to Mike Curb, and the deal was done. We were able to make a record, and it was the first time Byron and I, who had been friends for quite a while, had the chance to work together."

In 1997, with *Everywhere*, McGraw began joining Gallimore and Stroud in coproduction. "Tim has so many great ideas, so it's a shared thing," says Gallimore. "It works out to everyone's advantage. When you have a career with this much success and you've worked together since the beginning, there is a tendency to get slack or 'same-y.' The combination of James and me, plus Tim's creativity—it's been a fresh shot to have him sit in and bring the extra magic we needed midway into his recording career."

"The great thing is that we do this in such a friendly way," says Stroud. "There are no disagreements. We truly have fun, and it's amazing that the three of us can do that each time and come out with something we're all happy with. Early on, Byron and I saw that there was something special we could bring to the table as producers. We're a good combination. He has great ears and is a great player. He knows, tonally, how to make things great. My side of the expertise is in rhythm and structure on the tracks, so it's the best of both worlds, and we never step on each other's toes."

Nashville's record-making process is markedly different from that of other music cities. Music Row—the area that houses the business side of country music—makes it possible to walk from office to office, label to label. Gallimore and Stroud agree that the intimacy offered by this closely knit sector would be unimaginable in New York or Los Angeles. Nashville's inner circles are in contact on a weekly, if not daily, basis, and the relationships formed continue outside of the studios and executive suites. "Part of it is Nashville, you're right," Gallimore agrees. "Being here does make a difference." Stroud adds, "It's a totally unique situation. We're like family. If I didn't see Byron and we didn't golf together, I'd have withdrawals!"

Unlike other genres where follow-up albums can be years—and a fortune—in the making, the moment a country artist completes one project, managers, label personnel, producers, publishers and the artist—who usually spends the majority of his or her time on the road—begin searching for songs for the next album. For Gallimore and Stroud, it's a never-ending cycle that includes the aforementioned parties and the staff of Gallimore Productions, where his wife, Missi, and the entire team—including his son and mother-in-law—are always looking and listening. An artist of McGraw's magnitude, however, has an advantage: Publishers already have material on hold to pitch, and top songwriters write specifically with McGraw in mind. It's not unusual for the individuals involved in a Tim McGraw album to listen to thousands of songs, carefully whittling down the choices to several hundred for McGraw to sample. "You work with an artist and learn his parameters, then leave a little room on both sides," says Gallimore. "So after we've picked out a batch,

BRINGING TIM MCGRAW'S "CIRCUS" TO TOWN

Tim listens to them and picks. He might also find songs on his own. On this album, 'Angry All the Time' was something he brought, and 'Forget About Us' was pitched to him directly by [its songwriter] Mark Collie. One thing I must say about Tim: He'll kick a song out in a minute if he doesn't want to do it, and he doesn't pass on hits, which is a lot of the key to his success. He has the ear."

From left: James Stroud, Byron Gallimore and Tim McGraw in 1996.

Set This Circus Down was cut primarily in Nashville at Ocean Way Studio by engineer Julian King (see this issue's "Mix Masters" column on page 38) with additional work done at Emerald in Nashville and in L.A. with engineer John Paterno. The album was mixed at Record One in Los Angeles by Mike Shipley (who is on the charts with the current Aerosmith album, too) and mastered by Doug Sax. Gallimore also brought in assistant engineers/Pro Tools specialists Erik Lutkins and Dennis Davis to help out.

"We cut the first five things at Sony Studios, in Los Angeles, because Faith [Hill, McGraw's wife] was there and Tim wanted to be with her," says Gallimore. "That was in early spring 2000. We kept two of those sides. In late summer, we began work in Nashville for two months and wound everything up around October. The album took about six months from beginning to end."

Between sessions, McGraw kept up his hectic tour itinerary. While this might seem to compromise consistency and go against the grain of traditional recording methods, Stroud says the effect was "just the opposite. It's more consistent for Tim to do some roadwork, then come in and record. It keeps him on top of the game vocally, because he's singing every night and it makes his voice stronger. He can also try some new songs out live and work on the vocals, arrangements and ideas he wants to use in the studio. So it's consistent as long as the team—Byron and I—are covering his back. He can come in, be an artist and producer and stay excited.

"It's different from the rock world, where they're holed up in the studio at one week per song. We cut one song in a three-hour session, go back to overdub, change things, add instruments. Tracking sessions are critical, so you've got to catch the artists when they're in town, and so when they do come in, it's fresh and fun."

> [Byron Gallimore] knows, tonally, how to make things great. My side of the expertise is in rhythm and structure on the tracks, so it's the best of both worlds, and we never step on each other's toes.
>
> —James Stroud

McGraw's schedule generally allows for cutting six or seven songs per touring break. Many of his vocals are done in three takes, sometimes four. "Tim likes to get in his shell, light the candles and just get into the song," says Gallimore. "When he's in that groove, he'll absolutely kill you. He hits that spot, and sometimes it happens in just a few takes. There are always vocal comps, but there are instances where it's all the way, front to back. On this album, he was spectacular. He re-sang 'Forget About Us,' because he listened to the rough and felt he'd not done the presentation on it. It's like he's living the songs, and he does a phenomenal job of relaying the emotions."

When McGraw is absent, Gallimore and Stroud work in what Stroud describes as "a tag-team process." Being musicians, he agrees, gives them an edge in what they listen for and how they know when it's right. "Byron listens to the mixes a certain way," says Stroud. "He's so keen on pitch and tonal qualities. He can hear a fly at 1,000 yards! The word for Byron is 'precise.' He allows me to sit back and listen to the groove, rhythm, syncopation and make sure the feel is the best it can be. He listens differently than I do, but it all boils down to a wonderful mix that we have, and Tim comes in as the soul."

"Yes, he is that," Gallimore agrees, "but from our perspective, as musicians, what James and I are doing could still work if only one of us was a musician. We both have backgrounds in the publishing and writing aspects, but it would be very difficult for me to produce if I didn't know how to play. I'd be paralyzed. Being able to speak the lingo with the musicians is critical."

"Absolutely," Stroud continues, "because we can answer questions and interpret suggestions. Another element is that I engineered for 10 years, Byron still engineers, and we can walk up to the console during the tracking, mixing or overdubbing, make our own changes and at the same time not bother the engineer who may be working on something else. So there is a lot of expertise and knowledge that we bring to projects, and that combination is unbeatable. Byron is great and I'm okay, and together we're great!"

"People may call engineers 'knob-twisters,'" says Gallimore, "but we don't let stuff slip past us, and I wouldn't take anything for that experience. A lot of variables go into the records we're making."

"Even though we do co-produce artists and always use a process we feel comfortable with, we still evolve with each project," says Stroud. "Byron and I also make sure that we keep our productions individual. Look at his success with Faith and Jessica Andrews. Those are his. Yes, Jessica is on DreamWorks and so Byron works for us with that, and I'm the label head or A&R person and he's the producer, but he works his music individually. So when we do come together, it's even more of an event for us."

With their encyclopedic knowledge of all things technical and musical, they carefully define their roles within the context of every album. "Byron and I have talked about this a million times," says Stroud. "Our job is to keep the artists between the ditches and not let them crash. If a record needs input, that's where we step in. We let the musicians play what they feel. We set the stage, as producers, to make the

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artist's record, because if we make our record, everything we cut will sound the same, and we'll all be in trouble."

This leaves plenty of room for McGraw to experiment. "Tim brings in an idea of what he wants as an entire album, and he brings something new every time," says Gallimore. "He has a picture in his mind of what he wants the album to be. With 'Angry All the Time,' for example, he did a different version of anything we'd ever heard him do, with much more attitude. He always brings a new piece of himself to the table."

"In a session, he'll sing out a lick or a melody, standing in front of us, and it's something Byron and I wouldn't have come up with," Stroud adds. "Tim has an innocence about him and he feels safe with us, so he can make suggestions that we can interpret to the musicians. He's a true creative producer with ideas in the rough, and they always work out great. He has a vision, he comes in knowing how to pick songs, how to hear a hit song in a demo, how the record should be, how to bend melodies in ways that only he knows how to do. He takes it beyond being a singer and an artist.

"The difference between his first album and all the others is that, after the first album, we listened to Tim McGraw. When he was able to say, 'Here's what I'm going to do. The first one didn't work and here's what I want,' in my view, that was the biggest change his music took from the first album to all of these."

"The other thing is that Tim had never been in the studio when he made his first album," Gallimore remarks, "so he was getting acquainted with microphones, how to sing. He'd listen back and hate the way he sounded, so he'd try something different. It was almost a learning experience for all of us to figure out what to do. Now he's a pro who knows exactly what he wants."

While radio, media, market researchers, the industry and even the artists try to define what country music is in 2001, McGraw—who has outsold most and, with Faith Hill, was one of 2000's largest-grossing touring acts—has basically not strayed from the genre. The furthest he's gone has been string-laden ballads or the roots-rock Springsteen flavor of "Forget About Us." "Tim is such a fan of dif-

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BRINGING TIM MCGRAW'S "CIRCUS" TO TOWN

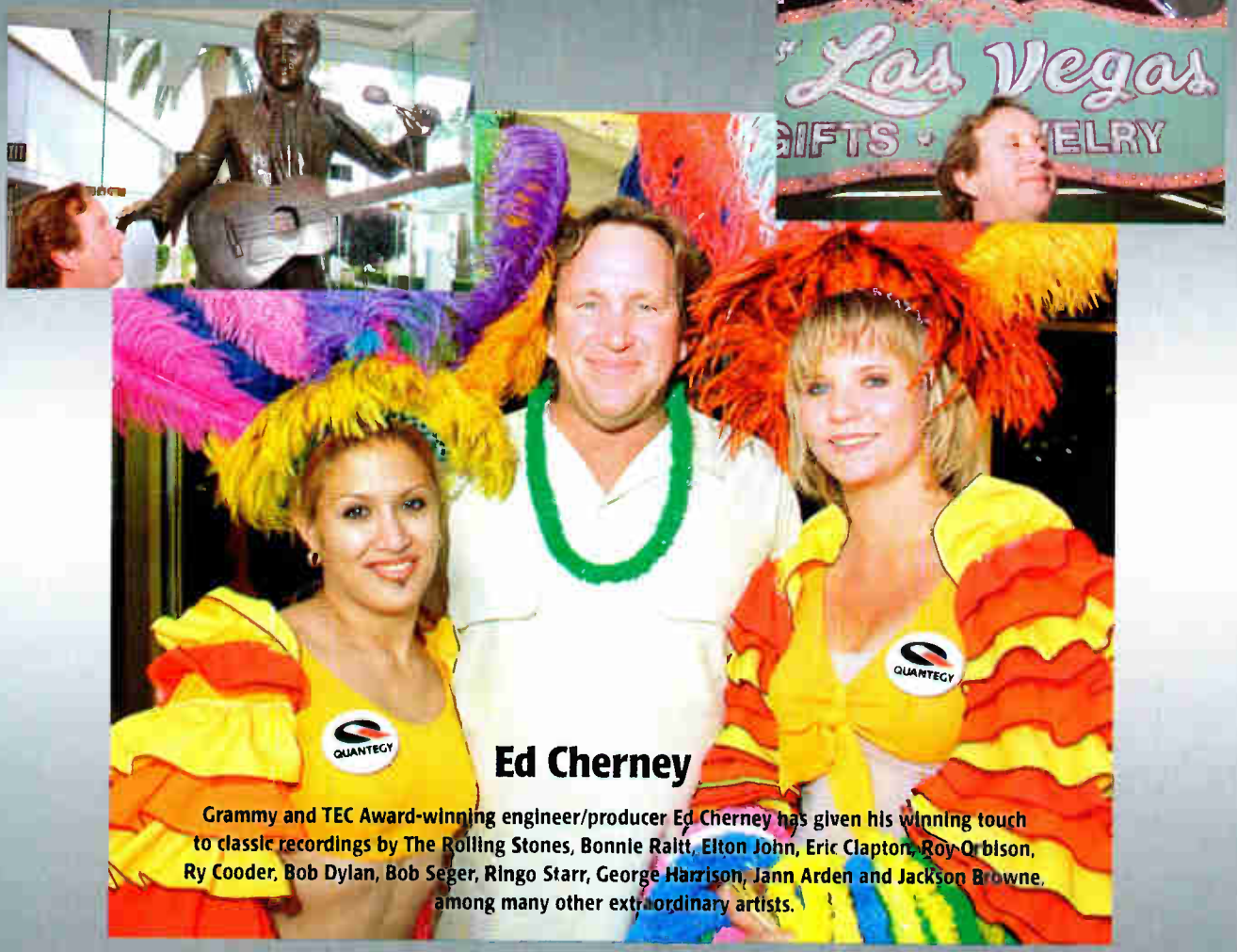
ferent genres of music," says Stroud, and while it's highly unlikely—they hope and laugh—that the real Tim Shady will please stand up, "He will throw an influence at you," says Gallimore, "Tim sings so 'country,' and anything he sings sounds like Tim McGraw, so we can go as far as we want with him and it still works."

To capture the warmth and body of McGraw's voice, the recording team used tube microphones exclusively: "We usually use more [Neumann] 47s, but this time the majority were [Neumann] 67s," Gallimore notes. "It depends on the sound and the song. The 47 is a little bigger, and Tim has a rich low-mid area in his voice." A Tube-Tech mono compressor was used on the vocals, which were also variously channeled through Neve, API and Focusrite preamps. "It's all vintage gear, even the console at Ocean Way [a Neve 8078]. It's old gear that sounds really good," Gallimore says. At Record One, the project was mixed on an SSL 8000 G-Plus console.

Rather than limit themselves within the boundaries of what does or does not make a country album, Stroud says they simply focused on making a Tim McGraw album, meaning, "He is more than one genre. It is country. It is edgy. It is also touching, emotional, passionate music made by the best players in the world and a country stylist who goes beyond our market."

While McGraw's career, like that of any artist, hinges on the success or failure of each album, Gallimore and Stroud are safe and secure within the broad scope of their careers. Or are they? "Every time I go into the studio, whoever I'm working with, I feel the pressure," says Stroud. "The more success you have, the more pressure there is. I have never seen Byron or Tim go in to cut something with anything different in their attitude or process throughout the entire time I've known them. The fun factor is in the record, and as long as we have that, the pressure takes care of itself. Yes, there are responsibilities and yes, we want to make the best records we can, but Tim gets better naturally. Byron gets better every time we make a record. I get better. It's because of the process: You throw out the bad, keep the good, and the best part is the fun and passion. It's simple, really: Every once in a while, between golf games and laughing, Byron and I make a record—and that's why it works!" ■

Be a Winner!



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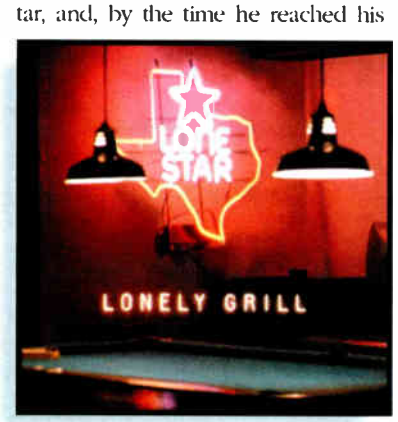
DANN HUFF

HOT GUITARIST TURNED HOT PRODUCER

Two years ago, Dann Huff was just making a name for himself as a producer in Nashville. His credits included Faith Hill, Lonestar and newcomers SHeDaisy, as well as two Megadeth albums. What he couldn't have predicted was that Lonestar and SHeDaisy would become award-winning acts selling millions of albums. As their careers took off, so did Huff's. Today, he ranks among Music Row's most in-demand producers, and his resumé lists Bryan White, Chely Wright, Rebecca St. James, Billy Ray Cyrus, Collin Raye, Trace Adkin, and follow-up efforts from Lonestar and SHeDaisy.

PHOTO ALAN L. MAYOR

Huff's father, Ronn, was a sought-after arranger on the cutting edge of Nashville's contemporary Christian music scene. As a youngster, Dann would accompany him to sessions and, to this day, cites his father as his first influence. At the age of 9, Huff began playing guitar, and, by the time he reached his



teens, he was "obsessed" with music. His natural talent led him to session work, which, in turn, took him to Los Angeles. There, he played on recordings by Whitesnake, Celine Dion, Michael Jackson, Madonna, Michael Bolton, Whitney Houston, Amy Grant, DC Talk, Wang Chung, Fine Young Cannibals, Barry Manilow, The Temptations, Chaka Khan, O'Jays, Smokey Robinson..."Whatever was going on in the pop world in the 1980s, I played on at least one song by everybody," he says.

Eventually, the desire to be in a band took over, and he formed the rock group Giant, with his younger brother David on drums. (Their youngest brother, Ronn, is also a musician, but not professionally.) Although Giant was well-received by critics, they never achieved the level of success they deserved. Huff returned to Nashville and the insular world of sessions, playing on hits by artists such as Clint Black, Faith Hill, Tim McGraw, Reba McEntire and Shania Twain, whose husband, producer "Mutt" Lange, encouraged Huff to try production.

Huff's career has expanded into Huff Brite LLC, a production company he runs with his partner, producer/publisher Mark Brite, and their A&R rep, Darryl Franklin. Also involved are Jeff Balding and longtime associate Mike Griffith. In conjunction with Sony Nashville, Huff Brite is a burgeoning imprint that Huff says allows him to find and develop new artists. When *Mix* caught up with Huff and his trusty engineer Balding, they were at Emerald/Masterfonics mixing SHeDaisy's sophomore effort, slated for a 2002 release. (For more on the project, see sidebar page 66.)

How did you establish yourself as a producer?

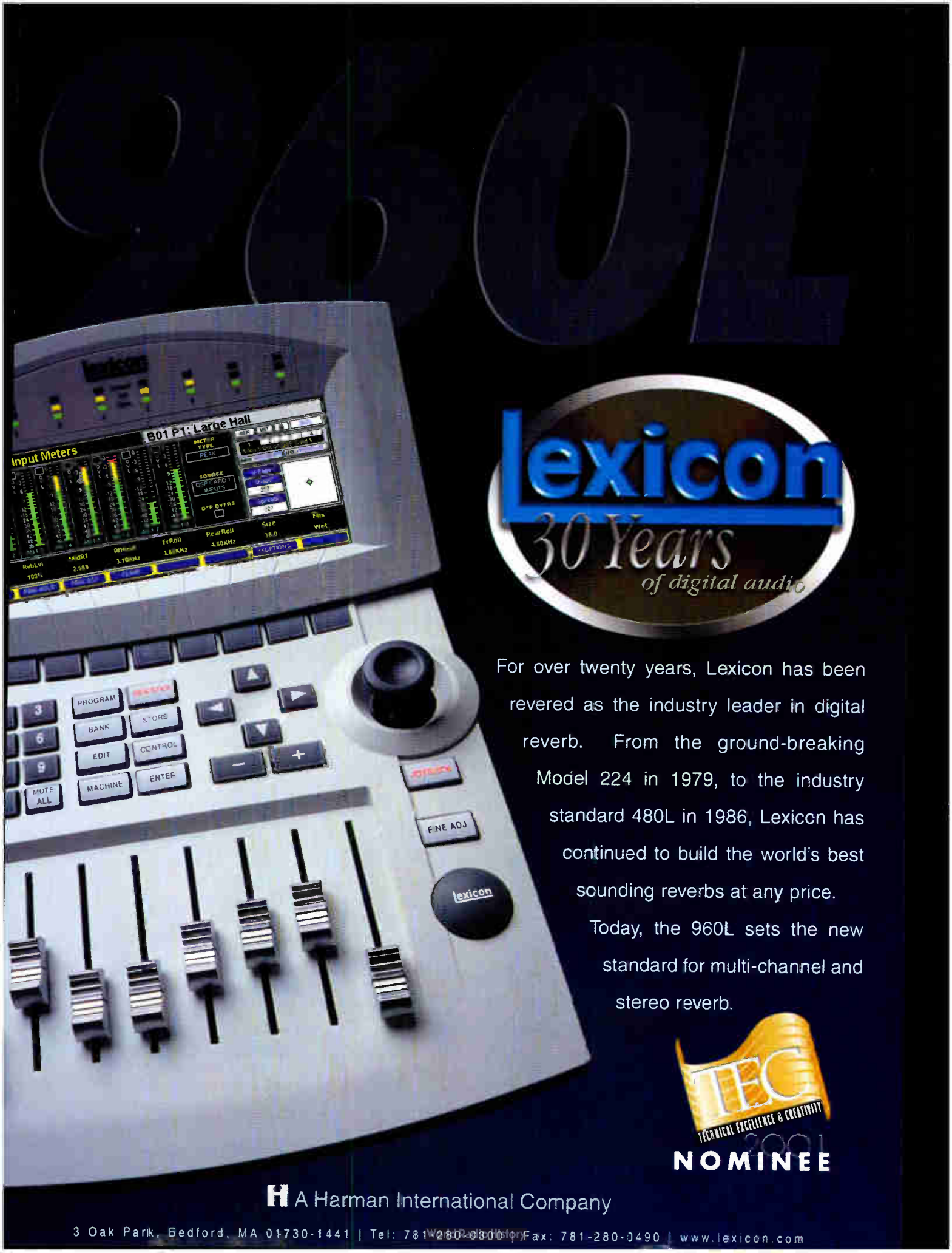
The first thing I did was Chris Ward [*One Step Beyond*], which I co-produced with James Stroud. I was nervous. I'd known James since I was 18, and told him I wanted to produce. He hired me on a lot of records, let me do overdubs. So, I co-produced Chris with him. There were good moments on that record. Then I did one I'm extremely proud of, John and Audrey Wiggins' second album, *The Dream*.

The first thing you learn when you produce is, it's not the quality but a lot of luck—catching the right song at the right time, and great songs don't always catch. The Wiggins' album was the first thing I did myself, and the label let them go after two singles. Then I got a call to do Megadeth. Mutt and Shania recommended me to Faith [Hill], and because of that she looked at me as a producer, because the label sure-shootin' wasn't looking at me as one! They don't consider you a producer until you're successful, and how do you get successful? Produce a couple of hits and you're a genius! In the midst of that, I did two records with John Schlitt, a contemporary Christian artist, and co-produced them, so it was a building thing. Faith hit, so I did Lari White, who had a nice hit, and then SHeDaisy and Lonestar.

You've come a long way in the two years since we last spoke. To what do you credit this, other than talent?

It's hard work and a lot of luck. Tal-

BY ELIANNE HALBERSBERG



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ent has something to do with it, but popular music...I've done stuff in the last two years as good as I can do, and it absolutely flopped. It's the weirdest thing. Who knows what will go or not? You basically burrow your head down and hope things hit, and when they do, everyone thinks you're brilliant. But when they don't...

Nashville's two breakthrough bands in the past year, Lonestar and SHeDaisy, were both your productions. Is that a coincidence?

I don't know. You can call it a lot of different things. When you win, you accept and try not to define it too much. Yeah, I'm a large part of it, but without the combination of each act...They're very different groups. SHeDaisy writes or co-writes everything. With Lonestar, we find songs, but with this new record, Richie [McDonald, lead vocalist] wrote the first single, "I'm Already There," on the road, and it's going to break wide open. We've found out who they are, who their audience is, what works and what doesn't. I've done a couple of records in the last two years that you heard nothing about. Shane Minor was one of the best records I've ever done

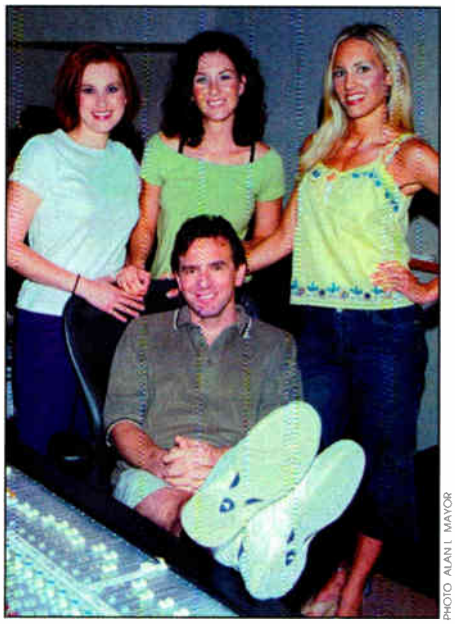

PHOTO: ALAN I. MAYOR

Huff at the board with SHeDaisy

and why it didn't work, I can't tell you. I believe in him enough to do it again. I thought, "This is too good to not work." That's the risk you take as a producer.

I remember you telling me that the first time you heard Lonestar, you thought, "That's not me; I wouldn't be good at doing this."

I never thought in a million years that I would be a country producer. It's not above or beneath me; it's just not my roots. The critics here say I shouldn't be. They have a field day with me. For the most part, critically, I'm to be avoided like the plague. If I listened to the critics, I'd have moved by now.

What makes you a good producer?

I like what I do. I'm hired by the artist to fulfill their vision musically, and whatever it takes to get them from point A to B is fun and compelling. If they're happy, then I've done my job. Also, I have a lot of pride in what I do and I work to make myself happy, too. Whether our tastes coincide is not important. I have to define their tastes and make the best album I can. It's like battling with myself every time—how can I make it better, extract one more drop of blood? Once you've given your best, you walk away saying, "You've done good." I would love for the critics to love what I do, sure. Music has been a part of my life since I was a child. I don't know how not to be a musician. I love music. But to be in a position of doing something somebody else doesn't like, you're getting into politics and religion! It's best to get in the studio, do the work and get the heck out of there—and develop a really tough, thick skin. Some people

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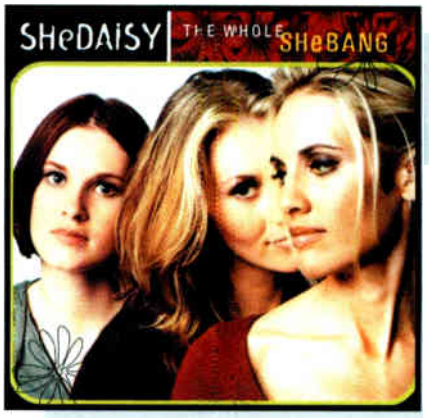
I've read rip into me, yet I enjoy their writing! It's stupid what they do, but I guess if you're selling records, you're fair game.

How would you define the term "producer?"

The record company gets together with the artist, they need a record, they hire a producer [who is] basically responsible to make sure that it happens within a budget and a certain amount of time. From that point on, it's anybody's guess. Project to project, I try to see what's needed. People call me for musicality. Some producers are facilitators who get the right players and document it. Some producers are hands-on and use players as an extension of what they do. I tend to go that direction, but I don't pull the reins. As a musician, I worked for great producers of all types and learned from the best: James Stroud, Mutt Lange, Quincy Jones. There's no right or wrong way to do it. I like selling records, but I like making records the way I want them to sound. You define it as you go; it's basically open.

When did your phone really start ringing?

After the first couple of hits. After my first hit with Faith, I began being taken seriously, then Lonestar really hit and then SHeDaisy, and I thought, "Maybe." As the hits trickle in, it validates you more. Last year was nonstop, and I've been fortunate to be able to turn down work, which is important, because if I took everything offered, I would be divorced and dead—and not necessarily in that order! I'd rather not be either! Sherri and I have been together 19 years and the hardest thing is to maintain a family life as a husband and father. At a certain point, enough is enough, because if you creatively take on too much, and at times I've taken on way more than I should have, you're not fresh or able to give 100 percent.



I'm looking for soul. You want dynamics and feeling, whether you're playing at 150 dB or not, and you have to be willing to go with your gut, because there's no handbook that goes with this.

Has it become more of a job?

In some ways, but it was becoming a job to play guitar. Producing is a job, and I feel the responsibility but I love it. I love the thought of having final say and the responsibility of making something. The only drag is, if I'm wrong, it hurts someone's career. I like the variety and styles I get to do. They're all different and exciting in their own ways.

How do you know when it's right?

You don't. You guess. It's all subjective. I'm looking for soul. You want dynamics and feeling, whether you're playing at 150 dB or not, and you have to be willing to go with your gut, because there's no handbook that goes with this. Music, writ-

ing, anything creative means you do it until something hits you.

Equipment by itself means nothing. Some of the greatest records were made on 4-track. Equipment is just there to facilitate creativity. I've heard records lately that are done in teeny home studios and they're great. Technology moves in leaps and bounds; people can record clean records in their kitchens. With a serious mind, gut feeling and intuitive sense about what appeals to others, you don't need half a million dollars. As a guitar player, I never knew much about guitars and amps, just what sounded good to me.

I'm not trying to undersell it; that's just the way I've always looked at it. You make a decision about compression, textures, changing preamps, and I can't tell you a spec sheet, but I can feel something and say, "We need to move in another direction. Can you give me some alternatives and I'll make a selection?"

Pro Tools is my instrument. Between Jeff and myself, we have three systems running continuously. I have one at the house so I can work and have a family life, and with the advent of all these plug-ins, there are no set rules. They've changed the way we do everything. I fumble around and find little things to enhance what I do. The main thing is not to do it the same way—to force yourself to think differently from a recording and musical standpoint.

You've remained very loyal to Emerald/Masterfonics as your primary workplace. Honestly, it's for no reason other than our relationship. I don't care if we record in a warehouse, as long as there is a clean sound. I like recording in different places, I like being diverse and I work at my house, so the only thing I care about is having Jeff with me. Part of my job is to make judgments, but he's so serious and so good that I know at the end of the day that whatever is on tape will be solid, because he makes it work. Music Row, as you know, is like your backyard. Everything is close together. Masterfonics has become the Emerald complex, with six or eight studios scattered. They have three buildings, the best coffee in town and the tracking facilities are great.

After making such successful albums with Lonestar and SHeDaisy, how do you repeat what worked but still make it new? It's different in the way we record a song, not having the same musicians, always trying to infuse something different in everything we do. First, we ascertain what's working and keep the elements of that, but not be so repetitious that we don't hit new ground. Jeff is always figuring the greatest new ways to get sounds, little "in particulars" that add up to something different, down to the way we assemble all the pieces on the record and connect it to what you're doing. Especially if the first one was successful, then it's everything and nothing the second time. It's a weird situation. You don't want it to sound like a production line; you don't want to be guilty of using the same things again, but if it sounds good, you use it. It's like putting together a jigsaw puzzle. You know what sounds good in your mind and where you want it to end up, but if the conclusion is not engraved in stone and you have a little flexibility, it makes it fun and interesting, and you find different things you didn't know existed. That comes from listening to what people say

COMING SOON FROM SHEDAISY

Here's what Dann Huff's engineer Jeff Balding has to say about the sessions for SHeDaisy's upcoming release: "We recorded at Emerald A, the smaller room, a little bit different sound. A lot of the tracks, we do at The Tracking Room at Emerald. The 60 percent natural compression in the room sounds great. SHeDaisy's first set of tracks were done straight into the Euphonix R1 hard disk recorder. The rest of the record was [through] A/D converters and tracked straight to Pro Tools. We use Pro Tools for compression and effects instead of outboard gear.

"We tracked first at the Bennett House: It's a good room with great character. When you hear the drums, you know where they were cut. We pushed the faders up, and it sounds great without doing anything. [SHeDaisy's] first album [*The Whole SheBang*] was cut there, so it made sense to go back. At Emerald, the overdubs are on [SSL] G-Plus to overdub, 4k with Ultimation to mix. Dann and I have Pro Tools, and we trade files back and forth, double duty. So I get the sound up and get him going. Then I go out and do the editing on Pro Tools. We get quite a bit done that way."

—Elianne Halbersberg

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

Input Section CH1-96, ST IN1-8

De-emphasis/DC cut	
Phase	Normal/Reverse
Patch	Input, Direct Out (pre-eq/pre-fader/post-fader/post-on), Insert In/Out (pre-eq/post-eq/pro comp/pre delay/pre fader)
Attenuation	-96 ~ 0dB (1dB step)
High Pass Filter	20Hz - 600Hz (60 point) slope -6dB / -12dB / -18dB/oct
Equalizer	4 band PEQ (Low/shelving, Low-mid, High-mid, High/shelving/LPF) F: 20Hz-20kHz (120 point), Gain: + - 18dB (0.5 dB step), Q: 0.1-10 (41 point)
Gate	Gate/Ducking selectable 4 key-in bus
Comp	Comp/Expander/Compander selectable 4 key-in bus
Delay	Delay time (0 ~ 250 ms, 0.02 msec step)
Fader	100mm motorized, -∞,-90 ~ +10dB (128 step/100mm), Interpolation 24bit (16,777,216 steps)
On/Off	
Cue/Solo	On/Off (PFL/AFL)
Pan	127 positions (L=1 - 63, center, R=1 - 63)
Stereo/Group Assign	STEREO/ MIX 1-48 (FIX/ VARI selectable)
Metering	pre-att peak, comp/gate gain reduction, pre-att/pre-gate/pre-fader/post-fader/post-on selectable with Peak-Hold

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

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

Other Mixer Section

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

Libraries

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

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

Optional Cards: Mini-YGDAI Cards

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

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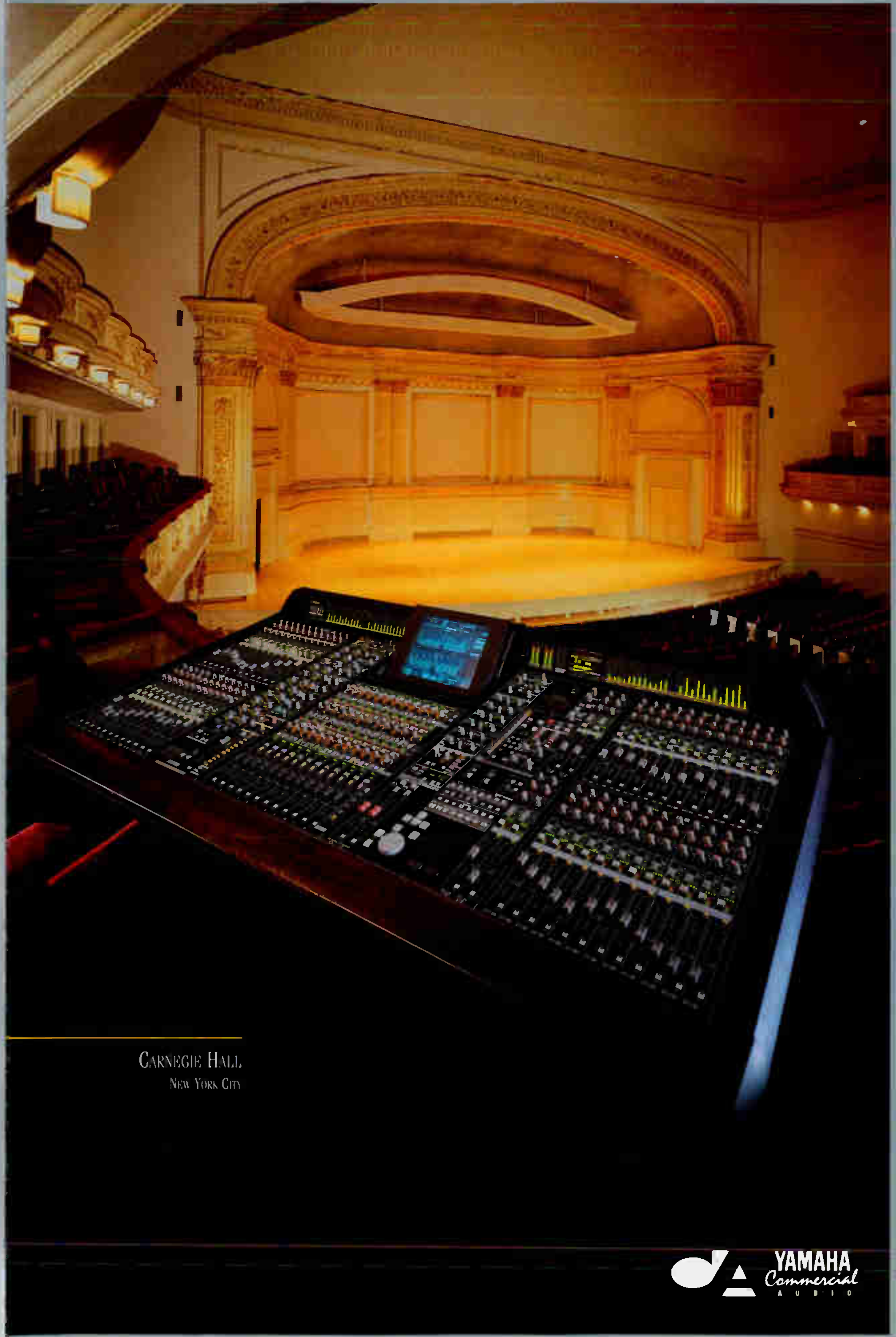

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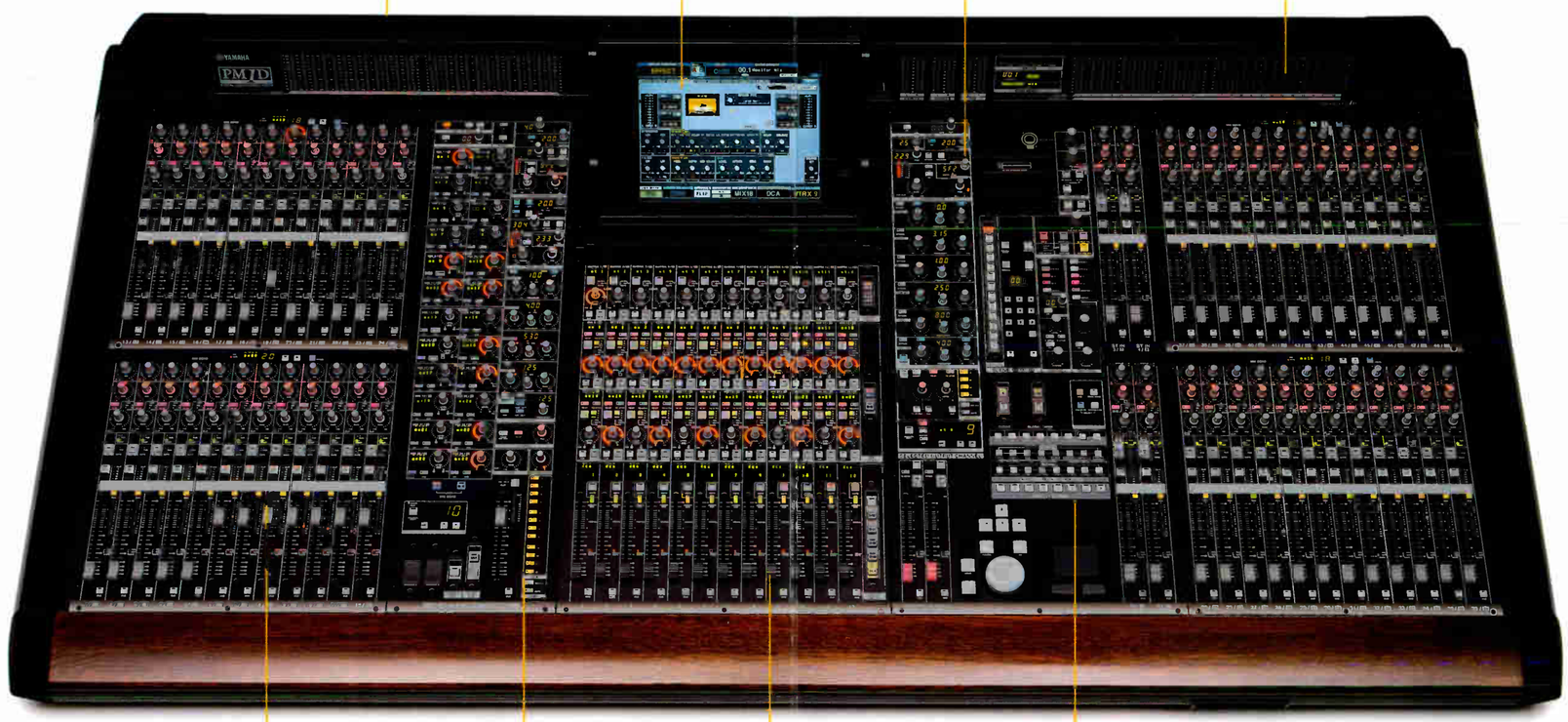

Basic input channel includes MIX SEND selection, Input MIX, Input PAN and GAIN encoders, TO STEREO, Input DCA, CUE and ON switches and Input A/B, COMPRESSOR, GATE, METER, Input DCA, RECALL and MUTE SAFE LEDs along with a high quality 100mm motorized fader and 4-character LED channel labeling display.

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

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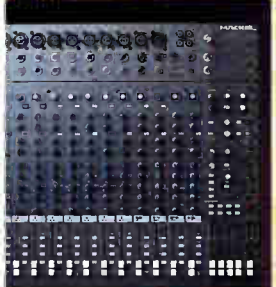

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←1642-VLZ® PRO

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←1402-VLZ® PRO

14 total channels • 6 XDR™ premium mic preamps • 6 mono line level chs. • 4 stereo line level chs. • Extra ALT 3-4 stereo bus • 3-band equalization • 75Hz low cut filters on mono chs. • 2 aux sends per ch. • 2 master stereo aux returns with EFX to Monitor • Control Room/Phones source matrix • 60mm log-taper faders • Switchable AFL/PFL and much more cool stuff

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Let's talk about making the new SHeDaisy record.

We started tracking at the place where we tracked their first record, the Bennett House, in Franklin. There's a historical landmark there, the town square, a lot of houses that were built 150 years ago, and this is one of them. Keith Thomas, an award-winning producer, bought it five or six years ago and put in his own room. We used different rooms [in the house]; we did drums in the living room. There are two control rooms. We used Keith's room this time and then went straight into Euphonix for the first set of tracks and integrated with Pro Tools more than not. We overdubbed at Emerald and at my house—Pro Tools is the constant at Emerald—and mixed at Emerald. Jeff evolves with every project; there aren't enough good things I can say about him. He gets hungry and every six months, it is, "That stuff stinks; I'm starting from scratch." He's really come on as a mixer. He's always been one of the best tracking engineers this town has seen.

You once told me, "If being a great producer means being an ass, I'd rather be second-rate." Is that part of the reason why your phone is still ringing?

I think that plays into it, because it's a people business. You're dealing with personalities, and with every personality you take on their likes and dislikes, which may not coincide with yours. The only likes that matter are those of the people you're working for. We all have egos, but I always know when to stop and take on the interest of the artist. Somebody says, "I don't like the way you did that with so-and-so. I don't want it on my record." You go, "Okay." You're family with that person for a while, and you're bringing those babies out.

Do you have a dream session?

No. I don't know if it's because I concentrate on what's happening now. I truthfully haven't thought in those terms. I had more dreams when I was younger. Now, I think in terms of improving. I'd like hit records—that means a lot to me—but hits that are real musical that I can look back on and be proud of. I played on so many hits that were horrible, disposable. On the other hand, I'd settle for those hits, too—that's how you keep your job!

Okay, I'd like to produce U2. When hell freezes over, that will happen, but that would be the trip, because they are one of my favorite bands in history. ■

Elianne Halbersberg is a freelance writer based in Georgia.

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Simon Osborne – Engineer/Mixer

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Recording Brass

FIVE APPROACHES

This month, we turn our attention to different methods of recording brass and woodwinds. We spoke with five top engineers—Michael Bishop, Al Schmitt, Richard King, Eric Schilling and Lolly Lewis—who cover a broad stylistic spectrum to glean some specific tips and techniques to make your recordings sound as good as they can be.

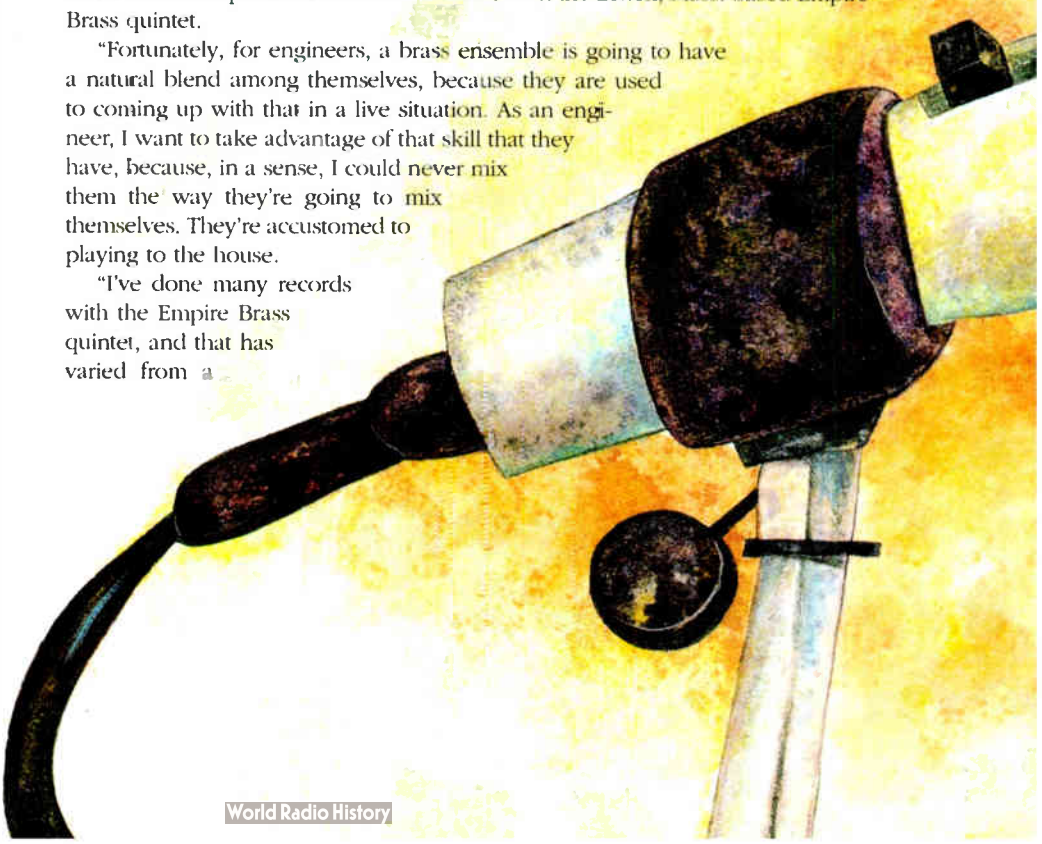
by Blair Jackson

MICHAEL BISHOP

As one of the principal engineers for the Ohio-based Telarc label—known far and wide for the excellence of its recordings—Grammy Award-winning Michael Bishop gets a chance to work with a wide variety of artists in many genres. His credits include many CDs with horn and woodwind sections and/or soloists, including numerous discs with the Cincinnati Pops Orchestra, the Empire Brass ensemble, the late sax great Gerry Mulligan, Dizzy Gillespie, the Memphis Horns and others. He spoke first of his experience with the Lenox, Mass.-based Empire Brass quintet.

"Fortunately, for engineers, a brass ensemble is going to have a natural blend among themselves, because they are used to coming up with that in a live situation. As an engineer, I want to take advantage of that skill that they have, because, in a sense, I could never mix them the way they're going to mix themselves. They're accustomed to playing to the house.

"I've done many records with the Empire Brass quintet, and that has varied from a



Woodwinds AND

ILLUSTRATION: MARC MONGEAU

straight brass quintet to a brass quintet with percussion, brass quintet with rhythm section, with synths, with orchestra; all sorts of things. The one thing that doesn't really change over all those situations is what I do with the quintet. We work in an acoustic environment that's suited to the music, and which can contain the sound of a brass quintet, which can be quite loud. You don't want too bright a room; you don't want slap. You want a good, warm sound. The room needs to be able to support French horn and tuba without becoming muddy, and that can be difficult. And if it's too bright, the trumpets become overbearing. Trumpets cut through everything like a laser!

"With an ensemble like this, I'll usually set up an RPG [diffuser] wall behind them in a big semi-circle, eight to 10 feet tall. The group is in a semi-circle, too, so they can have some eye contact. I'll turn the French horn slightly around backward so I'm getting a bit more of the direct sound of the bell rather than indirect; that works better and makes it sound a little more punchy. And I'm typically miking with just a stereo pair over the group. Traditionally, I've used a pair of Sennheiser MKH20s, typically anywhere between 12 to 24 inches apart and a good 15 to 20 feet from the group. The height will vary, but it will usually be around eight feet off of the floor. Lately, though, I've been using the Neumann KU 100 binaural head with very good results. In the past, I was never really one to subscribe to binaural recording. I thought it was interesting but never very practical, since most people will be hearing it over loudspeakers, not headphones. But one of the features of the KU 100 is that it's loudspeaker-compatible. The one thing you lose on speakers is the sense of height that the [binaural] head can give you on headphones, and you don't get the behind-you effect. But I use them because the stereo imaging is so good and so accurate, and tonally it works and it can handle the level of a brass quintet. If I don't have the head, though, the MKH20s work great.

"With the Empire Brass, we record directly to the master, and all we'll do later is edit. So any blending I do is by moving the guys a bit here and there and also altering the RPG diffusers, because I can reinforce certain parts of the group by moving the diffusers around. So my chain for that kind of recording would be the mics into a Millennia Media HV-3 preamp, which I'll have right there at the base of the microphone, straight to the A/D converter, which currently is all Direct Stream Digital—the custom Meitner converter—feeding a Genex 8500. Those all work great as an in-the-field combination; it's nice and convenient.

"However, these days we don't do much that's only straight-to-stereo; we'll do a straight-to-surround, too. For the surround, I don't just augment the stereo pair; in fact, the stereo pair doesn't even exist in the surround version. On a brass quintet, I'll go with a pair of Sennheiser MKH50s, which are supercardiods, pretty much in the same spot as the two omnis I'd be using for the stereo version, so it's the same perspective. Only now I've removed a lot of the room out of the pickup, but I'm getting the same balance across the group. And I'll add to that, in a relatively simple setup, a pair of MKH30s—the bidirectionals—as the surround pickup further out into the hall. And they're not that far away; maybe 10 to 15 feet behind the main front pair."

Usually the brass cuts through fairly well, but occasionally the low tones sort of wander around the hall, and you don't get enough impact to have the guts to it that people want.

—Michael Bishop

On working with brass in a larger orchestral setting, Bishop comments, "Usually the brass cuts through fairly well, but occasionally the low tones sort of wander around the hall, and you don't get enough impact to have the guts to it that people want. Certainly there are times you want a more diffuse sound, and you don't want the brass to overpower everything. If I need to reinforce the direct sound a little bit, I'd rather do something acoustically onstage for them or adjust the shell. Putting mics back there will cause time delay and imaging problems relative to the main orchestral microphones."

Telarc has also established itself as one of the top contemporary blues labels, and Bishop has worked with some of the genre's best. On a CD he made with Son Seals last year, *Lettin' Go*, Bishop got to record with the horn section from the Conan O'Brien show, and, not surprisingly, that called for a different approach to recording horns.

"They were terrific," he says. "They are so tight, but they are accustomed to each having a microphone, and [on TV] they play to a mic that is right in front of them, and they are accustomed to the engineer getting the blend for them. So you have to throw out any ideas of miking them as an ensemble, because it doesn't work, and, usually, in a relatively small studio, you don't get the proper blend anyway.

"On something like that, I'll do fairly typical close-miking. Where there's a departure from some of my colleagues is that I'll tend to use the Sennheiser MKH20s, which work really great in an up-close situation, as long as you use the mic's output attenuation to knock the level down by 10 dB. You don't want to blast out the front end of the console or mic preamp—the Sennheisers are very high-output microphones. But I like using the omnis so I don't have the proximity effect. Using the omni I can get good coverage on something like a saxophone, where the sound really comes out across the whole body and not just the bell, better than if I use a cardioid microphone. Same goes for trombone; there's a lot of sound coming from any brass instrument that's not just coming out of the bell, so you want to get that round but present sound as you can. On that Son Seals record, the microphones were typically two to three feet away from each instrument, and I really didn't care much about the bleed because with a group like that, I had to do very few punches and I didn't need the isolation. They were in an iso room playing live with the rest of the rhythm section.

"Woodwinds aren't much different," he continues, "because they have the same sort of polar patterns [as brass]. You'll have certain frequencies coming out of the obvious place, which is the bell, and then there are the sounds that are coming out across the whole body of it, which is often where the warmth of the instrument is. So if you just stick a microphone down at the end of the clarinet, you definitely have the 'strangling goose' effect. So, again, I don't get up too close. In general, I'd say that I mike things a little more distantly than a lot of engineers. I like a broader pickup rather than getting too microscopic. In an orchestral setting, the winds are often not miked. When they are, it's with a pair of Sennheiser, Schoeps or DPA omnis about 12 feet overhead."

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Recording Brass AND Woodwinds

AL SCHMITT

One of the most respected veterans in his field, multiple Grammy-winning engineer and producer Al Schmitt continues to have a rich and vital career four decades after getting his start. He has worked in every recording situation imaginable, from rock bands to large orchestras, and he has a credit list that stretches from here to Bora Bora, including (to name just a few) Jefferson Airplane, Jackson Browne, Barbra Streisand, Henry Mancini, George Benson, Steely Dan, Toto, Frank Sinatra and Al Jarreau. When we caught up with him recently, he was still glowing from his latest project, recording Diana Krall's forthcoming album, *Dancing In the Dark*, with the London Symphony Orchestra at Abbey Road Studios.

"It was wonderful!" the ever-enthusiastic Schmitt relates. "We were in the room The Beatles' used. We had 53 pieces, including strings, woodwinds, French horns and tuba, on analog multitrack. I'm a pretty traditional guy when it comes to recording orchestras, so we did the Decca tree [three mics on a pole near the conductor's spot] and used the new Neumann M150s, which are fabulous. Then, I also had a couple of wides, and for those I used old M50s, another great microphone. I had spot mics, too. On the woodwinds, I used two [Neumann] U67s off about six feet, and for the French horns, I used M149s. Really, what you have to do with French horns is make sure the conductor has them under some sort of control. If you need less of them or if they're over-blowing, you get the conductor to get them to play a little softer. I use an M49 in front of them and get a reflected sound; that's how that instrument is meant to be heard. Sometimes you'll put it in the back; it depends on what the arranger has in mind and what kind of sound they're looking for."

> We go for a tighter sound on the individual instruments so we have the flexibility. But we also still put up the ambient room mics to get the fatness that we need.
>
> —Al Schmitt

Schmitt says his overall approach and mic choices for brass sections haven't changed much over the years, though having more tracks to work with has increased his options. "Twenty years ago, if I had a section with four trumpets and four trombones, I'd have two mics covering the trombones and two mics on trumpets; now, we use mics for all of them. We go for a tighter sound on the individual instruments so we have the flexibility. But we also still put up the ambient room mics to get the fatness that we need, and, frankly, a lot of times I won't use that much of the spot mics; it all depends.

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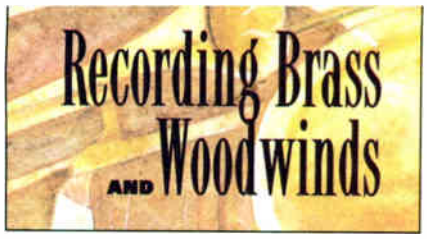

"For the mics, I still use the same mics I've been using for the last 30 years—the Neumann 67 and the M50s—and I'll use the new M149s and the new M150s when I can; those are great mics. But I still go to the old standbys. Some people like to use ribbon mics on brass and will go with an [RCA] 77, but I've never used those much. If I'm going to use a ribbon mic, I'll use the new Royer—the SF-1; that's fabulous, too. For most brass, though, I'll use 67s and keep them in omni. I'll also use 67s on trombones. For sax, I like the M149."

Schmitt stresses that on orchestral dates, it's vital to have good communication with the conductor, whenever possible discussing an approach to the recording before the tape starts rolling. "The really good conductors will get a balance in the room for themselves, and once they've got that, it makes life so much easier for an engineer. You're trying to capture that balance," he says. "I've found that conductors used to be more open to discussing levels for recording; they're not as much anymore for some reason. Still, in every case, you're in there trying to make the best record possible so everybody should be working as a team. If you ask the conductor for something—like to bring up a section of the orchestra a little—usually they're glad to do that."

RICHARD KING

Richard King is a top engineer and producer who works at Sony Music Studios in New York. His resumé includes dozens of classical projects, ranging from small chamber groups to orchestras to modern ensembles. He's done jazz dates and the Mormon Tabernacle Choir. Two of his most impressive recent achievements are the soundtrack for the Oscar-winning score of *Crouching Tiger, Hidden Dragon* (which he recorded in China) and Bob Belden's moody *Black Dahlia* (see June "Cool Spins"), which is sort of a "Rhapsody in Blue"-meets-*Kind of Blue* fusion of live orchestra and jazz soloists.

Like most classical music recordists, King liked to get a good overall sound using just a couple of mics in a good, ambient setting. "My main pickup is usually a stereo pair right over the conductor, though sometimes I'll use three mics. I like B&K 4009s, which are 130-volt omnis that are matched at the factory throughout production. Also, lately I've been using a pair of 4053s, which is the same capsule, but it's on a Colette-type cable, like the Schoeps system, which is good for hanging—the mic preamp is actually in the connector, so the diaphragm is sort of out there on its own. What Schoeps did was they separated the preamp body of the microphone from the capsule and then, depending on what cable you use, you can have 15 feet between the actual capsule and the mic preamp body, so in terms of hanging them for a video shoot, you don't have this big mic body there; it becomes more invisible to the eye.

"So I'll have two mics over the conductor, maybe four feet apart. Then I also do a wider pair of omnis, which some people call outriggers. Both systems I pan hard left-right, and by the amount I mix of the two pairs, I can make the whole image wider or narrower. The wider pickup I'll use different mics, and that also allows me to mix two different colors. Quite frequently for the wider pickup, I'll use the Schoeps MK2 omni. Sometimes I'll use the AKG C-12VR in the omni pattern. From there, I introduce other mics, just in terms of focusing."

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Recording Brass and Woodwinds

King has a large selection of preamps to work with, including boxes from Millennia, Sonosax, Jensen-Hardy and Mastering Lab. "What I use depends totally on what kind of room I'm in and the sound I'm going for, and that will vary from project to project," he notes. "The differences between them are in timbre mostly. The Sonosax has a little more reach and it's brighter and faster than a Jensen, for instance, and the Millennia is somewhere in the middle of those two. So it's a color thing. If I'm in a room with a bright stage sound, I may not go with the Sonosax because it might be too bright. It'll be perfect for some other situation. I don't really have favorite preamps for different instruments, though."

For recording brass and woodwinds in an orchestral setting, "I'm relying on the conductor to balance them overall," he says. "What we end up doing is fine-tuning the balance. We can't actually make things louder or softer necessarily, but we can focus things in terms of the clarity of the picture. But the basic volumes of the sections are locked in by the main pickup. Then we can focus on specific sections by introducing a closer microphone. You can make it louder that way, but you've also brought it right to the front of the soundscape, which destroys the natural perspective created by the main pickup, so you have to be careful.

"When I'm recording brass in an orchestra, I rely on their basic sound coming into my main mic, which gives them that nice, distant sound and a good balance, and then I would have spot mics for each section—trumpets, trombones, tuba—just to add clarity or a slight amount of presence. For the spot mics, I like the Neumann TLM170s. I've also recently been trying a TLM103, which is a fixed cardioid, on brass. TLMs are nice because they never come out too bright, which is good for brass in classical music; you get a fair amount of body. On some softer passages, I might use a little [of the spot mics] so a featured instrument doesn't sound too diffuse.

"For woodwinds with orchestra," he continues, "I've done two systems. One is a stereo pair, because woodwinds are relatively easy to cover with a stereo pair and

I'm relying on the conductor to balance them overall. What we end up doing is fine-tuning the balance. We can't actually make things louder or softer necessarily, but we can focus things in terms of the clarity of the picture.

—Richard King

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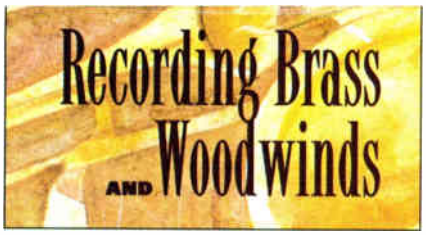

you can introduce that to your mains, and it all makes sense image-wise. And the bleed from the percussion behind the woodwinds is nice, as well. For instance, I like when I open up my woodwind mics to have the timpani dead-center behind the woodwinds, because it gives a nice stereo image of the timpani, but it's less diffuse than how the timpani is imaging in my main pickup, which is obviously much further away. Other times, if I'm mixing live, for instance to have more control, I'll actually mic each section, with a separate flute, oboe, clarinet and bassoon mic to get a quick balance. I use Schoeps MK4s on all the woodwinds. But if I'm doing a stereo pickup of the section overall, I like the B&K 4011, because it's a wider cardioid and it has a more even pickup of a larger group."

As for placement specifics for woodwinds, "You need some distance, obviously. On a clarinet, if you go for the bell, you don't get an even pickup of the instrument—some notes sound covered, others are too direct. I like to get a few inches closer to an oboe than a clarinet. Flute can be a little tricky. I find that if you're too far up over the top of the instrument, you get too much of the breathy sound and not enough of the real core of the sound. And bassoon, again, coming up over the instrument, you get too much reed and not enough of the fundamental, so I'm lower in my bassoon pickup than the other instruments; lower and from the side."

Working at Sony Music Studios, King records almost exclusively on digital media, either the Genex, which is used primarily for 2-track recordings or 6- and 8-track chamber projects, or the Sony 3348 HR. "We're now running quite a lot of the sessions with the DSD [Direct Stream Digital] system. The Sonoma is this recorder/editor/playback system that has onscreen automation, and that's been very reliable for 8-channel recording and editing."

King adds, "When I build my mix, I start by listening only to my main mics, and then I'd say 90 percent of the time I end up bringing woodwind mics in at some static level all the time, even if it's only at -20 on a fader, as opposed to the mains sitting at zero. But then, across the board, I might have three of the spots at -20, but I'll have the oboes up at -18 or nudged up slightly higher, just to get a more even balance of the section. It's not so much for how the instruments produce sound; it tends to be from orchestra to orchestra. Some sections are louder than others. You might have a section where the flutes aren't as strong as the other sections in the orchestra. There might be one that doesn't have a strong French horn section, so you end up supporting them a little more throughout. Every project is different, obviously, and what works with one orchestra or group might not work with another. That's part of what keeps it interesting and challenging."

ERIC SCHILLING

No discussion of recording horns would be complete without talking about Latin music. Engineer Eric Schilling has been at the heart of Miami's Latin scene for many years, cutting more than a dozen albums with Gloria Estefan (for whom he helped build Crescent Moon studios), as well as discs with the likes of Cachao, Braulio, Azucar Moreno, Jose Luis Rodriguez and Arturo Sandoval, among others. His experience recording horns goes back much further, however—in the mid-'70s, as an engineer living in the San Francisco Bay Area, he cut tracks with Tower of Power and other horn-heavy groups. Today, Schilling lives in Orlando, where he

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Recording Brass AND Woodwinds

works often at Transcontinental Studios, but still frequently commutes to Miami to work on various projects at Crescent Moon, Hit Factory/Criteria and other facilities. When we spoke, he was working on a DVD for Gloria Estefan.

With Tower of Power in the '70s, Schilling notes, "You'd put up a mic for each horn player—there were five guys—and you'd use a lot of tube stuff and ribbons. I was really amazed that by picking the right mic and having great guys playing, there wasn't much you needed to do to the horn mics, and I still find that to be true. In those days, we used 77s on trumpets, 87s on saxes and a 47 on baritone sax. The other thing that was true then that I still do to a certain extent is you had to blend stuff to tape. You wouldn't put it on five tracks, because you usually didn't have that many tracks. So you were learning to balance as you went along. So the saxes you would put to one track—that would be bari and tenor and alto—and then you'd put the trumpet to one track, and then you'd do the trumpet and sax parts twice, so you'd have four tracks. When you're on 24-track, that's a lot of tracks, so it was very common up until the '90s for me that we were blending to tape.

"The main thing that changed when I moved to Florida and started doing Latin music is that bari isn't a horn you use much in Latin music. It's much more common to use a 'bone in that. Trombone is usually very prominent in Latin horn sections. In R&B, the bari is often part of the bottom, but Latin music wants that sliding sound. But with Latin, too, you still have to have an ear for the blends. The people I work with a great deal, who play on a lot of the horn stuff in the southern part of the state, have been playing together as a group for about 15 years. It's sax, trumpet and 'bone; most of the dates we do are those three. At this point, they've played together so much that all their breathing is the same and they sort of blend themselves. But they also do interesting things like when they do a double-track, they'll change horns so it changes the sound slightly and you get the sound of a larger horn date; that's very smart. Their concept is it's better to have fewer guys playing who play tighter than have more guys who are not used to playing as a group."

As for microphones, "I've tried all kinds of things on sax, but I often go back to an 87, preferably a newer one rather than an older one, because they have improved them a lot," Schilling says. "I will use a 67 when I can, but the problem with those is that it's sometimes hard to find a good one. For trombone, if it's going to be way up front and not part of a blend, I'll use something like an AKG CL-414, TL-2, which is like a high-end 414. If it's more section-type stuff, I'll use a TLM193, because that's a fat microphone; it's much smoother, and I find that they blend well with other mics. For trumpet, I've changed a lot over the years. One mic I like a lot these days is the B&K tube mic [the DPA 4040], which is very smooth and it takes a lot of level, which of course you need with trumpets. If I don't use that, I might use the A-T tube mic, the 4060, which I've started to use more on horns in general.

I was really amazed that by picking the right mic and having great guys playing, there wasn't much you needed to do to the horn mics, and I still find that to be true.

—Eric Schilling

"I don't like to get any closer on brass than two feet because once it gets too close, it starts to have a smaller sound. Bleed is not a problem, because they're playing so loud; I don't worry about that. Now, the challenge with a player like Arturo Sandoval is that he has such a loud, strong sound and he's so bright, you have to find mics that take a lot of sound but aren't too bright. The two I've used on him are a 77, which works well but you can't get too close to it, and a 67. With either of those, though, he's got to be back about four feet. Every player is different." In addition to the spot miking, Schilling likes to put a stereo pair in the room, maybe 10 feet high and 10 or 12 feet back.

And a final anecdote from Schilling, on a non-Latin session: "I did a Natalie Cole project with Phil Ramone, and what Phil did on this '60s-style tune that had a bunch of 'bones and a bunch of trumpets, is he had each [group] of them sit around in a circle around a single omni, and his theory was that *they* had to make the blend. Then we also had French horns,

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Recording Brass AND Woodwinds

which were off to the side and playing into a brick wall, and then we miked the wall, which is not that unusual. French horns are not really designed to be heard by your ear from the bell. Anyway, we did this whole horn date with three mics. It took the musicians a little while to adjust to this, but once we got them into that groove, it worked quite well."

LOLLY LEWIS

It's not easy being a classical music engineer and a producer in a secondary recording market like the San Francisco

I like chamber music miked a lot more closely than most people do. I want chamber music to sound like I'm sitting in the room with the players and I can hear the individual instrument and some amount of actual noise.

—Lolly Lewis

Bay Area, but Lolly Lewis has thrived there, working consistently and on a wide variety of styles, from early music to modern. Unlike her engineer brethren above, she is loath to talk about specific mic favorites of hers, insisting, with characteris-

—CONTINUED ON PAGE 229

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JACK RICHARDSON

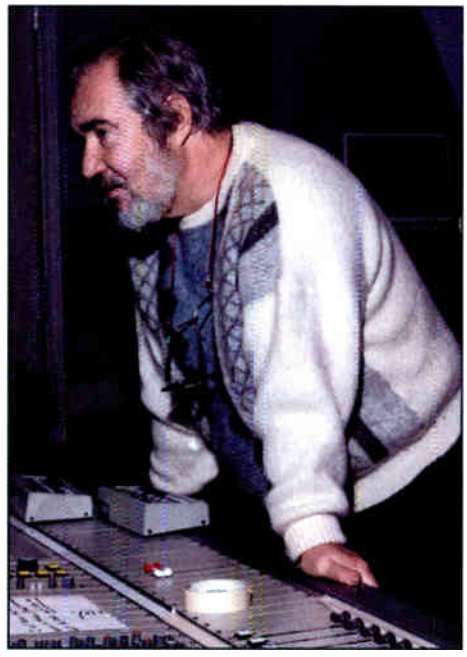
A LOOK BACK AT THE GUESS WHO, ALICE COOPER, POCO AND MORE

A few minutes into a conversation with Jack Richardson, I found myself saying that I would probably feel comfortable buying a used car from him. He replied, "I hope you would. It would be a good car."

Richardson is about as non-show business as anyone in show business can be and still have made a mark in it. He is avuncular and gentlemanly, speaks in short sentences and waits for you to finish yours first. He is very much the product of his time—he was born in 1929 in Toronto and still lives in the suburb of London, Ontario, with his wife—and of his place: Canada has long endured a frontier-like status vis-a-vis the United States, a condition that affects its entertainment industry, as well. When 90% of the population of the country lives within 100 miles of its long border with the U.S., radio and television signals from the relentless American media inevitably cast long shadows. With the kind of politeness that such proximity breeds, Richardson was more than willing to live life within the boundaries of Canada's show business to the extent that luck

and talent would let him. But luck had other plans.

Richardson started out playing double bass in school orchestras, graduating to local and regional dance bands in the 1940s, like The Westernaires in Toronto. In 1949, he got married and began a family that grew to include four children (including son Garth, who has made his own mark as an engineer for Rage Against the Machine and Red Hot Chili Peppers). By the time he was done as a full-time producer in the early 1980s, Jack Richardson's discography had swelled considerably: All of the classic hits for the Guess Who, including "These Eyes" and "American Woman"; seminal records for Alice Cooper, including hit songs "I'm 18" and "School's Out"; three of the most successful Poco albums, which included the hits "Good Feelin' To Know" and "Crazy Eyes"; Bob Seger's *Night Moves*, which would itself be a crowning achievement in any production career (see April's "Classic Tracks"); and dozens of other records for artists that span genres and decades, including Badfinger, Joe Beck, the Brecker Brothers, the Allman Brothers, Dickey Betts, Michael Bolton, Papa John Creach, Starz and White Wolf.



Today, Richardson continues to teach classes in audio engineering and production, a pursuit he began in 1984 at Fanshawe College in Ontario, though he still picks one local or regional band a year and takes them into the studio. There's hardly a late-night television commercial hawking greatest hits collections that doesn't include one or more of his productions; yet, at nearly 72, he still gets a kick out of Toronto garage bands selling records he does with them off the stage after gigs. "After a while, you can't keep it up like you used to, to make records," he says. "But it's hard to not do it at all after you've done it so long."

I want to start with a technical question: Where, exactly, is Canada?

[Laughs.] Just north of Nashville, I think.

What was the music business that you grew up in like in Canada?

After high school, I had started working with Billy O'Connor, a Canadian pop singer, as a bass player. We had five half-hour radio shows a week and later three half-hour television shows a week. But by 1958, it was beginning to become too much like the television business, especially with the introduction of kinescope and videotape. They could prerecord artists, and they didn't need live shows anymore. I had a family now, and it was getting harder to make a living as a musician. But I still loved music. So I went to work for [advertising agency] McCann-Erickson, first as an account executive. They had a radio show called *The Hi Fi Club* that was sponsored by Coca-Cola, and I got involved in that, and by the time it moved to television and became *The Campus Club*, I was the radio and television director for the agency and responsible for the Coke account. The American influence was all over the music and entertainment business. I was working for an Amer-

BY DAN DALEY

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ican company and handling an American account. There was no sense of a Canadian community in the entertainment industry, and there were very few successful Canadian acts. The Canadian record companies were usually just distribution operations for the American labels.

Did you think about moving to the U.S? Lots of Canadian artists have done just that over the years.

I thought about Nashville in the mid-1960s. But two of my sons were coming close to draft age, and I didn't want to chance that then [during the Vietnam era], so I stayed here and rolled the dice.

How so?

Myself and three partners who had been in advertising went off and started our own production company, Nimbus 9. And I had a recording studio in there called Soundstage. We called it that in order to get a film production license that would let us bring all our equipment in duty-free. Once, we got a call from the Customs & Excise Ministry, and we got into quite a panic. I actually went out and rented a 16mm Mitchell camera to make it look like a film studio. Turns out the inspector wanted to see our Eventide Clockworks. It's a Harmonizer, but it has the word "clock" in it, so that's what got them interested. Something to do with importing clocks. He came, looked at it, left and we never heard from them again.

So it's 1968, you've already had two careers, never produced a record, then the Guess Who. Did you actually mortgage your house to pay for their record?

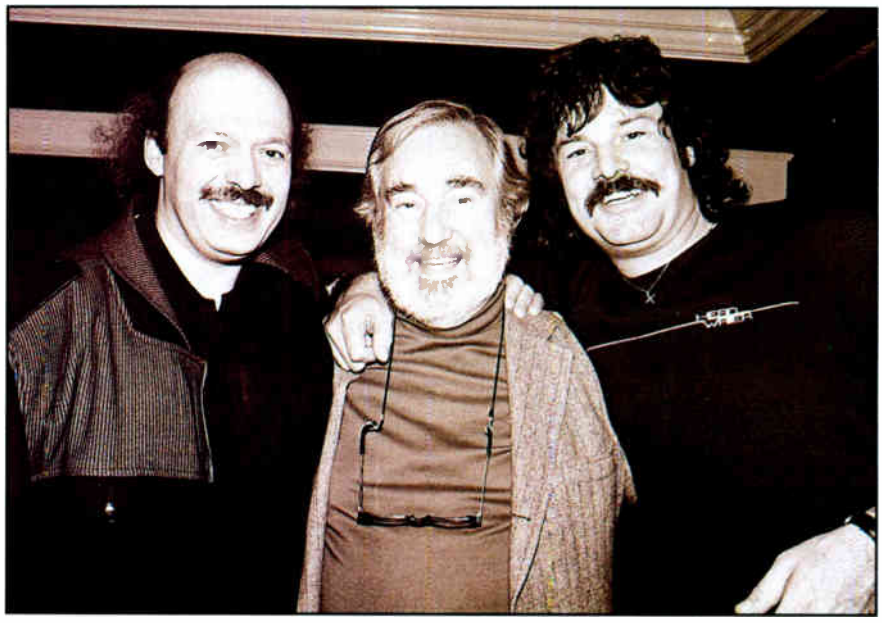
That's true. It was a second mortgage, only $5,000, but that was a lot then. The record cost $9,328 to make.

You remember the exact amount to the dollar?

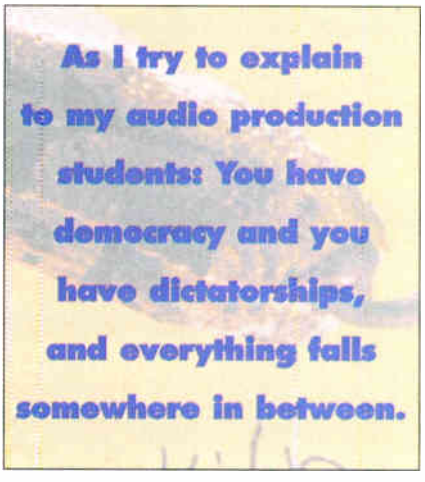
You do when it's your money.

How did that collaboration come about?

Coke had been doing a youth radio program, getting successful local artists to record versions of their theme, "Things Go Better With Coke." Guess Who was one of the groups I approached for that when I was at the agency. The band had had some success in Canada but was about to break up. They had gone on a tour of the UK, and the promoters were shaky and the band lost their shirts. Later, with Nimbus 9, I approached Coke about doing a self-liquidating promotion, doing a record and putting the Guess Who on one side and a band from Ottawa called The Staccattos (who would later become the Five Man Electrical Band and have a hit with the single "Signs") on the other. We called it "Wild Pair." You would send in six bottle caps and $1.25 and you'd get an album. They sold about 130,000 of them, which was quite a lot. When I decided I wanted to produce a real album with them, first we had to buy out their record deal from Quality Records for $1,000. We started recording and had talked with RCA in Montreal, but all we had to start with was independent distribution, and we never made any money. I thought about taking the group to New York. I had a relationship with Phil Ramone, who I had met taking some courses at the Eastman School of Music [in Rochester, N.Y.], and I had done some jingle work at his studio, A&R. That's when I mortgaged the house and took the band to New York. I wanted to use the big Studio A at A&R. Phil told me it was booked, but that they had just built a new room. He told me, "If it sounds good, pay me; if not, don't." That's a win-win situation. The studio had a custom-made Neil Muncey console and an Ampex 8-track.



L to R: Domenic Troiano, Jack Richardson and Burton Cummings



David Greene was the engineer. We did the whole record [*Wheatfield Soul*, which spawned the hit "These Eyes"] in five days.

Are you an engineer?

To a degree. I engineered if worse came to worst. Brian Christian did most of the records I worked on after "American Woman" with Guess Who. Before that, it was David Greene and John Woram.

Lyrically, "American Woman"—yours and the group's first Number One record—was not exactly complimentary of American women...

There's an interesting story about that. After it was a hit, the band was invited to play the White House at a reception [for Prince Charles]. They were going to play that song until the manager got a call from the State Department specifically demanding that they not play it. [Apparently, according to a note on the allmusic.com Website, first lady Pat Nixon was the one who nixed the song.]

What other studios did the band use?

The group's first record after signing with RCA [*Canned Wheat*] started at the old RCA studios on [West] 24th Street in Manhattan, which had one of the first Ampex MM1000 16-track decks. But the union engineers there were so bad, the distortion was so evident, that I eventually refused to work there anymore. I actually pulled out in the middle and went back to A&R, where we recorded what would become the two hits off that record, "Laughing" and "Undun." Later, RCA steered me to the new RCA studio in Chicago, where I met Brian Christian.

You were developing as a record producer. How would you characterize your style?

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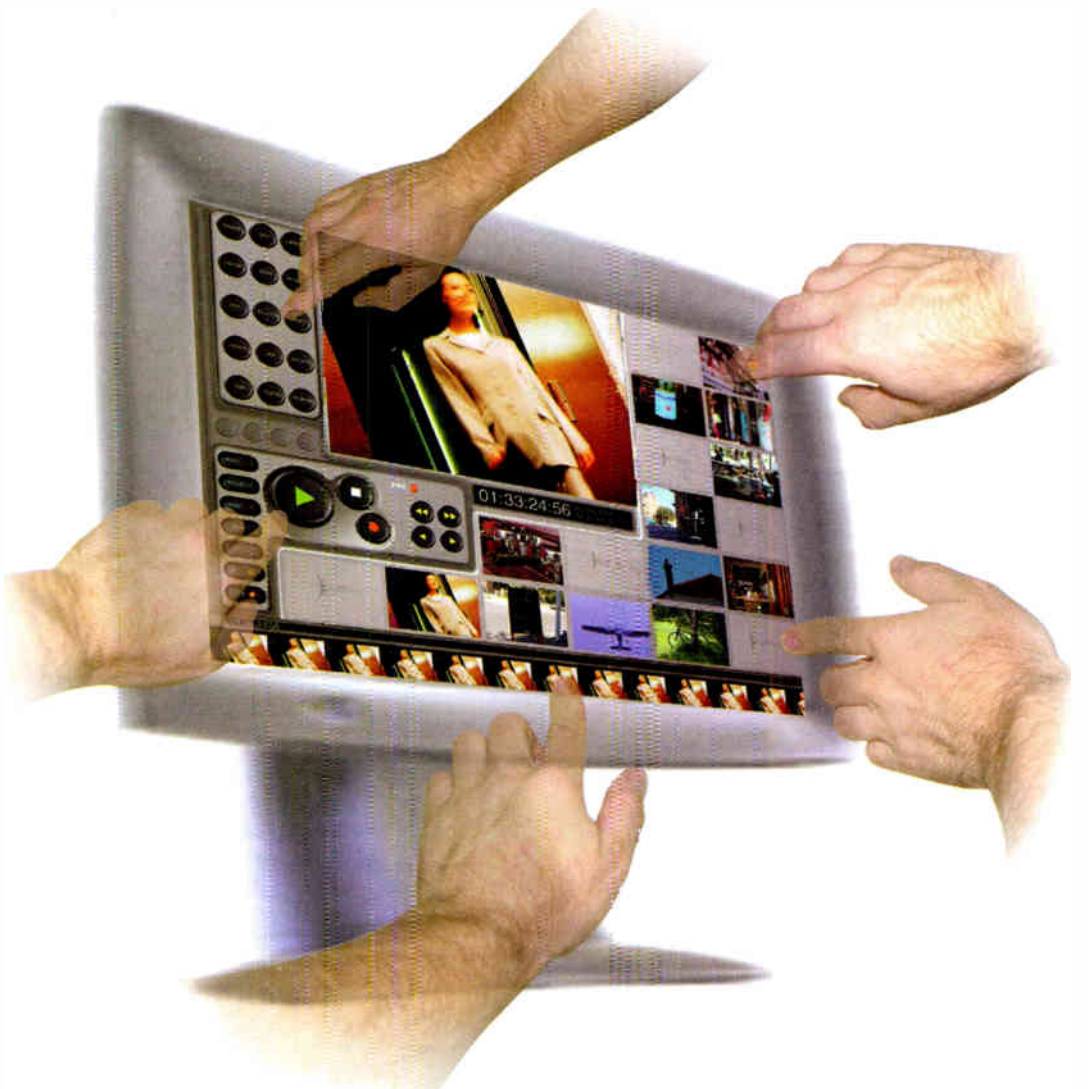

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I look at it as not so much a stamp of who I am as who the band is. I'm more like a traffic cop in the studio. As I try to explain to my audio production students: You have democracy and you have dictatorships, and everything falls somewhere in between those two dimensions. I lean more toward democracy. That's how I could do so many different kinds of artists, from the Irish Rovers to Manowar.

You were new as a record producer. Did RCA ever try to bring in a more experienced producer?

No, not once. The band and I had a very good relationship. Actually, they self-destructed before something like that could ever happen: The label threw a party at Sardi's the night after the band did a gig at the Fillmore East, and that's when Randy [Bachman] told the new president of RCA he was leaving the band.

You were an ex-musician and a former advertising guy who got lucky once. Could it have ended there?

I don't think so. I just tend to interface with people very well, and I really liked music.

Did you tap into your advertising experience as a record producer?

Oh yeah. Every session. Even though you're dealing with the same kind of music and the same instruments, you're always dealing with four or five people in a band, individuals who have varying degrees of psychosis, and you act accordingly.

The success of the Guess Who records led to Alice Cooper contacting you. Cooper was already making a name with shock value. How did you approach those records you did with him?

Shep Gordon, Alice's manager, contacted me. [Alice] was the Darth Vader of the music business at the time, but all I think I said was, "We don't have to kill chickens onstage to make records." But it was these productions that we brought Bob Ezrin in on, as a kind of apprentice. I did *Muscle of Love*; Bob and I did *Love It to Death* and *Killer* together. I had agreed at first to do four sides with Alice. We did them at the RCA studios in Chicago, and Brian Christian was the engineer again, though later we also did some recording at Record Plant in New York, and *Muscle of Love* we started at Sunset Recorders in L.A. and finished at Record Plant. On the first session, we had Alice come in dressed in full Alice Cooper regalia, and Brian could never bring himself to call the guy "Alice." I don't put much credence in superficial appearances. I'm more interested in what they're doing musically and if they're serious

PHOTO: JOHN ROWLANDS

Jack Richardson at RCA Studios Toronto circa 1967, Geo Semkiw engineer, Alan Moy assistant.

about that. We actually became pretty good friends.

How was Cooper different as a production client from Guess Who, besides sartorially?

These were the records I moved to 24 tracks on. And the band was pretty raw players by comparison. That was something of a surprise. I'd have thought that a band who had already made three or four records would have been better

The group vocals are usually double-tracked, but I learned to mix them differently: I set the double-back about 5 dB and used it as a thickener.

players. I'm talking about issues like getting the guitars in tune. But the shock value of the music actually overcame these deficiencies. Still, to make the records, I needed a very sharp razor blade for edits. There was no Pro Tools then. I often took a chorus from one part and a verse from another and edited them together. We often worked from a tape drum loop. The albums were done much more as overdub sessions than ensemble playing. We also brought in some outside players, like Rick Derringer on *Killer* and Jack Bruce on *Muscle of Love*. But they were also attracted by Alice's notoriety. Alice, himself, was a very good singer in terms of knowing the songs and giving a good delivery. He was also a pretty nice guy. I would have brought him home to meet my mother. He was also a soap opera fanatic—watched them all the time in the studio.

You were developing technical preferences by then?

Certain ones. I loved the API 550A EQs, the most musical EQ ever made. Certain microphones, like the [Neumann] KM84. I used them on drums, and people thought I was nuts.

From heartland pop/rock to the beginnings of androgynous rock and then to glossy country/rock: What was working with Poco like?

I got a call from the management and flew out to Boulder, [Colo.], where [bandmembers] Richie Furay and Paul Cotton lived. Poco was a good example of how to structure songs as a producer. We all had a great feeling about the song "Good Feelin' To Know." It was designed to be a radio song. For that, you have a limited amount of time, and you have to get the basic concept across reasonably soon; in two minutes, not five. I had them speed it up and cut the verses, which had tended to ramble a bit. It wasn't major brain surgery, but sometimes a band can't see the forest for the trees, and that's what a producer is for. You can make small suggestions that turn into big changes.

Poco was vocals and pedal steel. How did you deal with those elements?

Poco's vocals and harmonies were very good. But sometimes the simplest was best. On "Crazy Eyes," Paul Cotton did a scratch pilot vocal, and we then tried for three days of overdubs to get a final and

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ended up using the scratch vocal. The group vocals are usually double-tracked, but I learned to mix them differently: I set the double-back about 5 dB and used it as a thickener, spreading them out in the image a bit and also panning the echo, to give it dimension. Sometimes we triple-tracked them. For the pedal steel, I liked what Rusty [Young] played. But the thing about any pedal steel player is that they have complete control over the volume of the instrument constantly, because of the volume pedal. I had to ride that, sometimes put a compressor on it to keep it in check. I wanted the steel to be part of the overall ensemble sound, not a highly visible instrument. I mixed it in with string quartets at times, and it sounded amazing.

What became of your studio?

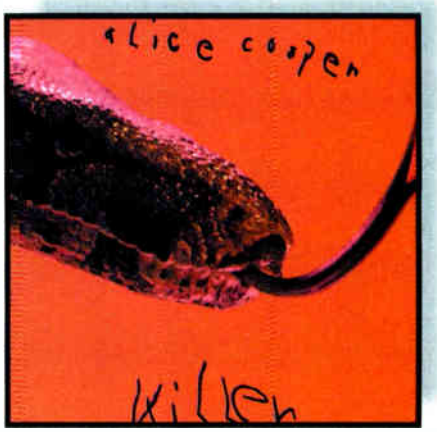
We sold it in 1980, along with the mastering facility we also had there. It had an AudioTronics console on which we had taken out all the transformers, except for the phase-reverse transformers, and replaced the mic pre's with heavy-duty Jensen mic pre's. We also had a direct-to-disc label up there, so we wanted a very pure signal path. That studio did the Guess Who stuff, but it also was rented out by a lot of other artists: Bob Ezrin did Peter Gabriel's "Salisbury Hill" there, for instance.

So why did you back away from producing?

I guess I fell out of it almost as abruptly as I fell into it. I just reached the point where I could no longer justify being away from home for two to three months at a time. I was getting tired of the 15- to 20-hour days. I had been on the advisory board for Fanshawe College for some time and started teaching there in 1984. We have two full studios there and Pro Tools suites. I never had illusions of glory from producing records. I did it because I liked working with people, just as I did with advertising, and just as I do now teaching them.

And Garth, your son, has continued the tradition.

A few of our kids have gone into music, and we were delighted. It's not something we encouraged them to do. Garth's had good success, but he's fallen into something I tried to avoid: He's become the heavy metal and alternative music guy; he's been pigeonholed. Now you become a specialist in a type of music based on your first success, and his first was Rage Against the Machine. I remember him calling me to tell me how interesting it was when he finally got to do a string session. I guess when I was producing, there wasn't that kind of mentality that pigeonholed someone so quickly. You used to have to do a lot of different things to survive. I guess that kind of nonspecialization no longer exists.



(Author's Coda: A generational perspective is obviously at work. Garth Richardson recalls the day his father came home from a session in 1968 and exclaimed, "Now they have three tracks! What's next?") ■

Dan Daley is Mix's East Coast editor.

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Neumann D-01

Product Hits From AES Amsterdam

Digital Leaps, Analog Jumps and a Few Surprises

By George Petersen

From May 12 to 15, thousands of audio pros visited Amsterdam for the 110th convention of the Audio Engineering Society (www.aes.org). Besides the obvious pleasures of Europe's favorite fun town, AES Amsterdam offered plenty of hot new products. Here are some highlights.

Tascam's (www.tascam.com) $8,999 SX-1, is a one-piece workstation combining a fully automated 40x8 digital console, DSP effects, 16-track disk recorder/editor and a 128-track MIDI sequencer. For more details, see the "Technology Spotlight" in last month's issue of *Mix*.

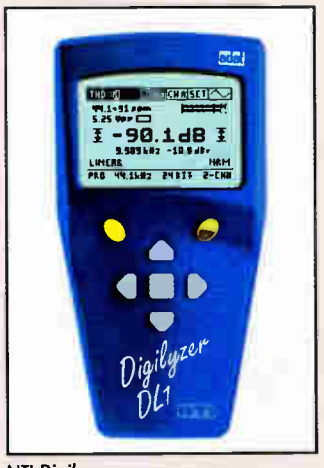
The Neumann (www.neumann.com) D-01 digital mic features a proprietary 28-bit A/D converter that's fed directly from the capsule (thus removing an analog electronics stage) and provides remote control of polar pattern, pre-attenuation, low-cut and preamplification. The mic connects directly to gear supporting the AES 42-2001 standard. Alternatively, Neumann's DMI-2 half-rack, 2-channel interface converts the AES 42-2001 format into a standard stereo AES/EBU signal. Included software can adjust all D-01 parameters via the DMI-2's USB connection. Sample rates of up to 192 kHz will be supported in the future; initial deliveries should begin around late 2001.

The Digilyzer DL1 from Neutrik Test Instruments (www.nt-instruments.com) is a handheld device for analyzing/troubleshooting consumer and pro digital audio signals, from eight to 24 bits and 32 to 96 kHz. Connections include AES3, co-ax S/PDIF and optical Toslink—consumer or ADAT—or (optional) TDIF. The DL1 has a monitor speaker, headphone connection and internal event logger, and performs digital audio analysis, carrier status analysis and carrier signal measurement functions.

Tascam SX-1

FORMAT WARS

While consumers decide the outcome of the SACD/DTS/DVD-Audio issue, DTS (www.dtsonline.com) came out strong with the debut of its new, fully compatible 24-bit/96kHz format with numerous titles planned for release in 2001. But whatever the outcome of the consumer format wars, audio manufacturers were moving ahead with new professional tools for 2.8224MHz DSD (Direct Stream Digital) production, which offers superb digital audio reproduction for recording/mixing/mastering. The Genex GX8500 (www.hhbusa.com) is an 8-channel recorder for storing both 5.1 and stereo mixes, with switchable PCM or DSD capability. Tascam (www.tascam.com) will begin shipping its DSD-98 high-resolution recorder, based on 8mm DTRS tape and operating as either a 2-channel DSD recorder or an 8-track PCM deck, with the ability to lock 16 transports for more tracks. SADiE (www.sadie.com) celebrated its 10th birthday by showing its DSD Mastering Workstation. Designed for mastering stereo DSD material and authoring finished SACD masters, the unit features all standard editing functions and full dynamics and equalization control. Noted classical recordist Tony Faulkner has taken delivery of the first system.



NTI Digilyzer

DIGITAL MIXERS

Edimix from Publison (www.publison.fr) is a medium-format digital console with 48 channels, 24 buses and eight aux sends, with automation of all parameters. An integrated 32-track hard disk recorder/editor is optional. The first all-digital board from D&R Electronics (www.d-r.nl), Sirius is a 32-channel modular digital console designed for on-air or broadcast production, featuring onboard dynamics and EQ and a routing system with up to 64 I/Os. The mixer is also available as Scorpius, with the same processing power but in a smaller frame.

ANALOG: BIG TIME!

There was plenty of new digital gear at the show, but analog technology was alive and well. Designed for surround mixing/

SPL PQ 2050

Publison Edimix

mastering, Drawmer's (www.drawmer.com) Six-Pack 6-channel multidynamics processor allows linking any combination of channels to track each other's levels to prevent image shift. Also, channel 6 has a switchable 120Hz LP filter for deriving an LFE output from a 5-channel surround mix.

SPL's (www.soundperformancelab.com) PQ 2050 analog, dual-channel, 5-band parametric EQ offers 999 memory presets with digital control via motorized pots. Dynamic range is spec'd at 150 dB, and optional PCM and DSD I/O modules will be offered.

SLAM! (Stereo Limiter And MicPre) from Manley Labs (www.manleylabs.com) is a 2-channel unit combining an ELOP electro-optical limiter, fast FET brick wall limiter, Class-A tube mic preamp and 24-bit/96kHz ADC on each channel. I/Os include inserts and surround linking. Price: $3,250, and a mastering version (sans mic preamps) is offered.

The $495 Platinum Penta stereo compressor from Focusrite (www.focusrite.com) offers 16 selectable presets over threshold, ratio, attack, release and make-up gain parameters. Soft knee compression, TubeTran warmth control and a stereo image width control adds flexibility. An optional 16/24-bit A/D converter outputs 44.1/48/88.2/96 kHz into AES/EBU or S/PDIF.

CLM Dynamics (www.wavedistribution.com) showed the $2,295 DB8000s, a slick unit with eight high-grade mic preamps, ADAT digital output, onboard M/S mic decoding and switchable overload protection limiters. Three analog outputs per channel are offered, allowing the unit to double as an active mic splitter in live recording, P.A. or broadcast applications.

MONITOR NEWS

Jointly developed with TC Electronic (www.tcelectronic.com), Dynaudio Acoustics' (www.dynaudioacoustics.com) AIR Series of "intelligent" monitors integrate DSP, networking capability and digital amplification; and they provide preset storage/recall and fingertip control of level, bass management and solo/mute of individual monitors. Slated for Q4 2001, the first AIR Series bi-amped near-fields combine 6.5-inch (AIR6) or 9-inch (AIR15) woofers with 1.1-inch soft dome tweeters. Options include subwoofers and a software package with advanced EQ/delay tools for consultants/installers.

Mackie's (www.mackie.com) HR120 is a THX-approved, 800-watt powered sub to complement its award-winning HR828 monitors for surround mixing. Shipments are slated for Q3/01.

A.D.A.M. Audio (www.adam-audio.de) monitors feature Accelerated Ribbon Technology (folded diaphragm) tweeters based on the 1972 work of Dr. Oscar Heil, but with improved, newer materials. U.S. distribution is via www.mccave.com, and the A.D.A.M. line ranges from the compact two-way S1A to the gargantuan 3,000-watt, four-way S8As. I was particularly impressed with the S3A, a bi-amped design with an ART tweeter flanked by dual 7-inch woofers. Nice!

Tom Misner—audio educator and founder of SAE (www.sae.edu), the world's largest audio school—unveiled SAE's TM 160A, a compact, active near-field speaker. Its oblong, diecast-aluminum enclosure (no parallel surfaces) houses two back-to-back, 6-inch, full range drivers in a push-pull arrangement, driven by dual 150-watt amps, for point-source imaging. Deliveries begin this summer.

COMING SOON

The 111th AES Convention comes to New York September 21-24, and then it's back to Munich next spring for the 112th show, held May 11-14, 2002. See you there! ■

A.D.A.M. Audio S3A

Drawmer Six-Pack

Hot, Hot...Hot!!!

by Randy Alberts

For pro and project studios alike, no instrument is quite so vital as the microphone. From Nashville to Tokyo, London to New York, money is always well spent on better consoles, monitors, guitars and computers, but no one tool can change a voice or instrument's sound and personality quite like a great mic—whether a classic vintage or faithful modern tube condenser. Fortunately, if you're upgrading to your first really good condenser or adding to a well-stocked cabinet, there's no shortage of new tube mics to choose from.

This year's tide of tube mics offers up an exceptional parade of airy highs, earthy lows, transparent mids, satiny nickel finishes, gold-sputtered membranes, vintage re-creations and new approaches. We chose to focus on tube microphones released over the past year and came up with 19 interesting new products. Drooling over the accompanying photos is optional, though encouraged.

What's New in Tube Microphones

Hot, Hot...Hot!!!

ADK AREA 51

ADK's (AudioDeutchKraft) new Commemorative Edition Area 51 Tube Transducer mic ($1,895) is signed by company co-founder Lawrence Villella. Debuting at this month's Summer NAMM show, 500 hand-selected vintage GE tubes made it into the Area 51 CEs, along with documents signed by the ADK "staff audiophile" who personally selects each mic. The top-of-the-line Area 51 is ADK's flagship mic and boasts dual 1-inch diaphragms and a multipattern design that can be switched between nine patterns.

B.L.U.E. CACTUS

The Cactus ($3,295) from B.L.U.E. (Baltic Latvian Universal Electronics) is a new multipattern tube condenser mic in the company's flora- and fauna-named mic line (Blueberry, Dragonfly, Mouse, etc.). Each Cactus mic includes a power supply, B.L.U.E.'s top shock-mount and pop filter assembly and a Kiwi Cable connector—all in a sturdy ATA flight case. The Cactus weighs 600 grams and lists a frequency range of 20-20k Hz, a maximum SPL of 130 dB for THD 0.5% and a 77dB dynamic range.

BRAUNER VM1 KLAUS HEYNE EDITION

Designed to take the performance of the Brauner VM1 to the ultimate level, the VM1 Klaus Heyne Edition ($7,000) is the result of a collaboration between Dirk Brauner and audio hot-rod specialist Klaus Heyne. Surrounded at the "waist" by an elastic-suspended shock-mount, the VM1 features a 79dBA signal-to-noise ratio and comes with a case for the mic, a control unit for remotely setting polar patterns, and a -10dB pad switch, cables and suspension mount. Using Telefunken AC 701 k or EF 806 S tubes, the VM1 features a handmade, gold-plated, large-diaphragm capsule.

CAD M9

CAD's new M9 ($499) is an affordable cardioid tube mic that features the same servo-valve technology used in the company's top-of-the-line VX2. A 12AX7 tube sits in the M9's head amp under a 1.1-inch, gold-sputtered capsule, and the mic's dual op-amp output stage sets the stage for longer cable lengths without loss of mic performance. Aimed at vocal and instrument recording, the M9 comes with a power supply, a 30-foot, 7-conductor cable with gold-plated connectors, and is finished in a blue housing with a satin nickel-plated screen assembly and black accents.

CARVIN CM98ST

New from Carvin is a tube mic/preamp team-up that sells for $599 direct from the company's catalog. The dual-diaphragm, multipattern tube CM98ST features 20-20k Hz frequency response and 133dB dynamic range, 10dB pad and -6dB (@ 120 Hz) low-cut switches, and nine patterns to choose from. A power supply with polar-pattern switch, foam-lined flight case, 30-foot/7-pin cable, foam windscreen, shock-mount suspension assembly and a separate carry pouch for the CM98ST itself are all included.

CURTIS TECHNOLOGY AL-2

The AL-2 Stereo Tube Microphone System ($2,995) from Curtis Technology includes a matched pair of tube condenser microphones with shock-mounts, cables and a dual-rackmount power supply, all in a soft-padded carrying case. Designed with a type of elongated omnidirectional pattern intended to combine the spaciousness of an omni with the focus of a unidirectional, mics used in the balanced AL-2 employ a pair of handpicked 12AU7 tubes. Curtis also makes a transformerless, unbalanced version of the AL-2.

DPA MICROPHONES 3532-T SYSTEM

A new stereo tube microphone kit this year from DPA Microphones is the company's 3532-T ($8,000). Included with the 3532-T package is a 2-channel tube preamp, a 30-foot mic cable, two windscreens, a stereo boom with holders and a pair of DPA 4041 mics. The latter are large-diameter tube condensers designed for soloist recordings, particularly vocals, strings and wind instruments, and the mics, preamps and 1-inch omnidirectional cartridges all fit snugly into a foam-lined briefcase.

LAWSON MICROPHONES L251

The L251 ($2,495 direct) from Lawson Microphones is based on the vintage Telefunken ELAM 251, but employs a NASA-approved tube socket with gold-plated

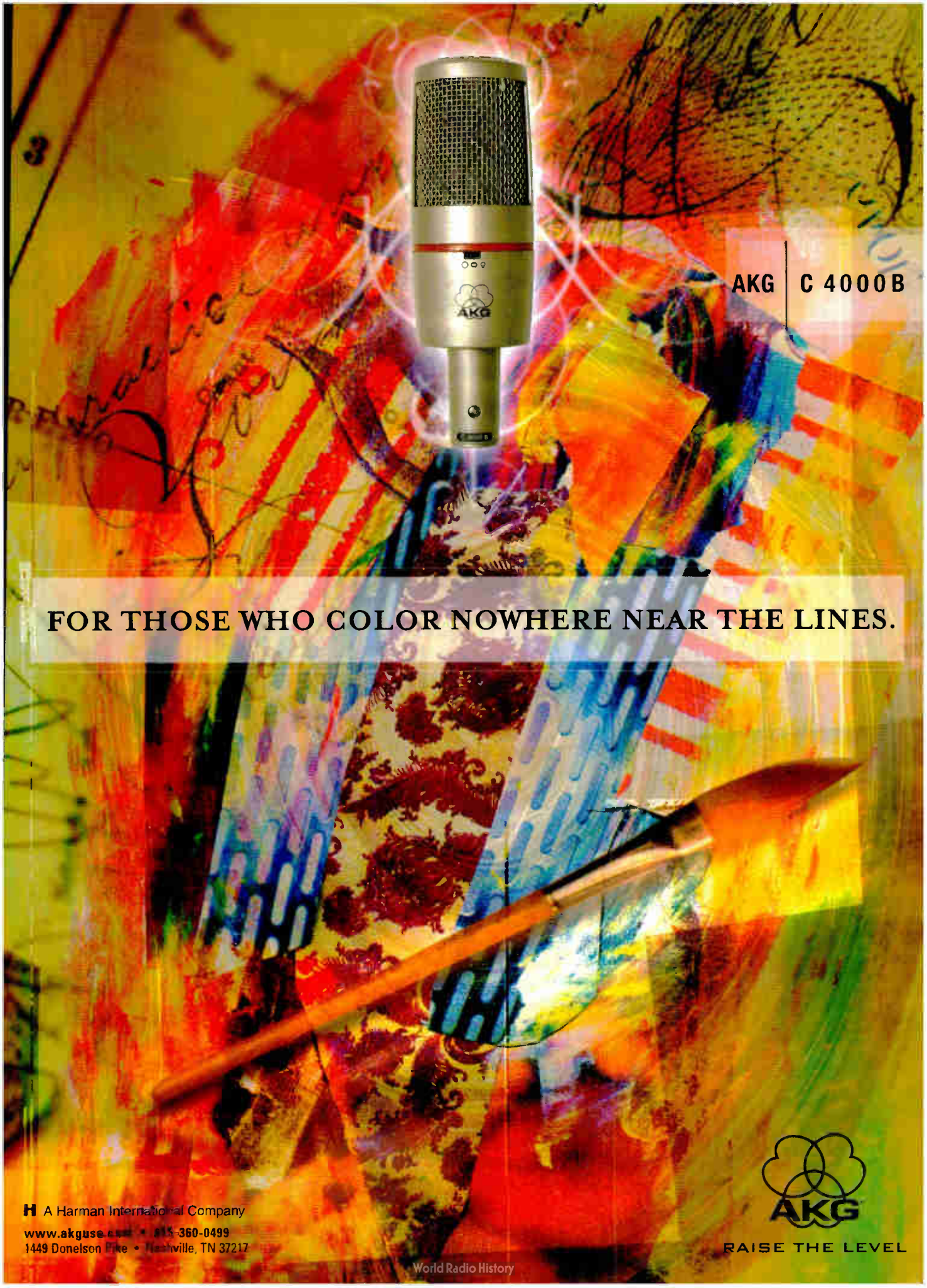
ADK Area 51

B.L.U.E Cactus

Brauner VM1 Klaus Heyne Edition

CAD M9

DPA Microphones 3532-T System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beryllium copper contacts and infinitely variable cardioid pattern control located on the power supply. A two-position, low-frequency contour control offers a "251" position, which reproduces the original ELAM 251's low-frequency response with its built-in 6dB/octave, 100Hz roll-off. Cardioid, omnidirectional, figure-8 and many variable patterns in between are selectable from the power supply, and the 1-inch, gold vacuum-deposited diaphragm is protected by an internal shock-mount system; a 30-foot Mogami cable with gold-plated Neutrik connectors is standard.

MARSHALL ELECTRONIC V69

Marshall Electronic's line of MXL mics includes the V69 Tube Condenser Microphone, finished in gold and black. This affordable ($379) large-diaphragm condenser mic with a set cardioid pattern uses selected 5718 tubes, is internally wired with Mogami Hi-Definition cable and features a 20-20k Hz frequency range, dedicated power supply and a shock-mount.

MICROTECH GEFELL M 990

Microtech Gefell's M 990 ($1,595) is a single-pattern (cardioid) condenser using an EF86 pentode tube operating as a triode, along with a separate power supply. The capsule uses a large, gold-sputtered diaphragm. The AC supply is switchable between 115 and 230 volts at 50 or 60 Hz, and the M 990 can drive cables longer than 50 meters. The system includes the M 990 mic in a wooden case, power supply, mic cable, an elastic suspension assembly and a dark bronze finish.

NEUMANN M150

Now shipping, Neumann's M150 ($5,300, with power supply) incorporates many features from the company's M50, such as a sphere-mounted, omnidirectional capsule. Not just another reissue, the M150 uses a titanium diaphragm, the same transformerless tube electronics used in its popular M149, and boasts a low 15dBA self-noise for practically noise-free operation, with a low end that's only -3 dB at 16 Hz.

RØDE NTK

The latest from RØDE out of Australia is the NTK ($999), a 1-inch large-capsule model. Featuring a gold-plated membrane and low noise specs, the NTK sports hand-graded twin-triode tubes and comes with a power supply, 30-foot multicore cable and a standmount with thread adapter; options include an externally polarized, 1-inch, pressure-gradient condenser and a special-design shockmount. This cardioid mic features a 147dBA dynamic range and a maximum SPL of 158 dB, and its external power supply has user-selectable settings.

RTT MLK100, 101, 102

RTT (Russian Transducer Technology) makes "vintage re-creations" with new parts from St. Petersburg, Tula and Moscow. The company's hand-built mics include the MKL101 Valve (Tube) Bottle Microphone ($1,499), the MKL100 ($829), and the MKL102 "Mini Brute" ($749). A re-creation based on Telefunken's 1949 EF12, the RTT MKL101 Bottle mic features a tube amp, cardioid polar pattern, 18dB self-noise, and a 40-16k Hz bandwidth. The MKL100 "Lens Head" tube mic has a large-diaphragm, cardioid capsule and a 30-18k Hz frequency range; RTT's MKL102 "Mini Brute" uses the miniature 6C6B military triode used in post war-era Russian mics. RTT provides downloadable MP3 samples of tracks recorded on RTT mics on its Website.

SCHOEPS M 222 DC

The M 222 DC Tube Microphone and power supply ($1,885 for body/power, plus one or more capsules from $570 to $1,400 each) from Schoeps offers 20 capsules in all, beginning with its MK4 classic cardioid version up to the $1,400 MK6 3-Pattern Capsule with omni, cardioid and figure-8 patterns. The M 222 DC's model number was named as a continuation of the company's M 221 B tube mic, with improved specs and performance, including the ability to use any of the company's Colette Series capsules. The M 222's power supply has a "tube direct" switch setting to eliminate all semiconductors from the signal path, and a "harmonics" switch to alter the tube's performance and emphasize more of the typical tube sound.

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TUBE MICROPHONE CONTACTS

It should be noted that—unlike software and digital products—tube mics tend to stay in production for years, and there are many older models not included in this article (yet still in production) that are also excellent choices for the tube devotee. For more information about current offerings, here are some manufacturers of tube-based mics for studio applications.

ADK	www.adk.cc
AKG	www.akg-acoustics.com
Alesis	www.alesis.com
Audio-Technica	www.audiotechnica.com
B.L.U.E.	www.bluemic.com
Brauner	www.transaudiogroup.com
CAD/CTI Audio	www.cadmics.com
Carvin	www.carvin.com
Curtis Technology	www.curtis-technology.com
DPA Microphones	www.dpamicrophones.com
Lawson	www.lawsonmicrophones.com
Manley	www.manleylabs.com
Marshall Electronic	www.mxlmics.com
Microtech Gefell	www.gprime.com
Neumann	www.neumannusa.com
RØDE	www.rodemicrophones.com
RTT	www.sound-room.com
Schoeps	www.reddingaudio.com
Soundelux	www.soundelux.com/mics
Studio Projects	www.pmiaudio.com
Yorkville	www.yorkville.com

SOUNDELUX ELUX 251

Another dedicated—yet innovative—tribute to the Telefunken 251 is the Soundelux ELUX 251 ($5,000), which features a hand-built, hand-tuned European capsule and cardioid, omnidirectional and figure-8 polar patterns. Also sporting a 20-20k Hz frequency range, a 1-inch, dual-membrane condenser and a maximum SPL of 132 dB (0.5% THD @ 1 kHz), the ELUX 251 uses a 6072A vacuum tube and weighs just 1.5 pounds.

STUDIO PROJECTS T3

Studio Projects' T3 ($1,099) incorporates a special hand-selected 6072 "dual-triode" vacuum tube for improved consistency in matched pairs. The T3 is powered by a dedicated AC power supply with a completely variable polar pattern selector, and has a dual 1-inch mylar capsule that's designed for vocals and overhead choir, strings, piano and percussion recordings. A foam windscreen and elastic suspension shock-mount are included, as are a 7-pin interface cable and a combination-locked aluminum carrying case.

YORKVILLE APEX450

Yorkville's Apex450 Tube Condenser Microphone ($899) features nine selectable polar patterns, and its high-SPL handling capability (125 dB) makes it a good choice for live sound reinforcement or live recording, too. Other amenities include an aluminum flight case, windsock, a 7-pin XLR cable, external power supply, heavy-duty, "cat's cradle"-style shock-mount assembly, and a 1-inch, dual-diaphragm, gold-sputtered capsule.

Musician, engineer and writer Randy Alberts explores music and audio technology in a turn-of-the-century farm house with a built-in studio in Pacifica, Calif.

RØDE NTK

Schoeps M 222 DC

Soundelux ELUX 251

Studio Projects T3

Yorkville Apex450

Mouse

Point. Click. Record.

Turn any studio into a mouse pad.

With its unique rotating capsule, the BLUE Mouse is one of the most versatile and snazzy-looking mics you'll ever lay eyes on. And beneath the handsome exterior, you'll find that the Mouse is a precision recording tool, providing the commanding, intimate presence associated with the world's best (and most expensive) legendary vintage vocal microphones. With its shimmering, detailed highs and smooth mid-range, the Mouse excels at delivering a vocal right to the front of the mix where it belongs, while acoustic guitar, hand percussion, drums, and other critical high-end sources shine.

The Mouse is a pressure-gradient cardioid condenser microphone, employing the BLUE hand-built single-membrane, large diaphragm capsule, coated with a 6-micron mylar film of pure gold and aluminum. Enclosed within a rotating spherical grille, the capsule can be positioned and adjusted in the smallest of spaces, offering fine-tuning and precise placement to please the most discerning recordist. With its Class A, fully discrete circuit, the Mouse utilizes hand-selected electronic components of the highest quality and is available with either transformer or transformerless output circuitries.

So, catch a Mouse and release it in your studio — and discover how well its amazing sound and superb quality clicks with you.

The manufacturing quality on the Mouse is the best I've seen in 30 years. Just once, you should hold in your hands something that's as well made as human hands can craft. Lend it your ears.

— Paul J. Stamler, Recording Magazine

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Microphones

NOMINEE

Dragonfly

Blueberry

Mouse

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DVD Picks

Kwaidan

The rapid ascent of DVD as a consumer format has been a boon just about any way you look at it. Manufacturers get to sell a lot more home theater gear, studios get to re-release catalog material, engineers get more work, and consumers...well, besides the flood of bonus features, consumers have a chance to revisit classic films and hear them as they were meant to be heard.

Mix will be "reviewing" a number of DVD titles on a monthly basis. The intent is not to "review" in the traditional sense—plenty of consumer titles will do that, technically and critically. Rather, we'd like to point readers toward films that use sound in creative ways, because, after all, whenever you talk to sound designers, they don't want to talk about bit rates and transfers; they want to talk about the "use" of sound in a film.

Toward that end, this first installment by Rick Clark points out a few re-released films that use music particularly well. Go back, rent the DVD and listen!

EDWARD SCISSORHANDS

Of all of Tim Burton's films, *Edward Scissorhands* (1990) most successfully synthesizes the elements of compassion, humor and wildly creative fanciful vision to create an experience that is touching one moment and very funny the next.

While the DVD doesn't feature 5.1, the LCRS provides excellent full-range sound. One of the major elements that elevates the movie in its most magical moments is Danny Elfman's wondrous score. Ten years after the release, Elfman's work on *Edward Scissorhands* ranks among his very best efforts. It certainly has been incredibly influential, as evidenced by the numerous TV and film pieces that have borrowed blatantly from the score.

As for special features? Well, you can listen to Tim Burton, which is always entertaining, but even better is Elfman's insight—you can watch the entire film with music only, plus Elfman's narration.

20th Century Fox. Directed by Tim Burton. Music by Danny Elfman. Supervising Sound Editor: Richard Anderson. Re-Recording Mixers: Steve Maslow, Stanley Kastner. Score Mixer: Shawn Murphy.

GLORY

Sony/TriStar's two-disc Special Edition of *Glory*, winner of three 1989 Academy Awards, is first-rate from beginning to end. Though Donald O. Mitchell, Gregg C. Rudloff, Elliot Tyson and Russell Williams II deservedly won the Oscar for Best Sound, it was James Horner's stirring score, featuring The Boys Choir of Harlem, that wonderfully supported the emotional thrust of this powerful story about a tragically suicidal attack on a Confederate fort.

A Sony/TriStar Film. Directed by Edward Zwick. Music by James Horner. Supervising Sound Editor: Lon Bender. Re-Recording Mixers: Donald O. Mitchell, Gregg Rudloff, Elliot Tyson. Scoring Mixer: Shawn Murphy. Dolby Digital 5.1 and Stereo.

KWAIDAN

This amazing collection of four supernatural fantasies, released in 1965, is one of cinema's unique achievements. Each tale possesses an eerily quiet power that draws the viewer into a somber netherworld of ghosts and shadows.

Toru Takemitsu's soundtrack is startling with its sparse punctuations and haunting, trance-like ambience. There isn't a wasted note or visual throughout. But this is also a film where silence is used to full effect, often augmenting the surreal sets that are striking in their rich colors and lighting. While Hollywood has increasingly followed the idea that visual and sonic overkill is required to scare an audience, *Kwaidan* rewards the intellect and attention span of the viewer with its thoughtful dimensionality. It won't make you jump out of your seat, but the spell of *Kwaidan* will stay with you. This is a first-rate job by Criterion.

The Criterion Collection. Directed by Masaki Kobayashi. Re-released by Criterion. Monaural.

BEASTIE BOYS VIDEO ANTHOLOGY

Often pop artist video collections are just that—no-frills anthologies and not much more. The *Beastie Boys Video Anthology* is a major exception. Just as the Beasties smartly push the boundaries of hip hop and rap, this two-disc set is loaded with everything the format is touted to offer.

Besides the usual stereo/5.1 audio options and commentaries, *Video Anthology* offers more than 100 multi-angles and remixes that are switchable at any time of playback. There are even *a cappella* versions of the tracks. The level of visual, musical creativity and humor displayed throughout this set offers new rewards with each viewing.

The Criterion Collection. Dolby Digital and Stereo. ■

Singapore Post

OPUZ Grows Along With Asia's New Media Hub

by Dan Daley

Singapore is the quintessence of modern Asia: a gleaming forest of glass-and-steel highrises towering over the two- and three-story shop buildings that still make up the majority of this city's commercial infrastructure. Inside two of those low-rises, the evolution of Asia's audio post-production business can be seen.

OPUZ first opened in 1995, a two-room studio intended as the tool for a trio of remixers/engineers/musicians whose local reputation for contributing to regional music hits had pushed them into audio post, as well. Both Paul G. Tan and his brother, Paul T., had learned the DJ trade in Singapore clubs, collaborating with keyboardist/programmer Case Woo. Paul G. attended the University of Oregon and later entered the audio recording and production program at Loyola Marymount University in Southern California, picking up some real-world experience at Skip Saylor Studios in Los Angeles. He returned to Singapore in 1990 and, with his brother and Woo, began a remixing career.

OPUZ followed five years later, on the second floor of a shop building on Circular Quay, alongside one of Singapore's canals. It was a propitious point in time. Singapore's government was fostering local commercial arts ventures, including music and film; the Singapore outposts of global advertising companies, such as Leo Burnett, were becoming more active as Asia's economic "tigers"—particularly Singapore—were flexing their financial muscles; and U.S. cable companies, such as The Discovery Channel and HBO, were targeting Asia, as well, making Singapore their regional base.

"Everything seemed to come together at the right time," Paul G. Tan says of that moment. "But if I'd learned anything from working in the States, it was that in post, it was results that counted, that things had to be done as perfectly as possible and the client had to be catered to."

PHOTO: RUSSELL WONG

L-R: Ashley Low, Min Gen, Paul G. Tan, Amelia Lee, Case Woo. At right, the vocal booth for ADR sessions.

Sam Toyashima was contacted to design the original facility, which has two control rooms facing onto a shared recording space. The spaces are relatively small, using a lot of trapping to moderate the acoustics, and were intended to accommodate both music and post, with an accent on MIDI gear in the smaller of the two control rooms. Music recording and mixing, however, quickly took a backseat to post as Singapore's studio business, like that of the rest of the world, began to feel the effects of project studios. "They call them 'jam' studios here," Tan explains. "And some of them go for as little as $18 [Singapore, about U.S. $10] an hour. It was no business to be in anymore."

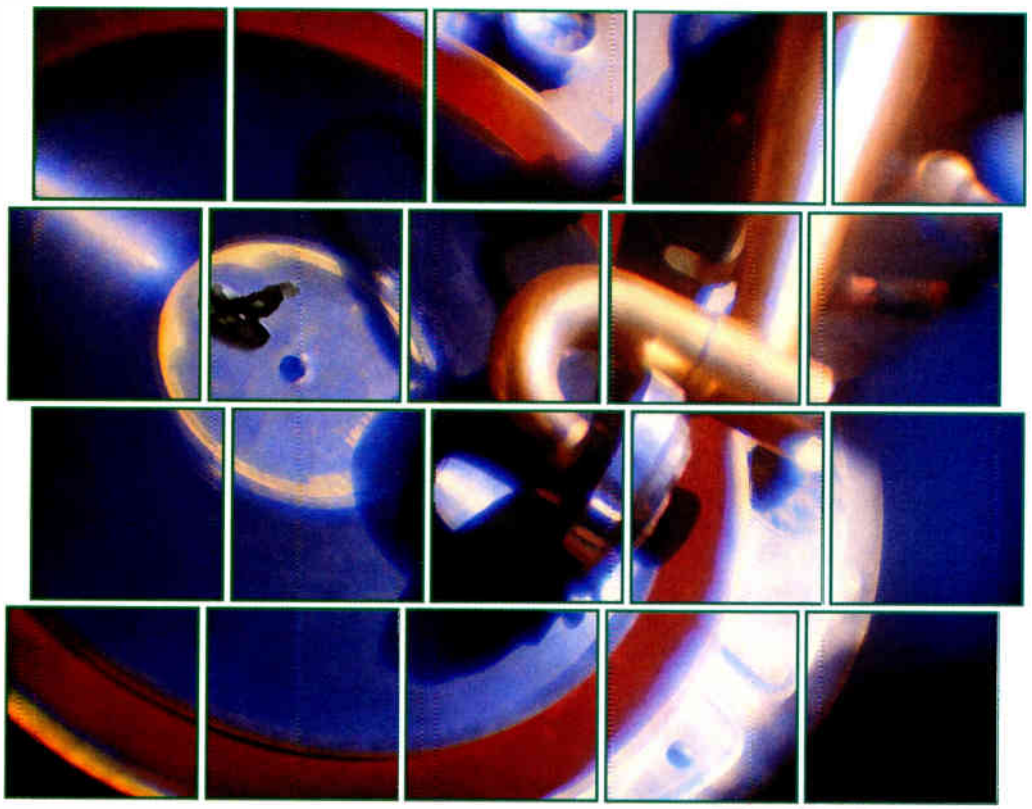
The post business, though, was poised to take off, and the facility was positioned to ride that wave, with a strategy of implementing leading-edge technologies at the time, such as APT and CDQ ISDN capability. Local ad agencies appreciated the link, allowing them to bring in voices from Sydney to Chicago. The strategy worked, and the facility picked up a steady stream of regional and international commercial awards, which now fill trophy cases in the foyer of the first facility. There was also some ADR work for films coming in from the U.S., including Miramax's *That's the Way I Like It*.

BUILT FOR POST

By 2000, that first facility's limitations had become clear. It would be augmented that year with a new set of studios in a nearby building. Toyashima also designed this new facility, but

—CONTINUED ON PAGE 112

Taming the Silver Spoon



By Larry Blake

Sixteen years ago, I collected my first paychecks in pro sound by doing playback on rock videos. This was in an era when the video format of choice was 1-inch Type C, and the audio master was on ½-inch 4-track tape with timecode on track 4.

If you go 16 years before that, in the late '60s, you would find a completely different world where playback was from acetate discs on a turnable that was locked to the same distributor as the camera motors. This technique had been in use for *40 years* at that point!

To those who have only known sound on hard drives, and to whom 2-inch 24-track tape seems antiquated, wax discs seem positively prehistoric and cumbersome. However, two points should be emphasized here: Compare the lip-sync accuracy between a musical film from the '60s and one from this new millennium, and I dare you to tell me that sync is better today. (I'm not even going to get into the sync that can be found in rock videos today.)

The reason for this is clear and has nothing to do with technology, but instead concerns the skill and sense of craft that the performers and sound crew brought to the table. They didn't view the physical limitations as such; they simply did what was necessary given the tools at their disposal. And maybe because they had to work harder, their work was better.

With this perspective, it's actually possible to view today's sample-accurate editing precision and cheap hard drives as a hindrance—the film sound equivalent of growing up with a silver spoon. (You were wondering how I would work this title in, huh?) Clearly, a large part of the credit or blame for lip-sync will be with the artist, and in that spirit, this month I'll focus on the parts of the music department that you have direct control over.

THE MUSIC MASTER

Create a "god" playback master. This procedure requires that you end up with a digital track that matches the digital sample rate and timecode frame of the final edited film. You can't assume anything,

GLOSSARY

PLAYBACK: When pre-recorded music is played on a film set to allow camera takes to use the same music master. Sometimes a minus-vocal music mix will be the playback source, with live vocals recorded for each take. In these instances, singers and musicians will listen to the music tracks via in-ear monitoring.

"NTSC SPEED": Standard films are photographed at 24.0 frames per second, with recorders referenced to 60 Hz or, in the case of timecode and sample rate, 30 fps/48.000 kHz (or 44.1 kHz). When this material is transferred to NTSC video, the linear speed of the film is reduced 0.1% to an effective speed of 23.97 fps, and this integer relationship occurs both to the timecode (reduced to 29.97 fps) and sample rate (to 47.952 kHz or 44.056 kHz).

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and you need to find out what your rate will be—that is, if you're not deciding the rate yourself, in which case my recommendation today is a pulled-down 48 kHz, or 47.952 at NTSC speed. (This will be the subject of a future column that is certain to put a large number of you to sleep.)

Playback sources can come in two forms, from pre-existing music and from newly recorded material. If you have to regard a pre-existing CD as a playback master, then do not rely on the digitalness of the source as a substitute for creating a proper master. Don't be lulled into thinking that a CD will play back at the same speed every time. Maybe it will, on location, but you then have to edit the film (speaking here both of picture editing and music editing) against a master of a given rate, so that what you cut to will match what will show up at the mix. Therefore, there's no downside to starting the chain at the first stage. Preparing said master is a breeze.

First, you need to load the CD into the workstation that will be used at the final mix, if this is known. If the chosen sample rate is 44.056 at NTSC speed, then you can load in digitally. If it's some flavor of 48 kHz, thenyou can either load in via high-quality DA/AD conversion or via sample rate conversion, which is my usual choice. Regardless of the path that you take, you have to take the approach that the source ceases to exist once the new god master has been made.

The only exception to this rule would be if you later track down a better-generation 2-track mix (see below) or if you are able to go back to the multitrack master to make a mix for the film. In these instances, you might have to do some very careful and precise time compression/expansion to make the new master match the one that the film was cut to, but be *very* careful about introducing any artifacts. If tight sync (lip or otherwise) is not involved, then you might get lucky. The best approach would be to have your "current" master in the same workstation that is recording the new mix and to compare the length right there. If you're playing back from an analog multitrack master, then you have the chance to do minute varispeeding to make up the difference in a more "organic" fashion.

In some instances when making a new recording for the film, the individual tracks can go directly to the final mix. A common example of this is when a live performance will be pre-recorded *in situ* for eventual use in playback on the set and for use in the final mix. The challenge in these situations is to make sure to include room mics to allow you to "rubber band" the mix from a close-up, onstage perspective to the back of the hall to a side room.

The next step is to take these tracks and transfer them into your edit system on a track-for-track basis; there's really no reason to do a multitrack premix unless a minus-vocal version needs to be prepared in order to record a live vocal over a prerecorded band. If you've gone to town with room mics, though, then this technique might render them useless, because the original vocal will be all over them. However, the dramatic value of a live vocal would far outweigh any downside to having to create a room sound from scratch.

> It's actually possible to view today's sample-accurate editing precision and cheap hard drives as a hindrance—the film sound equivalent of growing up with a silver spoon.

Multitrack location recording is almost always on some linear medium, and I would recommend putting these tracks in the workstation of choice as soon as possible to give you maximum flexibility and accuracy in preparing the playback masters. You should load in the "print" take of each cue into the workstation and prep it for playback. First of all, talk with the director to make sure that you are using the correct take. In a recent film, I had been told that the last takes were the selects, which made sense to me. When I got on the set, I found out that the *second*-to-last take of one cue was the master, because it trailed off in a haphazard fashion as would be required for the film. The last take was a complete take that was done (smartly) for eventual inclusion on the soundtrack album. Of course, had I known in time, I could have used the fluidity of the workstation to combine the best parts of takes to create a "comped" multitrack master.

Adjust each take in the workstation to have the start exactly on the hour, with different songs on different hours, naturally. The playback mix should be a bit drier than you might otherwise like, with the bass and snare goosed up a tiny bit for obvious reasons. Make a 2-track bounce of this in the workstation so that it retains the same timecode stamping as the master. This 2-track mix becomes the reference master for playback on the set and during the picture editing and temp mix phase.

When bouncing the 2-track mixes, keep whatever count-in the musicians gave during recording (raising this as necessary), not only because they will need to start in tempo, but also because the director might want to actually shoot the musician counting in. For this reason, you should prepare another measure of clicks that lead into the vocal count-in.

KNOW YOUR RATES

Keep your sample rate hygiene clean! Once you have bounced the mix, you then need to transfer it to the playback tapes (or discs!). In the case of any digital medium, such as timecoded DAT, you should lock the workstation to the prestriped timecode on the DAT and transfer across digitally. Remember to keep your sample and frame rates properly aligned: If you will be doing your sound work at 44.056 at NTSC speed, and you will be shooting film at 24 frames per second, then your workstation should be set up at 30 fps timecode and the word-clock output should measure to a sample rate of 44.100 kHz. In this manner, when you get to editing against NTSC picture, the sample rate will be 44.056 and the frame rate will be 29.97. The same integer relationship would be preserved with 48 kHz: 48.000 kHz and 30 fps timecode at 24 film speed. And, of course, if you're working on a feature film, then *only* use non-drop timecode.

You should always realize that with digital audio, *the* determining sync factor is the sample rate, *not* the timecode rate, as was the case with analog recordings. With digital audio, a given sample rate can be carved into any number of frame rates and still play back at the same speed.

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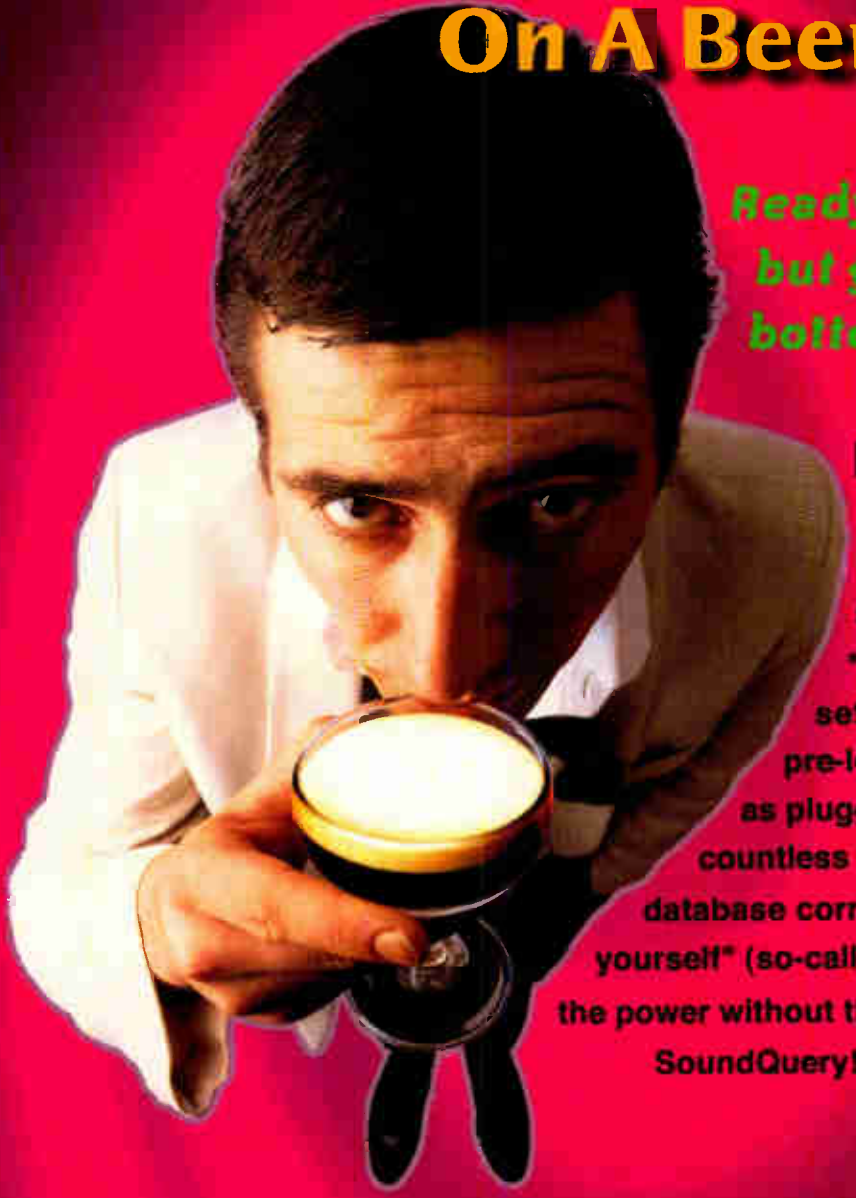

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SOURCE CONSIDERATIONS

Use reissue CDs with great caution and detective work. One question that I frequently get from music supervisors is, "Can you use the CD"? Yes, I *can*, but I would rather go to the multitrack masters if at all technically, creatively and politically possible. If you are forced to use a CD, and the song in question is a "classic," then be sure to get your hands on every version you can. A few years ago, I had the pleasure of handling a bona-fide rock classic in a film, and at the mix I did a bake off of the various editions that we had assembled. We had been using a compilation from the mid-'80s for our temp mixes, and I was eager to compare that version to the recent reissue that the record company sent us. Ten years of improvements in A/D converter technology and general handling of digital sound would clearly result in a better CD, right?

Not in this instance. The earlier version was night and day better, and I looked at the liner notes to find out why. The answer was that the recent one had utilized the No Noise process to little success. And on another lesser-known song for the same film, No Noise was also the apparent partner in crime, as indicated by the liner notes. This song had been recorded at Abbey Road in 1967, and everyone in my generation has a sonic footprint of the quality emanating from those studios at that time; the only CD version of this song that we could find just sounded like crap.

Okay, before I get letters, I know that in the hands of talented mastering engineers No Noise is a valuable and powerful tool, but sometimes restraint or abstinence is the order of the day. Let's also be clear that I am not pointing fingers at mastering engineers exclusively. Certainly the most egregious examples of over-processing in the name of noise reduction can be found in the dialog stems of feature films. It's a dangerous thing to get locked into the eyes of the cobra of camera noise or HMI ballast whine, only to discover that the drama of the movie is going bye-bye. But I digress.

The other option in resurrecting songs for films is to go back to the original multitrack masters. This, of course, raises all sorts of sticky issues of control and of us film types messing with someone else's music. My answer to this is that I am simply interested in presenting their music as closely as possible given the 5.1 or 7.1 format of the film. This means that you have to take into account the fact that only a handful of viewers will be seated in the exact phantom center between the left and right speakers.

For *Erin Brockovich*, we were able to get a mixer of Sheryl Crow's choice to go back to the multitracks and remix her two songs used in the film, which worked out really well. The spread across the discrete channels in the theater was much cleaner than I could ever have extracted from a 2-track CD.

MORE TRACKS, ANY TIME

Advantages of mixing virtually, part 39. If you are mixing down from a multitrack master, more probably if it's new material, then you have to consider how wide your mixdown should be and on what medium. When I wrote of film music issues in these pages four years ago, I recommended that songs be delivered to the stage on a single DTRS (then only a 16-bit medium) tape. This spec was based on a then-necessary attempt at practicality, a goal whose needs have been relaxed in the past two years as I have changed over to Pro Tools for both editing and mixing.

One of the advantages of virtual mixing that I didn't get around to mentioning in

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my recent three-column series is that one can add channels at any time. No longer am I confronted with looking at fixed groups of faders devoted to dialog, music and effects. Adding another eight or 16 tracks to accommodate the music needs of one reel was just out of the question.

Nowadays, the only consideration I need to deal with are my DSP and TDM time slot limitations. However, because I design my session templates "wide" as a matter of course, these proverbial extra tracks are already accounted for and are usually just sitting there empty. This ability of virtual mixing to add tracks is a first cousin of the way one spreads great-sounding plug-ins across dozens of tracks: You get a lot out of your investment.

Send your music stories to PO Box 24609, New Orleans, LA 70184, or via e-mail at: swelltone@aol.com. ■

Larry Blake is a sound editor/re-recording mixer who lives in New Orleans for reasons too numerous to mention, although one of them would have to be that a world of great music was created there.

—FROM PAGE 105, OPUZ

where the first design had been quite utilitarian, in this instance the Tans stressed the need to create an aesthetic that would appeal to a global advertising industry. In fact, the second studio facility would be instantly familiar to anyone who frequents the post-production lofts of London's SoHo district: electric colors, sleek lines, and lots of hardwood floors and frosted glass.

While both studio facilities remain in operation, the new facility was an evolutionary extension of the first. The original building uses a Soundtracs Topaz in the larger of the two control rooms, and a combination of a Yamaha 02R and 01V digital mixers in the other. The two new studios are completely digital, with the main room sporting a Soundtracs DS-3 digital console and the second a Mackie D8B mixer. All studios in the building are tielined, using both RJ45 and AES/EBU protocol, as well as analog mic lines. All studios use Digidesign Pro Tools as the main recording medium, and all those systems are networked via Ethernet.

Though the newer studios are significantly larger, the acoustical designs are similar to the original Toyashima plans at the first facility, with gentle compression ceilings and extensive bass trapping. The largest control room is fitted for 5.1 surround mixing and features what has to be the most unique rear-channel speaker setup yet devised. The Genelec 1030 monitors are suspended, attached to sliding poles that drop from the ceiling with the use of a clever counterweight device that Tan says took the construction crew three months to perfect, getting the suspension mechanism to balance just right while keeping the 110° angle constant. The result is ingenious, and many first-time visitors to the studio—including this writer—spend the first five minutes pushing and pulling the monitors up and down and marveling at them as though they were a clockwork from a Medieval church tower.

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of China into the World Trade Organization, the role of advertising in projecting brands into this massive market can't be understated. That intensive ad blitz goes hand in hand with the proliferation of new video outlets, both terrestrial broadcasting and cable. Tan set OPUZ's sights on advertising from the beginning, but also cultivated relationships with the nascent cable industry in Singapore.

"The advertising agencies have always had the budgets, but even though cable didn't have the same level of budgeting, I felt that they would be good long-term prospects," he explains of his strategic thinking.

It paid off, particularly with OPUZ's ISDN services. Shiamala Kathirvayloo, a senior producer for the Animal Planet Asia cable channel, a joint venture between The Discovery Channel and the BBC, which launched in October of last year, says that OPUZ's ISDN capability and its expertise has been critical in the channel's expansion. Despite the budget pressures endemic to cable production everywhere, she's been loyal to OPUZ for that and other audio post services, such as scoring and sound effects, and is willing to pay a slight rate premium to feel confident about meeting deadlines, getting reliable creative input and maintaining quality.

"The budget issues are always there," she explains. "But we've got to be competitive—our biggest competitor is the National Geographic channel, and they work hard at it, too. So I need to be able to know that I can juggle multiple scripts and have these guys working on the post without me always there for each project and confident that it's going to sound good and be what I want it to be. In that regard, there's really no difference between Singapore or New York, from the point of view of a producer."

One of those projects, a promo for World Animal Day, won Best Sound Mix at the New York Festivals Awards (formerly the New York Media Festival) earlier this year. "It had a lot of sounds, and it was also fun to do," she recalls. "We used a lot of library animal sounds, but we also had Paul out there on the microphone making up some of his own sounds. That's the kind of creativity I can appreciate."

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bustling Clark Quay, Tan excused himself to walk over to the studio to check on the progress of a remote voice-over session being done with voice talent in a Detroit studio.

It's not as though there's a shortage of English speakers in Singapore—English is the lingua franca of this multiracial, multicultural country, and it's mandatory for school children from grade school onward. Plus, like Hong Kong, the city teems with American, Australian and UK expats working in the financial and tech sectors. But accent is everything. Kathirvayloo notes that Australian viewers naturally respond to Australian accents, and that goes for the dozens of other regional and national linguistic variations that Asian broadcasters have to address.

Animal Planet, like other cable operations, has to do multiple feeds to address the myriad languages and cultures in the region. The Discovery Channel already does feeds in English (American and Australian, considered quite distinct from one another), Mandarin, Hindi, Thai, Korean and Japanese. Plus, Shiamala adds, certain channels need obviously American accents even in Asia to maintain brand identity. "I used to work at HBO here, and that is perceived as an American entertainment product," she says. "So you definitely need American voice talent, sometimes a very specific person. ISDN is the only way to do that."

OPUZ has also increased its efforts to seek new markets, particularly Internet-based ones. For instance, the studio now does the file-format conversions and some of the mastering for Planet MG.com, a fast-growing Asian music portal.

ISDN, digital consoles, hard disk recording and other technology enhancements, plus a heightened sense of customer service, underscore how much Southeast Asia's audio post industry has progressed in a relatively short time. Five years ago, when Synchrosound in neighboring Kuala Lumpur opened, the facility made a point of recruiting American and UK engineers, reflecting the shallowness of the technological talent pool in the region at the time and to reassure clients that the necessary technical prowess would be there. Tan, on the other hand, says that the pool has grown to the point where a certain amount of headhunting now goes on for engineering talent, though he prefers to develop his engineering crew (six staffers, three of whom, including him, are engineers) from within.

OPUZ's experience also indicates that issues facing audio post facilities, such as the proliferation of project studios and the need to diversify services and client bases, are universal. That will only become more true as media companies, such as the BBC, AOL/Time Warner, Star Network and others, continue to become increasingly global in reach, yet need locally based post services.

But what sets Asia apart is the growth potential implicit in the region. Rapidly increasing affluence in China, Singapore, India and other countries has made the area a prime target for media and advertising. "And those companies coming here from the U.S. and Europe are already very savvy and sophisticated in terms of audio," says Tan. "What we're doing is giving them a technology infrastructure that's just as sophisticated, as well as one that understands the cultures of the areas they're working in." ■

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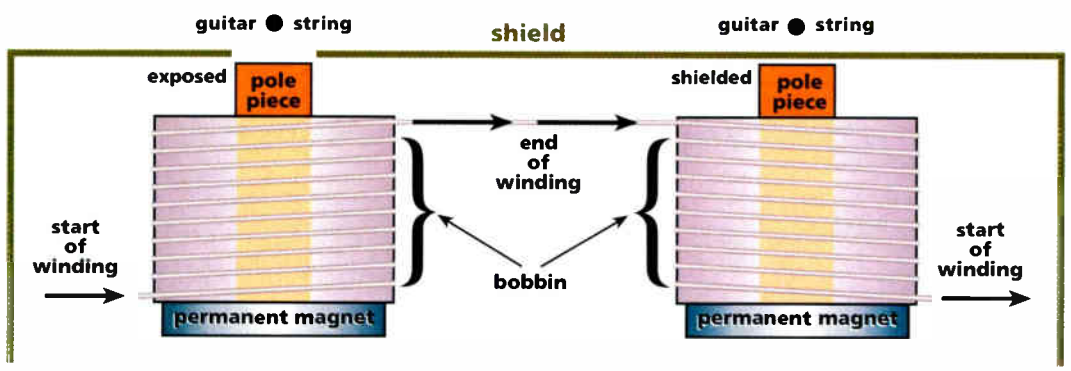

Figure 1: The basic internal components of a guitar pickup. The drawing of two coils wired in reverse polarity represents a "humbucker"; a single-coil pickup is, well, self-explanatory. Some humbuckers are shielded so that only the primary coil is exposed to the strings.

After exploring the concepts of resistance and impedance the past couple of months, I am ready to enjoy some guitar sounds. That is, provided no noises get in the way. And, as electric guitar pickups require gobs of gain, it's easy to understand how any noise—hum, buzz, hiss or nearby radio station signals—gets amplified along with the more musical and desirable string vibrations.

Unfortunately, electric guitar and bass pickups are ideally suited to "find" hums and buzzes. The fast fix is simply repositioning the instrument to minimize noise reception, demonstrating how directional electromagnetic fields can be. Power-related noises radiate from cabling and power transformers; more noise is radiated as power consumption increases.

Induction is the process of radiating or receiving electromagnetic waves. (We are still very much in the age of "wireless.") Inductors consist of a coil of wire that can be wrapped around air, a piece of iron or a magnetized pole piece. Air-core and iron-core inductors are used to create complex filters for equalizers—such as Pultec and subsequent clones—as well as passive crossover networks for loudspeakers. Power and audio transformers also fall into this category.

Add magnetism to the equation and you get transducers, such as a dynamic microphone (a very small generator), a loudspeaker, a phonograph pickup, a tape head and, you guessed it, a guitar pickup.

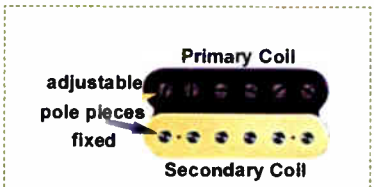

Figure 2: A humbucker pickup detailing the adjustable and fixed pole pieces. Raising the pole pieces increases pickup sensitivity, but proximity to the magnetic field can over-damp the strings.

This month, our quest is for better guitar sounds, *sans* noise. Because high-impedance instrument pickups are cable-sensitive, exploring the interface between axe and amp should open some eyes and ears. I'll also offer some tips for minimizing hiss in amplifier circuitry.

BY EDDIE CILETTI

THIS MORTAL COIL

Let's begin with a few basics. A pickup consists of a permanent magnet, a coil of wire (the bobbin) and a magnetically conductive pole piece—typically, one for each string. The guitar string is primarily steel, a ferro-magnetic substance, and heavier strings have an additional nickel winding. The movement of the string within the magnetic field changes the flux in the coil, generating an AC voltage. Congratulations, you have now been inducted!

Pickups for guitar and bass generate a small and vulnerable signal easily 20 dB below the nominal line-level of +4 dBu. Signal level varies with the style of playing, of course, but wire length (of the pickup coil), magnet strength, and the efficiency and focus of the magnetic field all make their contribution. Magnets are "permanent," but their strength diminishes over time, contributing to infinite variations in sound, by design or accident.

The two basic pickup styles—single-coil and the dual-coil humbucker—are linked (but not exclusively) to the popular guitar manufacturers, Fender and Gibson, respectively. The primary coil in Fig. 1 represents either the single-coil pick-

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(04/02/01)

up or half of a humbucker. A single-coil pickup can very easily "find" a hum field. A second coil can be added to counteract this natural tendency (the right half of Fig. 1), and when wired 180° out of phase (reverse polarity), reception of the incoming field is minimized.

Humbucking pickup designs are incredibly varied. Figure 2 shows one style with adjustable pole pieces on the primary coil and fixed pole pieces on the secondary coil. Sometimes a cover visibly shields the secondary coil as represented in Fig. 1. In order to achieve maximum hum, cancellation of the two coils must be as closely matched as possible. Still, nothing is perfect; a humbucker (HB) doesn't sound like a single-coil pickup. Some pickup manufacturers bring out both windings so that the user can flip polarity for more sound-palette options.

If you encounter an instrument that is more hum- and buzz-prone than you think it should be, then check for broken wires and loose nuts on the pots, switches or output jack.

HIGH-WIRE ACT

High-impedance pickups are cable-sensitive. Power noises aside, if a cable "crackles" when flexed, then it is not necessarily defective, but it is definitely inappropriate for the application. A high-quality instrument cable is not just about the type of center conductor or shield, but it is about the insulation between them. Flexing that deforms the insulation changes the capacitance and generates noise. Insulation material also affects cable capacitance. A capacitor by any other name is still two conductors separated by an insulator.

Low-capacitance cables improve high-frequency response, or at least allow longer cable runs without signal degradation. Capacitance is not an advertised spec but is one of the easier ways of quantifying cable performance. When in doubt, short cables help maintain a full-frequency transfer from pickup to preamp. Whether or not all that bandwidth is necessary, it is always better to start out with more, rolling off what is not needed.

Table 1 shows a few typical capacitance values for both guitar and balanced line cables. I have only one off-the-shelf guitar cable of the "warm and fuzzy" variety. (Spectraflex claims to be the first to popularize the cloth-covered guitar cable. This is not my field of expertise.) The generic cable I tested has a capacitance-per-foot rating of 35 pico-Farads (pF), which is not shabby. Note the B.L.U.E. "Cranberry" cable specs. This is balanced cable, so two measurements are made—signal-to-signal (22 pF/foot), as well as signal wires-to-shield (39 pf/foot). B.L.U.E.'s signal-to-signal spec is quite good. The best I've seen is computer video cable at 17 pF/foot.

As discussed in my last two columns, all devices have source/output impedance and destination/input impedance. For most analog gear, that's low-Z and medium-Z, respectively. This is not the case with digital audio and analog video devices; both ports are 75 ohms each. Understanding impedance helps the user optimize the interface (cabling) for the application. You wouldn't use speaker wire to interface a guitar with an amp. Conversely, splurging on esoteric cable might only help 5% of the gear. It would be helpful if all cable manufacturers published full specs (capacitance, resistance and inductance).

HELLO-Z

The term impedance implies frequency-sensitivity. In this case, a hi-Z pickup wants to "see" high-input impedance (if not higher) at the amplifier or direct box. Low frequencies have a clear shot to the amp, but high-cable capacitance creates an uphill battle for high frequencies—the impedance becomes lower as frequency increases, effectively shorting them out.

Pickup impedance is primarily determined by the length of wire (the number of turns) in the coil. The DC resistance of the coil can vary between 6,000 ohms and 12,000 ohms, depending on pickup type. Volume control resistance can be 250,000 ohms to 2 meg-ohms, so you can already see the "local" relationship between source and destination. An optimized interface—source, cabling and destination—moves all impedance variations outside of the band of interest, be it analog audio, digital audio, data, video, etc.

PSYCHO KILLER

Most professional microphones have a source impedance around 200 ohms, so cable capacitance isn't a major issue. A mic would still be useable after a 1,000-foot run, but not a guitar. You can, however, lower the guitar's impedance simply by lowering its volume control(s). Although it's psychologically challenging to turn anything down, it *may* reduce the negative sonic effect of cable length/capacitance, though destination impedance is also a contributing factor.

Any guitarist who perceives less treble when turning down a volume control (amp or axe) unknowingly has experienced stray capacitance that has mucked things up. This is why SCSI and video devices match source *and* destination impedance, often by using a terminator. It is also the reason for "Bright" switches on a guitar amp. I believe one of the reasons vintage and Tweed-era amps are more popular is because the EQ networks are less aggressive. Overdriving

Cable	Intended Purpose	Conductors	pF/Foot Shield-to-Signal	pF/Foot Signal-to-Signal
B.L.U.E. "Cranberry"	Mic/line	Balanced	39	22
"Warm and Fuzzy"	Guitar	Unbalanced	35	35
Mogami 2534	Mic/line	Balanced	51.6	35.8

Table 1: Typical cable capacitance values. Only "Warm and Fuzzy" is a guitar cable. Low "pF" values are better.

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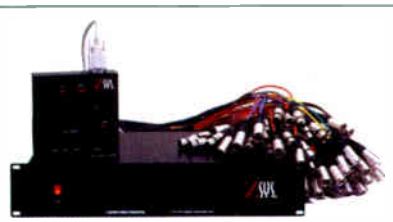

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the fundamental to create brighter-sounding harmonics sounds better *to me* than boosting the treble and expecting that to "distort well."

GAIN: SET TO "11"

No parody was more on the money than Spinal Tap's amp modification. As everyone knows, volume controls that go to 11 are one position louder than 10. This is not taught in Electrical Engineering class, yet it seems so simple that I should have opened a knob engraving shop.

Next on the unwanted list is "hiss," a sonic contribution also known as "thermal noise." Just as pop music recording enthusiasts currently seem obsessed with compression, guitarists are obsessed with gain in search of more sustain. Traditional vacuum-tube guitar circuitry is based on a minimalist approach. Each tube is in a circuit designed to squeeze out every last drop of gain, a feat that brings out the best and worst idiosyncrasies of every component. The results are less than predictable from amp to amp, prompting designers to raise the question, "Do you want to reproduce the sound of the pickup or amp when new *or* the sound now after so many of the components have aged?"

In contrast, recording equipment designers will use a few extra gain stages, each running more conservatively, both in terms of the tube's capabilities as well as dynamic headroom. In pro gear, the tubes could be tired and the product would still deliver. There are more transistors in a discrete op amp than there are tubes in a single channel of a guitar amp. Op amps are clean until they clip, but single-ended, Class-A designs—using tubes (Fender Champ) or transistors (Neve 1066/1073/1272)—allow a wide range of "expression," that magical window of non-linearity between clean and hard clipping. This non-linearity creates even-order distortion, mostly of the second-harmonic type, one octave above the fundamental. (Hard op amp clipping generates odd harmonics, which are not as cool or trendy unless you are a drummer or a speed metal head.)

REALITY CZECH

Overdriving guitar electronics adds sustain, the additional harmonics increase the perceived loudness and brighten the sound—as a technician, it almost makes me wonder why no one has thought of using a tweeter! Okay, laugh if you want, but many recording engineers have experienced complaints about excess brightness when a mic is too close to the speaker. I think some guitarists would benefit by having the speaker at ear level to better know in advance what a close mic hears. That's why I choose mics with a "thicker" sound—the AKG D-12 and Sennheiser M-409/E-609—emphasizing the warmth of proximity while de-emphasizing irritating treble.

SNAKE CHARMER

Guitarists know that some tubes can be noisy, a problem exacerbated by high-gain circuits. There are two solutions. One is to replace the plate resistors in a consistently noisy circuit. My geek buds tell me that new carbon resistors are better than tired old carbons. While that may be true, Metal Film resistors deliver less noise over the long haul. The noise is spectrally more pleasing, as well as being smoother and less rocky.

TUBULAR DUDES AND DUDS

If you want less noise, then the other option is to buy better tubes. New Old Stock (NOS) tubes, in the form of five-star (GE) and military (JAN) versions of popular 12AX7 types, are still available. See Table 2. I recently purchased a half-dozen each of 5751, 6072, 6189 and 5814, and found them to be particularly well-matched, both internally and to each other. Noise performance and microphonics were consistently low. Only one tube in five was noisier but still acceptable.

The good tube price window varies from five bucks to $25, depending on popularity and supplier. Audiophile sources, for example, will charge $50 to $100 for "selected" and/or "specially treated" versions of 12AX7. I am not an audiophile, but I like the idea of having my pins dipped and plated. Some of the new Russian tubes are pretty good, provided you pay the extra money to have them pre-tested. Out of five Sovtek tubes, one 12AX7 LPS was as good as all of these premium types. While I have not yet tested the Electro-Harmonix EH Series, they are also Russian-made and reported to be more consistent out of the box.

Every tube I buy starts with an electron emissions test to confirm its functionality. As the popular audio tubes are often dual-triodes, each triode should have the same or very similar emission, a minimum numeric value defined in the Tube Tester documentation. After doing the numbers, each tube is then in-circuit

Tube Type	JAN/Military, five-star and premium types	Amplification Factor
Sovtek 12AX7-LPS		
EH 12AX7		
12AX7	**7,025**	**100**
12AX7	**6,681**	**100**
12AX7	5,751	70
12AT7 / 12AZ7	6,679	60
12AT7	**6,201**	**57-60**
12AY7	5,965	47
12AY7	**6,072**	**44**
12AU7	5,963	21
12AU7	6,189	17-19.5
12AU7	5,814	17-19.5
12AU7	**6,680**	17-20
6V6	7,408	

Table 2: Standard tube numbers and Industrial/Military equivalents. All but the 6V6 are dual-triode types. Amplification factor shown for comparative purposes. Items in bold are direct replacements.

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The Yamaha SREV1 is only available through Yamaha Commercial Audio dealers. For the dealer nearest you, check our web site dealer locator.

RECOMMENDED READING

To learn more about guitars from the inside out, check out these useful resources.

ON THE WEB...

- www.wsu.edu/~aappel/guitarpickups/theory.html
- www.provide.net/~cfh/pickups.html
- www.till.com/articles/PickupResponseDemo/
- www.kinman.com/html/toneWorkshop/tone.htm
- www.chariot.net.au/~gmarts/pickups.htm
- www.guitar-parts.com/pickups.htm

BOOKS...

- *Electronic Musical Instruments* by Norman H. Crowhurst, Tab Books, 1971
- *Electric Music: A Practical Manual* by John Jenkins and Jon Smith, Indiana University Press, 1976
- *Electronics in Music* by F.C. Judd, Neville Spearman Limited, 1972

checked for noise (level and character) as well as microphonics. Pre-testing for balance seems to weed out potentially problematic tubes. Some circuit designs tax one triode section more than the other, unevenly accelerating the aging process. I keep track of tube aging by logging the emission numbers when put into service.

DISCHARGE

There is much to be said about meeting the needs of both guitarists and hardcore audio enthusiasts. I am no guitar expert, just a geek who likes to tweak. While some listeners are capable of detecting microscopically subtle sonic variations, I think musical performance—with emphasis on arrangement and dynamics—transcends all gear idiosyncrasies. The equipment should just work! ■

By the time you read this, Eddie will be a daddy for the second time. Visit www.tangible-technology.com for pictures.

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Mac or PC?

WHY NOT TRY BOTH?

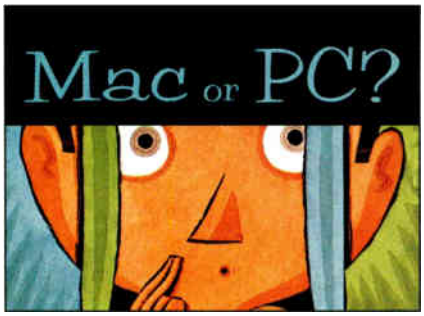
Technology options for the project studio owner have multiplied in the past several years. Control surfaces from Digidesign, Mackie and others can be used as powerful front ends to any number of hard disk recording platforms, and, in most cases, these control surfaces have made mixing on the computer much easier. But working this way requires a careful planning of horsepower requirements and a reassessment of the visual aspect of mixing. Can you live with a single computer monitor, or even two?

Regardless, most engineers feel that they have to make a choice: Mac or PC? But as platforms have become more stable and manufacturers purposely engineer for both, the question has really become one of personal preference. More and more, the savvy engineer is fluent in both and can make the two talk.

If you take this approach, as I have, then the question of how best to lock multiple computers together comes into play. The potential for problems increases exponentially as more devices are added. To a studio that already included a Macintosh computer running a card-based recording system and a digital console, I added a PC as a station for a software-based sampler and some soft synths. How difficult was it to integrate this computer and the add-on hardware it required? And what is the most rational formula to use when comparing the cost of soft synths (and the hardware they require) and the equipment they are meant to replace? Let's break the process down into distinct stages.

ILLUSTRATION: ADAM MCCAULEY

by Gary Eskow

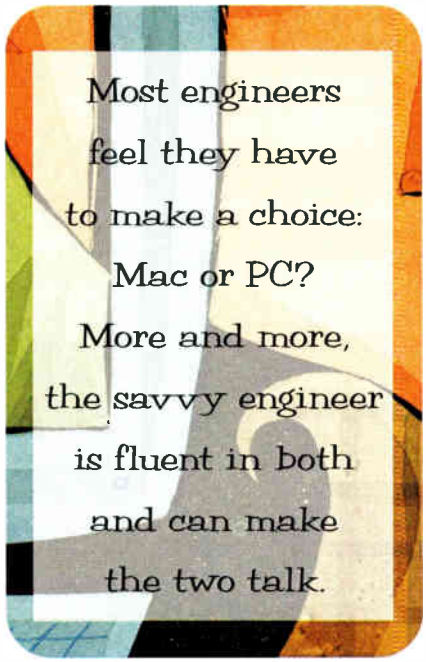


Prior to the acquisition of a PC, my studio consisted of a Power Tower Pro Mac clone running a NewerTechnology 500MHz G3 upgrade. Digital recording is executed using a 32-track E-mu PARIS hard disk recording system. I achieve lockup between the board, PARIS and the Mac by running a SMPTE stripe from an edge track of PARIS into my MOTU MIDI Time Piece A/V. The MTP splits the signal and sends it to my Mackie D8B (which I've set up as a MIDI device) and back to the computer itself. Eight channels of digital information can be exchanged at one time between PARIS and the D8B via a Lightpipe connection. A BNC connection between the two ensures proper sync.

For my new PC, I purchased a Waverunner computer from the Eastcoast Music Mall, a Connecticut store that attracted my attention because of the heavy emphasis it gives to training seminars. This 900MHz Pentium PC is designed by Pete Leoni for Q Performance, a division of the Eastcoast Music Mall. The computer came loaded with Nemesys GigaStudio 160, Cubase VST/32 and several soft synths, including the Native Instruments B4 organ, Pro-52 (a software emulation of the Prophet 5) and the Waldorf PPG.

The basic concept is quite simple. The Waverunner computer serves as a station that includes both GigaStudio and Cubase, which serves as a shell for the VST instruments. Pivotal to understanding how this game works is the realization that GigaStudio (GigaSampler on steroids, with mixing capability and effects augmenting the sampler functions) and VST instruments, loaded into the PC, are seen by MOTU's Digital Performer (which is loaded into my Mac and used as a MIDI sequencer only) as independent MIDI devices. Morgan Pettinato, owner of the Eastcoast Music Mall, and Pete Leoni suggested that I incorporate a Frontier Design Group Dakota digital I/O card and a daughter card from the same manufacturer, the Montana card.

Setting the computer up and integrating it into my studio was surprisingly easy. Once GigaStudio and Cubase were confirmed as operational, I opened up my basic Digital Performer template and added both GigaStudio and Native Instruments as FreeMidi devices. MIDI connections were made between the Dakota card and my MIDI Time Piece for GigaStudio, and the Montana card and MTP for Native Instruments. Leoni says that all computer devices used to shuttle digital audio should be wordclocked from a single master, so I routed a BNC cable from the Lightpipe card in my D8B, which is used to accept the first eight channels of the Dakota card. Because the Montana is a daughter card that extends the functionality of the Dakota, giving me another eight channels of Lightpipe, which I use for GigaStudio, it need not be given separate wordclock connections.



Having to purchase a sequencer to act as a shell for VST instruments seemed redundant at first (you don't have to purchase the full-blown version of Cubase to get this functionality, by the way), but as I got deeper, I realized that the fundamental issue in building a multiplatform studio is being aware that it's necessary to restructure the way the craft of mixing is addressed. No longer a line that leads multiple devices to a single destination, the board, where they are mixed and bused out, the new modality requires a rethinking of the process and treating sounds at different points of the system. If this is done intelligently, then the result will be a maximum use of horsepower (for tracks and effects), physical inputs and outputs, and outboard gear. Having the flexibility to mix all of the VST instruments within Cubase, at least for monitoring purposes while working a piece, is, I came to realize, a distinct plus.

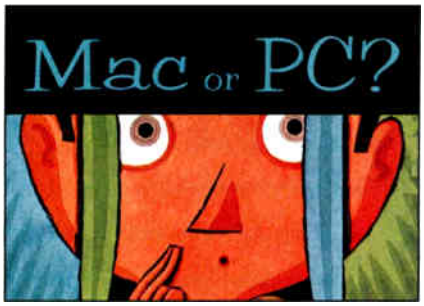
Becoming comfortable with the PC came next. Not having owned a PC for over 10 years, I was initially reticent about diving back in. Things have changed, though, and Windows 98 presented me with no great difficulties, though I still saddle up to the Mac with greater authority.

I had been using an Akai S2000 as my main sampler, along with a pair of Sample Cell cards. What a switch! Using a 2x CD-ROM unit with the S2000 was tediously slow, whereas loading 16 banks of sounds into GigaStudio on the Waverunner takes only a snap of the fingers. I did notice that the Nemesys conversion utility was questionable at best (Nemesys knows it has limitations and is working to improve the utility, offering it as a courtesy feature at this time) and looked for options. There are several utilities that can help here. I settled on CDxtract, which can be purchased for $44 as a download only (www.cdxtract.com). I've had 100% success converting my entire Akai library to disk using this utility. By the way, I ordered my Waverunner with 40 gigs of space on the disk used to store audio. Get as much memory and disk space as you can!

Reviews of the Native Instruments soft synths are easily found these days. Let me simply say that the B4 blew me away. Simulated Hammonds live or die by the way they re-create Leslie effects, and you've got to hear the way Native Instruments handles this task. You'll save your back and your pocketbook's health by checking out the NI version. Same goes for the Pro-52.

Up to this point, things had been cool. My entire library was on hard drive. Mixing and adding effects within Cubase and GigaStudio, and porting out individual tracks of each to the D8B via Lightpipe, had been achieved with minimum bloodshed. Ditto all clocking and MIDI issues. But...

During my initial setup, I spoke to tech support at both Nemesys and Steinberg. I kept hearing that a computer like the Waverunner, if properly set up, would be able to run both applications simultaneously without any problems. Wrong! At this time, I have concluded that it is impossible to run GigaStudio and VST instruments on a single computer—even if you're already using a separate computer to house MIDI and digital audio recording hardware and software. A drag, I agree. However, GigaStudio, in particular, pulls too hard on the system to allow for VST instruments to run properly. I reduced things all the way down, dividing a two-line musical performance between single MIDI channels on both applications. The result? Digital clicks and pops. We even tried swapping out the Montana card with a Hammerfall I/O card, an excellent performer.



Therefore, when it comes time to budget your new system, if you've fallen in love with the GigaStudio/soft synth paradigm, then you may want to think about buying a pair of new computers. Strange, isn't it? No one thinks twice about spending a couple grand on a synth module or sample playback device that comes as a discrete hardware device. But we resist buying computers, no matter how low the cost, to execute individual or limited tasks.

The good news, with respect to the let's-keep-both-platforms-in-one-computer model, is that there's a workaround that will help you out, provided you can live with the annoyance of intermittent digital hash while laying down MIDI performances. The key here is to understand that limiting latency—the time it takes a MIDI command to pass through a computer like the Waverunner—draws heavily on the host processor. If you want to hear those mondo cool drum parts you laid down in GigaStudio using Bashiri Johnson's new Ethno Techno collection, for example, while MIDI tracking your Gregg Allman-like B4 performance, then you have to limit your latency to 12 ms or so. The result? Correctomundo: pops and clicks. Bumping up the latency to a degree that eliminates the digital noise results in a delay between the time a note is struck and when it is heard that makes tracking impossible.

Playback is altogether another matter. In playback, the Waverunner is not required to simultaneously receive a MIDI performance and send it out to a VST instrument, so it can buffer the audio. Increase the latency setting in your audio card's control panel and away go the troubles down the drain. Use low-latency settings when recording MIDI data, live with the clicks and pops and bump up the latency for clean playback—that's the formula. If you can live with it, then both programs can be used on a single computer. Be aware that there are still a finite number of voices that the computer can play at one time. I have found that three or four VST instruments and a handful of GigaStudio instruments, with no effects processing (in this scenario, I leave that to my D8B) can play at one time. If I need to add more parts, I begin to drop tracks, via Lightpipe, into PARIS.

Calculating the relative costs of the various technical scenarios can be confusing. Why? Because direct one-for-one feature set comparisons are never possible. The computer-plus-applications paradigm generally offers a lot more than the stand-alone devices they're meant to replace, although there are exceptions to this rule; for example, the editing capabilities of an E4 are far more powerful than those found in GigaStudio. If you want to edit your sounds, and who doesn't, then you're going to have to cough up some extra dough for a program like Steinberg's Wave Lab.

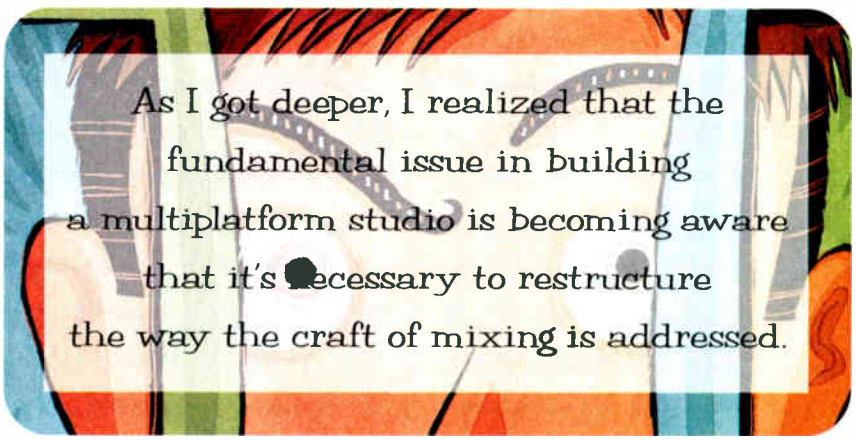
But think of the advantages of using a 19-inch monitor to view all of the GigaStudio mix parameters. How much value do you place on that ease-of-use factor? And we're not even talking about the power of the GigaSampler engine itself, or the quality of the EQ (quite acceptable in my book) and effects (serviceable reverbs).

The bottom line is that the Waverunner p900 I bought costs $995. It includes a 50x CD-ROM drive. Throw in another couple hundred bucks for the rackmounting, add on a monitor and you're still way under $2,000. But we're not done yet.

You'll need I/O. I was really impressed with both the Frontier Designs and Hammerfall cards I tested. Let's figure you spend another $550 getting 32 channels of Lightpipe from Frontier Designs, and several hundred dollars more if you choose to go with the Hammerfall 9652. Adding Cubase VST 5.0 software to act as a shell for your VST instruments adds another $295. If you can live with 16-bit resolution, a cheaper option is Steinberg's Cubasis. And for $75, you'll get a stripped-down version of Cubase that will work as a shell for your VST instruments. Then there's the roughly $200 you'll cough up for the B4, Pro-52 and maybe another pair of soft synths. And you'll drop about $550 on GigaStudio 160.

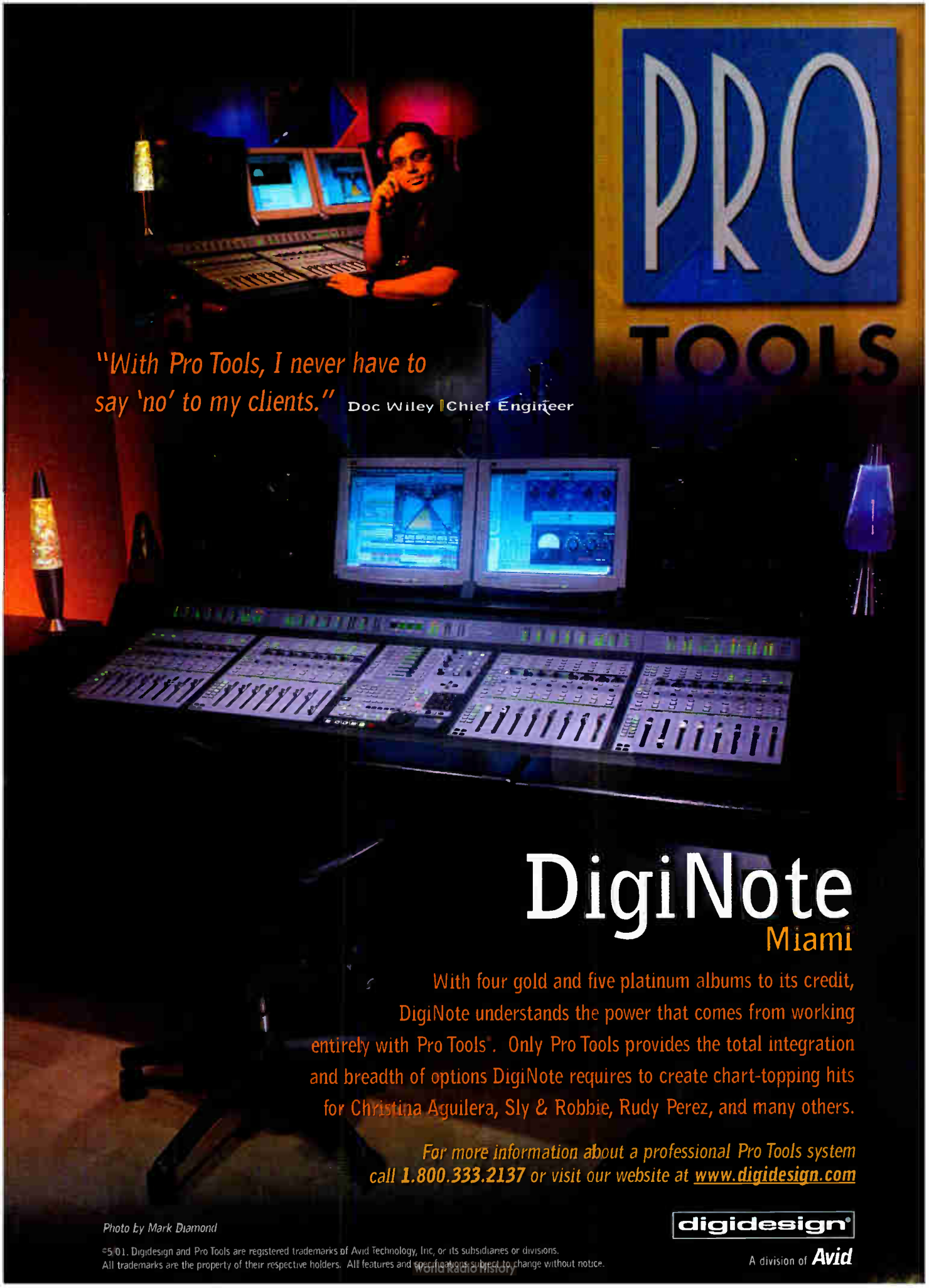
Run the numbers, and you'll find that it costs about $4,000 to get all this stuff into your studio. You could reduce the figure a bit by scouring around for the fastest components and troubleshooting them within one computer to make sure nothing conflicts, like Pete Leoni of Q Performance does, but why? They'll take the heat if things don't work.

The four beans you're about to let go of buys an extraordinary amount of power, measured in available voices and mixing capabilities, and you'll be working in a 24-bit world. (Provided you haven't skimped out and gone for Cubasis.) Most likely, you'll be able to sell some old synth hardware and recoup a portion of your investment to boot. However, many people seem reticent to give up hardware, and part of the reason, I'm convinced, is the comfort that derives from looking at a piece of gear and knowing instantly what it does. Software doesn't offer the same tactile and visual experience, so things can get confusing, particularly when you're trying to allocate outputs. Remember, in the model we've constructed, you've essentially bought more voices than I/O. A new thought process is required. Are the EQ and effects in Cubase good enough to use to create a two-mix on the seven tracks of drums you created with the LM4 soft synth kit? If not, can you live with a two-mix, plus one or two tracks independently bused out to your console for processing?



Tackling these kinds of questions represents the greatest challenge, I believe, to the player/engineer who is considering creating a multiple-station mix environment. ■

Gary Eskow is a composer and producer who lives in central New Jersey. His recently recorded chamber music CD, Many Streams, One River, *will be released this year. Eskow is currently producing an album of smooth jazz,* Before the Memory Fades, *for the saxophonist Barry Raymonde.*



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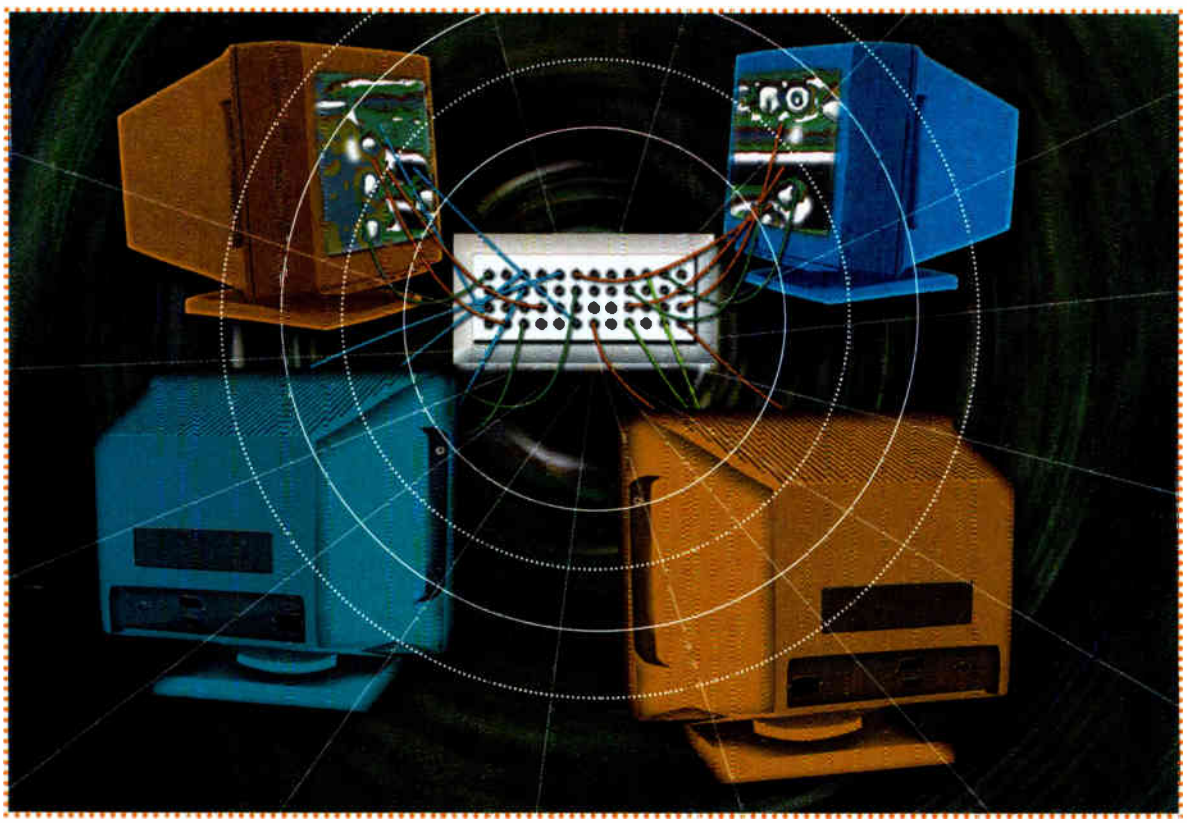

ILLUSTRATION: MAE LAROBIS

I've just returned from yet another NAB convention and, boy, am I sick of Vegas. I was shopping, among other things, for DAWs for one of my clients. This quest brought home the fact that there's very little interoperability among vendors' systems, except at the most basic level. What's up with that?

This month, I'm taking aim at Our Illustrious Engineering Society, the DAW vendors and you, the Bubba who writes a check for gear that can't play with the kids next door.

Now, before I go off, I'd like to thank the few vendors, such as Studio Audio & Video Ltd., that actually deliver what other dweebs promise. The SADiE kids have been the standard bearers of interoperability, handling disparate sound and EDL file formats effortlessly, something few other vendors can demonstrate. So, what about other vendors' handling of project and session level file exchange? Ha! Few have a lock on that capability because, "Ye just can't do it, laddie!"

Okay, I'm being reactionary... (and exaggerating even). If you've followed my past rants, then you know I like interoperability among heterogeneous products. It means you can buy just the right tool for your job. At present, it's difficult or impossible to move complete projects from one DAW environment to another, while retaining complex fades, plug-in state and other aspects of the process. Digital automation is to blame for this increasing lack of standards, and only your loud and persistent screams of protest, as well as the ceremonial Withholding of the Checkbook, will move vendors to adopt the meager standards we have available.

BY OLIVER MASCIAROTTE

What are these standards? You got two: AES31-3-1999 and MPEG-7. The AES31 standard began life way back in 1997 to provide "...a convention for expressing edit data in text form in a manner that enables simple and accurate computer parsing while retaining human readability." Sound familiar? AES31 is basically an improved version of the old CMX EDL interchange format, with such modern features as rudimentary nonlinear fade shape definitions and an assumption that BWAV on FAT32 is the de facto sound file format. You, too, can spend $40 for an illegible copy of the spec, if you're highly motivated.

AES31 has support from iZ, Euphonics and Waveframe. The AES, as part of this unification effort, also has several initiatives slated for standardization. One is cross-compatibility between AES31 and AAF. More

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on AAF later, but the AES has more work ongoing:

- AES-X66, a file format for transferring digital audio data between systems of different type and manufacture.
- AES-X68, a format for passing edited digital audio between systems of different type and manufacture that is based on object-oriented computer techniques.
- AES-X69, an interchange format for digital audio file transport.

These projects are slated for completion in a one- to three-year time frame. Hello? How long have we suffered with OMF, the laughing stock of interchange "standards"?

We can thank Avid for providing OMF, a nonstandard "standard" that not even Avid fully supports. However, with enough sweat, swearing, prayer beads and a very cooperative video editing colleague, you can make an OMF workflow actually work! As an industry wag recently observed, "You know you're in trouble when you have to write a program to unify a 'standard' file type!" DSP Media has come to the rescue with such a program. Its AVtransfer utility, the Rosetta Stone of project file translation, does all of the heavy lifting for OMF conversion, and the company plans to add many more formats as the product matures.

Back to AAF for a moment. Microsoft, along with Adobe, Matrox, Avid/Softimage, Pinnacle Systems/Truevision and Sonic Foundry, proffered the Advanced Authoring Format (AAF), which provides file interchange for content creation and authoring tools. Me-too acceptance from Sonic Solutions and Sony means it's sure to live in the hearts of corporate spin doctors for years to come, while we continue to flail in want of a real solution. I dropped in on the AAF home page at the time of writing and found only a bunch of dead links, indicative of AAF's true level of importance in the grand scheme of things.

Microsoft, as the founder of the Multimedia Task Force, hopes to promote the AAF format, along with ASF (Advanced Streaming Format), as an industry standard. In other words, there is an old format, AVI, that needs replacing, so there is yet another proposed standard "...tuned to the needs of the production community." AAF is based largely on OMIF (Open Media Interchange Format), thus guaranteeing its lack of interoperability on any platform not controlled by the member interests. As mentioned earlier, the task force is promoting both ASF and AAF to standards bodies, including the SMPTE* and the AES.

And now, on to MPEG-7...Let's start by quoting the MPEG-7 home page: "In October 1996, MPEG (Moving Picture Experts Group) started a new work item to provide a solution for the urging [sic] problem of generally recognized descriptions for audio-visual content, which extend the limited capabilities of proprietary solutions in identifying content that exist today. The new member of the MPEG family is called 'Multimedia Content Description Interface,' or, in short, MPEG-7." MPEG-7 is concerned with creating a set of description schemes and descriptors, along with a language to specify those schemes and a framework for coding that description. In a word, metadata. Metadata describing multimedia content. MPEG-7 will attempt to standardize the interchange of data essence, as the SMPTE calls payload, by allowing disparate systems to grok each others data types. Who will benefit from this far-reaching vision? Most everyone in electronic content creation, management and delivery, that's who. But only if we follow recommended standards.

What's the difference between the audio and video production communities? The audio people are too complacent (lazy?) to follow recommended practices. Adhering to a standard makes for shorter work days for the operator and happy customers for the vendor. The SMPTE has created an Engineering Committee on Wrappers and Metadata. Their coding scheme and metadata dictionary have been submitted in MPEG-7 as a Description Scheme. This work, characteristic of SMPTE's knack for bringing about industry consensus, is important today and especially tomorrow. Come on AES, apply some persuasion! I beseech all AES members and DAW manufacturers to get up off their good intentions and support and promote, not special interests such as AAF, but open industry standards exemplified by AES31 and MPEG-7. Now where's my bulletproof vest... ■

OMas prefers the trenches to the hilltops when it comes to day-to-day work and the mountain tops to the valley when it's time to play. This column was created while under the influence of OS X and McCoy Tyner's new SACD recording on Telarc. Links and occasional commentary at http://seneschal.net. (For more info on lobbying standards bodies, see the April 2000 "Bitstream.")

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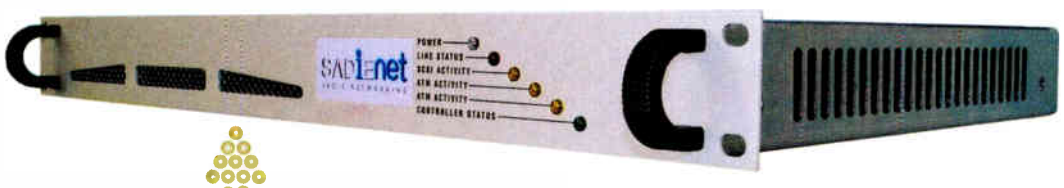


SADIENET

SADiE (www.sadie.com) has announced the introduction of the SADiEnet high-speed audio networking system. SADiEnet links SADiE workstations via Cat 5 (electrical) or OC3 fiber-optic connections and allows for the sharing of audio data among multiple projects. SADiEnet offers real-time multitrack performance across the network (files can be transferred faster than real time), so a project can be opened from any workstation and replayed directly over the network. (Projects may also be stored on local SCSI hard drives.) The networking system also allows assets to be shared permanently, enabling them to be stored centrally and picked up and played in real time. Central storage of user access information means that users can access their own projects and preferences from any station on the network, while batch processing allows backup over the network to and from designated machines. Each SADiE station on the network is fitted with a SADiEnet unit, which is attached via SCSI.

DIGIGRAM NETWORKING

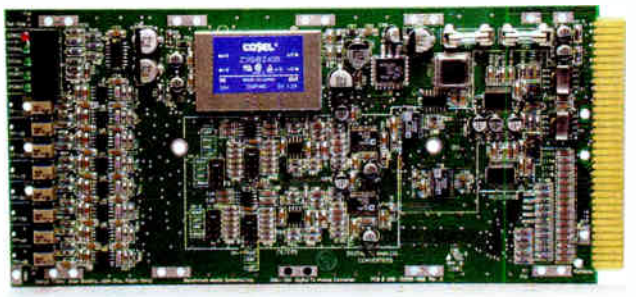
Digigram (www.digigram.com) has introduced the NCX Server software for distributing digital audio files over Ethernet networks, using Digigram NCX Network Audio Terminals. Each NCX terminal acts as a remote sound card connected to the host platform running NCX Server, which enables users to program playlists via a Windows-style, drag-and-drop graphic interface. Audio selections can be quickly sequenced for each NCX on the Ethernet network, and a variety of file formats are supported, including MP3, MPEG Audio Layers I and II, and 16- and 8-bit PCM .WAV files. NCX Server runs on PCs under Windows NT, with a standard 100 Base-T PCI network interface. In other Digigram news, Digigram and Peak Audio announced that the two companies have formed an alliance to develop audio networking products. Under the agreement, Peak Audio's CobraNet technology for distributing uncompressed real-time digital audio over Fast Ethernet networks will be implemented into Digigram products, and Digigram will offer CobraNet OEM developer modules for integration into third-party products.

MIDDLE ATLANTIC EDIT CENTER

Middle Atlantic Products (www.middleatlantic.com) recently debuted its Edit Center line of multimedia modular studio furniture, including 60- and 84-inch desk designs. Each Edit Center system ships with one of two styles of attached over-bridge—either with two under-bridge rackbays or with an under-bridge open span—and rotating speaker monitor platforms. Other features include built-in cable pass-throughs and a cable manager that accommodates Middle Atlantic power strips, side-bay racks with gasketed Plexiglas front doors for noise control, and cooling fans and filters on gasketed rear doors. All system components are available in a choice of cherry or graphite laminate finish.

NEW CREAMWARE PLUG-INS

Two new third-party plug-ins for the CreamWare DSP platform include zplane.development's z.matrix (www.zmatrix.de), a surround tool that can pan up to 16 sound sources between up to 16 loudspeakers via a mouse or MIDI (using any MIDI controller or sequencer). Other features include a Grouping function, a Doppler effect and distance-dependent vol-



ume automation. z.matrix is now available as a plug-in for SCOPE/SP and Pulsar II. Zarg Music (www.zargmusic.com) has introduced the Red Dwarf, a virtual semi-modular synthesizer. Developed by John Bowen (developer of the Prophet 5 and the Korg Wavestation), the Red Dwarf is based around a "synthesizer framework," into which oscillators, filters and effects modules can be placed to create custom sound designs. More than 70 sound presets and 55 modules are provided. Both plug-ins are available online in the Creamware Online Shop at www.creamware.com.

BENCHMARK DAC-104

Benchmark (www.benchmarkmedia.com) introduces the DAC-104, a 4-channel, 24-bit, 96kHz D/A audio converter module for the System 1000 audio distribution system. Benchmark digital converters have a reputation for high-end performance without a high-end price tag, and Benchmark's UltraLock technology provides total jitter immunity (-100 dB at 1 kHz, -160 dB at 10 kHz). The DAC-104 has a stated THD+N of 0.00079% at -3 dBFS, at any sample rate and test frequency, and an input sample rate range of 28-108k Hz. Features include autodetection and processing of pre-emphasized digital audio, jumper selection of discrete stereo, matrix stereo (L+R and L-R), polarity inversion and Mono sum on all outputs. A 12-card frame will house 48 channels with 96 analog outputs. Output level controls are at the front card edge and provide an output adjustment range of +7.5 dBu to +27.5 dBu at 0 dBFS. Additional modules in development are the ADC-104, a 4-channel A/D audio converter, and the DDA-108, a digital audio distribution amplifier. The SRC-104, a 4-channel sample rate converter, is also planned. Retail price of the DAC-104 is $1,295.

MEDEA AUDIORACK

AudioRack LP systems from Medea (www.medea.com) are 1U-rackmount storage systems designed to support digital audio workstations. Up to 300 GB of audio can be stored in a single enclosure requiring only 1.75 inches of rackspace, and a 7-inch enclosure stores more than a terabyte of data. Two-drive versions support simultaneous playback of up to 24 tracks of audio; 4-drive versions support 64 tracks of 24/96 audio. AudioRack features Medea's proprietary Audio Stripe Technology, which supports 64 tracks on a single SCSI ID and dynamically distributes audio tracks among the drives. The system attaches to any SCSI-equipped DAW, and systems can be daisy-chained for up to 4.5 terabytes of storage.

UPGRADES AND UPDATES

HHB is now distributing the LynxONE and LynxTWO audio reference sound cards in North America. For more information, visit www.hhbusa.com...**McDSP's Analog Channel for Pro Tools emulates the sound of analog mixing consoles**, analog channel amplifiers, and analog tape machines including models from Studer, Ampex, Otari and MCI. Check www.mcdsp.com for more info. In other McDSP news, FilterBank and CompressorBank Version 2.0 are shipping, now with both slider-based (original) and knob-based interfaces...**BitHeadz (www.bitheadz.com) released an upgrade to Unity DS-1 software.** Unity Version 2.1.2 now supports VST and RTAS, and supports Applescript for multimedia developers. Importing and editing samples have also been simplified; users can now directly play and link .AIFF, .WAV and Sound Designer II samples. In addition, Version 2.1.2 can convert installed libraries into text files with library and bank number information. BitHeadz also announced Version 2.1.2 of Retro AS-1 for Macintosh, which now also supports VST and RTAS in addition to ReWire and Direct Connect ...**New from Digital Audio Labs (www.digitalaudio.com), the UX1 24/96 Analog+Digital USB Interface** provides all of the I/O options on the CardDeluxe in a compact (8x5x1.5 inches), external enclosure with a USB interface. The unit features fully balanced analog and S/PDIF I/O and works at 44.1, 48, 88.2 and 96kHz rates from 8- to 24-bit resolution. The unit can also operate in Stand-Alone mode with the supplied AC transformer...**Recorded Media Supply (www.blankmedia.com) offers a line of removable hard drive shipper cases** featuring an anti-static molded foam insert to hold either one, three or six removable hard drives. All of the cases use double-skinned construction, include a label set, and are airtight, waterproof and lockable...**Universal Audio (www.uaudio.com) and Antares Audio Technologies (www.antarestech.com) have entered into an agreement** to bring the Antares AutoTune 3 and Microphone Modeler plug-ins to the Universal Audio UAD-1 DSP card, the heart of UA's new Powered Plug-Ins product line...**Digidesign (www.digidesign.com) is now shipping the new Pro Tools Custom Keyboard.** A USB keyboard offering custom Pro Tools key commands on a dedicated, clearly labeled, color-coded keyboard. Suggested retail is $250...**Emagic announced that the EVP88 Emagic Vintage Piano 88 is shipping.** Visit www.emagic.de for more information. ■

PREVIEW

RAVEN LABS TRUE BLUE EQ

Raven Labs (www.raven-labs.com) offers the True Blue EQ, a 5-band semi-parametric equalizer. Each of the five bands has its own level and frequency control, and the unit can provide up to 15 dB of cut or boost between 30-10k Hz. The bandwidths for Boost mode were chosen for "musicality" and are a function of frequency, while the Cut mode bandwidths are narrower and create a notch filter effect. Additional features include an EQ in/out switch, balanced TRS input and output jacks, and unbalanced ¼-inch input and output jacks. The True Blue operates on two 9-volt batteries (over 100 hours of battery life) or optional A/C adapter. The unit is covered by a three-year warranty. Price is $349.

TRIDENT AUDIO S20 MIC PRE

The S20 from Trident Audio (www.tridentaudio.co.uk) is a dual-input mic pre that provides two inputs per channel and a front panel input selector, allowing users to instantly compare two mics (or a mic and line source) on each channel. Each low-noise, wide-bandwidth mic pre can handle a gain swing from true unity to +60 dB without a pad. Separate front panel rotary pots and 12 LED meters aid in accurate gain adjustment, and a variable-sweep, low-cut control rolls off lows from 5-200 Hz. The anoprinted front panel also features individual polarity reverse and +48-volt phantom power switches. Designed by John Oram and made in England, the S20 is covered by a two-year limited warranty.

MBHO SERIES 400 MICS

German microphone manufacturer MBHO (www.mbho

.com) now offers the Series 400 line of small-diaphragm condenser mics in the U.S. Both the MBNM 440 cardioid and the MBNM 410 omnidirectional models feature the company's propriety SMD technology, which offers improved on- and off-axis response, shorter signal routing and low current consumption. Each mic retails for $341.

AMPHONY DIGITAL WIRELESS HEADPHONES

Amphony (www.amphony.com) has introduced its Model 1000 2.4GHz Digital Wireless Headphones, which can transmit sound over a range of 200 feet at true CD quality. Using proprietary technology, the Amphony 1000 operates without using audio compression and can transmit over 3 million bits per second (3 Mbps, 64x oversampling). The maximum transmitter operating range is 200 feet (line of sight) or 50 feet (through walls and ceilings), though transmitter range can be extended indefinitely with optional RangeBooster modules. The system includes a stationary transmitter with dual-RCA inputs (cable supplied), data output and AC power adapter. The companion headphones, which include a volume control and an on/off switch, are capable of a maximum SPL of 113 dB and can operate for up to 100 hours on two AA batteries. An error-correction mechanism ensures error-free reception, even under difficult conditions. Price is $129.

YAMAHA RS7000 REMIX STUDIO

Yamaha Corporation (www.yamaha.com) has introduced the RS7000, a complete desktop studio that seamlessly integrates audio and MIDI data. The unit features 4 MB of onboard sampling memory (expandable to 64 MB), a 64-voice tone generator containing more than 1,000 onboard ROM-based synth voices, 63 drum kit sounds and six types of filters. An intuitive interface (including 18 assignable knobs and two pads) allows for real-time

manipulation of sounds, samples and MIDI sequences. The RS7000 samples sounds from external sources, imports samples in a variety of formats, and re-samples internally sequenced sounds to create new audio loops and phrases. The Integrated Sampling Sequencer (ISS) features 16 MIDI or stereo audio tracks, 200,000 notes and up to 8,192 individual audio samples. The ISS can automatically break samples into discrete parts and generate a corresponding MIDI sequence, allowing audio beats of differing tempos

PREVIEW

to be synched together and processed under MIDI control. The RS7000 also offers three system effects, a separate Master effect with a multiband compressor, Slicer, Isolator and other DJ-style effects. The unit also features MIDI In, Out and Thru functions, a SCSI interface and SmartMedia card for convenient sample memory storage. Price is $1,795.

el E. The new Model E is made of EPS plastic and is based on the original Model W wood version. The diffuser is now manufactured with elements cut from discrete strips, a process that produces a solid unit and eliminates the internal cavity found in the earlier version. This provides performance characteristics that closely match those of the wood models, with no internal resonance, at a significantly less cost. The new models are available in painted "MultiSpec" finish and are also available in a range of colors. In addition to the new models, Acoustics First markets a full line of acoustical foams, wall fabrics, Fiberglas panels and barriers.

Additional processing programs include Tremolo, Rotary, Chorus, Flange, Pitch, Detune, 5.5-second Delay and Echo. The MPX-200's front panel features all key function controls, including Input Level, Program Load, Program Edit, Compressor, Store, Multifunction Adjust, Bypass and Tempo Tap. LED displays indicate compression gain, input levels, and routing and edit parameters. The digital compressor is available in all 240 programs, including dual-path programs. MIDI control features include program change, MIDI bulk dump and a Learn mode that allows MIDI patching of the front panel controls. Other features include Bypass mode, musical instrument inputs, headphone output and a built-in power supply. Digital inputs and outputs are via S/PDIF connections (44.1 kHz). Price is $399.

in the broadcast and post-production markets. The console features Supertrue™ V4 automation and is equipped to handle 5.1, 7.1, LCRS, LCRSS and stereo formats. The Galileo 360V is a multiformat production console intended to address the multichannel needs of post-production, film dubbing, music recording and broadcast.

DRAWMER POWER GATE

Drawmer (www.drawmer.com) has introduced the new DS501 Power Gate. Offering the first substantial refinement in gate technology for over a decade, the DS501 includes a new quick-release system that helps preserve percussion transients. Whereas older gates commonly employ slow attack times to prevent clicking and artifacts, the DS501 couples a frequency-tunable "high expander" to the same threshold as the gate, allowing for release times in the low milliseconds. The unit also employs many of the same features as its forerunner, the DS201, including two stereo-linkable or independent channels of frequency-conscious gating, and individual controls for attack speed, decay time, hold time, release time and downward gain range. Price is $900.

ACOUSTICS FIRST ART DIFFUSOR

Acoustics First (www.acousticsfirst.com) has redesigned its Art Diffusor Model E. The new Model E is made of EPS plastic and is based on the original Model W wood version. The diffuser is now manufactured with elements cut from discrete strips, a process that produces a solid unit and eliminates the internal cavity found in the earlier version. This provides performance characteristics that closely match those of the wood models, with no internal resonance, at a significantly less cost. The new models are available in painted "MultiSpec" finish and are also available in a range of colors. In addition to the new models, Acoustics First markets a full line of acoustical foams, wall fabrics, Fiberglas panels and barriers.

LEXICON MPX-200 DUAL-CHANNEL PROCESSOR

Lexicon (www.lexicon.com) has introduced the MPX-200, a stereo 24-bit digital rackmount processor that includes a newly designed digital compressor in addition to Reverb and Effects Processing functions. Powered by Lexicon's proprietary Lexichip™, the dual-channel MPX-200 features 24-bit AD/DA and offers 240 presets for reverb programs such as Ambience, Plate, Chamber and Inverse.

AMEK ADDS TWO CONSOLE LINES

Amek (www.amek.com) has introduced two new console lines, the Media 51 and the Galileo 360V. The 60-channel Media 51 is a large-frame, mid-priced analog console designed for recording facilities

E-MU UPGRADES PARIS PRO SOFTWARE

E-mu (www.emuparis.com) has unveiled Version 3.0 software for its PARIS Pro digital audio workstation. Version 3.0 software features include 24-bit OMF file import/export, integrated MIDI support, a dedicated waveform editor and an intuitive user interface. The base PARIS Pro system includes a 16-channel control surface, modular expansion chassis, PCI card and true cross-platform Mac/PC software. Version 3.0 software adds full MIDI integration, and PARIS Pro also supports all VST™ and DirectX® plug-ins, in addition to hardware-based effects. PARIS Pro is expandable to up to 128 real-time tracks; users can add tracks to the base 16-channel system by installing additional PCI cards. In addition to hardware tracks, PARIS Pro 3.0 also gives the user unlimited native tracks.

PREVIEW

POLAR FOCUS WALL MOUNT

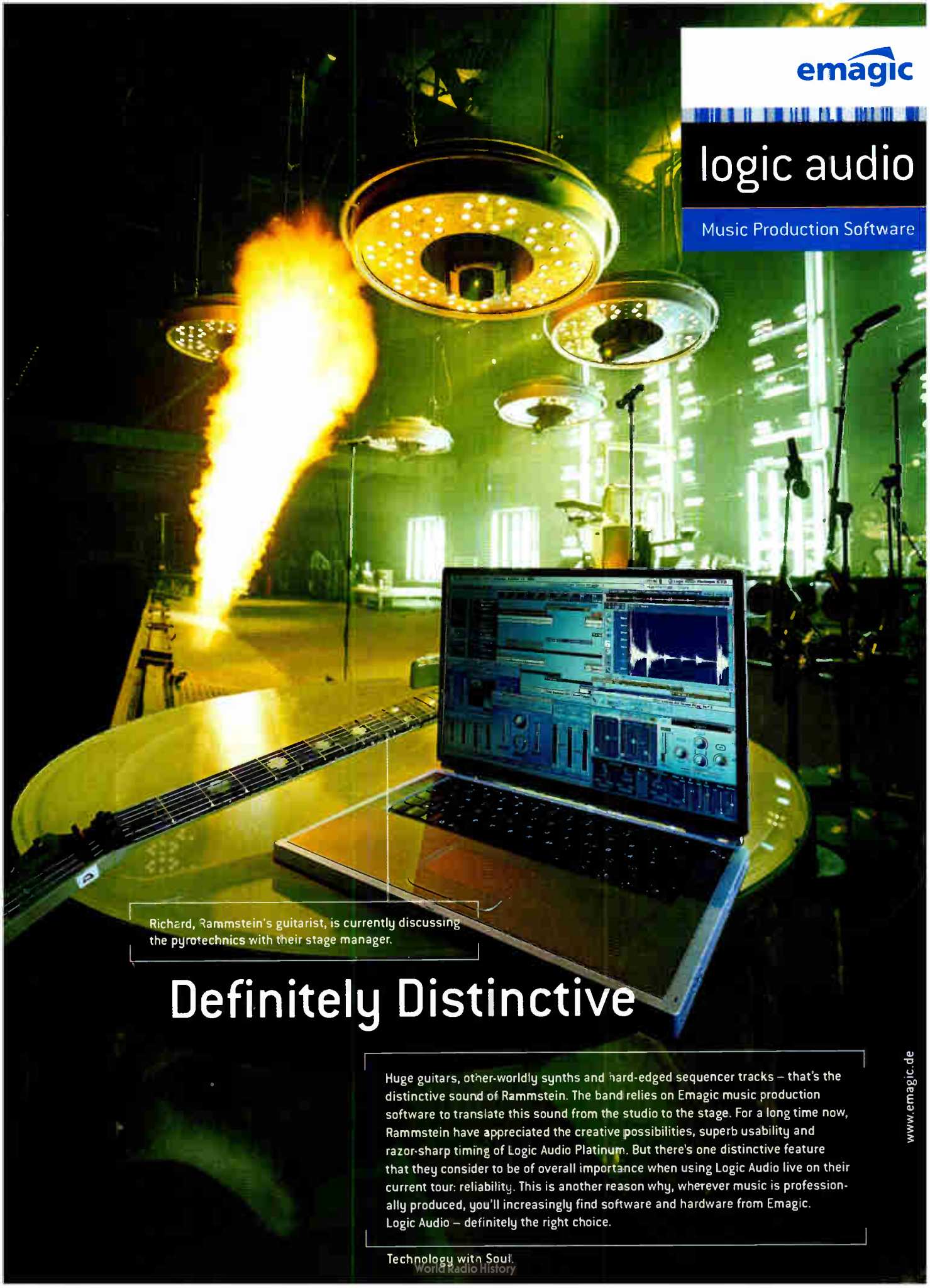
Polar Focus (www.polarfocus.com) offers the all-steel WM-2226-250 Zbeam Wall Mount. Intended as a companion to the Zbeam, the WM-2226-250 can be used to mount almost any speaker to Sheetrock™ walls reinforced with plywood, as well as concrete or cinder block walls. The WM-2226-250 also works in an inverted position, providing a wide range of installation options. Available in black and white, the WM-2226-250 can also be used as a mounting bracket for large video screens. Price is $490.

EXACTPOWER 2000 AC POWER REGENERATOR

The ExactPower 2000 provides clean AC power for up to eight voltage-sensitive components via eight individual, rear panel, hospital-grade AC outlets. By means of a sophisticated differential comparator that monitors incoming AC power and compares it to an internal, amplitude-stabilized AC reference source, the ExactPower 2000 provides stable 120-volt output with up to 40 amps of peak current capability. With an operating efficiency of more than 90%, the ExactPower 2000 produces little heat, allowing for convenient placement. The shelf- or rackmountable unit weighs 40 pounds, measures 17x5.25x13.2 inches (WxHxD) and is priced direct at $2,495.

HOT OFF THE SHELF

QSC Audio Products has gained THX certification for two models in the ISA Installed System Amplifier Series. In addition to the THX-certified ISA 450 and 750 low-impedance models, the ISA Series includes three "T" versions with 25-, 70- and 100-volt outputs for distributed audio systems. For more information, visit www.qscaudio.com...**Tascam announces that the MX-2424 24-track, 24-bit hard disk recorder will now support the Sony P-2 9-pin protocol.** A Version 2.0 software update allows users to record 12 tracks of 24-bit/96kHz audio on the MX-2424, in addition to the currently available 24 tracks of 24-bit/48kHz. The V.2.0 release also provides compatibility with the HFS+ Macintosh drive format. Visit www.tascam.com...**Lexicon has announced a new software upgrade kit for the MPX-500.** Available through Lexicon's authorized dealer network or online at www.lexiconstore.com, Version 2 software can be purchased for $119. The upgrade includes a dedicated compressor, improved input-level meters, 250 factory presets and an expanded user bank. Visit www.lexicon.com...***Sound & Video Contractor* has published the *Residential Contractor's Product Source Guide 2001***, a 28-page listing of audio and video components and systems aimed at the fast-growing residential market. Call 800/441-0294 or visit www.svconline.com...**Eventide is now shipping a new and improved version of its DSP4000B Ultra-Harmonizer®.** The DSP4000B+ includes all of the previous model's presets plus several new features, including 24-bit A/D conversion at 96 kHz. Call 201/641-1200 or visit www.eventide.com...**Solid State Logic has published its latest "Directory,"** a listing of SSL-equipped facilities worldwide. Containing over 1,000 entries, "The Directory" is regularly updated online at www.solid-state-logic.com and is also available from SSL; contact jodyk@solid-state-logic.com...**Genex has introduced two new 8-channel AD/DA converters,** the GXA8 and GXD8, which support 16, 20 and 24-bit depths at sampling rates of up to 192 kHz, including the standard 44.1 and 48kHz rates. Additionally, the GXA8 and GXD8 can be equipped to support DSD, and optional cards configure the converters for AES, SDIF-2, ADAT, TDIF and workstation digital audio formats. Call 310/319-1111 or surf to www.hhbusa.com...**Radio Design Labs has released its 2001** catalog. Containing over 80 pages of application-specific audio, video and control modules, the catalog is published in both booklet and CD-ROM form. Call 800/281-2683 or visit www.rdlnet.com...**Dolby Laboratories has introduced Version 2.0 software for the DP569 Dolby Digital Encoder.** Free to existing DP569 users, the software may be requested from www.dolby.com/tvaudio...**Audio-Technica has debuted a new range of RF cables, UHF antennas and UHF distribution systems** for A-T and other manufacturers' wireless systems operating in the 600 or 700MHz ranges. A-T has also expanded its U100 Series UHF wireless systems to include systems with 100 frequencies in the 600MHz range. Call 330/686-2600 or visit www.audiotechnica.com...**Martinsound has reduced the price of its MultiMAX EX** multiformat monitor controller by approximately 10% to $2,795. Call 800/582-3555 or visit www.martinsound.com. ■



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Music Production Software

Richard, Rammstein's guitarist, is currently discussing the pyrotechnics with their stage manager.

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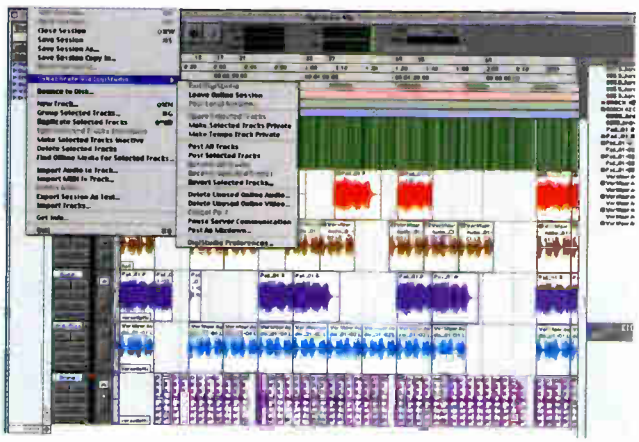
DIGIDESIGN DIGISTUDIO

PRO TOOLS COLLABORATION VIA ROCKET NETWORK



DigiStudio Mix page

The dotcom shakeout has popped the balloon of a host of enterprises—from obscure startups to heavily promoted big names—whose eager backers had bet big on the World Wide Web. But while the hot air of e-mania has largely dissipated, the Internet itself has survived intact. So too (so far) have a number of Internet-centric companies whose focus is on facilitating advances in productivity and collaboration across a vast range of business, educational and creative activities. Among those still flying is San Francisco's Rocket Network. While other startups come crashing to earth, Rocket is boosting itself into higher orbits with a mission into the post-production universe of Digidesign's Pro Tools.

Founded in 1995, Rocket Network originated as the solution to a vexing problem in music and sound production. On the one hand, talent is both dispersed (musicians, singers, voice-over talent, arrangers and producers live all over the planet) and mobile, often touring or en route to sessions far from home. On the other hand, creative types tend to be unique, not easily interchangeable with whomever happens to be on hand. Ideally, you could work with whomever you wanted, at their convenience and regardless of their physical location. Perhaps, thought Will Henshall (now chairman) and co-founders Matt Moller, Tim Bran and Canton Becker, it would be possible to use the Internet to turn this ideal into reality, with an exchange of digital sound and MIDI data allowing collaboration in a sort of virtual session.

Henshall and his colleagues initially saw this idea in terms of their own focus on the production of music with remote collaborators. But it soon became evident that other areas of audio could benefit, as well. Whether in film, video post, advertising, broadcast or multimedia, there could be remote Foley or voice-over sessions, along with remote approvals of material including station IDs, jingles and effects.

Taken together, these activities seemed to present a viable opportunity for a business. The company attracted the attention of Vulcan Ventures, the investment vehicle of Microsoft co-founder Paul Allen, as well as former Microsoft executive Pam Miller, now Rocket's president and CEO. In March of 2000, Vulcan and other investors were joined by Avid, which took a nearly 20% equity stake (diluted to somewhere above 15% by subsequent rounds of funding), as well as a seat on the board of directors.

Bringing Avid into the loop marked a major milestone for Rocket Network. The company already had companies such as Steinberg and Emagic integrating its system into their products. But it was missing Avid-owned Digidesign, which meant that the potential user base was skewed toward the sequencer-based music composition market and missed the professional post-production markets dominated by Pro Tools. With Pro Tools, Rocket would be viable for production tasks such as dialog and effects editing, allowing such team efforts to move ahead without requiring that everyone be in the same facility at the same time.

Digidesign business development manager Heidi Elgaard describes the relationship between Avid/Digidesign and Rocket Network as a strategic partnership. "The two companies have been collaborating on DigiStudio, a key service planned for DigiProNet.com," she says. "The DigiStudio service offers rich Pro Tools-to-Pro Tools interchange and is supported behind the scenes by the Rocket Network infrastructure." However, in a significant departure from Rocket's practice with other audio tools, the current Pro Tools implementation is unique to Digidesign and does not use standard Rocket data models.

Only Macintosh TDM systems will be able to take advantage of DigiStudio capabilities, which will be incorporated into Pro Tools 5.2, slated for release late summer 2001. The upgrade is free, though to use it, you'll need to rent a DigiStudio (virtual studio) from

BY PHILIP DE LANCIE

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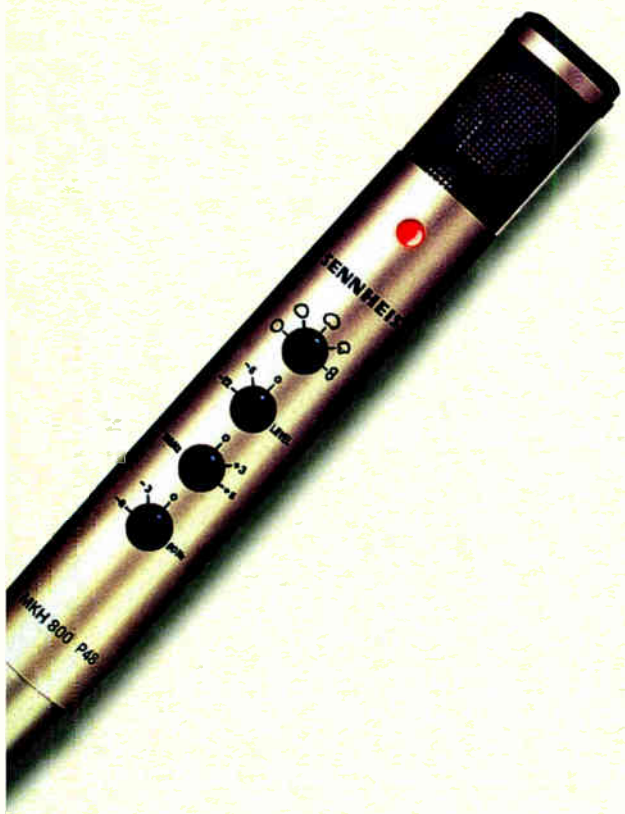

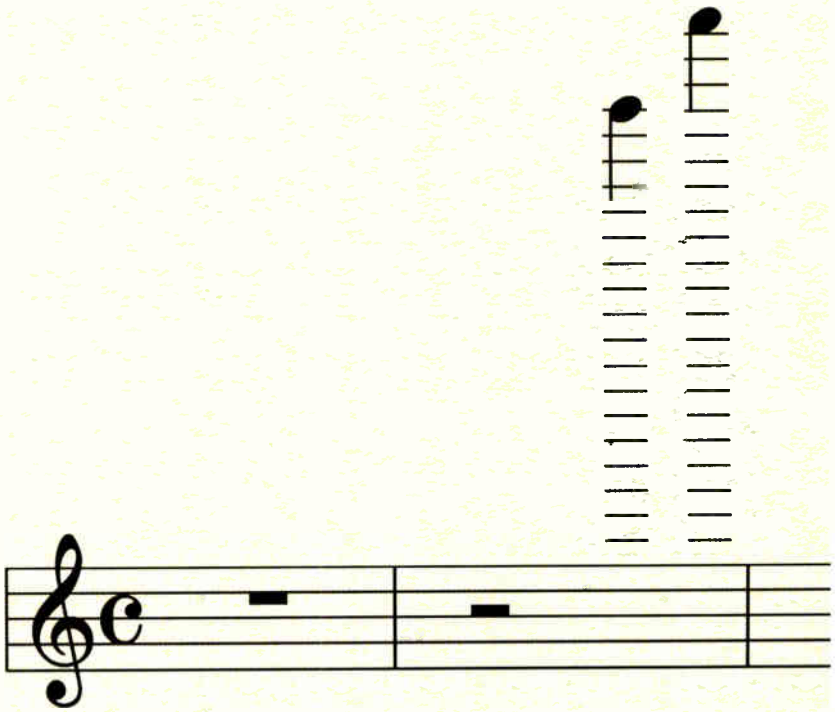

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DigiProNet.com. Elgaard says an "entry-level" studio starts at $33 for three months or $99 for a year. Prices for "professional" studios, which are expected to demand significantly more storage and bandwidth, are still being defined in preparation for the DigiPro Net.com launch at the end of May.

VIRTUAL SESSIONS

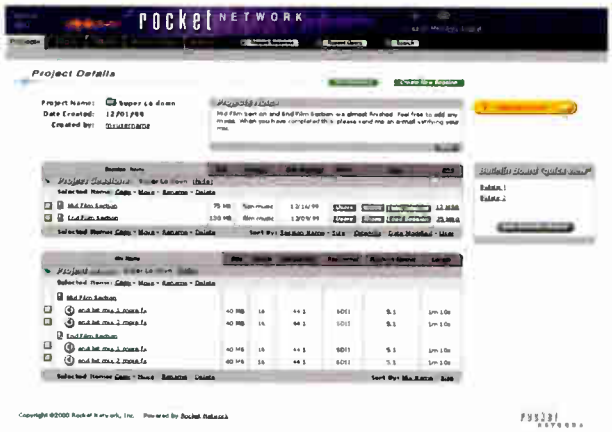
While the Rocket Network infrastructure doesn't give remote collaborators the real-time listening experience they would have together in an actual studio, it offers a lot more than simply e-mailing audio files from one workstation to another.

"What we do," says Henshall, "is to provide multi-user access to dynamically updated files over a secure TCP/IP connection—Internet or dedicated—using an interface integrated into everyday audio applications." The result is that a group of collaborators can work together on a project from any Internet-connected location, while the system handles the headaches of version control, differing connection speeds, and interchange between different audio formats and applications.

Collaborators work on their projects in "sessions" created by the holders of "accounts," which are available through third-party resellers called Rocket Network Studio Centers. The Centers currently include Cubase.net, Emagic Pro.com, Futurehit.com, Musician.com, and Sorinetwork.com. (Rocket also sells services directly to high-volume users such as major audio facilities that are not covered by other partners.)

Access to a session is governed by "permissions" granted by the account holder, which determine whether an individual is present as an observer or as a participant, whether a given participant can grant permission to others to enter the session and who has access to the session archives stored on Rocket Network's server.

The server is at the core of Rocket's system. It's the server—rather than the local hard drive of any individual system logged into a session—that is the repository of a session's master data, and the facilitator of exchange between participants. The current server version is 2.3, but Henshall says that Version 2.5, due to begin running in August, has undergone a thorough redesign that not only makes it operate faster, but also brings security and reliability equivalent to the core computing systems of major financial institutions.



Sessions (projects) are created and managed by account holders.

The participants in a session create and edit audio or MIDI on their local systems, then "post" their tracks to the Rocket server. The first time a track is posted, its audio data is uploaded to the server; for subsequent edits to that track, only the edit information is transmitted. When tracks are posted, the server updates the master files, then forwards the revisions on to others in the session. When a new participant is granted access to the session, the current arrangement is automatically downloaded from the server to the participant's local computer.

Each participant can set up three different levels at which data is posted to and received from the server, and can define the situations in which each level is used. For each level, the user defines the codec (compression algorithm) and the amount of data compression (if any). The level at which it makes sense for a given participant to work depends on their Internet connection speed. If you're connecting via a 56k dial-up, then you might choose to speed up interchange by posting and receiving in a fairly compressed format until the end of the session, at which time all parts can be posted to the server at full fidelity in the background while you move on to other tasks.

As with any server application, Rocket's server works hand-in-hand with a "client" on the end-user's machine. Rocket's client, called Rocket Control, also provides the interface for chat capabilities, allowing participants to communicate with one another during the session via typed instant messages. However, Henshall says, the speaker phone has proven a popular alternative to the chat approach.

To work with RocketControl, devices posting and receiving data use the Rocket API (Application Programming Interface). The API is integrated directly into third-party audio products using the company's Software Developer's Kit (SDK). It's this integration that allows data to be received from the server not simply as a file downloaded to the client's hard drive, but rather as a track (new or updated) directly within the client's open audio application. Rocket refers to products supporting the API as "RocketPower" applications.

OBJECTS AND INTERCHANGE

In programming terminology, the pieces of audio and session data passed back and forth through Rocket Network are referred to as "objects." The system actually works with two basic categories of objects: common and custom. Common objects involve data that can be interpreted and utilized by any audio application, including such information as raw audio and video data, track names, regions and hard edits. Every RocketPower application has the ability to generate and receive common objects.

Custom objects, on the other hand, involve data—level, crossfades, EQ, dynamics—related to parameters that are implemented differently in each application. Such objects are inherently application-specific, because their data wouldn't translate into anything meaningful in any application other than the one that generated it. To maximize the richness of exchange between collaborators working in identical production environments, Rocket allows RocketPower applications to generate custom objects, adding a layer

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of exchange beyond what is possible between different applications.

If every manufacturer of a RocketPower application supported all the available common objects—and only used custom objects for data that is inherently application-specific—then Rocket Network would be a long way toward its stated goal of "providing a seamless data bridge between audio products, allowing multiple applications to be used on a single session at the same time." It turns out, however, that in some applications the data types for which Rocket offers common objects may actually be easier to implement as custom objects. The extent to which this is true in a given application depends on the internal data structures the application uses. As Henshall explains, the Rocket model itself is open, but it's up to each manufacturer to decide what resources to devote toward ensuring that the implementation in their own products is open as well.

Steinberg's Cubase VST was the first RocketPower application; it currently allows collaboration only between Cubase users. On the other hand, both Emagic's Logic Audio and the Euphonix System 5 console (through eDeck software) take full advantage of common objects. As for RocketPower implementations that are currently in progress, Henshall says that both Mark of the Unicorn's Digital Performer and Steinberg's Nuendo will be as open as possible. (Additional developers currently working on RocketPower integration include dsp Media and WaveFrame.)

DIGI'S DESIGN

DigiStudio supports what Elgaard calls "all key aspects of Pro Tools software as a full production environment." The implementation adds a new set of functions to Pro Tools, grouped in a "Collaborate via DigiStudio" sub-menu on the File menu.

"You can work locally or connect to DigiStudio," Elgaard explains. "When you are connected, you have interactive chat capabilities and discrete control over whether each track is shared or private. If you share a track, you can post it by clicking on a discrete up arrow to the left of the track, or clicking on a global upload arrow at the top of the Session window. Posting sends both the media—the first time—and any accompanying metadata, including edit info, mix parameters, automation and plug-in data. The initial implementation will also include video support, most likely QuickTime and AVOption."

Pro Tools 5.2 won't work in a virtual session on an account leased from a regular Rocket Studio Center, only in a DigiStudio leased from DigiProNet .com. On the other hand, although Digidesign won't be providing support or testing for the use of other manufacturers' products in a DigiStudio, there are theoretically no obstacles to using a DigiStudio for non-Pro Tools collaboration (interchange between Logic Audio and Euphonix System 5, for instance). However, Version 5.2 definitely will not allow co-mingling of tracks from Pro Tools and non-Pro Tools systems in the same session.

According to the Rocket Website, the Rocket API is designed so that only "a few weeks of work" are required for a developer to implement "Core Services," which include the ability to "communicate in a limited, functional, standard way with applications of other vendors." And the two compa-

nies had originally envisioned Pro Tools users to be able to receive tracks posted by other applications, though such data would have cut off at the end of the first edit segment. (A workaround for this would have been for the originator of the track to write it to disk as a new, continuous track before posting.)

Elgaard says, however, that it would have taken "considerable extra development to offer exchange between RocketPower applications and Pro Tools. So we decided to concentrate on getting very rich Pro Tools exchange into this release and to get it out sooner rather than later. We still hope to incorporate basic media exchange with other apps into a future release."

One factor that could well influence when Digidesign devotes its resources to enabling interchange with other applications is the fact that it doesn't yet have DigiStudio capabilities in the Windows version of Pro Tools TDM. "Obviously, we'd like to support every level and platform of Pro Tools with every new feature," Elgaard says. "But as it turns out, it would take us considerably longer to roll Windows support into the 5.2 release. In this case, Rocket was pushing for a release as soon as possible, even if it meant more limited support, and we agreed with this strategy. This will allow us to test-market adoption with a very new kind of workflow and to prioritize additional development accordingly."

As for Pro Tools LE on both Windows and Macintosh, Elgaard says, "We hope to include LE support in future DigiStudio-compatible releases. I can't say exactly when this will be. As always, we have to prioritize additional development against all the other Pro Tools features we'd also like to have."

Digidesign expects Pro Tools-based Internet collaboration to be used for both music and post-production. "We expect all of our high-end music users who have any need or desire to do work remotely to be very interested in this service," Elgaard says. "A singer, for instance, will be able to lay down a harmony track that the producer decides is needed when the band is on the road instead of in the studio. Or you'll be able to hire an African tribal rhythm section—in Africa!—for a fraction of the cost of bringing them to San Francisco. Likewise, there will be post-production work where the voice-over artist you just have to have for the commercial is in New York and you are in L.A. and the deadline is tomorrow."

Despite these and similar applications for DigiStudio, there will likely be many Pro Tools users who initially see Internet-based collaboration and exchange as largely irrelevant to their everyday work. But so it was with e-mail and the World Wide Web a few short years ago. If Rocket and Digidesign get it right, then distance and time will be minimized as barriers to creative production, and collaboration with talent around the globe may someday be commonplace. The quickest route toward that goal is probably to both extend DigiStudio within the Pro Tools line and open interchange beyond it. But Pro Tools 5.2 is already a big step in the right direction. ■

Philip De Lancie is the new-technologies editor of Mix.

TL AUDIO VTC

TUBE CONSOLE

Razor-blade editing, 1-inch, 8-track tape decks and real echo chambers have already gone the way of the dodo bird, yet British tube specialist TL Audio is now bucking the trend with the VTC Tube Console. Most American engineers, even a woolen-eared old vet like me, have never used a tube console, so I wanted to test-pilot the VTC to see what I have missed, if anything. It turns out that, just like using an outboard tube-based mic preamp, compressor or EQ, the VTC gives you that certain "tube something"—on every input channel, on every recording bus and at the stereo output.

The VTC is based around multiple 8-channel, steel-framed sections, each carrying its own power regulators, and is available in 16- to 56-channel configurations. Each section gets power and fully balanced audio signals from two multipin connectors on a large motherboard. All consoles have 8-bus outputs (not expandable) that can feed any number of recorder inputs, channel direct outputs and a separate stereo mixing bus. All external connections are by XLR or TRS jacks on the back of the console.

The VTC I reviewed at Westlake Audio, Los Angeles, is a 24-channel version measuring 11.8x46.5x50.4 inches wide (HxLxW) and was set up in a demo room, making it impractical to plug in a microphone and evaluate the mic preamps. The VTC is reportedly a popular recording console in several European Pro Tools studios, but, so far, no L.A. studios have installed this new console.

TL Audio refers to the VTC as a "hybrid," because both tubes and integrated circuit chips are used throughout. ECC83/12AX7A tube amplifier stages are used in the channel strip, the Mix B preamp, tape return amplifier and the group (bus), as well as both the Mix B and stereo master mix paths. So when recording, the audio signal will pass through at least two tube stages and when mixing, up to three more tube stages.

The VTC uses the familiar "in-line" channel strip design. Starting at the top of the channel strip is the microphone input preamp consisting of an SSM 2017 chip feeding a 12AX7 stage with gain adjustable from 16 to 60 dB. There is a 90Hz/12dB-per-octave highpass filter next to a phase Flip button and +48-volt phantom power on/off. Another tube stage is used for the tape return preamp for its ±20dB trim control, and the channel strip's routing can be changed with the channel/monitor Flip button.

Next are the six mono auxiliary send controls. Aux 1/2 have their own control, while 3/4 and 5/6 share a single switch-selectable knob. The stereo aux 7/8 send offers pre/post-switching, useful for both cue mixing and feeding stereo effects. Sends 3/4, 5/6 and 7/8 can be assigned to operate with the Mix B mixer if desired.

I found the VTC equalizer very good and musical with a wide selection of Q values and up to 15 dB of boost/cut. The equalizer is divided into a LF/HF section and two fully parametric midrange sections. Either sections (or both) can be assigned to the Mix B path. The LF/HF sections offer Baxendale shelving-type filters capable of ±15 dB at 12 kHz and 80 Hz. This section reminded me of the bass and treble tone controls on my dad's old tube Magnavox hi-fi—very sweet. Also offering ±15 dB of boost/cut, the two midrange sections have variable Q control with a range of 0.8 to 7. LM (lower-mid) frequency range is 50 to 2k Hz, while the HM (high-mid) range is 500 to 18k Hz.

Right below the equalizer is the Mix B or Monitor Channel fader, a 60mm Alps model that provides an additional 10 dB of gain if necessary. There are Solo, Mute and center-detented Pan controls and two automation buttons called Auto, a local channel automation bypass, and Status, a local status on/off switch. Third-party automation systems can be retrofitted later. The Srce-Ch switch routes, in place of the tape return monitor signal, the main channel's fader signal to the Mix B fader to create a separate monitor mix. When the "Assign L+R" button is pushed, the Mix B faders become part of the mas-

BY BARRY RUDOLPH

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ter stereo mix, a useful feature if you want to mix in additional line input channels. Because you can also monitor Mix B without adding it to the stereo mix bus, you can run two mixes side-by-side!

The lower main channel uses a 100mm Alps fader with eight bus assigns, a large lighted Mute button, L/R stereo mix assign, center-detented, odd-even bus pan pot and a direct output called "Bus." Both the main channel path and the Mix B path can be flipped with individual Flip buttons on each input strip—there is no master Flip button. Both the Auto and Stat buttons are also here along with signal present (-30dB level) and peak LEDs (+18 dB or above).

The master section is well laid out and easy to understand. There are six stereo effect returns with 60mm faders, along with AFL, Mute switches and stereo balance controls. On all returns, an extra +10 dB of gain is available above the default +4dBu input sensitivity. (Internal jumpers can be moved to make the board compatible with -10dBv systems.)

A headphone matrix allows for very flexible routing, and any audio signal in the console or external sources can be sent to the cans. Both the Control Room and Studio Output switches let you route audio to the monitor speakers from L/R Mix, Mix B, 2Trk A, 2Trk B or External sources. The Studio Output switch has its own level pot, and the "Follow CR" mode allows it to mirror the control room feed. The VTC has two solo modes: PFL (Pre-Fader Listen) with its own level control; and Mixdown Solo mode, which operates as a "Solo In Place."

The eight groups, or submasters buses, use 100mm faders and can be routed back to the L/R mix for true analog subgrouping. To test the accuracy of the gain structure in this console, I put a channel fader to 0 dB and bused it to the L/R stereo mix. I also put one of the submasters to 0 dB and routed it to the L/R mix. There was no level difference when changing the main fader from submaster routing to the stereo bus directly. I was impressed.

The Assign Left+Right Switching, Oscillator, Master Volume Level controls for the control room and studio, full talkback facilities, alternate monitor speaker switching, 2-track switching, mono check and PFL trim leave little to be desired for this "ready to work" console.

In use, the VTC is no different from any other straight-ahead analog console. I did wonder: "Hmm, tube console? Working over it may be like a short-order cook sweating over a hot stove!" I was pleasantly surprised to find that the amount of heat coming out of the VTC is less than from a Neve V or an SSL 9000 J console. For a listening test, I used a digital safety copy of a recent rock project that I had recorded—I liked how the guitars and drums sounded through the VTC. I tried overdriving the channel strips and found that the Mic/Line Gain control and the Monitor Trim Level controls let you do just that; when the peak LEDs were just lit, I got a good amount of "hair" around most things, especially in the low frequencies, for a very wicked sound. As the console's maximum output level is +26 dB, you have to pull-down the faders way down for this trick.

I was impressed by the exact level match around the board. For example, if you have a specific fader position dialed-in and then want to "flip" it up to the Mix B fader, then you just copy the physical position to the Mix B fader and you'll have the exact same level. Similarly, when re-routing an equalizer from main mix to Mix B signal chain, I detected no changes in sound.

A channel insert point appears after the Flip switch but pre EQ, so outboard gear inserted to process the main channel fader when tracking through the microphone input can be used again to process on playback with a simple Flip switch on the channel. I liked that everything seems to be in the right place with little need to walk around or reach too far. I would have preferred the Send controls further down the channel strip and closer to the main fader—the benefit is less standing up to adjust effect levels or cue mixes when tracking. I also had some trouble knowing when a button was pushed or not, because depressed buttons sink into the panel only slightly lower than when not depressed—perhaps some bright coloring on the button shaft would have helped. I especially liked the retro-style VU bus meters, but also found the optional PPM metering helpful.

A unique-sounding console that seems to hearken back to more primitive times but is engineered and designed for today and tomorrow, the TL Audio VTC 16-channel version sells for $24,995. As well as more channels, options include a wired patchbay, optional meter bridge and console floor stands. Thanks to Don Hannah at HHB, West L.A. and John Canard at Westlake Audio for their assistance.

TL Audio, dist. by HHB Communications USA LLC, 1410 Centinela Ave., Los Angeles, CA 90025-2501; 310/319-1111; fax 310/319-1311; www.hhbusa.com; www.tlaudio.co.uk. ■

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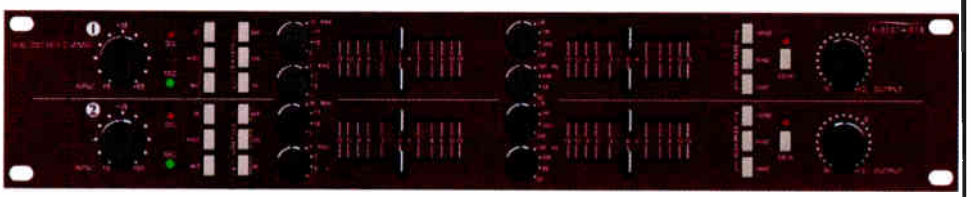
TRIDENT-MTA A RANGE

RACKMOUNT 2-CHANNEL PREAMP/EQ



The story of the Trident A Range is an interesting one. Initially designed for London's Trident Studios by Malcolm Toft and Barry Porter in the early '70s, the A Range console was also produced for sale, though only 13 were actually built. But the A Range spawned an entire generation of consoles, and many hit records were tracked and mixed on its direct descendant, the Trident Series 80. Today, Toft is still building consoles based on the Series 80, including the Series 980, which was used to record the last three Radiohead releases. Another Series 80 derivative is the Trident-MTA Series 80B module, a rackmount version of the Series 80 channel strip. *[Note: Toft recently formed an alliance with JOEMEEK manufacturer Fletcher ElectroAcoustics, to form Trident-MTA to offer products formerly sold under the MTA (Malcolm Toft Audio) name, such as the 980, the 80B and the A Range. Meanwhile, former Trident designer John Oram bought the original Trident Audio Developments name and is marketing his own line of Trident-branded modules and consoles, but there is no connection between the two companies.—Ed.]*

Though it had a very limited run, the Trident A Range console gained a reputation for its very distinct and pleasant sound with a very "musical" EQ section. Along with channel strips from early Neve and Helios consoles, original Trident A Range modules have kept a healthy resale value and are much sought after by engineers who like to combine old-school analog gear with bleeding-edge digital recording technology. With this in mind, Toft unearthed the original blueprints for the Trident A Range console and created a 2-channel rackmount preamp and EQ combo based on the A Range, with key components updated to allow for less noise. After putting the unit through its paces, I'm happy to report that the near-mythical status accorded the A Range is indeed based on fact.

The new A Range mic pre amplifier section has an 11-position Gain switch with a transformer-coupled input. The unit is switchable between mic/line and has an LED indicator. There is also a 48V Phantom switch, a Phase Reverse switch and a red overload indicator at the input stage.

Except for the addition of an in/out LED light, the layout of the filters and EQ is identical to those in the original A Range modules. The filters consist of a set of three highpass and three lowpass filters that are all discrete, Class-A amplifier second-order filters. The lowpass filters are fixed at 9, 12 and 15 kHz, while the highpass filters are fixed at 25, 50 and 100 Hz. The filters are always in circuit and are not affected by the EQ in/out switch.

All EQ sections are authentic, inductive-type with 15dB lift/cut applied with 70mm linear faders. The EQ frequency is selected by means of a 4-position switch per band. The low frequencies are 50, 80, 100 and 150 Hz. The low-mid frequencies are 250 Hz, 500 Hz, 1 kHz and 2 kHz. The high-mid frequencies are 3, 5, 7 and 9 kHz. The high frequencies are 8, 10, 12 and 15 kHz.

One significant difference from the original A Series module is in the output gain control, which allows the output gain to range from off to a peak output of +28 dB, enough to drive any professional equipment.

The mic preamp is very warm and wide-open sounding, especially on the lower and upper mids. I used the unit on a wide variety of instruments and voices, including male and female voices, electric and acoustic guitar, bass, acoustic piano and Wurlitzer piano, drums, drum overheads and room mics. I used all microphone types, ranging from condensers to ribbons to dynamic, and found that the unit's overall coloration is similar to a set of racked Neve 1073s, with maybe a bit more emphasis on the upper-mids than the Neves.

Overall, the EQ is extremely pleasant sounding (okay, I'll say it: very "musical" sounding). It definitely has a unique sound that recommended it over quite a few other processors in mix situations. As is the case on the original A Range, the "Q" value on the EQ section is fixed and quite wide by today's standards. (The manual lists a value of "1.2, varying slightly with frequency.") So if you're looking for a precision carving tool, the A Range unit is not going to fill that need. However, the frequency options available were more than enough to work in a wide range of mixing situations. I had a blast seeing just how much I could tweak various types of program material before the sound quality began to be a bit harsh.

With 20- to 30-year-old racked Neve preamp/EQ combo packages going for around $6,000, the appearance of the updated A Range module as an additional "vintage" tool for under $3,699 is sure to make a lot of engineers very happy. Reinventing the past can be a good thing, and in this case, Malcolm Toft and Ted Fletcher should be congratulated on a job well done.

Trident-MTA, distributed in the USA by PMI Audio, 23773 Madison St., Torrance, CA 90505; 310/373-9129; fax 310/373-4714; www.pmiaudio.com. ■

Composer/producer Walt Szalva owns Planet 3 Productions in San Francisco.

BY WALT SZALVA

RAVE REVIEWS

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"In every situation, both the NT1000 and NTK had lower self noise than either U87."

"With these mics, RODE has beaten the low-cost Sino-capsule market at their own game."

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Ty Ford – Mix Magazine
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NEMESYS GIGASTUDIO 160 V. 2.2

PC-BASED SAMPLER WORKSTATION

Synth manufacturers are finally beginning to get it! Many users have never been interested in incredibly expensive stand-alone workstation/sequencers that, too often, trade sound quality and expandability for bloated feature sets and endless banks of presets. Many of us have dreamed of a time when focused, purpose-built products that do one thing really, really well would become the rule rather than the exception. And in this spirit, the past five years have yielded more must-have products than I care to count.

Two particularly cool trends in synth/sampler designs have clearly emerged. On one side of the spectrum, you have products from Nord, Virus and others that deliver to the Brian Enos of the world what they've always wanted—fat analog sounds and more knobs per-square-inch than you can shake a stick at. On the other side, you have the NemeSys GigaStudio/GigaSampler family of host-based PC sampler/workstations, a line of products that really were not even *possible* a few years ago.

Surprisingly, there a great many people, especially Mac purists (and, yes, my own hand would have been raised a year ago), who don't fully understand what GigaStudio does. Basically, GigaStudio is one of the first fully emancipated sampler/workstations. When I say emancipated, I mean that GigaStudio samples don't reside in traditional RAM- or ROM-based storage/playback media. The samples, instead, are stored on and streamed from the host computer's hard drive, leaving the computer's RAM largely untouched and available for processing duties; the sky is the limit.

GigaStudio delivers a set of huge, intricately sampled and nearly perfect-sounding acoustic instrument libraries with all the import, export and keymapping options afforded by traditional hardware samplers. And with PC processor speeds quickly heading toward the 2GHz mark and hard drive prices heading toward the basement, the time has come for products like GigaStudio.

GigaStudio's main mixer screen, with NFX chorus

A QUICK OVERVIEW

The system supports up to 64 MIDI channels and 32 discrete audio channels, depending, of course, on the available hardware, and has the ability to stream a staggering 160 individual voices. GigaStudio also offers full support for GSIF-compatible, 24/96 hardware. All internal processing is 32-bit, and the system includes a healthy helping of proprietary 32-bit, zero-latency NFX effects. The effects can be used as inserts or sends and can be easily auditioned from within the DSP screen. GigaStudio 160 ships with NFX reverb, multi-effects, chorus/flanger and tap delay, and these effects are available separately for owners of GigaStudio 96. Playing to the 32-bit internal processing, there is also a feature called "Capture-to-Wave" that does just that. An entire multitimbral performance, including effects and other controllers, can be condensed to a single .WAV file without the material ever leaving the 32-bit environment. The system also includes high- and lowpass filters, band-reject and bandpass filters, and three pairs of envelope filters and LFOs, which are assignable to pitch, amplitude and filter cut-off.

A new feature that was included with the original 2.0 release and is greatly improved in the new version is the QuickSound database system. QuickSound allows users to do keyword searches to locate specific files on their local hard drives and then quickly audition them. (The Hollywood Edge recently announced new versions of *Premiere Edition III*, *Premier Edition IV* and *The Edge Edition*, all engineered to work specifically with QuickSound.) Both simple and complex nested searches produce instantaneous results from hundreds of Gigabytes or even Terabytes of files. The results can then be selected by group and dragged into the Distributed Wave window, where they are automatically keymapped for interactive auditioning against the scene. Selections can then be saved as either a distributed wave collection or as a .Gig sampler file.

The system also supports a fairly wide variety of file formats including Akai S1000/3000, SoundFont and, of course, .WAV. A dedicated CD audio "ripper" is also included to save you a step when "borrowing" sounds. And a number of inexpensive third-party

BY ROBERT HANSON


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World Radio History

programs are available at NemeSys' Website, such as Translator, which provides E-mu, Roland, SoundFont, Ensoniq, .AIFF, Kurzweil and SampleCell compatibility.

HARDWARE: WHAT YOU ACTUALLY NEED

If you're a bedroom hobbyist with only one PC to handle everything from Cakewalk to Waveburner, then the number of GigaStudio voices that you're going to be able to use will be limited. In fact, the system defaults to a maximum polyphony of 96 when it senses a sequencer installed on the same rig. NemeSys recommends a Pentium III or Athlon processor running at 800 MHz or better with 128 MB of RAM. If you're intending to run GigaStudio with a separate sequencer on the same machine (which works quite well and is something that the program was specifically engineered to do), then I'd recommend at least 256 MB of RAM. Pro users should just cough up the cash for a dedicated machine. Including the PC, the hard drives and an appropriate interface, an almost limitless sampler can be purchased for just under $2,000. Many studios will already have a number of the hardware elements already on-hand, possibly wasting space in closets.

One point that should be stressed to both the hobbyist and the pro user is the importance of hard drive speed. With most host-based DAWs, you can cheat a little in this respect and opt for a run-of-the-mill IDE or ATA drive and really never look back. But because the hard drive is effectively acting as RAM and streaming huge samples within acceptable amounts of latency, NemeSys' recommendation of an Ultra DMA or Ultra2/Ultra Wide SCSI shouldn't be taken lightly; seek times that are 9 ms or better with a disk cache of 512k or larger are essential to proper operation.

GigaStudio runs on Windows '95, '98 and Me with XP support expected in the near future. A GSIF soundcard is also a necessity, and there are literally dozens available now, including Soundscape Mixtreme, Echo Layla/Gina/Darla, EgoSys Waveterminal, M-Audio Delta 1010/66/44, and a host of others with multichannel, 24-bit support. The system will run at less than optimal capacity with a generic PC soundcard, supporting two channels of 16-bit audio. A multiport MIDI interface (at least a 4x4) is also something users might want to consider purchasing if they intend to really push the system to its theoretical limits. The test unit I used was a SoundChaser PC DAW with an 850MHz Athlon processor, 256 MB of RAM and a secondary internal 30-Gig Ultra2 SCSI drive for audio.

SOME COOL REFINEMENTS

Version 2.2 offers a number of fixes and extra/improved features. For example, the QuickSound database now boasts improved seek time, file/directory filters for creating databases and improved progress meters. Instrument-wise, patch numbers are now preserved with the associated performances, and all mapped instruments can be unloaded. Gig files can now be constructed from a collection of pre-edited .WAV files without having to first use the instrument editor, and the synthesizer engine now allows for far more flexibility with regard to external controllers and a variety of Envelope/Velocity/Aftertouch functions. GigaEditor includes more comprehensive import/export functionality, allowing, for instance, an entire file folder to be exported with a single click, as opposed to moving individual files. A number of bugs that led to crashes with Cakewalk and Logic Audio have also been cleared up.

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GETTING UNDER THE HOOD

The first screen that boots up in GigaStudio is the main instrument/mixer screen that corresponds to the first of four MIDI ports. A set of MIDI port icons to the left of the mixer allow the user to quickly toggle between ports, and additional icons correspond to the DSP screen, system performance screen and the Help function. Along the bottom of the screen is the QuickSound file locator with the keyword search box and displays showing available drives, folders and files.

Loading instruments/files isn't too tricky. You can either use the keyword Search function (which I started using almost exclusively) or browse through one of the pre-installed files and click away. The file loads into the first available instrument bank (in this case, instrument 1 on MIDI port 1) and, assuming your audio hardware is correctly set up, it's ready to be auditioned. Below the mixer but above the QuickSound portion of the screen is a piano-key display; the keys that have sounds mapped to them will be illuminated, and those that don't remain shaded. This isn't terribly necessary when dealing with chromatic instruments like pianos, but it's awfully helpful when auditioning percussion or sound FX files.

From here, tweaking possibilities abound. The next important screen is the DSP mixer that allows access to the NFX Series effects. Each instrument comes up as a separate stereo pair and corresponds to the same position assignments as the main mixer. For each instrument, there are four available inserts and eight aux sends per MIDI port. Every fader, pan, aux send, aux return and NFX control can be automated via right mouse button access to a menu of port, channel and MIDI controller choices. The effects interfaces are another demonstration in simplicity. Each include a generous complement of presets and a logical layout of different parameters on easy-to-use faders; the low/mid/high contour control is particularly slick. To get really tweaky, you have to move onto the instrument editor, which launches as if it were a separate application; however, everything works together seamlessly. You can either dig into any of the preformatted sound libraries and adjust filter cutoffs, LFOs, etc., or begin building your own instrument files from any collection of edited .WAV files. Dragging and dropping files into place is a snap, and from there it's a few simple clicks to get things properly panned and normalized.

IN ACTION

So how does the thing sound? I'm as skeptical as the next guy, and I wasn't immediately sold on GigaStudio when I began to audition some sounds. You've heard one grand piano patch, you've heard them all, right? But in the name of science, I went through the sounds on the pro-level workstation synth that I've been using for some time now and tried my best to match the sounds stored there against the files on GigaStudio. It was here that I noticed that the program really began to perform. The realistic nature of the sounds that the program reproduces is downright scary. I was especially impressed with the stringed instruments, like the new Scarbee Fingered Bass selections. There are, of course, intrinsic limitations to reproducing stringed instruments like bass, guitar and violin though a keyboard interface.

Anyone who has ever picked up a guitar knows, for instance, that the A you play on your low E string has a totally different quality and resonance than the A you play on the D string. Normally, to save space in RAM-based workstation/samples, you have a couple (at best) of key samples per instrument that are pitched up and down across the keyboard to fill out the usable octaves. Not

—CONTINUED ON PAGE 225

broadjam

Artist: Katrina Carlson
Genre: Pop

Song: I Know You By Heart
LO-FI MP3 | HI-FI MP3 | REAL AUDIO

Artist: Kodac Harrison
Genre: Blues

Song: Love Turned On The Ligh:
LO-FI MP3 | HI-FI MP3 | REAL AUDIO

Artist: Faye
Genre: Alternative

Song: What's Right
LO-FI MP3 | HI-FI MP3 | REAL AUDIO

Artist: Bill Epps
Genre: R & B

Song: Sign On In
LO-FI MP3 | HI-FI MP3

Artist: Derrick Procell
Genre: Country

Song: Same Plan
LO-FI MP3 | HI-FI MP3

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ALESIS airFX

INFRARED MULTI-EFFECTS CONTROLLER

I think we can safely assume that the space age is officially here. Sure, there are obvious clues like the fact that buildings and cars look a lot zippier, and once-unimaginable wireless gizmos seem as commonplace as running water. However, for musicians, the advent of the Alesis airFX, the now-famous grandson of the Theremin, drives this idea home.

MINIMALISM VS. VERSATILITY

The airFX is a 24-bit effects processor that enables the user to control effect parameters with a wave of his or her hand. This type of interface was first utilized on the Theremin, a monophonic instrument of old that uses proximity of the hands to determine pitch and volume. Instead of electromagnetic fields, the airFX uses an infrared field. A 3-D infrared beam detects motion within six inches of the sensor and translates the movement into parameter changes. Each of the 50 presets has up to three parameters assigned to various axes of the beam. For example, the Fazed Out program uses the x-axis to control phase delay, the y-axis for flange frequency changes, and the z-axis to vary the mix between the dry and wet signals.

The program number is indicated by an LED display, and the partially hemispherical beam emitter is known as the Axyz™ Controller. On the bottom of the unit, among a list of numbered programs, is a threaded socket for a standard microphone stand.

The controls are minimal, as is the I/O. A single knob on the top selects program number (00 to 49). Pressing the knob while your hand is held still in the beam will hold the selected effect in its current parameter selection. Bypass is achieved by pressing the knob with your hand clear of the beam. On the back panel are four RCA jacks—two for in, two for out.

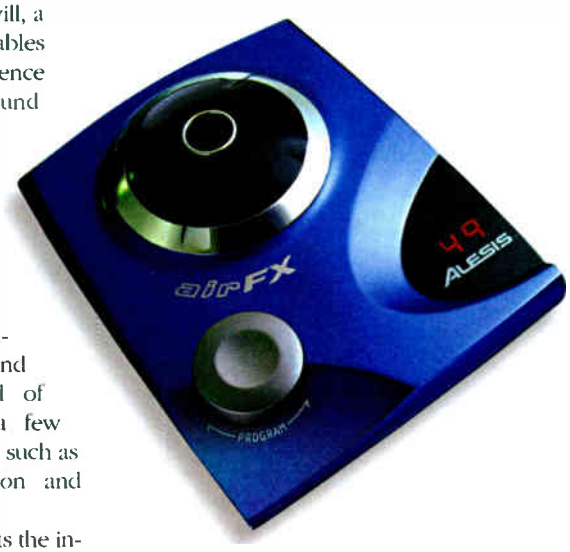
The unit's lack of knobs and buttons is offset by its minimalist, toy-like appearance. Picture, if you will, a club DJ hovering over turntables and the airFX, quick-reference card in hand, altering the sound with a movement that is visible to the crowd. This is the key of its desirability: It takes adjustments normally made below decks by an engineer and showcases them.

The range of effects includes many filters, phasing and flanging programs, control of panning and pitch, and a few patches that can add sounds, such as record scratching, percussion and synth tones.

The manual simply repeats the information on the quick-reference card, adding examples of how to hook it up in different situations. Invariably, it requests using the unit in series, such as directly between the synth and mixer, or between the mixer and amp, stating: "When the effect is off, the airFX still sends the 'dry' signal to its outputs. This may cause phase cancellation or other unwanted effects if the aux return is mixed back with the original." Consequently, the manual recommends patching the airFX in by inserting the channel that needs processing, precluding its use on other elements in the mix.

BIG FUN

I first played DATs through the processor; running through all the programs revealed more special effects than simple ones. I also tried it out in live broadcast situations for both live bands and avant-garde noise collages. I really enjoyed the Pitch Out program, which slows the music down and stops it as if you had used your thumb to stop a record. The filter programs are also a lot of fun, like the simple but effective Telephone patch. There are a few traditional-sounding programs, mostly in



the flange/phase department. There are no programs for reverb, delay and chorusing.

After I used the airFX in a variety of situations, it became apparent that the reference card is an essential accessory, especially for checking which axis controls which parameter. It takes quite a bit of practice to use the unit for subtle effects, especially without the reference card.

ALL IN ALL

This is an excellent tool for live DJ/mixers, guaranteeing ear candy and a wowed audience. The sound quality is very good, and I found some versatility by streamlining the controls (I would have added a sensitivity knob, at least), but the simplicity of the unit will be attractive to first-time effect users. With an MSRP of $249, one can see it as a pricey toy or as an inexpensive 24-bit processor.

Alesis Studio Electronics Inc., 1633 26th Street Santa Monica, CA 90404; 800/5-ALESIS; www.alesis.com. ■

David Ogilvy started in radio in 1977. He later branched out to studio management, A&R, engineering and producing.

BY DAVID OGILVY

MILLENNIA MEDIA STT-1 ORIGIN

RACKMOUNT RECORDING CHANNEL

The STT-1 Origin is a single-channel recording chain that combines all of the functions of Millennia Media's best products in a single two-rackspace unit. The Origin includes the highly acclaimed HV-3 discrete hybrid transistor microphone preamp, the M-2b all-tube mic pre, a single channel of the NSEQ 4-band parametric equalizer and the TCL Twincom optocompressor. Two Origins can be linked for stereo dynamics control via a rear panel RCA jack.

The STT-1 (Straight-To-Track) Origin also includes Millennia's unique Twin Topology feature, providing users with the choice of either tube-based or solid-state-based amplifiers for the NSEQ equalizer, the TCL Twincom and De-esser circuits. A new twist is a choice between transformerless input (available on all Millennia gear) and the new MIT-01 input transformer. The comprehensive user manual discusses the pros and cons of transformers in audio circuits, and, as Millennia acknowledges in its description of the MIT-01's "euphonic coloration and pleasing distortion," the pop music recording aesthetic often eschews sonic purity. Ranging in sound from the extremely transparent to many levels of tube and transformer coloration, the STT-1 offers a total of 134 possible processor configurations. Whichever combination is chosen, the audio path is 100%, Class-A and all discrete from input to main output.

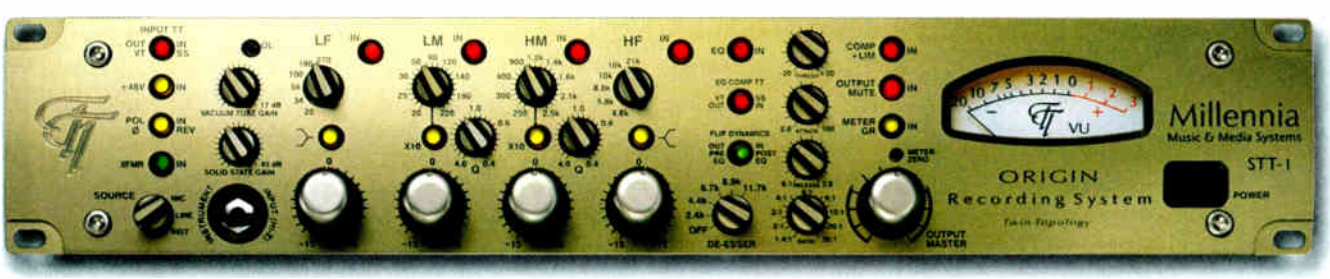
The Origin has a thick front panel (nearly ¾-inch) with a platinum-crackle finish and a 16-gauge, cold-rolled, steel chassis. The large German-made ITT pushbutton switches on the Origin's front panel are LED-lit; with so many options available, it is just as well that every switch is well marked and illuminated. In general, all switches push in to engage; the same button switches between tube amps (button out position) to solid-state when depressed. In most cases, pushing a switch toggles an Aromat TQ-2E sealed relay with gold contacts; no audio runs through the front panel switches.

The first front panel switch in the audio chain is a Grayhill mil-spec and gold-plated rotary Source switch that selects among the rear XLR microphone input and the XLR line input (which are both Neutrik Galvatronic gold-plated connectors), and the ¼-inch front panel DI input (Switchcraft). The DI input passes through a 12AT7 tube impedance converter/amp to keep the DI input impedance greater than 1 meg-ohm. Whatever source is selected, the next step in the chain is a passive Phase Reversal switch and then a choice of either the MIT-01 transformer or transformerless circuit. The user manual points out that the transformer "will likely be most sonically pronounced when used with microphones...and offers more of a sonic signature when driven hard."

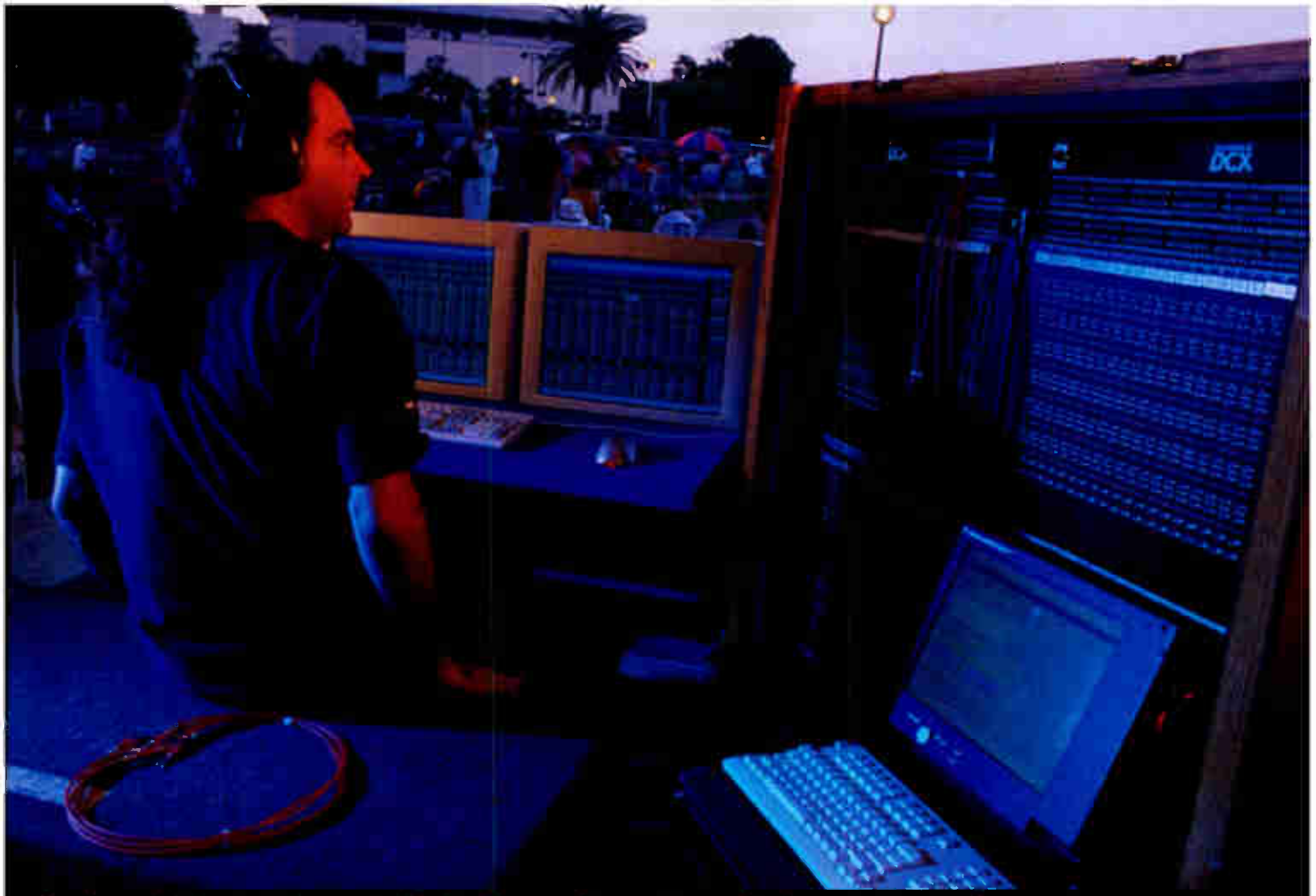
The Input TT switch selects between the HV-3 and the M-2b tube preamps. The output is momentarily muted when switching back and forth between pre's and when selecting phantom power, so there is no switching noise, a great feature. If you have not matched levels sonically (not just the knob positions) of the separate Vacuum Tube and Solid State Gain controls, then there may be level changes in A/B comparisons. The gain in either of the preamps can be measured at the balanced XLR direct output connector on the back panel. This output is essentially the same monolithic, solid-state output amp as is used in the stand-alone HV-3 unit. When selected, the M-2b tube preamp shares this output amp.

The gain range for the M-2b tube preamp at the direct output is 18 dB, from +22 to +40 dB. The HV-3 ranges from +10 to +50 dB, or a total of 40 dB at the direct output. You can custom order an Origin with an additional 20 dB of solid-state gain if necessary. The variable glowing OL LED, a clear indicator when to stop pushing level, and especially useful when using an all-tube path, indicates any overload starting at +18 dBu up to +24 dBu. I found myself lighting up the OL a lot, but it had no adverse effects until the LED stays brightly lit. The OL LED is on the direct output line that also feeds the next section, the 4-band parametric equalizer.

John La Grou of Millennia Media explains the unique equalizer: "The NSEQ-2 equalizer is called a 'shunt design,' because the four EQ bands are neither in common series or parallel configuration to the audio path. Rather, each of the four EQ bands, when selected, is placed within the operating network of a single audio



BY BARRY RUDOLPH



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path amplifier. The EQ In switch places that single amplifier in the audio signal path. This means that an EQ band will have no effect unless its Boost/Cut knob is off the center zero position and that section's In/Out button is in." The EQ/COMP TT button changes both the equalizer's and compressor's amplifiers from tube to solid-state at the same time. You may hear a 1 or 2 dB difference when A/B evaluating. I would just push or scrub level somewhere else to make comparisons as fair as possible. When operating both the EQ IN and EQ/COMP TT switches, there is an output mute of about a half-second. This is unavoidable, because muting prevents an otherwise audible "pop" on the output.

Each of the four EQ sections features a large, knurled metal knob offering up to 15 dB of boost/cut adjustment in repeatable steps. The four EQ sections are LF (low frequency), LM (low-mid), HM (high-mid) and HF (high frequency). The LF frequency choices are 20, 34, 56, 100, 180 and 270 Hz. The HF frequencies are 4.8, 5.8, 8.0, 10, 16 and 21 kHz. Both the LF and HF sections have switches that change them from 6dB-per-octave shelving filters to peaking filters with a fixed Q of 1.0.

The LM section continuously sweeps from 20 to 220 Hz (from 200 to 2.2k Hz when the X10 button is engaged). The HM sweeps from 250 to 2.5k Hz (2.5 to 25 kHz with X10 in). Both sections have sweepable Q controls ranging from 0.4 (fairly broad) to 4.0 (nicely sharp enough). For repeatable Q settings, you can order the Origin with 21-stepped pots.

Possible Routings in the STT-1 Origin

Two Mic Preamps
tube or discrete solid-state

Two Optocompressors
tube or discrete

Two Parametric EQ
tube or discrete

Two Opto De-essers
tube or discrete

Two Line-Level Paths
tube or discrete

Two Input Couplings
transformer or transformerless

Two DI ¼-inch Paths
through a tube or solid-state

The Twincom TCL-2 optocompressor in the Origin uses just a single amplifier stage in the audio path. Tube or solid-state circuits are selected by means of the EQ/COMP TT switch. The TCL-2 is a passive shunt design using an opto-resistive gain reduction element (Vactrol), and only the Output/Buffer Make Up amplifier is required if you need to get some level back after gain reduction. Changing from tube to transistor is more noticeable with the compressor, especially under severe gain reduction conditions.

Threshold, Attack, Release and Ratio controls feature conductive plastic rotary pots. Attack times range from 2 to 100 ms, while release times range from 20 ms at the fastest to a glacial 3 seconds. I found the taper of the Release control very sudden and "touchy" at the shorter release times—Millennia Media is working on this. Ratio goes from the very smooth 1.4:1 to 30:1. I especially liked the Flip Dynamics button that, when pushed, places the compressor before the EQ (the compressor is normally after the EQ). Much easier than changing patch cords!

The DE-ESSER rotary switch selects the center frequency for de-essing. Designed for minimal de-essing, the de-esser frequencies are 4.9, 6.8, 8.2, 10.7 and 12 kHz. Because the de-esser takes over the compressor's settings for de-essing and the gain

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reduction meter quits, you cannot compress normally *and* de-ess at the same time.

There are three outputs: the aforementioned balanced monolithic direct output, a main XLR unbalanced from a Class-A, discrete, J-FET amp (Millennia's FSA-01 module) that is 6 dB lower than the second main output, and the XLR balanced monolithic output. A large knurled aluminum knob controls the master output. At fully clockwise, there is an additional 10 dB of make-up gain available. Rotating the knob fully counter-clockwise allows for a fade-out to infinity, useful for live recording. When compressing about 2 to 6 dB average and getting dim OL LED flashes (just making an occasional +18 dB) and using the main XLR unbalanced output, I needed a good amount of make-up gain and almost ran out of the gain necessary for a full 24-bit/equivalent analog level.

A large, backlit Sifam analog meter is calibrated to read 0 dB when +4 dBu is reached at the balanced output. The METER GR switch toggles the meter between output level and gain reduction. I would suggest that a Meter Range switch (+10 dB or more) be added in order to make it possible to measure a +14dB output level at 0 dB on the meter. At present, the output meter is pegged a lot of the time when driving 24-bit digital systems.

Millennia Media sent two sets of 12AX7 and 12AU7 tubes to try in the Origin: smooth plate Telefunken and RT Production tubes, and a set of Sovteks. The DI input uses a 12AT7, and I did not change it. I found the Sovteks cleaner and offering less personality than the Teles and RTs, but I liked the bigger difference between the tube and solid-state paths when using the Tele/RT tubes, so I stayed with them.

The first task for the Origin was recording acoustic guitar. It is my experience that close-miked acoustics require a fair amount of "carving" with a good 4-band equalizer in order to sit well in a big pop track. I recorded two different Martin D-18 acoustics, a tenor acoustic and a nylon fingerpicking part. I used a Schoeps CMC 5U condenser mic with a cardioid capsule and started with the tube mic preamp, no transformer and solid-state EQ and compressor. Switching between the solid-state and tube mic preamp, you can hear the openness of either path. I preferred the solid-state path with no transformer for fingerpicking because of the extra gain and sparkle. For all acoustics, I liked the solid-state EQ and compressor paths for their cleanliness.

Recording vocals was interesting because I was looking for some tube and transformer coloration. I was using a Neumann U67 (no pad) driving the M-2b tube preamp and transformer hard with lots of OL LED flashes. I went with the tube compressor path without any EQ. (You must make sure that the EQ IN switch is in and all four EQ sections are disengaged.) This delivers a more "blooming" sound although still extremely clean compared to some other all-tube mic/mic preamp/compressor paths I have used.

The Millennia Media Origin offers so many choices it is almost overwhelming at first. But, like a fine musical instrument, the different sonorities and sounds possible became more easily realized with each session, and the STT-1 offers the user a convenient and high-quality tool that provides both tube and solid-state sounds on demand. MSRP is $2,895 for the gloss black version; $3,195 for the platinum.

Millennia Music & Media Systems, 4200-B Day Spring Court, Placerville, CA 95667-9500; 530/647-0750; fax: 530/647-9921; www.mil-media.com. ■

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

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TC HELICON VOICEPRISM

VOCAL FORMANT PITCH PROCESSOR

Formed 18 months ago, TC Helicon was a joint venture between TC Electronic and IVL Technologies. By taking the technology that IVL developed a decade ago for DigiTech's award-winning Studio Vocalist Series to the next generation and combining it with TC's proven expertise in studio products, the new partnership has created its first innovative vocal processing tool—VoicePrism.

VoicePrism is a single-box voice formant and pitch processor. Designed primarily for use on vocals, VoicePrism is strictly a mono in/stereo out processor. Features include line- and mic-level inputs (a built-in preamp with phantom power is standard), compression, gating, dual parametric EQ, 4-voice harmony (with individually adjustable gender controls and humanizing parameters), fifth-lead doubling voice for automatic double-tracking, and two separate post-effects blocks with chorus/flange, delay and reverb, and harmony libraries. Harmony effects can be created by "reading" the input signal or may be driven by a MIDI input from a keyboard or sequencer, allowing for super-accurate harmonic doubling or for creating multivoice chords and textures that simply can't be sung.

Part of VoicePrism's appeal comes from its ease of operation. The two-rackspace, slanted front panel makes controls easy to see, while the four "soft knobs" below the LCD screen, dedicated edit buttons that link directly to page menus, large datawheel and four individual level pots for adjusting lead/harmony/effects/input levels help get the sound you need, fast. The rear panel has MIDI in/out/thru, balanced TRS input and outputs (-10/+4 dB switchable), co-ax S/PDIF digital output (24-bit/44.1 kHz), ¼-inch footswitch jack and an expansion slot for the optional VoiceCraft card. An additional aux input bypasses the harmony section, allowing the unit to be used as a "conventional" reverb/effects box, as well as providing an input to add a feed from external processor or source into your harmony mix. An IEC AC cord socket (no wall wart!) connects the unit to any 100 to 240-volt AC power supply.

VoicePrism splits the vocal input into separate lead voice and harmony effect channels, with the option of assigning EQ or compression to each. These two channels can then be treated with separate effects processing, such as delay, chorus, flange and reverb. The lead channel has a thickening algorithm for double-tracking effects. The harmony channel features four independent, formant-corrected pitch shifters that derive natural harmony voices from the vocal input. Independently adjustable parameters for each voice include gender, vibrato, timing, randomizing and scooping. Parameters can be switched mid-song—say, going to different modes for verse or chorus—a useful feature if you're short on tracks or inputs.

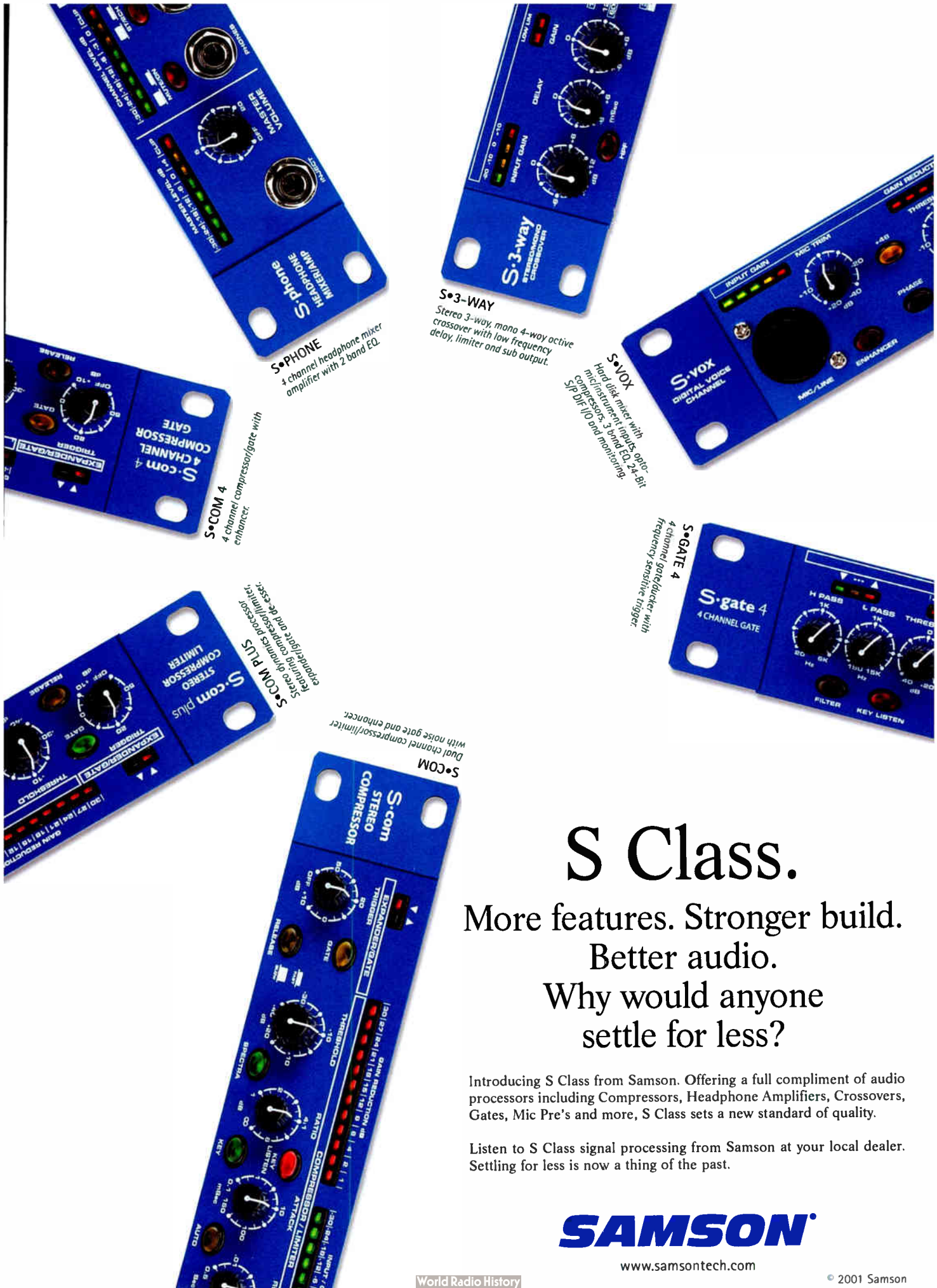
I started checking out VoicePrism's 128 presets and was impressed with what I heard. The unit offers a ton of sounds that are immediately useful in either live or studio situations: parallel third up; thirds and fifths; doublings; vocal stacks; choirs; and multipart harmonies. Some presets just cry out for specific applications—"female choir" has a nice B-52's sound; "wide 4-part" sounds like it walked off the last 'N Sync album; and "tight 4-part" has a smooth big band/Modernaires-style sound. Some of the vocal doublings are really nice: The "mixed doubling" and "country 2x" are perfectly suited for all kinds of material. The soft knobs provide quick access to parameters or alternate scales (modes) to easily create custom sounds. A wide range of parameter adjustments and a number of offbeat presets—such as "scary voices," "can't sing" (random key changes) and "bassman" (an instant Popeye-style effect)—allow VoicePrism to be used for sound design or other non-singing applications.

For me, the most important feature of any product is the *sound*. Though VoicePrism's algorithms are not always perfect and minor glitches are occasionally audible, the harmony effects are the best I've heard from any such product. But as well as it works, the unit is still reliant on the quality and intonation of the vocal material coming into the input—the tighter the original performance, the better the results. Another point is context. For example, vibrato needs to be adjusted to each application—it works better when subtle, just as in real life. From an audio standpoint, VoicePrism's overall performance is excellent. The effects are stellar, and the preamp, compressor and EQ are surprisingly good.

Perhaps the best part of VoicePrism is yet to come, with its VoiceCraft HVM™ (Human Voice Modeling card), which adds AES/EBU and S/PDIF I/O, as well as real-time reshaping and resynthesis of the human voice, with parameters such as breath, growl, rasp, inflection, and head and chest resonances. The VoicePrism is $1,299; the optional VoiceCraft card is $599; and VoicePrismPlus (with the card pre-installed) is $1,898.

Dist. by TC Electronic Inc., 742-A Hampshire Rd., Westlake Village, CA 91361; 805/373-1828; fax: 805/379-2648; www.tc-helicon.com. ■

BY GEORGE PETERSEN



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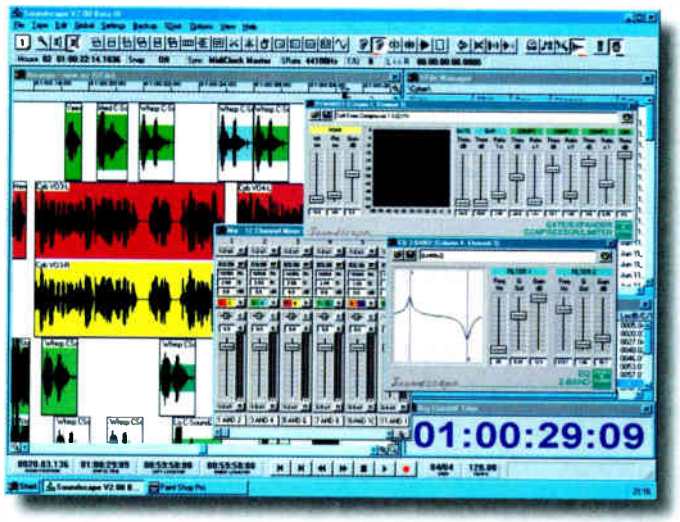
SOUNDSCAPE R.ED

RECORDER/EDITOR FOR WINDOWS

If you were working in a recording studio back in the '70s, then there were probably many sessions that made you wish for a little black box that could magically handle nondestructive editing, time compression/expansion and pitch correction. But back then, these were just pipe dreams. Well, fast-forward to 2001. Here we are, and black boxes such as Soundscape's R.Ed digital audio workstation actually do exist. This box—like others in its category—offers a host of features we wished upon a star for, and a few we never even dared to imagine.

Soundscape has been producing PC-based DAWs since 1993 in the form of its SSHDR1. The company's latest workstation system is the 32-track, 24-bit R.Ed recorder/editor, which offers 32 tracks of 24-bit recording at 44.1 kHz (16 tracks at 96 kHz), 28 audio input channels and 32 output channels. It runs under Windows 95/98, NT and 2000. Like Pro Tools, the computer's processor is never used—you just use it to talk with the software interface in the little black box. The configuration we tested included 32 tracks at 24-bit/44.1 kHz, running under Windows 98, two removable IDE drives, the iBox-XLR/24 interface, the Mixtreme and Mixpander cards, and a Mackie HUI interface. The unit was easy to set up; just a few cords to plug in here and there, and we were up and running. And, despite a run-of-the-mill printed manual, there was never a need to call tech support for help. That's always a good sign!



In addition to editing and mixing features, R.Ed comes bundled with a variety of plug-ins.

STORAGE IS KEY

R.Ed consists of a two-rackspace box housing two built-in, hot-swappable IDE drives—a huge plus. Not long ago, IDE drives were non-viable in a professional setting, because they weren't A/V-rated (a drive that doesn't have a cooling cycle and can write and read continuously without overheating). A/V drives, while SCSI-based, were always super-expensive. IDE drives, while much cheaper—half the price of an SCSI drive—were traditionally a lot slower than their A/V-rated cousins. This is no longer true. Soundscape has embraced the IDE format. This is one thing that sets R.Ed apart from its competitors. (Other hard disk systems do not yet recommend the IDE format in favor of SCSI Ultra-Wide hot-swappable drives.) The R.Ed supports two fixed and two removable IDE drives per unit with a maximum limit of 137 GB per disk. (Figure on purchasing a 30GB IDE drive for about $150.)

In this small 2U rack, you get an incredibly useful amount of storage internally via the IDE drives, meaning you don't have to bother with external SCSI drives. Kudos to Soundscape for saving the studio owner a few bucks here.

R.Ed differs from many DAWs in design philosophy and packaging. The R.Ed consists of a PC card and black box, including storage and a few channels of I/O. LTC and video sync are an optional package. When you purchase Pro Tools, for example, you get a CD-ROM of software and a PCI card—no little black box. To round out the system, you must purchase converters to provide audio I/O, external SCSI drives and a USD (Universal Slave Driver) for sync work. The Pro Tools side of the menu is filled with a la carte options, while Soundscape prefers the combo platter, blueplate special approach (although there is certainly no lack of upgrade and expansion possibilities for R.Ed).

BY ANDREA AND LEONARD HOSPIDOR

FORMATS AND I/O

The second component in the R.Ed system is the iBox 8-XLR/24. In Pro Tools land, it's equal to the 888 interface. This is where you get audio from the rest of the world into your computer. Each iBox 8-XLR/24 adds eight inputs and outputs. You can, of course, chain multiple boxes together.

Soundscape's iBox 8-XLR/24 communicates via the TDIF standard, 8-in/8-out on one 25-pin connector. It's the same format used by Tascam's entire family of digital recorders, so digital consoles from Yamaha, Mackie, Spirit and Panasonic easily connect to R.Ed via the TDIF port.

—CONTINUED ON PAGE 252

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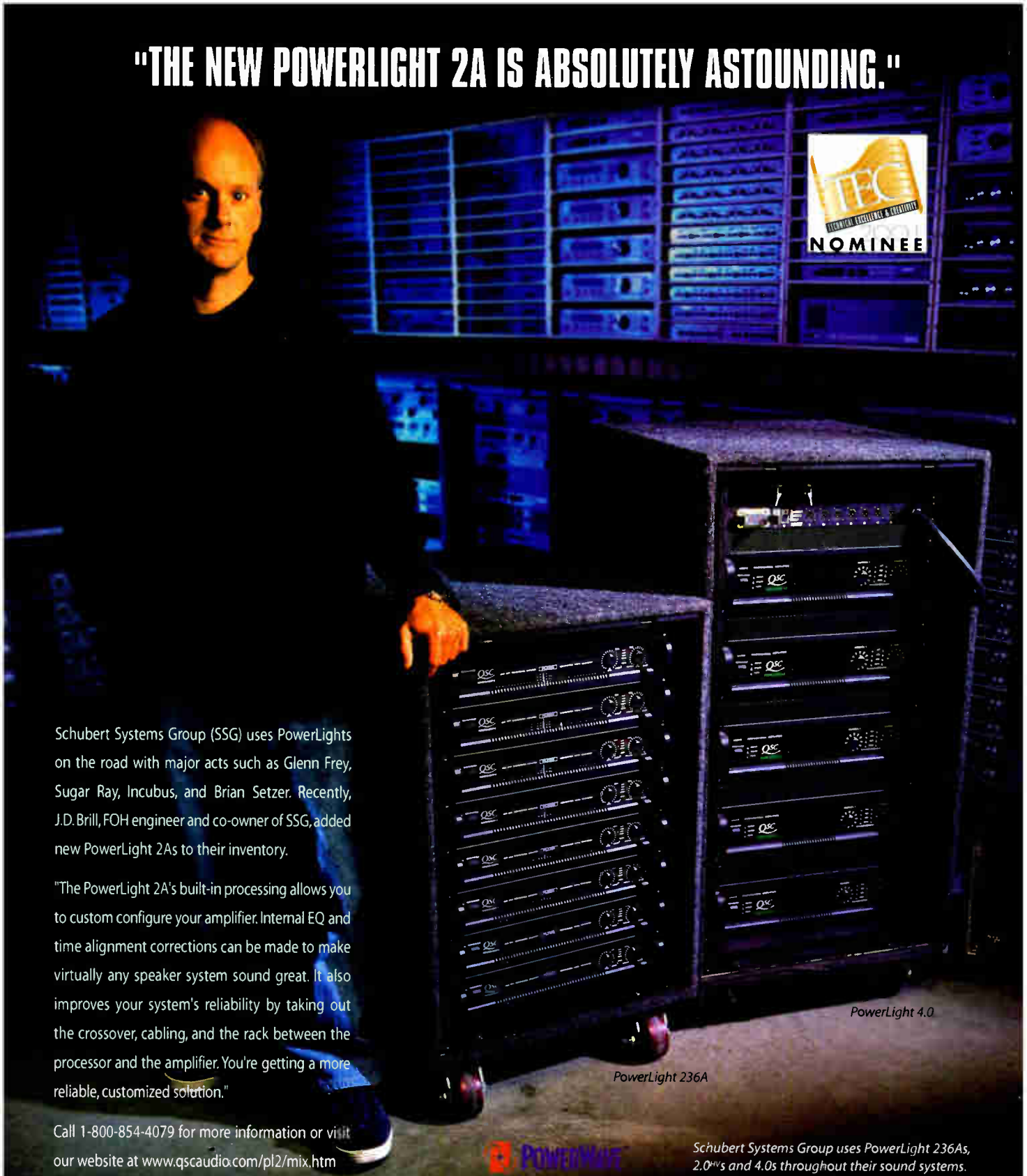

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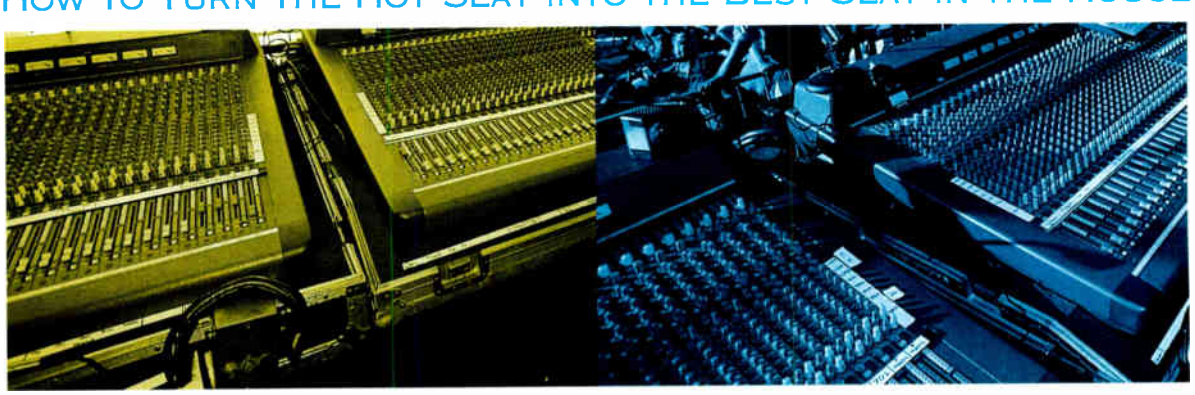
FESTIVAL MIXING

How to Turn the Hot Seat into the Best Seat in the House

By Mark Frink

Sooner or later, a sound engineer will have to use an unfamiliar console and a less-than-ideal selection of outboard gear. And, however diligent the road manager or punctual the band is, there will come a time when the sound engineer will have to "wing it" and start the show without a soundcheck. These are just the normal hazards of the touring life, and most FOH and monitor mixers, even those with limited experience, can cope with such upsets. Still, there is one situation that can ruffle the self-confidence of even the most experienced sound engineer—the multiple-act festival.

Festivals offer a range of challenges that many engineers would not otherwise encounter. Scheduling considerations often mean that an act due to headline on Sunday may only be able to soundcheck on Friday night or Saturday morning, if at all. With one or two dozen acts using the same microphones, monitors, effects gear



FESTIVAL MIXING

and mixing consoles, the likelihood of any settings remaining unchanged between soundcheck and showtime are remote to nonexistent. And, while headlining bands commonly choose to linger backstage for a good half-hour after the support act's equipment has been struck, this is usually not an option on a festival program; a hard-charging festival stage manager (is there any other kind?) will schedule set changes for 10 minutes or less.

All of these factors can upset the work habits and familiar rhythms that most of us subconsciously internalize when performing repetitive tasks. The festival situation demands that we work in an unfamiliar way, usually a recipe for stress. Here, I present some of the procedures and techniques that can make the festival experience survivable, perhaps even enjoyable.

MASTER CONTROL: THE INPUT LIST

Now that several large-format digital consoles for live sound are available, it is quite feasible to plan a major festival around one FOH console with total recall capability. (See *Mix*, July 1999, for an account of the first use of Showco's Showconsole on the George Strait Country Music Festival tour.) But this situation is the exception rather than the rule, and the typical festival equipment setup more closely resembles the model that evolved during the early days of jazz, folk and rock festivals—one FOH console, limited outboard equipment options and a one-size-fits-all input assignment plan.

The heart of a successful festival, at least from the sound engineer's perspective, is a sensible and comprehensive mic input list. Sensible in that every guest engineer can understand the logic of the input layout as it appears at the stageboxes and the FOH console, and comprehensive in that every input for every act is accounted for. Typically, the sound company's chief engineer will devise the master input list by comparing all of the scheduled acts' input lists and making up a master that includes everything. Microsoft Excel is a useful tool for planning such an overall generic festival input list, but any word processor that can produce a chart will do.

An all-rock festival may be fairly easy to plan for, but jazz and folk music festivals often feature guest performers, eclectic instrumentation and rather hazy advance documentation. A simple and effective way to prepare for this is to pre-assign a certain number of "production" mics that can be used for miscellaneous instruments and unexpected additions. Similarly, an additional small-format "production" console can be used to cope with overflow mics or one-off configurations (the high school big band, the gospel choir, the band with three percussionists, etc.) and can also accommodate CD player inputs and a hard-wired MC mic. (A switched mic can be left live if the MC is a pro, but on/off switches should generally be avoided in festival situations.) Thus, while a guest engineer line-checks with headphones or a cue speaker, the system engineer can keep the show moving without the two of them getting in each other's way.

The key point to remember when creating a master input list is that every channel assignment remains static in terms of the instrument assigned to it—kick drum always appears on the kick drum channel, bass on the bass channel, and so on. The reasons are two-fold: simplicity and repeatability. A channel that is always assigned the same mic on the same kind of instrument will need relatively few gain and EQ adjustments between acts, and the inserts and effects sends will also tend to be similar. Even a novice stagehand can be relied on to plug a mic that is clearly labeled "#12-Bass mic" into stagebox input 12.

Here is not the place to go into a long discussion on ideal console layout, but it should be obvious that the most important inputs should be close to the center of the console mixing surface. Less critical inputs, or at least those that are adjusted less often, can be consigned to the farther reaches. So, for example, drum channels could occupy inputs 1 through 10, whereas vocal and solo instrument mics would be more convenient at inputs 18 to 24 and/or 25 through 30, or either side of the subgroup/VCA section (assuming the board "splits" at that point). The important point to remember is the one-size-fits-all concept. Not every band will have five electric guitar inputs, but if one band does, there should be five inputs allotted for guitars, preferably in the sequence that they will appear onstage. And if one or more engineers want to use an alternative kick drum mic, then it is probably better to dedicate an extra channel and mic (with clearly labeled stand) than switch mics for that act. Inputs may not show up in exactly the order the guest mixers are used to, and there may be gaps of unused channels mixed into each band's list as it's laid out on the desk, but it's a festival, not a photo shoot.

Occasionally, a "star" engineer may insist on having the FOH board laid out a certain way, and if the act has enough clout with the festival production, that engineer may get his/her way. In that case, every other act's input list should be conformed to match the new standard—repatching inputs on the back of the FOH console in the middle of a festival is an invitation to disaster and should be avoided at all costs.

Once the overall festival input list is set, most channel controls can be set to nominal levels at the beginning of the day and fine-tuned as they are used. Input gain, highpass filters, effects sends, subgroups, VCA, and group and mute assignments can all be preset; it can be surprising to see just how few knobs and switches need to be readjusted if the console gain structure and routing are carefully thought out ahead of time.

Of course, because the EQ adjustments that each guest engineer makes on individual channels will depend on how the overall system sounds to their ears, it's important to get the main P.A. "tuned" as close as possible to flat before the first soundcheck. Providing a "courtesy" graphic EQ, separate from the overall house EQ, allows guest engineers to make EQ changes to suit their band's sound without losing the system engineer's "flat" EQ curve, which is easily restored by switching the courtesy graph to Bypass mode.

I generally use Smaart software running on a laptop to assist in system optimization, both before and during the show. Using break music between acts as a source, I can quickly check the system's response and identify and fix anomalies as they occur. Smaart not only provides a fast and powerful tool for system equalization, but it also allows me to show visiting engineers the effects of their own EQ vs. the house standard.

DYNAMIC CONTROL

For better or worse, many engineers these days seem to be more concerned with outboard processors than they are with mic choices, console gain management or (heaven forbid) actually mixing. Because each engineer has favorites, the complement of outboard processing needed for a festival can easily be double or triple the number needed for a normal show. The down side is that multiple equipment racks take up space, and someone must pay the rental charges for extra effects devices. The up side is that, with plenty of effects boxes available at the FOH position, processing and effects can be dedicated to specific inputs, groups or aux sends.

Because it is one of the many responsibilities of the FOH "baby-sitter" to dive into the back of the desk to repatch inserts, the best strategy is to pre-patch inserts wherever they might be needed and leave them there for the day, bypassing them as necessary. However, having enough compressors available so that they can all be left patched in is quite a challenge, especially because it may be advisable to have every vocal mic running through a compressor. One way to economize on compressors is to insert them on subgroups. But if several inputs routed to the same subgroup are playing at once, the loudest signal will pull all the other inputs in the group down when it hits the compressor, working against a mixer's attempts to balance and blend the elements in that subgroup. Group compression on a horn section or keyboard subgroup may make sense, but it can be counterproductive on vocals.

Some engineers like to compress the kick drum, and while it goes against many engineers' mixing philosophy, it *can* help a marginal P.A. keep up with a rockin' mix. If the subwoofers are being driven on an auxiliary bus or matrix output, then this is a better place to insert a limiter, as it won't completely kill the drum's attack.

Gates are perhaps less essential than compressors, but they can pose their own set of problems. Kick and snare drum gates are especially susceptible to mis-operation in festival situations, but many visiting engineers will insist on them out of habit, so it's better to have them patched and ready than to have to scramble at the last minute. I prefer using gates on toms only, but with some bands using four or more toms, a minimum complement of eight gates would be necessary to cope with double-miked snare and kick drums.

FESTIVAL MIXING

A bad product idea that I see all too often in live sound applications is the dual-purpose gate-and-compressor combo unit. While these devices usually make acceptable three-knob compressors, the lack of tunable filters on the gate key makes them almost impossible to operate correctly. Carefully adjusted system band-pass limiting is a better solution.

ECHO...ECHO...ECHO

Many festivals take place outside, so guest engineers will probably reach for the reverb knob more than they might indoors. Thoughtful assignment of aux sends to reverb inputs can mean that effects sends may need little adjustment between acts: unused return channels can simply be muted. Typical generic effects assignments include a gated reverb for snare, a plate for drums (or horns), a room for instruments and a hall for vocals, along with maybe a few cents of pitch-shifting. Delay presets will give most engineers something close to what they need for vocals, ranging from a short slap to a nice, long repeating delay. A few minutes spent testing the reverb sends and returns through the cue system to make sure they work will help calm the first guest engineer who turns up the reverb send on a channel and gets no result. Just remember to bring down the return channel fader before unmuting it!

Some engineers use the console's headphone output as a cue system, but others will prefer (and expect) a pair of powered speakers on the meter bridge. Be sure to insert an appropriate delay across the cue bus output to match cue signals with the sound from the stage. Without the delay, cued signals will be out of time with the rest of the mix, irritating any audience members nearby.

Good communication between the stage and FOH is essential, and it often makes sense to establish a personal two-way intercom between the FOH and monitor engineers. Using two lines in the return snake, you can easily set

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up a Push-To-Talk (PTT) mic on each end and a small powered speaker at the other. Fidelity is a lot less important than the ability to talk directly to your onstage contact, and this alternative to the traditional headset intercom allows for much faster communications than donning a headset and waiting for someone to notice the flashing light, which may not be visible in daylight. Similarly, changing out the standard intercom headset for a phone-style handset at each end of the console makes it easier to get to the comms circuit in a crowded FOH compound. If the sound rental company has some video inventory, then it can also be useful to set up a rostrum camera on- stage and a video monitor at FOH. Late-arriving stage plots and input lists can then be placed under the camera onstage, rather than being sent out to FOH by a runner.

THE PERSONAL TOUCH

So much for the hardware setup. Equally important for the success of a large festival is the overall vibe among the crew, and an important part of the system engineer's job is making the guest mixers comfortable. If possible, allow each guest engineer five minutes with a favorite vocal mic or CD so that they have some confidence in the overall system.

Clearly label all the equipment with meaningful names in bold; neat handwriting is one of the surest ways to make things go smoothly at FOH. Large, neat labels allow guest engineers to familiarize themselves with the rig by simply inspecting the equipment during a previous band's set. After each act's soundcheck, carefully remove the board tape from across the bottom of the faders and store it over the meter bridge, making room for the next mixer's strip. A generic festival input list should also be positioned just above the input channel gain knobs, along with the corresponding

snake channel numbers. Labeling the back of the desk in the same manner helps with troubleshooting and last-minute changes. Remember, though you may be familiar with the console setup and bus assignments, guest engineers may be less confident. Make sure that all the main outs, aux sends and returns, plus the effects units themselves, are clearly marked with legible labels. Single-letter, single-number abbreviations for each channel are best, but any meaningful abbreviation is better than spelling out each name. Using paper rather than plastic tape is preferable, because it can easily be lifted and then replaced. White paper tape can be found at art supply stores and comes in 1-inch and half-inch widths (the narrower width is all there is room for on some consoles). One roll of tape and one Sharpie is never enough, because they will walk away. Hide your spares.

While the band is onstage, you should do everything you can to make the guest mixer's job easy. For example, watch the insert rack to make sure gates and compressors are hitting their thresholds reasonably. Walk the house to check on coverage and SPLs, especially in audience areas where managers and VIPs will be sitting. After all, when the system sounds great, the band will get the credit, but when it sucks, the engineers will take the heat.

Finally, give some thought to the items you will need to make yourself comfortable at FOH for one, two or even three days. My list includes a cooler with ice and liquids, sun block and a hat, a comfortable chair, sunglasses, a raincoat (hey, I live in the Northwest), SPL meter, space blankets, tape, bungee cords, tarps, a 4D Mag Light, and maybe a par can or two for work lights during the load out. ■

Sound reinforcement editor Mark Frink has been system engineer/FOH baby-sitter at the Britt Festival in southern Oregon for the past four years. His new e-mail address is mix@markfrink.com.

NOTES FOR GUEST ENGINEERS

As a guest engineer at a festival, you should be realistic about your act's input list. And, because the actual input list order may be out of your control, present it as simply as possible by just adding up the number of each type of input: 10 drums, two bass, four electric guitars, one acoustic, five keyboard inputs, three horns and four vocals (including lead and drum vocal), for example. A stage plot will give the festival sound crew a clear indication of where each mic should go; if any of the usual inputs aren't required because certain songs won't be performed, or because some of the usual instruments are not going to be used, then by all means strike them in advance. Additional mics for the kick drum, bass amp and spare acoustic guitar are all candidates for elimination. In ideal circumstances, many engineers prefer to have control over individual keyboard inputs, but in a festival situation it may be more sensible to submix a large keyboard rig onstage, thus reducing the keyboard inputs to a simple left/right stereo pair (or even a mono instrument mix with an effects return). Quite apart from simplifying the input list, this option gives the player an opportunity to get sounds together by using headphones backstage rather than relying on a soundcheck. Of course, acoustic keyboard inputs that will be used by several acts, such as grand piano or a Leslie cabinet, should have their own dedicated inputs.

Prepare for the possibility that there will not be a soundcheck. Veterans of summer festivals often work with the act to develop a special arrangement for the first song on the set list. Sometimes called the European Sound Check version, this is simply an arrangement that builds from just kick and snare, with each new element adding in eight or 16 bars later. It is worth rehearsing ahead of time and will give everyone the comfort of a soft landing on a festival stage.

—Mark Frink

TOUR PROFILE

BROOKS & DUNN

NEON CIRCUS AND WILD WEST SHOW

by Mark Frink

ALL PHOTOS BY STEVE JENNINGS

Riding high in the saddle with a chart-topping single, "Ain't Nothing 'Bout You," Brooks & Dunn have been out on a tour to promote their seventh album, *Steers & Stripes*. Stopping in about three dozen cities before the tour wrapped in August, the 12-bus, 8-truck production mostly followed the shed circuit, but *Mix* caught the show at Portland's Rose Garden, one of the several arenas on the itinerary.

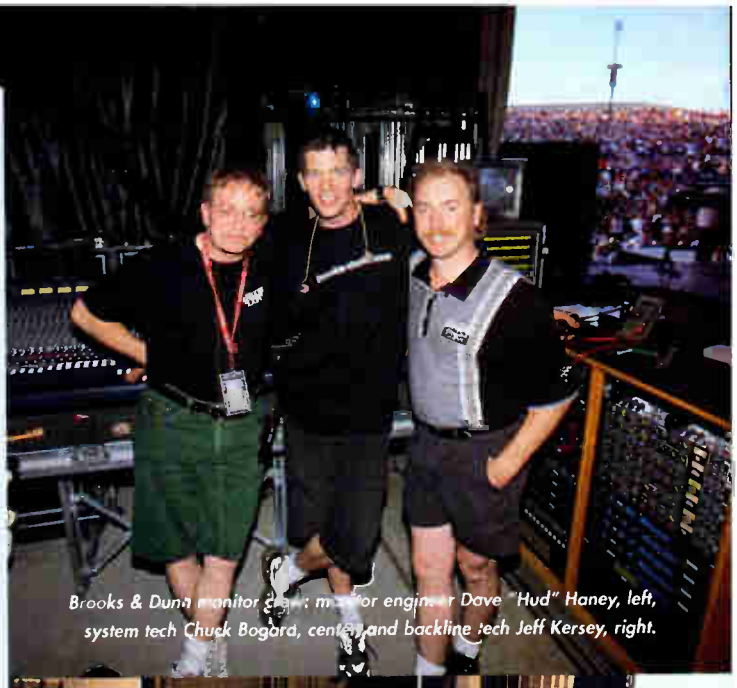
Three support acts contribute to over five hours of non-stop entertainment, with an Academy of Country Music all-star line-up appearing on the multi-level stage. CMA Album of the Year winner Toby Keith is on the bill, plus the act that briefly dethroned Brooks & Dunn as Duo of the Year—Eddie Montgomery (John Michael's brother) and Troy Gentry. CMA's Top New Male Vocalist Keith Urban is the first male country artist from Australia to have a Top 10 country single in the States, and Cledus T. Judd, country's version of Weird Al Yankovic, appears between sets to spoof country hits and provide comic relief. (In Portland, Judd was absent due to his mother's illness—we wish her a speedy recovery.) The traveling circus even includes a "Honky Tonk Hall of Fame" midway exhibit that sets up outside the venue—attractions include shorts supposedly worn by Elvis at his military physical and a piece of Patsy Cline's plane wreckage.

Featuring multiple video screens, confetti cannons, and a special lighting and set design, this traveling big top with rock 'n' roll production values was put together by production manager Randy "Baja" Fletcher and tour manager Scott Edwards. Sound Image, of Escondido, Calif., who have supported Brooks & Dunn for the past seven years, once again provided sound services.

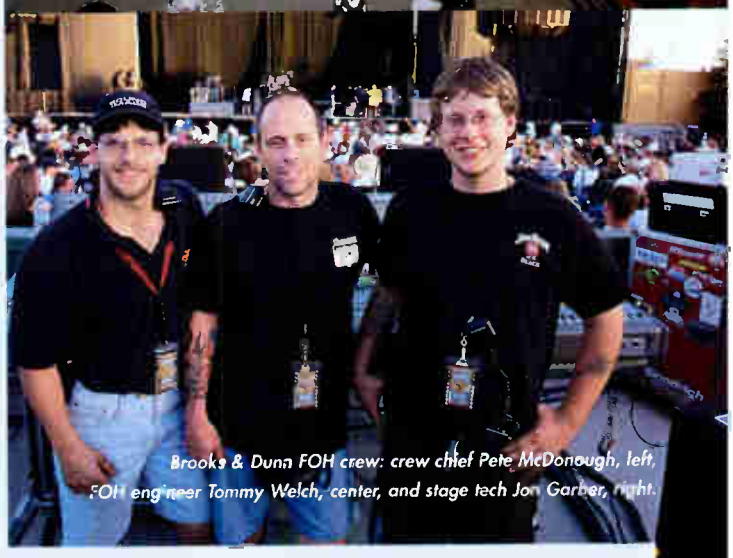
Tommy Welch mixes FOH for Brooks & Dunn on a Midas XL4. Eight years ago, when Bob Butler was mixing FOH, Welch joined as an over-qualified stage tech during a hiatus from mixing FOH (brought on by one too many Sawyer Brown outings). When Butler passed on a few years back, Welch stepped in to fill a big pair of shoes—not a day goes by that the crew doesn't think of Butler, and you can feel his spirit looking after the production.

Welch's mixing effects include a TC Electronic M2000 dual-effects processor, which he uses as both a vocal reverb and doubler or chorus, depending on who is singing lead. "I'm kind of a minimalist when it comes to effects," explains Welch. An Eventide H3000 finds use on the backing vocals, and Welch also uses a pair of Yamaha SPX990s for instrument and drum reverbs, which are cued for program changes via MIDI from the Midas. Inserts include Drawmer 1960 compressors and 1961 equalizers used on vocals, kick and bass guitar, and Welch uses BSS 901 dynamic equalizers to help sit the acoustic instruments in a very active mix.

Dave "Hud" Haney mixes monitors on a Ramsa SX-1A that he calls "a tank," no doubt referring to its roadworthiness rather than its handling characteristics; Haney reports that blind listening tests showed the Ramsa mic pre's to be the sonic equal of those in the FOH XL4. Haney manages in-ear mixes for 10 musicians onstage, and the entire band is fitted with the latest version of Future Sonics' single-driver in-ear monitors (IEMs). Six of the wireless systems, plus a spare and a cue mix, are Shure models, and Haney prefers the older PSM 600 model to the newer PSM 700. "The 600s sound better when they're driven hard," he explains.



Brooks & Dunn monitor engineer Dave "Hud" Haney, left, system tech Chuck Bogard, center, and backline tech Jeff Kersey, right.



Brooks & Dunn FOH crew: crew chief Pete McDonough, left, FOH engineer Tommy Welch, center, and stage tech Jon Garber, right.

To even out the ear mixes, Haney uses dbx Quantum processors as 4-band compressors. "The ear monitors tend to eat up a lot of bottom end energy, but you don't get that back into your head," Haney explains. He squeezes the lows and also the high-mid band, narrowly around 100 Hz and 2.5 kHz, to keep them from loading up at those frequencies. "Then, depending on the instruments in each mix, I use the other two bands to compress the hottest frequencies," he adds. Haney also uses the onboard parametric EQ to customize the response for a couple of players who like their mixes brightened up above 5 kHz.

Four Lexicon PCM 80s and a PCM 70 are used as dedicated effects in the monitors. While the unit used for drum reverb is traditionally set up, being fed from the last pair of aux sends, the other reverbs are fed from channel direct outs and act as dedicated vocal reverbs for Brooks, Dunn, and backing vocalists Dwain Rowe (keyboards) and Tony King (rhythm guitar). A Yamaha REV500 is similarly used as a dedicated reverb for acoustic guitars. Haney also has six channels of Drawmer 1960 compression inserted on the vocal, kick and snare drum inputs.

Drummer Scott Hawkins also gets his hardwired in-ear mix supplemented with a pair of throne-mounted Aura shakers and a JBL single-18 sub. These are mixed and EQ'd through a Midas XL42 preamp, with the direct outputs of both the kick drum mic and kick drum trigger fed to the XL42's 2x2 mixer inputs.

Haney also uses a Midas XL42 to manage the stereo FOH mix that gets sent to the sidefills, which consist of Sound Image Series V enclosures plus two double-18 subs. Thus, even if Ronnie Dunn pops an in-ear monitor out, he can still hear Welch's FOH. Originally, Haney had set up a discrete monitor mix for sidefills. "You get to where you're blowing away the front few rows," Haney explains, "and it would tend to be mostly lead vocals and kick drum." Using the house mix ensures that audience downstage-center gets the same mix as the rest of the audience, and the sidefill leakage obviously doesn't upset the FOH mix, because it's essentially the same.

Brooks and Dunn both sing through AKG C-420 headset mics and an AKG 900 Series Broadcast wireless system. Haney and backline tech Jeff Kersey use Brooks & Dunn's spare mics to communicate, and the talkback system also includes an open mic that band leader Danny Millener uses to channel other musician's requests to Haney during line check. Drummer Hawkins also has a headset mic that's briefly opened when he counts off songs. Haney says talkback is the most important part of a stage that relies entirely on in-ear monitoring. "If you don't do it properly, it can quickly drive you crazy," he adds.

Other mics used onstage include an AKG D-5600 in the kick drum, Shure SM57s on snare and toms, AKG C-460s on hi-hat and ride cymbals, while stereo C-4000s are employed for overheads. Backing vocalists sing into AKG C-5600s. Lead guitarist Lou Toomy's Vox AC30 is the only live amp onstage and is miked with a 57. The rest of the musicians' instruments are fed direct, with Line 6 Pods employed for Millener's bass, King's rhythm, Troy Klontz's steel, Charlie Crow's lead and Kix Brooks' electric. All musicians who go cordless use AKG wireless systems, which Haney claims to be the best.

Haney chooses not to use audience mics for the in-ear mixes, not just because his 56-input desk is loaded, but because he found the added ambience tended to irritate players and put more "kack" in the mix, even when properly managed with a volume pedal. "There's enough open mics onstage that there's plenty of ambience in the mix to hear the crowd roar," he notes. And roar they do.

Sound Image provides a variety of consoles on this tour. Steve Law mixes fellow Aussie Keith Urban's set on a short-frame PM 4000, which sports a pair of Tannoy System 800A active monitors on the meter bridge, while Mark Miles performs monitor chores on a Ramsa WR-S840. Allan Sullivan mixes Montgomery Gentry on half of a Gamble EX56, and Jeff Grenninger employs a Midas Heritage 3000 for their monitors. Dirk Durham mixes Tobey Keith's set on the other half of the Gamble EX, and Barney Castro works a Yamaha M3000 for monitors.

Sound Image crew chief Pete McDonough is assisted by system technician Chuck Bogard and stage tech Jon Garber. The main speakers are Sound Image's flagship JBL-loaded G-5 carbon-composite enclosures powered by QSC Powerlight 1.8 and 4.0 amplifiers—I first heard this system several years ago on a Melissa Etheridge show and had forgotten how good it sounds. Sound Image G-2 two-way boxes are positioned underneath the hang for downfill, and a dozen dual-18 carbon subwoofers are ranged on the floor.

System tuning is effected by TC Electronic 1128 equalizers and a 6032 motorized fader remote head. Welch shares this gear with the other FOH engineers—each is assigned 10 memory locations to organize their settings night to night—though it seems that there is much cooperation and sharing of thoughts on system EQ.

Brooks & Dunn's set opens with a clown on stilts, fire-eaters juggle flaming sticks, a cowboy twirling a lariat and tour-rigger Michael McDonald dressed like Buffalo Bill rappelling down head first from the grid. The duo stays amped up for most of the show, but halfway through the set, in an acoustic segment, Dunn leaves Brooks on his own to perform "You're Gonna Miss Me When I'm Gone," dedicated to late NASCAR hero Dale Earnhardt. On "Neon Moon," Dunn's custom guitar lights up with a light blue crescent that matches the trim on the stage risers. The entire tour is sponsored by Gibson, and there is a veritable side-stage Guitar Center. Country music lovers won't want to miss this circus as it meanders through the Midwest this month. ■

Mark Frink is Mix's sound reinforcement editor.

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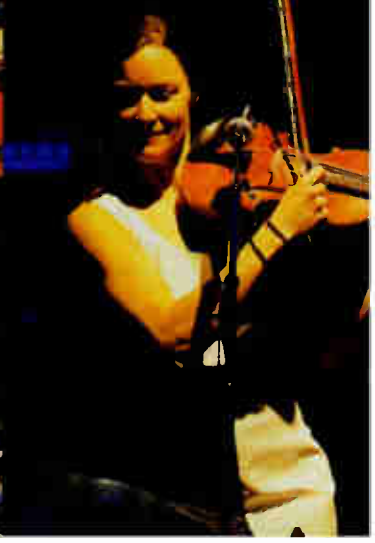
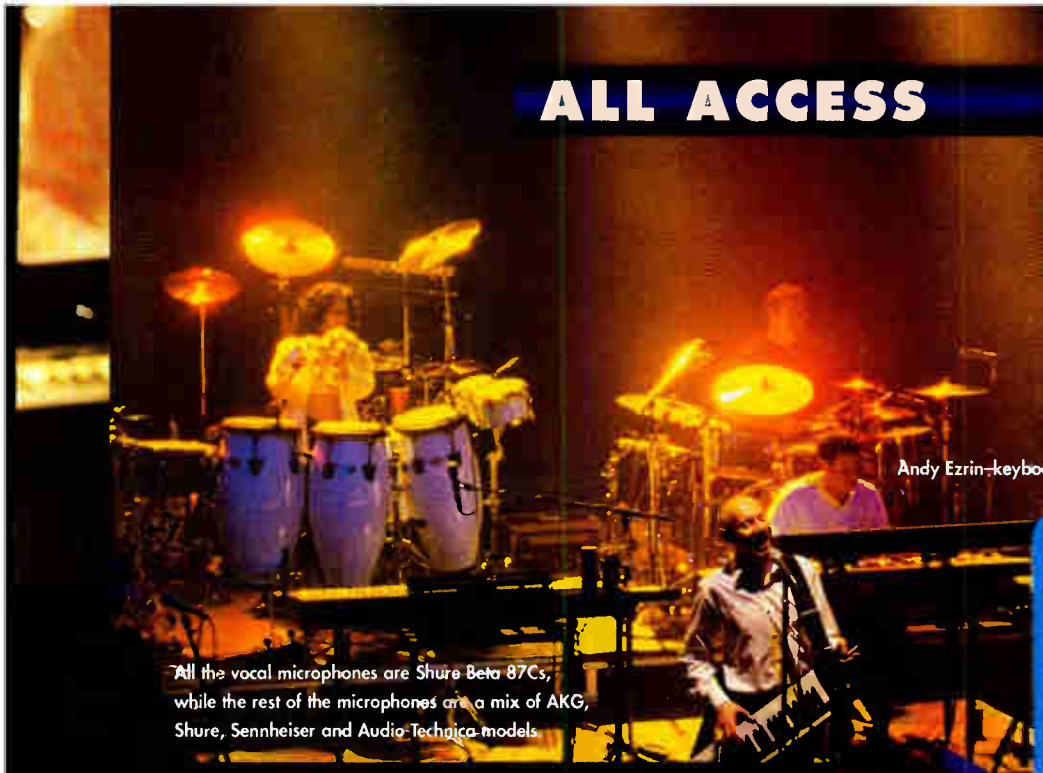


Roberto Rodriguez–drums

Joe Jackson and band took to the theaters from November 2000 through April 2001, to promote Jackson's most recent release, *Night and Day II*. Drawing from his large and eclectic repertoire, Jackson led his band through material from both the 1982 and current *Night and Day* albums, reached back to his debut 1979's *Look Sharp!*, and played a career-spanning selection of jazz, big band and jumpin' jive numbers. *Mix* caught Jackson's well-received show at San Francisco's Warfield Theater in April. Audio equipment for the Joe Jackson tour is provided by MSI (Maryland Sound Industries). FOH engineer Al Tucker has been working with Joe Jackson since 1985's *Big World* release, an album of new material that was recorded live in front of an audience. Hats off to camera-shy FOH engineer Al Tucker for one of the best-sounding shows on the road today.

ALL ACCESS

PHOTOS AND TEXT BY STEVE JENNINGS



Andy Ezrin–keyboards

All the vocal microphones are Shure Beta 87Cs, while the rest of the microphones are a mix of AKG, Shure, Sennheiser and Audio-Technica models.

Monitor engineer Mike Prowda is using a Midas Heritage-3000 console to mix in-ear monitors for the entire band, all of whom are using Future Sonics models. "There are a couple of pieces of gear that I really like to use," says Prowda, naming the single-channel Summit TLA 100 tube compressor as an example. "I love the Summit on vocals," he says, "and generally spec it for my lead singers."

Drum/percussion tech John "JW" Walsh

MSI audio tech Ishai Ratz (pictured left with keyboard/bass tech Peter Danilowicz) assists FOH engineer Al Tucker and monitor engineer Mike Prowda.

New Sound Reinforcement Products

SHURE DIGITAL PROCESSOR

Shure's (www.shure.com) P4800 system processor is a 4-in/8-out digital matrix offering a wide range of EQ and dynamic control functions that can be inserted almost anywhere in the signal chain. The single-rackspace device connects to a standard PC, enabling system configuration via an intuitive drag-and-drop graphical user interface. The PC software also provides full monitoring capabilities, and its front panel adds LED I/O ladders. DSP functions include Shure's DFR automatic feedback reducer, several EQ options, comprehensive dynamics control and polarity reverse. Onscreen resource meters monitor DSP power and delay memory availability. Compatible with Panja/AMX and Crestron control systems, the unit is equipped with RS-232 and RS-422 ports. Price: $2,665.

APOGEE POWERED SPEAKERS

Apogee Sound International (www.apogeesound.com) intros a line of speakers all featuring integrated amps and control electronics. The switching-style amps (all systems are bi-amped) are capable of matching the distortion levels and distortion characteristics of higher-grade linear amps. New models include: the APL-500 (based on the AE-5); the similar APL-220, which includes a 2-inch exit Neodymium HF driver; the APL-800 (similar to the non-powered AE-8); and the APL-110. A companion line of powered subwoofers use AB-Class amps with switching-power supplies, a technique said to offer sonic quality comparable to Class-D switching amps. The powered subs include the APL-10 (similar to the non-powered AE-10), the APL-12 (similar to the AE-12) and the APL-SB (similar to the AE-SB).

REDWOOD SUBWOOFER AMP

Redwood Music Corp. (www.redwoodmusic.com) offers the VS34 Power Plus high-powered amp, the latest addition to Redwood's STK pro audio product range. Featuring a 3,400-watt power output rating, the VS34 is designed for driving subwoofer arrays with 800 W/channel (8 ohms), 1,250 W/channel (4 ohms) and 1,700 W/channel @ 2 ohms. Based on digital-switching technology, the VS34 features multistage power supplies for solid, on-demand LF response. The front panel has level controls, a power switch and LED power/clip/protect/bridge/signal presence indicators. The rear panel inputs are ¼ inch and XLR; outputs are binding post and Speakon connectors. Recessed switches engage limiter, 30-50Hz LF filters and Bridge mode. The 34-pound amp retails at $1,795.

AKG HEADSET MIC

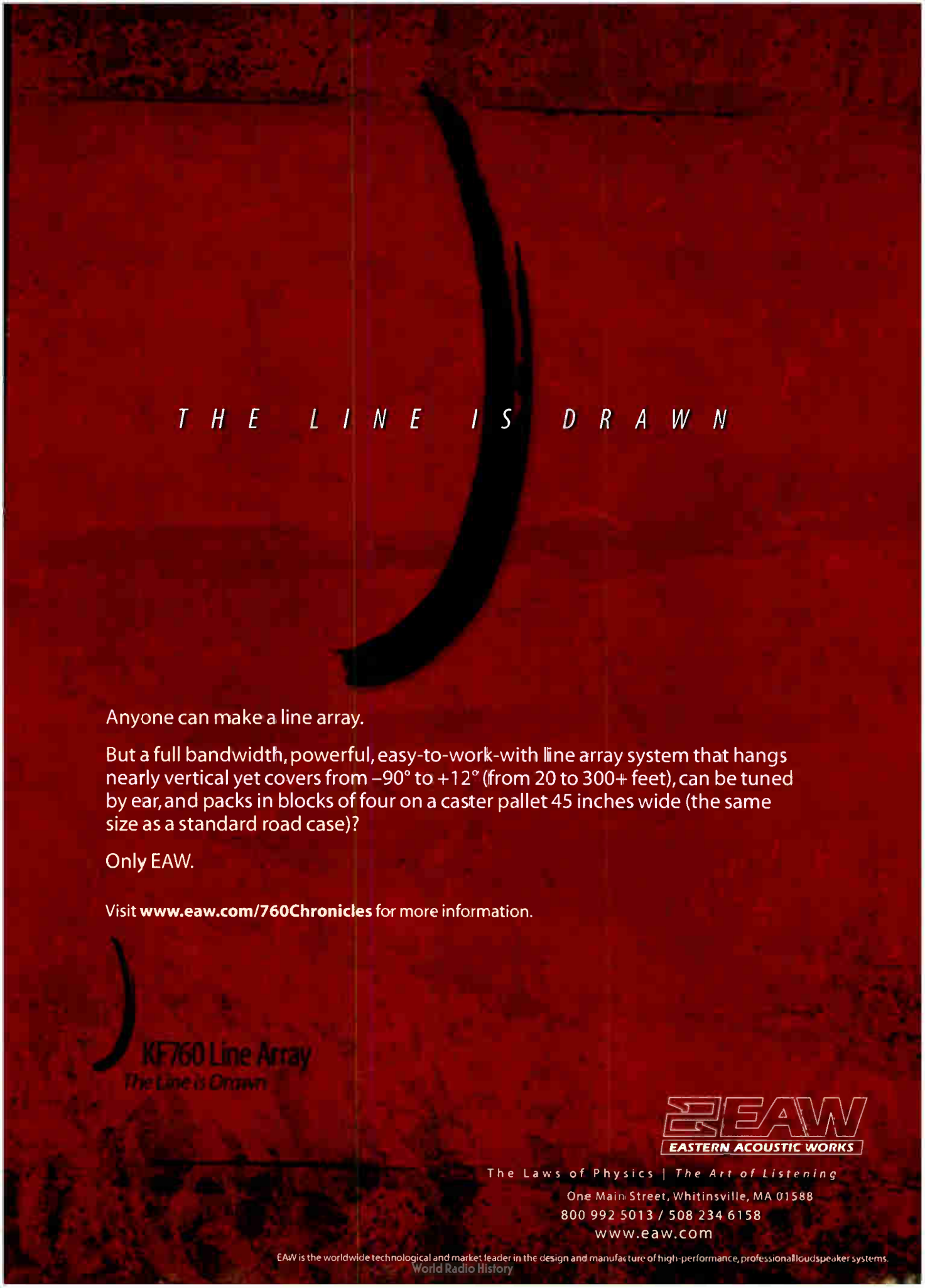
The C-477 WR microphone from AKG (www.akg-acoustics.com), a lightweight headset version of the company's CK-77 WR, positions the microphone element closer to the performer's mouth than is possible with traditional placement in the hairline or clothing. Featuring a dual-diaphragm transducer designed to reject noise, the C-477 WR's hermetically sealed capsule makes the transducer water- and perspiration-resistant; an additional foil-drip ring protects against makeup. A flexible band of steel tubing allows the mic to be custom-fitted for any user, and the mic boom is available in left- or right-side versions. The AKG C-477 WR is supplied in black or beige tones with Switchcraft connector or stripped leads. Price: $492.

HELPINSTILL PIANO PICKUP RETURNS

Absent from the market for 16 years, the Helpinstill Piano Pickup is back in production from the original manufacturer (www.helpinstill.com). The Helpinstill is a unique, patented system to provide an isolated signal from the piano by using magnetic pickups to sense the strings. In 1981, founder Charles Helpinstill sold the company to pursue his own musical career (as Texas piano artist Ezra Charles) but re-acquired the patent rights and tooling when the company shut down in 1985. The company has restarted production and is shipping the new Model 120 Helpinstill Piano Sensor, which retains the original features but simplifies the controls. Price is $550 (the same as in 1980).

QSC INTRODUCES RAVE/S-24

QSC Audio Products Inc. (www.qscaudio.com) has introduced RAVE/s-24, an enhanced version of the RAVE digital audio transport system. New features of RAVE/s-24 include 24-bit/48kHz A/D converters, non-volatile memory and parallel output capability. To accommodate the new RAVE/s-24 model's 24-bit digital audio bandwidth, CobraNet networks can be configured to transmit seven channels of 24-bit audio instead of eight channels of 20-bit audio. Network parameters may be configured with an SNMP editor, and a Variable Persistence feature stores all management interface variables. A parallel output capability allows the outputs of two RAVE analog units to be combined, eliminating the need for additional mixing hardware.



NEWSFLASHES

TOURS, INSTALLATIONS, UPDATES

The Academy of Television Arts & Sciences has upgraded the sound system in the 600-seat Leonard H. Goldenson Theatre in North Hollywood, CA. Under the direction of industry-leading contractors Soundelux MTS, JBL's Custom Shop built five special, high-output versions of JBL's ScreenArray™ cinema speaker and 12 custom surround speakers. In addition, subwoofer systems driven by 16 Model 2242H 18-inch transducers were installed behind the screen...**Midas' Heritage 3000 won the *LIVE!* Awards Best Audio Console category** for the second year in a row. More than 300 Heritage 3000 consoles have been sold since its launch less than two years ago. In other Midas news, the Foxwoods Resort Casino based in Mashantucket, CT, has taken delivery of a 56-channel Heritage 2000 for its premier venue, the 1,450-seat Fox Theatre...**Bruce Jackson, sound designer of the Opening Ceremony for the 2000 Sydney Olympics, won a Best Sound Design award at the inaugural Helpman Awards.** The awards are given by the Australian Entertainment Industry Association (AEIA), and the Sydney Opening Ceremony was nominated in five categories... **Electro-Voice's new X-Line line array** system made its UK debut with a series of dates for Richard Ashcroft at the Brixton Academy. Robbie McGrath engineered the 9-piece band on a Midas XL4 supplied by ML Executives...**Special Event Services of Winston Salem, NC, purchased a substantial NEXO Alpha touring rig** for use on a national tour with 3 Doors Down. Seventy-two enclosures (28 stacks) are being delivered in two shipments. Seattle's Show Box Theater is also installing a NEXO Alpha system for audience coverage at the 1,000-seat ballroom-style concert hall ...Two new touring productions of the musical *Saturday Night Fever* are using **80-input Cadac J-Type production consoles.** The J-Types, which are on tour with both UK and U.S. productions, handle radio mic and sound effects routing, MIDI sequencing, processing and digital submixing. Sound design is by Mick Potter...**Electro-Voice has introduced the SoundAdvice program** as an added service offered by the company's technical services group. As well as providing traditional technical support, the SoundAdvice team will offer design assistance and sophisticated room and cluster modeling and measurement capabilities...**Two Soundcraft consoles—a 56-channel Series FIVE and a 56-channel SM20—have been installed** as part of an $11 million restoration project at the Lucas Theatre in Savannah, GA. NBC's *The Tonight Show with Jay Leno* has also taken delivery of two Soundcraft consoles—52- and 44-channel Series FIVE Monitor models—for creating monitor mixes for both guest musical groups and the house band. And La Zona Rosa, an Austin, TX, live music venue, is using a Soundcraft Series FOUR at FOH...**Sound system design, installation and rental company Sound Investment has purchased its fourth Turbosound Floodlight system,** a six TLH-760H, 12 TSW-72 sub rig. The company has also specified a combination of Floodlight and custom Turbosound components for state-of-the-art sound at Fuel, a new dance club in Miami's Warehouse area. The Fuel system will include eight TSW-124 sub cabinets, 12 TSW-718 double-18-inch cabinets and four hanging clusters of two TFL-760HS skeleton Floodlight enclosures, complemented by four custom HF arrays designed by Sound Investment...CueProductions of Concord, CA, recently **installed 12 AKG WMS 300 UHF wireless microphone systems** in West Valley College's recently refurbished theater in Saratoga, CA. CueProductions sound designer Carole Davis also specified a number of AKG CK-77 WR Series lavalier microphones... **XTA Electronics' SiDD won the Gold** Award for Audio Product of the Year at the 2001 *LIVE!* Awards, which are voted on by *LIVE!* magazine's readers...**Crest power amplifiers were chosen for Utopia,** the largest freestanding nightclub/disco on the Las Vegas Strip. The five types of Crest amplifiers used in the rebuilt club (it burned down last summer) include Pro 9001, Pro 8001, Pro 7001, Pro 4801 model, plus a CA-12 to power the DJ's monitors. ■

JBL Professional Custom Shop ScreenArray speakers at the Academy of Television Arts & Sciences Leonard H. Goldenson Theatre

SONY

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Producer Walter Afanasieff (left) and chief engineer David Gleeson at the Sony Oxford console at Wally World.

It's a Digital World

Legendary Audio Producer Walter Afanasieff Invests in Oxford and DMX-R100 Consoles

Also Inside:

Digital Audio for Broadcast

NBC Installs Oxford Console

PBS Station Goes with DMX-R100

SONY

"Awesome. You totally forget you're using a digital unit."
– FRANK FILIPETTI, Grammy Award Winning Engineer/Producer

"The cleanest reverb I've ever heard."
– BOB LUDWIG, President of Gateway Mastering and DVD, Les Paul Award Recipient, and 9-time TEC Award Winner

"The sonic quality was astounding."
– DAVID HALL, Independent Recording Engineer, as quoted in the December 2000 issue of Pro Sound News

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– TOM JUNG, as quoted in the December 1999 issue of Pro Audio Review

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– BOBBY OWSINSKI, as quoted in the October 2000 issue of Surround Professional Magazine

The Sony DRE-S777 digital reverb astounds everyone who hears it. Why? Because each effect incorporates the actual timing, amplitude and frequency response of natural reflections in a real acoustic space. The DRE-S777 gets its power from a massive parallel array of Sony 32-bit DSP chips, delivering 1,000 times the processing power of ordinary reverbs. Reverberant spaces are stored on CD-ROMs that bring you studios, churches, concert halls and natural spaces from around the world. And with Sony's new optional sampling function software, you can even capture acoustic spaces of your own choosing! Form your own opinion of this important development. Call to order your Free Demonstration CD and VHS tape.

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ADVERTISEMENT

Sony Electronics Introduces SRP-X351P Powered Mixer

Sony Electronics has debuted the SRP-X351P powered mixer. The new audio/video mixer power amplifier is designed for a wide range of

applications ranging from corporate boardrooms and conference rooms to houses of worship and sports/karaoke bars.

"The SRP-X351P incorporates a number of powerful features," reports Paul Foschino, marketing manager for professional audio products of Sony Electronics' Broadcast and Professional Company. "Cost-effective and flexible, the unit incorporates many the key elements of an outstanding presentation system within a rugged, compact design. A particular strong point of the X351P is a built-in audio/video switcher that facilitates easy selection of a video source and its corresponding audio."

The SRP-X351P also offers four balanced XLR mic channels with switchable 48V phantom power, three stereo line inputs, and stereo and master record outputs. It also includes echo send and mic group outs, which allow for flexible system configuration and easy expansion. Two plug-in slots, located on the back of the unit, can accommodate Sony's UHF tuner modules (WRU-801A or WRU-806A) with a built-in antenna divider.

Additional key features include:

- master inserts (allow insert of various signal processor options to be used on the main master or mic group);
- comprehensive remote functions: supplied wireless remote control, RS-232C remote interface and Control-S in/out;
- simple front-panel controls;
- 170W per channel power section; and
- compact, rack-mount chassis (standard 19-inch rack mount and 3U high).

The SRP-X351P is available for a suggested list price of $1,299.

Sony Pro Audio Hosts DMX-R100 Open Houses in N.Y.C. & L.A.

Sony Professional Audio recently hosted DMX-R100 open houses in New York and Los Angeles as part of a series of events designed to familiarize industry pros with the powerful new digital mixing console. Over 500 units have been sold to leading recording studios, broadcast facilities, production and multimedia houses, and live clubs around the world since the unit began shipping in October 2000.

In L.A., pictured (l-r) at the R100 are producer Bruce Botnick, Hideyo Takeuchi, president of Sony Sound Communications, Inc., and Brant Biles, partner at Bob Margouleff's Mi Casa Multimedia.

At the console during the NY open house at the Sony 550 Madison Ave. Oxford Demo Suite are: James Ryan, Rampage Music (left) and Sony Professional Audio regional manager Andy Munitz. Pictured left-to-right at rear are: Don Sternecker, Mix-O-Lydian Studios; Jeff Peterson, Howard Schwartz Recording; Paul Avgerinos, Unicorn; Jim Mageras, Surroundedby Entertainment; Fritz Lang, Metropical Studios; Sony regional manager Tim Derwallis (standing); Peter Buccellato and Paul Weisz, Lower East Side Studios; and Luke Furr, president, Bay Roads Marketing.

LAUNCH Media Selects Sony DMX-R100 Consoles

LAUNCH Media, Inc. (Santa Monica, Calif.) has purchased two Sony DMX-R100 digital consoles for their new production studios in New York City. The first R100, which went online in late February, is being used to record and produce exclusive artist interviews and performances. The second board is slated to go online in late spring. The company's multimedia innovations includes LAUNCH.com, a popular Web site that provides visitors with a wide selection of streaming audio, the Web's largest collection of music videos, artist features, and music news, and LAUNCH on CD-ROM, which features music performances and interviews users can control in an unique, interactive environment. In addition, LAUNCH syndicates its audio, music, and entertainment content through LAUNCH Radio Networks to over 1000 radio stations across the country.

LAUNCH Media audio engineer David "Mager" Lacey at one of the company's two new Sony DMX-R100 consoles.

"The R100 helps with all the content we produce in New York," describes Ian Dittbrenner, director of audio at LAUNCH Media. "We use the board for everything from Pro Tools production to tracking talent via ISDN for relays to studio interviews and performances. The console has proven itself, and we are impressed by its ease-of-use, sonic clarity, DSP, memory, recall of snapshots, and EQ/dynamic range.

"The flexibility of the R100's internal routing has enhanced the way we work," continues Dittbrenner. "The snapshot automation allows us to juggle various projects simultaneously, and we can run it all from the touch panel. The board has helped increase our productivity and allows us to work with a tighter production staff. Sony also offers incredible support for their products. They listen to suggestions, and that makes us confident that the features we will need in the future will be added."

LAUNCH's audio engineer in New York, David "Mager" Lacey, has already used the R100 to record a vast array of interviews with a variety of high profile artists.

"The R100's flexibility and strong feature-set makes it a perfect tool for a creatively diverse company like LAUNCH Media," comments Courtney Spencer, vice president of professional audio products at Sony Electronics' Broadcast and Professional Company. "We are pleased that the console is being used on such progressive multimedia ventures."

L.A. Studios Upgrades with Sony DMX-R100

Implementing the first step in a two-year plan to upgrade and renovate each of its six audio suites, L.A. Studios has chosen a Sony DMX-R100 digital console for Studio D. Scheduled for installation in the spring, the R100 will be operated by engineer Paul McGrath and used on a variety of short- and long-form projects for major motion picture studios and advertising agencies.

L.A. Studios president Jesse Meli and chief technical advisor Keith Scheyving saw a prototype of the R100 at last year's NAB, and have continued to monitor the board's progress. "It sounds great," comments Meli. "And its compact design will afford us additional space to make our rooms more video friendly for our clients. The R100 is currently set up in our tech shop so that our engineers can totally familiarize themselves with it. It seems to be a hit."

"The R100 has a good monitoring section and more aux sends than most digital consoles," adds Scheyving. "Overall, it's a really flexible board with an incredible built-in router. It provides superior automation that works well with our Pro Tools™ systems. This is critical because we do a lot of remote recording to ISDN."

"Paul [McGrath] loves the R100," concludes Meli. "If he could run a session from the shop right now, he would. If everything goes as well as expected, we will investigate purchasing multiple units."

"L.A. Studios is a leader in the audio postproduction industry, and we are extremely pleased with their decision to purchase an R100," adds Courtney Spencer, vice president of professional audio products at Sony Electronics' Broadcast and Professional Company. "The console's flexibility and ease-of-use makes it a perfect choice for a facility that services such a wide spectrum of demanding clients."

Public Displays of Affection

KUHT audio specialist Douglas Robertson at the Sony DMX-R100 console.

KUHT/Houston Public Television loves the DMX-R100 so much that they bought three of them.

KUHT/Houston Public Television, the first non-commercial television station in the U.S., has purchased three Sony DMX-R100 digital consoles for its new facility on the University of Houston campus. The first R100 is currently online in the complex's Studio 1 production room. A second unit is slated to go online this summer in another production suite, and the third R100 will be used in an audio sweetening postproduction studio scheduled for construction in the fall.

"We desperately needed to upgrade our audio mixing equipment," reveals Andy Anderson, director of engineering and operations at KUHT, which broadcasts a daily news/public affairs show as well as documentaries, live programming, membership drives, and other productions. "We chose the R100 because it was cost-effective, compact, and offered a great deal of capability. The fact that the console has 48 inputs assured us that it would meet all our requirements. We also needed a unit that had limiting/compression on all the channels."

"The R100 is a dream," states Douglas Robertson, audio specialist at KUHT. "The first of our three boards replaced a digitally controlled analog board from another manufacturer. Right off the bat, the R100's footprint was smaller than the control surface of the original console, not to mention its eight-foot rack of mixer electronics and switch points."

According to Robertson, PBS affiliates are often caught in the conundrum of adhering to the highest broadcast standards and the lowest broadcast budgets. "The R100 solved this problem," he explains. "We bought three for less than the base, no frills price of any of the all-analog industry standard broadcast mixers available today. We could have bought six for the cost of competitive digital mixers. The R100's extensive feature-set, which includes dedicated, simultaneous 5.1 and stereo monitoring and mixing, 9-pin machine control, input and output routing matrixes, and snapshot and dynamic automation, would have cost extra. Plus some of the options, like delay per channel, might not have been available at all."

Robertson describes himself as an audio department of one: "Frankly, most of the actual audio assignments are accomplished by employees whose reason for living is not audio," he explains. "Usually, I design the setup, do the install, train the assigned operator, and move on to the next project. The snapshot automation in the R100, combined with the input and output router, eliminates the need for operators to do complex patching, troubleshooting, and setups on their own. They just call up the snapshot and go right to mic and playback source checks.

"In addition," Robertson elaborates, "there is plenty of memory for operators to customize their own snapshots. With the built-in floppy, they will be able to export those setups to other R100's as they come online. So, instead of having to train operators and producers on the distinctions between different boards and dealing with the preference of one control room over another, I only have to train an operator on one mixer and they're good to go on any air board in the plant."

Referring to the flexibility of the aux bus control as "nothing short of revolutionary," Robertson is "thrilled" that mix minuses are no longer complex thought experiments. "Inherited from the big brother Oxford, you can call up the bus on the faders, turn up the ones you want the talent to hear, pull out the talent's channel and anything else you don't want to send, and you're done," he states. "The comprehensive talkback features make cueing talent through the mix minus bus super simple.

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Late Night With Sony Oxford

NBC recently installed a Sony OXF-R3 Oxford digital console in its Studio 6A's music room — the home of *Late Night with Conan O'Brien* — at NBC's 30 Rockefeller Plaza headquarters in New York City.

"We are extremely pleased that NBC has recognized the benefits the Oxford console will provide for the production of the Conan O'Brien show," says Courtney Spencer, vice president of professional audio products at Sony Electronics' Broadcast and Professional Company. "The Oxford's efficient user interface should be a perfect match for the fast-paced production capabilities this show requires."

The following is a Q&A with Jim Starzynski, principal engineer, audio technologies and practices, NBC technical planning and engineering.

NBC engineer Jim Starzynski (center) with Sony's Andy Munitz (left) and Sony's Terry Murphy in the NBC Oxford console suite.

SOUNDBYTE: Why did NBC choose the Oxford console?

JIM STARZYNSKI: The Oxford was one of a handful of consoles that were in the running for installation in the Studio 6A Music Room. It replaced a top-end analog console that had served us well for years. The Oxford digital console brought us the enhanced features we were interested in.

Oxford had also established a firm track record in the recording business and with mobile units. This, along with a positive experience with another Oxford during the surround sound DTV broadcast of an All-Star Game in February 2000, helped make our decision easier.

What benefits does a late-night live show derive from having an Oxford?

Snapshot resetability helps us by allowing instantaneous setups between rehearsal and air. Instant recalls also allow customized settings for a particular band that previously had to be accomplished on different sections of the console. Now each and every mix can occur from the sweet spot of the console.

How is the automation used in this live setting?

Resetability is used all the time to change setups from band to band. Dynamic automation is used to integrate dialog and audience microphones from the main broadcast mix if a band remix is required in postproduction. This capability is a step beyond what we were used to with our previous analog console, and it speeds up the entire show's production process tremendously.

What specific features does NBC like about the console?

The dynamics section of the console is well thought out, and virtually all the features within it are easily accessible by the mixing engineer. Every function can be easily adjusted, without having to page through anything, and requires minimal button pushing.

Discuss the instant total recall capabilities and how it applies to the show and the bands.

We can easily store mixes and recall different setups by just toggling through memories. Stored macros make this really fast and easy to do. This type of resetability makes a complete board reconfiguration almost instantaneous.

Was the board customized for any specific video/television requirements?

Because we have an external communication system in the studio, we were able to work with Sony on a modification to the talkback section. This change let us use the talkback buttons to engage a video monitoring switcher to change the input to the picture displays in the room.

The console is also set up to read and display "time of day" timecode while still being able to handle specific timecode played back from a multitrack session.

How much of the onboard compression/EQ is used?

Almost every channel's dynamics section is used. Because of this, there's little need for the master compressor on the 2-mix at the main output of the console. The gates come in very handy, as well as the compressors. The dynamics section is one of the best thought-out features of the console.

The panels are well-designed, easy to reach and control, and the electronics are clean.

Why is it superior to the previous console?

The architecture of a digital console allows a lot more to happen in a smaller space requirement than could ever be achieved on any analog console. The mixing engineer can sit in the optimum monitoring position and still access the controls that are necessary to do anything to a particular mix.

Snapshot recall is a welcome feature that was not available to us on our previous desk. The sound quality we're now achieving is outstanding. It's so good that it's minimizing the amount of

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Oxford 3.0 Arrives

Important upgrade enhances surround capabilities and much more.

The next generation of Sony's Oxford OXF-R3 digital audio console was unveiled at the NAB show, held April 21-26 in Las Vegas, in the Sony Demo Center, Room N109.

"World-class users have come to appreciate the enormous power and flexibility of the Oxford," states Courtney Spencer, vice president of professional audio products at Sony Electronics' Broadcast and Professional Company. "Now, with the upgrade to Version 3.0, we're offering significant new features that amplify the console's capabilities, including the widening of the main program bus from two to eight channels to streamline surround recording and mixing, while leaving the multitrack busses available for other uses. Each channel now has automated joystick panning to the program bus as well as to the existing multitrack busses."

A key feature of the 3.0 upgrade is a new monitor panel that supports convenient monitoring of stereo, LCRS, 5.1, and 7.1 formats. An innovative "fold-down" capability allows users to execute quick down mixes from one program format to another, or to check for compatibility.

Version 3.0 also features the addition of super send groups that allow for flexible grouping into mono, stereo, LCRS, 5.1, and 7.1. Each group send can have its own independent fader and joystick to facilitate simultaneous 5.1, 7.1, LCRS, and stereo mixes. The super send groups supplement the existing 24 auxiliary sends on each channel.

Reinforcing the Oxford's flexibility and assignability, the board has a comprehensive internal digital patchbay that allows input and output signals to be easily assigned to the processing channels as needed. On a session-by-session basis, this routing can be called up instantaneously.

The Oxford also comes standard with features such as four types of 5-band EQ per channel; a comprehensive dynamics section, including three types of compressors on every channel; 1.2 seconds of programmable delay per channel; multi-stem recording and monitoring; and 48 multitrack busses.

"Virtually everything about an Oxford — all routing and every setting for every channel — gets recalled in a quarter-of-a-second," Spencer adds. "In a live television broadcast setting, for example, the entire setup for a guest band could be recalled instantly with the engineers ready and waiting for the commercial break to end."

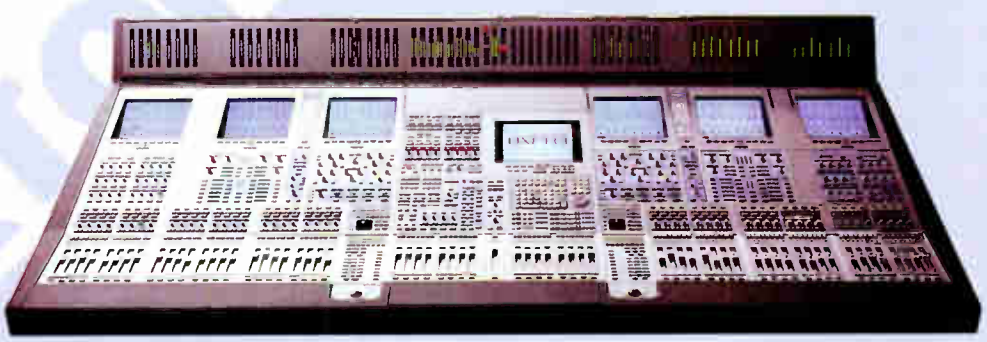
> "You can configure an Oxford console across a very wide range of capabilities and sizes..."

Sony works closely with every Oxford client to optimize (and customize) their individual console configurations. The I/O racks that house the interface cards for these consoles allow each facility to load in their unique A/D, D/A, and AES/EBU requirements.

"You can configure an Oxford console across a very wide range of capabilities and sizes," comments Spencer. "A post house may need only a few mic inputs with a dozen AES/EBU I/Os, while a tracking facility may need a very large number of mic inputs and AES/EBU I/Os to interface with all their outboard gear."

There are two control panel options. Smaller facilities seeking to keep the console size to a minimum could use the smaller control surface, which offers 24 addressable channel faders and 17 master section faders, all in a compact package. The larger configurations all feature 48 addressable channel faders in conjunction with the master section.

Oxford 3.0 will be available fall of 2001.



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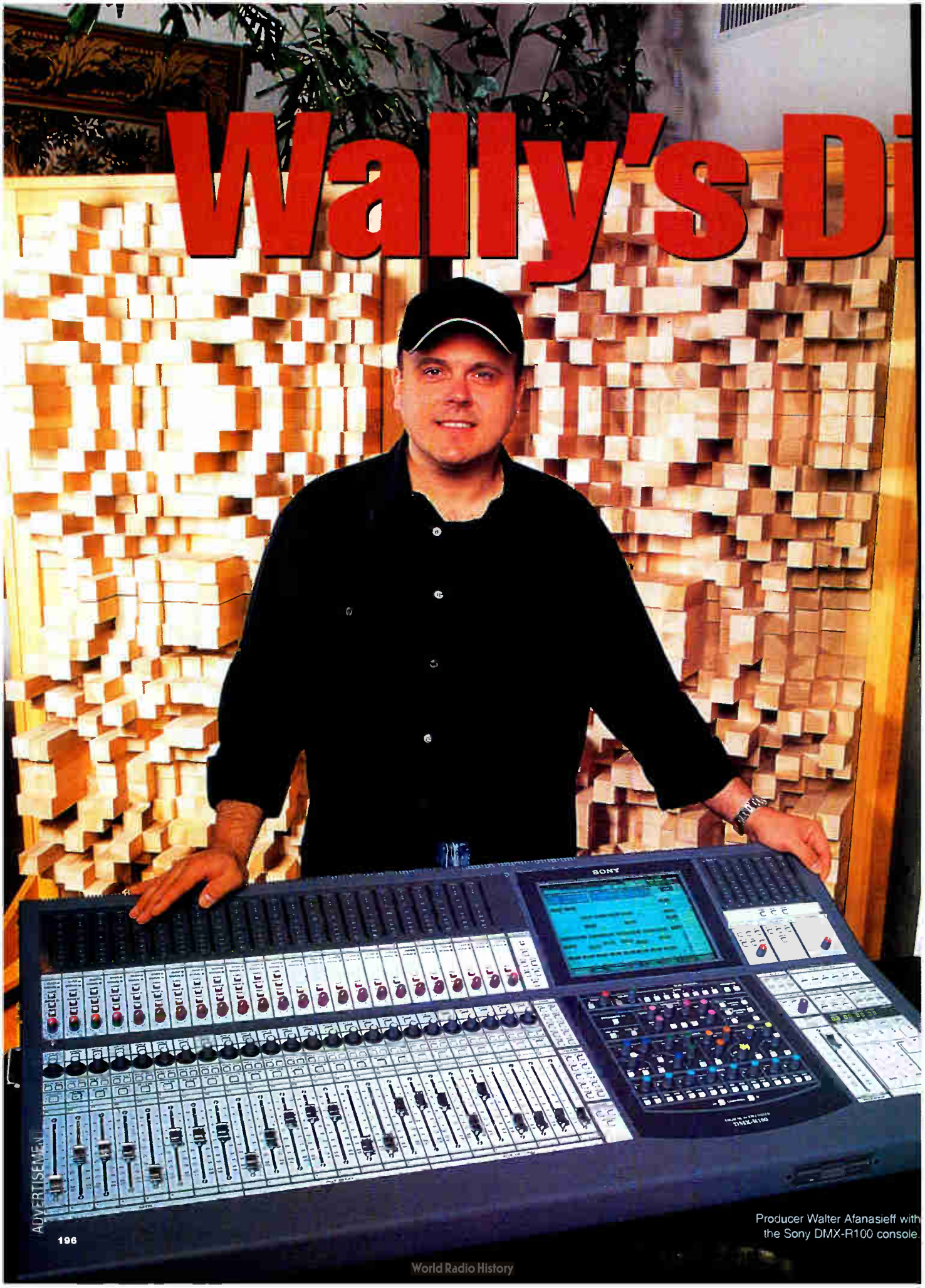

Producer Walter Afanasieff with the Sony DMX-R100 console.

gital World

Legendary producer Walter Afanasieff chooses Sony Oxford for his studio, as well as three DMX-R100's for his other projects.

Veteran producer Walter Afanasieff (a.k.a. Walter A) has installed a Sony OXF-R3 Oxford console in his state-of-the-art Wally World Studio B in San Rafael, CA. Chief engineer David Gleeson reveals that the Oxford installation is the final stage of an 18-month-long facility upgrade.

"One of the things we have always struggled to achieve during programming is the ability to do a quick changeover from one song to another," Gleeson says. "The Oxford's total recall and instant resetability provides us with a seamless and efficient working environment.

"The Oxford's digital I/Os will play a key role in integrating digital audio throughout the facility. We use a lot of different sources for multitrack recording," Gleeson continues. "In the past, it has been difficult to integrate the systems to archive material or transfer recordings from one medium to another. The Oxford will really facilitate these tasks."

Producer Walter Afanasieff (left) and chief engineer David Gleeson at the Sony Oxford console at Wally World.

"Having been a producer for a number of years, I have become really familiar with the quality of Sony's products and pro audio team," Walter A comments. "I've worked with the Oxford at other high-end studios and on a number of projects with engineer Mick Guzauski. The Oxford's performance inspired me to get my own. Now, Mick and I can mix in tandem, and the need to be in two places at one time will dissolve."

A multi-platinum producer/writer whose credits include Mariah Carey, Savage Garden, and Ricky Martin, Walter A has also purchased three Sony DMX-R100 digital consoles. Two will be used in his studio's songwriting MIDI Pro Tools™ suites. "We wanted a compact high-end digital console, and the R100 is a powerful and versatile unit that can perfectly accommodate a small room," he explains.

Walter A's third Sony DMX R-100 will be housed in Moomba, a new club in Los Angeles, where he is a partner. The intimate (300-person occupancy) venue will feature DJs, live band record company showcases, 5.1 film viewing, stand-up comedy, and many other live performances. The R100 will be used for monitoring and front-of-house live sound mixing, for playback in 5.1 surround, and for a wide range of A/V applications.

"It's a demanding environment," Gleeson says. "Walter needed a system capable of switching rapidly back and forth from one application to another. The R100 has proven its ability to do just that."

"We'll also be installing a high-end Sony camera system," Walter A concludes. "Moomba will give up-and-coming artists a chance to express themselves in a state-of-the-art environment. We hope to discover the next crop of major artists."

"Walter A is an extremely prolific and highly respected producer," adds Courtney Spencer, vice president of professional audio products at Sony Electronics' Broadcast and Professional Company. "His choice of both an Oxford and three R100's is a clear indication of the increasingly meaningful role these consoles are now playing in our industry."

L.A. Recording Workshop Looks to Sony for Digital Future

The Los Angeles Recording Workshop, a North Hollywood-based state-of-the-art educational facility specializing in studio engineering, digital video editing, and film production, has made a major investment in Sony digital technology. In addition to installing an Oxford OXF-R3 and five DMX-R100 digital consoles, the school has purchased a DRE-S777 digital sampling reverb and a PCM 3348 digital recorder.

Pictured at the Oxford is Los Angeles Recording Workshop director Christopher Knight (right). According to Knight, the advanced section of the Los Angeles Recording Workshop program focuses on digital mixing in the school's recently constructed Sony Oxford suite. The new Sony gear is an integral element of the school's recording engineer program, which was recently expanded from 600 to 900 hours.

Four R100's have been installed in the Los Angeles Recording Workshop's Sony Lab (pictured left). The fifth board is set up in a 5.1 surround sound-capable studio with a recording room and isolation booth. "Students can start an assignment in the lab, burn their recording on a DVD-RAM, and then take their tracks to the Sony R100 studio to continue the project," explains Knight. "The board is powerful and cost-effective, and its sonic clarity and flexibility are incredible. It was the only choice for us."

Late Night with Sony

continued from page 194

EQ required on individual sources and the overall mix.

Any final comments?

The overall experience has been a positive one. The sound of the digital console is excellent, rivaling any high-end console we considered whether it was analog or digital.

We've been particularly pleased with the transition from the analog platform we were used to. The Oxford accommodates this move by offering digital enhancements while still retaining some of the important familiarities akin to an analog control surface.

Public Displays of Affection

continued from page 193

"Here at Houston PBS, we don't do cookie-cutter news shows," concludes Robertson. "We live for change. The R100's astonishing simplicity and flexibility make studio turnovers, pledge drives, station events, and music tapings a pleasure for the ears — not a headache for the sound guy. In the same week I installed our first R100, we went right into our Million Dollar March, the linchpin of our pledge drive and fund-raising efforts. I mixed the first evening with minimal error and handed off to the next two operators to do the following days. The R100 worked beautifully. Everything sounded clean and loud."

"We were impressed by [Sony regional audio manager] Art Gonzales's R100 demonstration at a SMPTE meeting awhile back," Anderson adds. "A true all-purpose board, the R100 meets our needs throughout the station."

"We're extremely pleased that KUHT/Houston Public Television has chosen the R100," comments Courtney Spencer, vice president of professional audio products at Sony Electronics' Broadcast and Professional Company. "The variety of applications they plan to engage it for underscores its versatile functionality. In terms of both cost and flexibility, the R100 is a great fit for KUHT's multifaceted operation."

Editorial Director: Anthony P. Montesano; **Managing Editor:** Anthony Savona; **Art Director:** Marshall Moseley; **Associate Art Director:** Greg Gennaro; **Cover Photo:** Steve Jennings; **Photo Credits:** Pg. 3, (bottom right) Howard Sherman; Pg. 4, Courtesy of LAUNCH Media. Used with permission; Pg. 5, Courtesy of KUHT. Used with permission; Pg.6, Howard Sherman; Pg. 8-9, Steve Jennings;

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—FROM PAGE 18, I HAVE A DREAM

they begin to feel that this is normal, or "right." Add to that the mandatory nature of any performer's ego, and you have the classic problem of every single person in the band feeling that they are *buried in the mix*.

Viola! [sic] Problem solved. No mix, no more bruised egos, no more pent-up hostility. No more screaming at the other players or at the engineer. Less .357 Magnums in the control room and, ultimately, fewer porsches driven in anger. Engineers, producers and now even musicians living together in harmony. Getting better. Okay, so let's move on.

4. Labels will be happier. This one is a no-brainer. The label will make tons more money once we stop mixing. When we begin to deliver our songs as 24- or 128-track masters, *only one* song will fit on a CD, if that! Given the fact that the public is *still* getting totally screwed with CD pricing ("Order now; $9.95 for two cassettes, $29.95 for one CD"), imagine the profit in a single album! One album, 22 CDs in a beautiful box set. And these babies will *sell*; I will tell you why later.

This is *so* much better than using 96kHz sample rates to increase profit by doubling media demands. This increases media consumption by as much as 128 times! Not to mention new profit potential for pressing plants and the entire distribution chain, including USPS, UPS and FedEx.

5. Consumers will be happier. And this, dear readers, is what drives the whole thing. And isn't that what the beauty of capitalism is all about? Every kid in the First World will buy more, *much* more music. Why? First of all, if we stick to our guns (and there will be so many more available to stick to because all those artists will be selling their .357s) and we *all* stop mixing, then any kid who wants to buy an album will be forced to commit to 20 CDs or so. And they will, you know that. But while that helps the Industry, how does it actually make consumers happier?

Because of the profound commitment necessary to buy an entire album, the pursuit of music will become an even larger part of their lives than it is already. They will have to earn (or weasel) more money, or perhaps divert a little of the 10 grand each that they put into their Honda Civic's sound system, and put it into the music itself. Now we've got fewer porsches *and* fewer subwoofers on our roads. Things are looking up already, aren't they?

And this is the genius of it all. Because these kids can't play their new 128TDDD CDs in their cars, *they're just gonna have to learn to mix*! Yup, that's it. That's the secret that assures the success of this bold new plan. And why? Well, what do kids do when they learn a new skill? They *compete*!

Once these kids start mixing and comparing, they will have an immediate purpose in life. They will learn, compare and advance. There will be clubs, competitions, T-shirts. They will even develop pride in their work, and that will only fuel further growth and more music purchases.

Even adult consumers will benefit. We (the old farts) can mix albums the "Old Way" and show our kids what music used to sound like when it was still music. We can use cool technical terms like "Steely Dan" to explain clarity, "Abba" to demonstrate selling out. And "Airplane" or "Hendrix" to explain why we can't remember anything other than Steely Dan, Abba, Airplane and Hendrix. And they can show us the New "Grand Master" way.

Because we will most likely be using our kid's gear to mix, we will actually be spending quality time with our children, as well. And that takes us to the next group.

6. Consumer and pro gear manufacturers will be happier. They will have the best years of all time. Every serious kid will need enough gear to mix 128 tracks. Can you imagine the horror if you were a kid and everybody in your school could mix 128 and you could only handle 64? Come *on*! Massive hardware sales are *guaranteed*!

And if you are still not convinced that you should join our cause, then consider this: The problem of downloading illegal MP3s will disappear overnight. I mean, who is going to wait three to 50 hours to download a single 128-track song?

And even *Mix* wins. Because there will be no more Mixing, we can move over and cover Tracking. And the potential for spin-offs is staggering. For live recording in the field, *Tracking Field*. For those who care about microphone techniques, *RØDE and Track*. Of course, there would be *Tracker* for those guys who love big mobile rigs, good buddy, and *Tracks* for the grunge-smack crowd.

I don't know...It seems to me that *everybody* wins. What do you think? ■

Because time repeats at the end of the Universe, it's never too late to say, "So long, and thanks for all the fish."

BY BLAIR JACKSON

RECORDING NOTES

PLACEBO

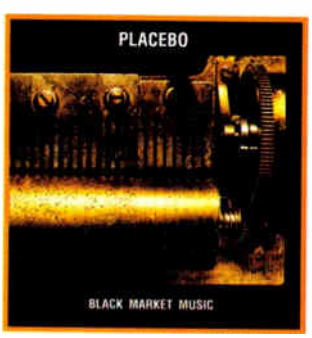
21ST CENTURY BOYS

by Robert Hanson

Back in the mid-'90s, while we here in the U.S. were still content to pick at the decaying corpse of post-Cobain alt-rock, our European counterparts were gorging themselves on Brit pop's high-calorie diet of bombast, back-stabbing and public feuds. Bands like Blur, Suede, Oasis and, in purely aesthetic sense, Elastica, preached a cliched gospel of straight-ahead sex, drugs and rock 'n' roll to millions of eager fans. Stepping out of this scene of lager-soaked lust (and considered by most to be the anti-Brit pop band) was Placebo, who scored a Top 20 hit in the UK with the track "Nancy Boy"—an infectious ode to androgyny and ambiguity that caught everyone's attention. Other singles from the band's self-titled debut, such as "Bruise Pristine," were also well received, and by year's end, Placebo, with their flippant, wire-thin, gender-bending frontman Brian Molko, had arrived, and, arguably, things have not been the same since.

Following the band's initial success, they were asked to join David Bowie at his 50th birthday bash in New York (a friendship that has led to several collaborations), they appeared in the Michael Stipe-produced film *Velvet Goldmine*, released their critically acclaimed sophomore effort *Without You I'm Nothing*, which included the U.S. radio hit "Pure Morning," and embarked on a now infamous, five-continent world tour that helped earn Placebo the title of "the filthiest band in Britain." Enough said.

Once the tour for *Without You I'm Nothing* ended in the



fall of '99 and after a much-needed month off, Placebo—which consists of vocalist/guitarist Molko, bassist/guitarist Stefan Olsdal and drummer Steve Hewitt—jumped right back in to the studio to work on their latest release *Black Market Music*.

Initially released last fall in Europe, where it debuted in the Top 10 (opening at Number One in France and Greece), *Black Market Music* is Placebo born anew. Where their self-titled debut album seemed somewhat naïve and *Without You I'm Nothing* lurked dangerously close to sounding over-produced, *Black Market Music* is a carefully crafted combination of obvious performance-driven energy and top-shelf production that shows the band really hitting their stride both musically and thematically. The opening track, "Taste in Men," feels like a fully realized cross between *Black Celebration*-era Depeche Mode and Sonic Youth's *Trash and No Star*, and that same tense and infectious mood comes across in a dozen different ways throughout *Black Market Music*.

A veteran of albums with The Cure and Nick Cave, producer/engineer Paul Corkett was approached by Placebo in the fall of '99 to possibly work on their new album. "I met Placebo engineering on their second album [*Without You I'm Nothing*]," Corkett recalls, "but I had to leave the project to start The Cure album [*Bloodflowers*]. But we hit it off.

—CONTINUED ON PAGE 208

MARIA MULDAUR

BRINGING IT ALL BACK HOME

by Blair Jackson

A few years ago, Maria Muldaur had an epiphany. She was in Memphis to attend the W.C. Handy Awards (for the finest blues recordings), and one night, while she was wandering the streets, a blues band who was playing for a small crowd on a little makeshift stage in an alley off Beale Street unexpectedly invited Muldaur to come up and join them for a song. Muldaur scrambled to think of a song that she and the band both knew and ended up singing Memphis Minnie's "Chauffeur Blues." The next day, Muldaur and a friend went on a pilgrimage of blues sites in the nearby Mississippi Delta, visiting the graves of Memphis Minnie and Leadbelly, as well as Stovall's Plantation, where Muddy Waters had made his first field recordings. Muldaur had been singing blues her entire professional life, dating back to her stint in the Jim Kweskin Jug Band in the mid-'60s, but there was something about suddenly finding herself in the famed "cradle of the blues" that was profoundly moving for her. Her last night in Memphis, she went to see her friend Bob Dylan perform, and she was struck, again, by how so many of the great musicians of her generation had been inspired by the same early blues players. Dylan's then-current album, *World Gone Wrong*, was a testament to that—it consisted entirely of acoustic covers of old blues and folk tunes. Muldaur came away from her week in the South determined to record her own down-home tribute to the long-gone masters of the blues who had led her on her career path. It took a couple of years to germinate, but now Maria Muldaur's *Richland Woman Blues* is out (on the Stony Plain label), and it stands with the best work of her long and varied career.


PHOTO: STEVE JENNINGS

"I don't think anyone's going to accuse me of jumping on a bandwagon," Muldaur

—CONTINUED ON PAGE 211

SHEILA E.

TAKING THE E-TRAIN

by Chris J. Walker

Percussionist/singer/producer Sheila E.'s musical persona is an amalgamation of funk, sexiness, tantalizing pop/R&B-styled melodies and hard-driving Latin rhythms. But for her latest Concord Records CD, *Writes of Passage*, the former Magic Johnson talk show bandleader and one-time Prince collaborator took a more relaxed approach than on her previous recordings. This is not to imply that the project is easy listening or background music; rather, it resonates with more easy-going contemporary jazz stylings.

"I wanted to work with my band E-Train, play drums, congas, percussion and sing a little bit, and not have it be as commercial as a pop record," explains Escovedo from the offices of her San Fernando Valley-based company, Heaven Productions. There, she produces music for television specials and also writes and produces for other artists. "I was looking for something that allowed me to express myself musically in that field and collaborate with some of the other musicians. I wrote music that's Latin jazz, Brazilian, with a little bit of R&B. But with that mixture, I didn't want to be worried about it being commercial enough to get played on radio."

Escovedo's last album, *Sex Cymbal*, was released in 1992 and left her with a less than favorable impression of the current record industry. Following that disappointment, she maintained a high profile as an unsigned artist working with a slew of different performers and appearing on numerous shows, film soundtracks, charity events and concert tours, ranging from David Letterman's show to the *Academy Awards* to a tribute to Dizzy Gillespie to touring with Latin/pop vocalist Jennifer Lopez. At this point, Escovedo is a first-call percussionist,

—CONTINUED ON PAGE 213

GEORGE JONES' "HE STOPPED LOVING HER TODAY"

by Barbara Schultz

"He Stopped Loving Her Today": It's the saddest song, and the most mournful voice, and the most histrionic production and the cruelest punchline in the history of country music. But what a magnificent cry America had in 1980 when the first track of George Jones' album *I Am What I Am* became the brilliant, infamous superstar's first Number One single in six years.

By 1980, the career and life of George Glenn Jones had already been a roller coaster of epic proportions. Born in 1931 in Saratoga, Texas, Jones was the youngest of eight children. During the Depression, his family was the kind of poor that no one born post-World War II can really imagine; the kind of poor at the deepest roots of American blues and country music.

"One Christmas, I got a guitar that was about six inches long," Jones recalls in his 1997 autobiography, *I Lived To Tell It All*. "It wasn't really a guitar at all, just an imitation. But we children were as happy as larks." He describes a life "rich in love as it was poor in possessions," until one of his sisters died, probably of pneumonia, and his father turned to alcohol and began a cycle of pain for the Jones family that George would perpetuate.

Jones left home at 16 and began his recording career in 1953, when he was discovered by Starday Records founder/producer Pappy Daily. He had his first hit in 1955 with "Why Baby Why," which went to Number 4. Jones' early recordings, including sensational up-tempo songs such as "White Lightning" and "The Race Is On" and duets with Melba Montgomery, were very much in the Hank Williams hard-core country style.

In the late '60s, Jones met and fell in love with Tammy Wynette, who also became his third wife. In order to record with Wynette, Jones left his current label, Musicor, in 1971, and joined Wynette's, Epic, where he also began recording with Wynette's producer Billy Sherrill, who was known for his "countrypolitan" sound.

It's impossible to talk about George Jones' years at Epic without mentioning the artist's well-documented battle with alcohol and drugs. By the time he met Wynette, Jones already had a serious drinking problem. While he and his wife were professing love and fidelity in their hit records, such as "We Can Make It" and "The Ceremony," their famous union was unfortunately troubled almost from the beginning, largely because of Jones' excessive drinking, tirades and occasional disappearances. Wynette filed for divorce in 1974, but the couple was persuaded by Epic to continue touring and recording together. This was extremely demoralizing for Jones, and, not surprisingly, his drinking only got worse.

"In the 1970s, I was drunk the majority of the time," Jones writes. "I had drunk heavily for years and had pitched benders that might last two or three days, but in the 1970s, I was drunk the majority of the time for half a decade. If you saw me sober, chances are you saw me asleep. It was a five-year binge laced with occasional sickness from sobriety...Some folks think they're in pain if they've had one too many cocktails the night before. They have no idea how it feels to have one too many pints. It's like going through a violent food poisoning with an ax in your skull."

During this period, Jones fell in with a new manager, "Shug" Baggott, who gave Jones his first line of cocaine, in an effort to rouse the singer from his drunken stupor and give him the "energy" to perform. Then things really got ugly. By the end of the decade, Jones was psychologically and physically a shadow of his former self; he was broke and alone, and his pitiable condition was being perpetuated by managers and pushers who were living off of what was left of him. It took a career record—this month's "Classic Track"—to help Jones begin to climb out of that hole.

In his book, Jones commends Billy Sherrill for continuing to cut hit records with him, even through some of those really rough years. The veteran producer never gave up on Jones' talent, and he continued to offer him top-shelf material to record. "He Stopped Loving Her Today," which was written by Curly Putnam and Bobby Braddock, was a song that Sherrill felt was meant for George Jones.

"The song is about a man who loved a woman so much, it killed him when she left," Jones writes in his book. "He said he would love her until he died, and only on his deathbed did he stop...Billy loved 'He Stopped Loving Her Today.' He said he was unable to sleep the night after first hearing the song. But he thought it was incomplete...Putnam and Braddock killed the song's main character too soon in their early versions. Billy kept telling them to kill the guy at a different time and then have the woman come to his funeral. The writers thought that might be too sad, and Billy did, too. But he knew the song, on a scale of one to 10, was about an eight. He saw it as a potential 11."

Jones says that Sherrill had a notebook

"about an inch thick" full of possible rewrites of the song. When the producer was finally satisfied with a version, he brought Jones into CBS Studio B in Nashville, the old Quonset Hut, to record.

In 1979, when tracking for this song began, Studio B was mostly run by veteran engineer Lou Bradley (Tammy Wynette, Merle Haggard, Charlie Rich, etc.), who had joined CBS as a staff engineer a decade earlier. Bradley worked in Studio B for 13 years all told, but his memories of this tracking date are still vivid. "What I remember most was that we'd gone through a difficult year with George, but he was beginning to straighten out his problems, and he came in to record, and I turned to Billy Sherrill and said, 'Boy, it's good to have him back,' and he said, 'Ninety percent, but I'll take it.'"

Bradley says that in '79, songs were mostly recorded live in Studio B, though the strings and some of Jones' vocals on this track were overdubbed in Studio A by its resident engineer, Ron "Snake" Reynolds. Bradley says he can still picture where all the musicians were situated: "Say you've got the piano, and to the left of the piano player is a wall about as high as the piano, and beside that's the bass player right even with him. Then the

Cool Spins

The Mix Staff Members Pick Their Current Favorites

Sacred Hearts and Fallen Angels: The Gram Parsons Anthology **(Rhino)**

A Gram Parsons anthology is such a great idea I tried it myself more than 20 years ago, when I assembled a 100-minute tape of my favorite Gram Parsons songs from the International Submarine Band, The Byrds, the Flying Burrito Brothers and his solo albums. Well, Rhino has now done the job much better with this very generous two-disc set that beautifully shows the range of Parsons' genius. No doubt, on the surface Parsons must not seem like an exceptional talent—his voice was thin and slightly unsure, a long way from George Jones and Merle Haggard and the many other country singers he so admired. But he sang with tremendous conviction, and his songs were almost uniformly brilliant; even the ones he wrote when he was 21 years old in the International Submarine Band show a maturity far beyond his years, and his writing just got better as he got older. By the time he made his early '70s solo albums—*GP* and his true masterpiece, *Grievous Angel*—Parsons had truly found his songwriting voice, and the tunes he was producing were every bit as soulful and moving as the covers by country greats that always occupied a place on his records and in his live repertoire. Gram Parsons died way too early (1973) and way too young (27), but he left behind an impressive body of work—a legacy that continues to influence and inspire young and veteran musicians alike.

Compilation Producers: James Austin, Patrick Mulligan, Gary Stewart. Original

—CONTINUED ON PAGE 216

drums are behind that, but it's open; it's just a shed up over him. Two acoustic guitar players would sit nestled right next to the piano, and then across from them were the electric and the steel, and then the vocal and the background were right looking at the piano.

"Normally, we worked the room with the singer away from the band a little bit," Bradley continues, "but we did Charlie Rich in there and cut 'Behind Closed Doors' and those hits. Charlie played piano, but Pig Robbins would play the piano [on the sessions], and Charlie would like to stand near the piano, and so Billy got to cut everybody standing by the piano, right in the middle of the band, and that's how we cut Jones that day."

Like most engineers who worked in CBS Studio B before the label closed it in 1982, Bradley remembers the room as practically ideal. "It was a neutral room," he recalls, "but I knew all the sweet spots if you wanted to liven something up a little bit, or you needed something not as reflective. That room was just great. We cried when we lost it."

"Studio B, in particular, was such a great-sounding room that all the leakage you got just sounded warm and rich," Reynolds says. "It was like recording in a concert hall or something. The musicians sometimes wouldn't use headphones, because it sounded so good in the room."

Gear-wise, the studio was equipped with a custom console that Bradley says arrived for duty in Studio B on the same day he did in 1969. "They built it at Columbia in New York," he explains. "The original console in that studio had Langevin EQs and faders, so when they designed the one to replace it, they used the Langevin EQ and faders again. It was a 16-bus, 24-in console, and we had seven echo sends and returns. I'd keep six EMTs and one live room, and I was probably one of the first guys there to quit printing reverb. The guys that preceded me came from mono 3-track

days, and I did too, but I'd probably done more multitrack recording."

Bradley also remembers all of his microphone selections for the date—mostly lots of Neumanns. The Jordanaires with Millie Kirkham sang the backing vocals into a Neumann U47. Instrument mics were a U67 on electric guitar, a 249 on the steel and KM84 on piano. Drum mics were KM84s on snare, hi-hat and toms, a pair of U67s as overheads and an E-V RE20 on the bass drum. On Jones' vocal, Bradley used a U87 on this session, though they'd used a U67 on some earlier dates. "That mic complemented his voice, and Tammy's, too, when we did the duet records. And that's what he always sang into, so that's a psychological thing, too."

"He Stopped Loving Her Today" was recorded 15 ips Dolby to an Ampex tape machine. The string overdubs were recorded by Reynolds at a later tracking date, and some of Jones' vocals took many more dates to secure. "It took them awhile, but they were striving for something a bit out of the normal," Reynolds says. "They knew they had something special, especially Billy, I think. One thing kind of funny about it was that the melody was so close to 'Help Me Make It Through the Night' [by Kris Kristofferson] that George kept singing the melody to 'Help Me Make It Through the Night.' He couldn't get that out of his head. That gave him a bit of a problem early on, and they took their time to get the narration just right."

The narration part of the song consists of four lines Jones speaks rather than sings: "She came to see him one last time/ And we all wondered if she would/And it kept running through my mind/This time he's over her for good."

"Pretty simple, eh?" Jones asks in his book. "I couldn't get it. I had been able to sing while drunk all of my life. I'd fooled millions of people. But I could never speak without slurring when drunk. What we needed to complete that song was the narration, but Billy could never catch me sober enough to record four simple spoken lines. It took us about 18 months to record a song that was approximately three-minutes long."

Reynolds says that Jones may actually have been overly self-deprecating in this case. "George will knock you out every time," he says. "He is one of the last few artists that I can remember who would give you chill bumps while he was singing with the band. Billy and I would just look at each other and shiver when George would hit some of those crazy licks that he does, so every time he sings, it's unusual and it's good, but it might not be exactly what they were looking for at the time."

In any event, Sherrill, Jones and the engineers stuck with it over many months before they had the song completed. On the day they finished, Jones writes, "I looked Billy square in the eye and said, 'Nobody will buy that morbid son of a bitch.' Then I marched out the studio door."

The song is fairly depressing, but Jones had turned in an absolutely brilliant performance, and Sherrill's production was nothing short of genius. "A lot of people tried to copy what Billy did," Bradley says, "and they'd hire that studio, they'd hire the same engineer, and they'd hire the same musicians and background singers, but they wouldn't get it, because they were listening to the end result, and the end result was what you heard *after* you walked the path to get there. To really understand it, you'd have to isolate some aspects of the recordings, like the dynamics. I pulled the record out and listened to it today, and you can hear that in the rhythm section, and you can also hear subtle things like the strings come in and you can tell that they're muted. [Sherrill] did that a lot. He'd make the strings mute on their entrance, particularly if it came in under a verse; it was soft, because the singer was having to sing it soft and low to interpret the lyric, and then the mutes come off when it kicks into the

bridge. It just made sense to him to keep them out of the way but let their presence be known.

"I felt like people misinterpreted how he got his sound. He got his sound trying to make the song come off and the singer singing it. That was the most important thing in the room. Not anything technical, not anything musical, not anything but that singer and the song, and all his juices flowed to make that happen."

In his autobiography, George Jones writes more about the recording of "He Stopped Loving Her Today" than he does about any other song. "I went from a twenty-five-hundred-dollar act who promoters feared wouldn't show up to an act who earned twenty-five thousand dollars, plus a percentage of the gate receipts. That was big money for a country artist 16 years ago...To put it simply, I was back on top. Just that quickly. I don't want to belabor this comparison, but a four-decade career had been salvaged by a three-minute song."

"He Stopped Loving Her Today" earned Jones a Grammy Award for Best Country Male Performance in 1980. It also resulted in CMA Awards for Best Male Vocalist of the Year in 1980 and 1981, and it was the Academy of Country Music Single of the Year and Song of the Year in 1980. Even more importantly, while on tour supporting the Platinum album *I Am What I Am*, Jones met his current wife, Nancy Sepulvada, whom he married in 1983. Nancy Jones helped her husband work toward sobriety.

The great producer Billy Sherrill is retired now, but Lou Bradley says, "I'd like to get into the studio with him just one more time, because I don't think anybody cutting records now understands how to cut a ballad any better than he did." Bradley and Reynolds both went independent when CBS Studios closed in 1982. Both still have very successful careers. Reynolds recorded Shania Twain's smash *The Woman In Me* album and is currently in the studio recording Earl Scruggs and a host of famous musical guests. Bradley recorded Merle Haggard's beautiful 2000 album *If I Could Only Fly* and is working with the legend on a follow-up.

George Jones was inducted into the Country Music Hall of Fame in 1992 and the Grammy Hall of Fame in 1998. And he is still doing beautiful work today; he recorded a back-to-hardcore country album in 1999, *Cold Hard Truth*, for which he won another Best Country Male Vocalist Grammy. ■

—FROM PAGE 202, PLACEBO

We had been getting sounds that we liked. And then in the autumn, they came to us and wanted to do an album but didn't want to necessarily name a producer. They wanted a lot of control and input. And because we'd worked well together, I suggested that we try something. The band went in to write, and while they were writing, we did some b-sides for the fan club sampler. Everything was working, so we decided to pursue it."

The band set up at a small demo studio in London called Matrix Studios. The modest facility had a Soundcraft board, a 24-track recorder, and a performance area where the band was able to set up and write. "The guys could have live wedges set up," Corkett continues, "so they all had their own fold-back and were playing without headphones. They could communicate really easily, because it was just like playing live. And they felt it was a really good way to write. So they built a good wealth of material in Matrix Studios, and I kept going up there every three weeks, helping them out with sounds and hearing what they'd done. I was able to be objective about it, and they could tell me where they wanted to push songs."

"We were dying to get in the studio," drummer Hewitt adds. "We really didn't have too much time to write new stuff on tour. So we came off the road and had two tracks, and then we went into Matrix, the place where we wrote *Without You I'm Nothing*. And you can just get in there and play and record. We got in there and let it all go.

"When we're writing, the music always comes first," Hewitt continues. "We're always knocking tunes around. We're always trying different things, like loops and various keyboard and guitar parts. And then Brian [Molko] tries to set lyrics around what's going on. On occasion, like on 'Special K,' the song will start with just vocals and guitar. The majority of it, though, is just music, grooves, bass parts, and guitar and keyboard parts. And we'll just piece it all together. None of us have defined roles in the studio. So we all play different things. But Brian and Stef [Olsdal] can't play drums that well, and I can't play guitar that well. [Laughs.] But we mix and match, and everybody's got their hands on everything."

The band spent three months at Matrix writing and recording. Two of the songs they tracked there, "Peeping Tom" and "Blue American," ended up being mastered and were included on the album. Corkett then joined the band full time at Olympic Studios, also in London, where they all went about the task of re-recording the material they had begun at Matrix. The band moved into Olympic's Studio 2, which houses a 56-channel SSL 4000.

"Once we arrived at Olympic," Corkett explains, "we set up a sound space where the band could really communicate with each other, visually and playing-wise. We had the amps separated, in the sense that both Brian and Stef had matching rigs. So sometimes Brian would play six-string bass. Other times, Stef would be playing the rhythm guitar part, and that's how they work; they alternate parts a lot."

The guitar amps were normally miked with Shure SM57s up close and then Neumann U67s set back a few feet. Corkett also tracked direct lines into Pro Tools, allowing either him or the band to later add extra processing to a particular track. The band themselves also manipulated a lot of sounds at the source with various pedals and combinations of guitars.

For tracking the drums, Corkett set Hewitt up on a riser in order to capture more bottom end and to produce some better resonance. "It really projected the sound straight out into the room," Corkett says. "The bass drum ambience was really nice to deal with. It also gave Steve a sense of

how they normally set up when they're playing live."

Corkett and Hewitt also set up, as they put it, a mono "trash kit," which was a very minimal drum kit set up to the side of the regular kit and miked with a handful of dynamic and room mics. This simply provided an alternative sound to the normal kit and actually ended up on the track "Song for Levi." Corkett miked the regular drum kit with a Neumann U47 on bass drum; an SM57 on snare top; Sennheiser 421s on the toms; Neumann KM84s on overheads and hi-hat; and a pair of 87s further back to capture the sound of the room. Above Hewitt's head, Corkett also set up an 87, which was run through an 1176 gained up at different ratios to produce what Corkett calls "a very chewed, compressed sound."

"I kind of had a clean and a driven sound, and I would play the different sounds to the band," Corkett states. "And then we'd narrow it down to the song. Maybe on one mix of 'Slave to the Wage,' I might have supported the snare with a sample, but it's still all live kit. We spent the time and got the sounds we wanted."

For Molko's vocals, Corkett, after trying a number of other mics, including an M149, generally used the same A-T 4055 that Molko uses on the road. Beyond that, the vocal tracks were an exercise in simplicity. "With Brian," Corkett says, "he doesn't need any effects to sing to. He likes his vocal pretty dry most of the time, so it's just his voice, very unflattered. That way, he knows where he's at. He's a very quick singer. Once he's got his lyrics nailed, it's within three performances—that's it. If there is a particular part of a song that's not coming together, he will then work on it. But, generally, he prefers to do live takes, and most of the time we'll just take a live take and patch a couple of elements.

"And then I just use gentle compression on his voice," he continues. "He doesn't like it to be squashed, because if he wants to open up, he doesn't want to be held back. But he's a very easy vocalist to work with. He can switch it on at any time of the day—just ask him. But if it's a sensitive song, he'll say when he wants to do it, which is cool. And as soon as we were set up [at Olympic], it was like, 'If you feel like a vocal, you do one. It doesn't matter if the track is really raw; we've only got drums, bass and the chords down. If you're ready to do a vocal, let's do it!' And he could just whack a vocal down and listen to it, and mainly it was just to verify his lyrics and then build the angle of how he was going to do the performance."

Brian doesn't need any effects to sing to. He likes his vocal pretty dry most of the time, so it's just his voice, very unflattered...Then I just use gentle compression on his voice.

—Paul Corkett

In addition to a number of straight-ahead drum/guitar/bass songs, several of the tracks off *Black Market Music*, and some b-side offerings, like "Little Mo," incorporate a good deal of synths and keyboard lines. For these elements, Corkett set Molko and Olsdal (who both play keyboards live) up with some small Yamaha keyboards and a generous supply of effect units.

"The band never use presets. They'll

chain [their keyboards] through a variety of effects and add what they like until they get a sound that sparks them. And, in doing that, they generate much more original sounds and off-the-cuff stuff. They can be things like Electro-Harmonix pedals and envelope filters. We recorded all the keyboards live; there was no MIDI information, and then we would just compile them, which was a very straightforward process."

Other musicians who were brought in on the project included rapper Justin Warfield of One-inch Punch, who contributed vocals to the track "Spite and Malice"; Brian Ellis of PJ Harvey's band, who handled the string arrangement on the album's secret track "Black Market Blood"; and Linoleum singer Severe Loren added backing tracks to both "Taste in Men" and "Special K." According to Corkett, "It turned out to be really nice to involve someone else, vocally, on the album."

"They wanted this record not to be so polished," Corkett concludes. "They wanted a rawer sound that may occasionally require some polish. They're fans of Sonic Youth, so they love that kind of garage thing you can sometimes get, but they were looking for a more controllable version of that. And really nothing about this album was a pain. I think we mixed 'Special K' twice. But we would mix tracks when we felt ready to mix them, which is really a luxurious position to have, not having the pressure of 'shit, this has got to be done!' Nothing ever became a chore. It was always fresh. And they're a very inspiring band to work with. They never treat it like a chore. They just get off on the energy and the music, which is really nice to be involved in." ■

—FROM PAGE 203, MARIA MULDAUR

says with a laugh as her tour RV pulls out of El Paso and heads for a gig in Houston. "I've been playing this music *forever*; it seems. But this is my own personal tribute. I have no idea what's going on in the blues landscape at large at this moment, except that I do a lot of blues gigs and I try to stay abreast with my other female blues travelers when they have albums out or whatever. But this is for me, to quote Dylan, 'bringing it all back home.' It was just something where I was struck by the incredible power of these songs. If Bob Dylan, our most prolific writer, was doing an album of old songs by the Mississippi Sheiks and these others, and with only a guitar...well, it struck me how moving and relevant they still were at the end of the century, as they were in the '20s. 'World Gone Wrong'—you couldn't come up with a better summation of the whole century."

In the manner of the Dylan disc, Muldaur's *Richland Woman Blues* is stripped-down and unadorned—all of the 14 tracks are duos or trios, and there isn't a drum on the disc. She's enlisted a stellar cast to back her, as she moves easily through vintage tunes by the likes of Mississippi John Hurt, Bessie Smith, Leadbelly, Fred McDowell, Reverend Gary Davis and Blind Willie Johnson. Featured guitarists include John Sebastian, Roy Rogers, Amos Garrett, Alvin Youngblood Hart, Taj Mahal, Ernie Hawkins and Bonnie Raitt. Helping out on vocals are Taj, Raitt, Tracy Nelson and Angela Strehli.

"The first cut was Leadbelly's 'Grasshoppers On My Pilllow,' which was done up at a studio [Sundae Sound] in Calgary, Canada, where Amos Garrett lives," Muldaur notes. "And then it took off from there. Some of the others were done in my living room [nicknamed Oasis Studios]. I have an engineer friend with Pro Tools, John Jacob, and I'd say, 'Bonnie Raitt is in town. Bring your stuff up to the house!' So

we'd set up a couple of mics and go for it. John worked tirelessly. Then we also did things at John's studio [Small Treasure in San Jose, Calif.] and Dave Wellhausen's studio [in San Francisco] and a few other places. It all depended on which studio was available when a certain artist was around.

"This was done on what I call a tweezer budget. A blues record, by nature, is usually made on a tiny budget. But this was done with so much love, and I had an ingredient I don't normally have, which is the most important element—time. I had the time to make it right. We weren't under any kind of pressure, and we could take the time to make it feel good. I can't tell you the number of times I've worked on a record and it's come down to a crunch at the end, and you find yourself mixing too fast and maybe settling for less than the best, because you've gotta get it out the door and into the record company's hands. That sort of goes along with the territory, usually."

Over the course of a 35-year career, Muldaur has worked in nearly every conceivable recording situation, from big-budget productions to simple, live, 2-track sessions. Her most famous and popular records, the mid-'70s Reprise albums *Maria Muldaur* (which contained the smash "Midnight at the Oasis"), *Waitress in a Donut Shop* and *Sweet Harmony*, spoiled her somewhat, because producers Lenny Waronker and Joe Boyd spared no expense in tracking down so many extraordinary musicians to back her up—everyone from Dr. John to Lowell George to Kenny Burrell to Ray Brown; just an incredible cast. "Back in those days, there was plenty of money to get the people and take the time to get it right," she comments. "No one was in a hurry. You could be painstaking. You want the best blues piano? Call Dr. John. For swing stuff I got Benny Carter. I was already used to playing with really good musicians; that wasn't new for me. But it certainly made picking the best musicians for every record a real priority for me, and from the beginning I did have a lot of input in that. And you know what? No one's ever turned me down! I keep askin' them, and they keep showing up to play on my records!

"On every album I've made in the last decade, whoever it says produced, I'm actually the person who chose all the material, chose 99 percent of the players, and then actually worked with the players to get the right groove and the right arrangement and shaped each song. I love working with musicians. When it's at its best, it's like we're all breathing together. The players I like leave their egos at the door, and they're there to serve the music. That's what I live for, both live and the studio."

Though she has never quite recaptured the commercial glory of her Reprise days, Muldaur has had a very fulfilling career, particularly since the early '90s, when she cut the excellent *Louisiana Love Call* for Black Top Records. She recorded two very successful children's albums, *Sunny Side of the Street* and *Swingin' in the Rain* and a trio of strong, bluesy discs for Telarc—*Fanning the Flames*, *Southland of the Heart* and perhaps best of all, *Meet Me Where They Play the Blues*, which started out as a collaboration with Charles Brown but became a tribute to the blues great after he died early in the project. All three Telarc CDs are immaculately recorded (as usual) and show the breadth of Muldaur's talent and her affinity for various roots music styles.

Richland Woman Blues is more intimate and, in some senses, more personal. Muldaur clearly relates to her blues progenitors, particularly the women. She draws strength from the lives and music of Memphis Minnie and Bessie Smith: "They had it so much tougher than I ever did, obviously. It was not easy to be a woman in show business in those days, particularly a black woman. But a lot of what they sang about was basic man-woman relationship stuff that's still relevant today. Bessie Smith's lyrics are always so great, and they have fantastic punch lines. They're so pithy and true to life."

At the beginning of her career, during her Jug Band days, Muldaur encountered a number of the blues giants who'd been rediscovered by the predominantly white folk music audience in the late '50s and early '60s, and she befriended two of them. "Victoria Spivey, who was probably in her late 60s at the time, took me under her wing because she signed the Even Dozen Jug Band [which included Muldaur, David Grisman and others]. She said, 'Honey, when you get up there, it ain't enough to just sing the song. You gotta get up there and strut yo' stuff and show 'em what you got. You gotta command attention.' So she gave me a lot of pointers on stage presence; she was very supportive. She was one of the first artists to ever have her own label. She had plenty of sass and savvy and attitude at her age. I also knew Sippie Wallace. The way these singers sang about their lives, and the attitude they had, was so much more realistic than anything that was being fed to us by pop culture at the time—what might have been in a Connie Francis song or whatever was on the radio. It's just a real nitty-gritty and realistic approach to life that has served me well all these years."

Although *Richland Woman Blues* sounds relatively spare, it was by no means a simple disc to make. It took a year and a half to pull it all together, and, because Muldaur is such a perfectionist, this was not one of those "okay, that's a take, we're done" projects. Some of her lead vocals, for instance, were edited from 15 or 20 takes, "but the thing with Maria is," comments engineer/co-producer John Jacob, "every one of those takes will be really good. She has a great ear and will hear nuances in her performances that she likes."

The CD was recorded and mixed entirely in Pro Tools, which made the sometimes laborious editing a snap. Jacob says he "hasn't used a console in years," preferring to go with the popular chain of good mics into good preamps to Pro Tools. His favorite vocal mic for this Muldaur project might surprise some: a B&K 4003, an omni he's had fitted with a special ball head that he says gives it some of the characteristics of a Neumann M50. Guitars were typically miked with a matched pair of Neumann KM184s, though Bonnie Raitt's powder-blue dobro begged for a third mic to pick up every bit of that Buick hubcap resonator sound. Some of blues pianist Dave Mathews' parts and some of Muldaur's final vocals were tracked in the fine ambient space of the Music Hall at the University of California at Santa Cruz. The session with Taj Mahal was a multi-hour marathon at Wellhausen Studios. Jacob used several different preamps on the project, including a PreSonus M-80 and a Focusrite. His primary compressor was a Waves Renaissance. He also used an Aphex Exciter here and there to give more dynamic range to the guitars. Jacob mixed primarily on Genelec 1032s.

Muldaur and Jacob tracked so many songs for the project that a second disc is

already partially done, and, once again, the singer is finding more than enough willing collaborators for this ongoing labor of love. Her current tour, which has her traveling with guitarist Ernie Hawkins, the inimitable veteran Freebo on bass and New Orleans keyboardist Josh Paxton, has been drawing good reviews and enthusiastic crowds everywhere it goes. No doubt about it, these are good times for her, several lifetimes removed from the frenzy of "Midnight at the You Know What," as she wryly calls that career break/albatross. "I wouldn't trade what I've got now for anything," she says. "I've been able to do whatever I want, musically, which ultimately, for people who are in it for artistic reasons, is a dream come true." ■

—FROM PAGE 203, SHEILA E.

known the world-over for her incredible chops and her striking beauty.

Although she was involved with many other artists, she says she never lost sight of her own music, maintaining at least six different bands during the period when she wasn't recording. Predictably, most record companies were only interested in the more commercial aspects of her music, which she found uncomfortably limiting and creatively repressive. "It's hard to do only one type of music," Escovedo comments. The possibility of doing a little bit of everything on a CD was suggested to her, too. "To do all that—funk, pop, gospel, fusion and Latin jazz—on one record, then there's no direction," she continues. "And that's difficult for marketing purposes as well."

Eventually, in 1998, Escovedo decided to create *Writes of Passage* on her own with her long-standing touring band. "Most of these guys I've played with since about '93," she notes. "Then we went out a couple of years ago, because I really wanted to play. We did about two months that included Europe, Japan and here in the States. It was lots of club dates, and we probably sold out 98 percent of all the shows. That was without a record or publicity. It was just the fans respecting the work I do, which is good."

After attempting to market and distribute the CD independently through alternative methods, including the Internet, she signed with Concord Records. "They had asked me four years ago to sign with them, because my father, [percussion legend] Pete Escovedo, is on their roster. But I wasn't ready still," Escovedo explains. "They came back later and gave me a great offer. It allows me to do great projects, which could be with any of the different bands I have. We'll be doing music that's not as commercial, but good music that I grew up listening to."

Writes of Passage is a mostly instrumental affair that incorporates elements of her Mexican heritage. There is certainly a retro element to the approach but it's balanced with contemporary sensibilities. The recording has moments of intense jamming but, by and large, is a relaxed affair, which is exactly what Escovedo wanted for a working environment. "I just called the guys," she recalls, "and said, 'Look, we'll try to do a record and give ourselves about nine days.'

"The original band was a lot more fiery than this record is," she continues, "because [trumpeter] Charlie Sepulveda was such a big part of the sound. Everything was already worked out for everyone to come down to my place. I called Ray Obiedo at the last minute, because [Charlie] couldn't make it the day before; it was that close. So I said we just were going to change some things, but it's still going to be a great record. So I think that it's okay that it happened like that.

"I like change, and it allows me to grow in so many different ways. If I stayed the same, I don't think I'd still be in the business. We were able to play together, and created a lot of songs on the spot. Some of them were already worked out prior to the sessions. It was fun to play 'Virtuosity,' which was [bassist] Mark Van Wageningen's song. He brought me an idea and I arranged it. It was cool to play, and he was real excited because he never had a song done on someone's record before. I got to stretch out on it, too. Also, there were one or two songs that were almost like 'first takes'; that was it."

The recording sessions for *Writes of Passage* took place at the percussionist's tri-level home in Woodland Hills, Calif., in part to keep costs down. It also gave Escovedo the freedom to play impulsively and as long as necessary to work things out. "It was very cool," she affirms. "I didn't have to leave my house. We brought food in and I had a pool table in the living room. It was very relaxed, and we had a very good time.

"Basically, the studio was in the garage, and I set my drums up in my bedroom. It's huge with a 30-foot ceiling, and I also had a piano in there. We recorded the saxophone player in the bathroom and the acoustics were great. You'd never know it, but he was standing between the sink and the bathtub with his music stand in the bathtub. It was pretty funny, but it worked. The bass, guitar and keyboard players were in the garage. It was really strange, but everything sounded so good."

Equipment was a mishmash of formats used in an ad-hoc manner in the spirit of the layout. For visual communication between the control room and musicians, a multi-camera video system was installed. Keeping it all together to get the best sound possible, considering the physical and monetary limitations, was engineer Jess Sutcliffe, a British transplant who was nominated for an Engineering Grammy in 1999, and who had worked with Sheila E. on the *Sex Cymbal* album. (He's also worked with her father, Wall of Voodoo, Gary Numan, Toto and, most recently, Boz Scaggs.) Recalling the technical aspects of *Writes of Passage*, he says, "She definitely had a plan. There were certain things that she wanted, such as recording on analog 2-inch multitrack. We rented an Otari [multitrack] for recording the acoustic instruments, like the drums and saxophone. We brought in various mic pre's and outboard Neves.

"Setting up a studio in a house is not easy," he continues. "There's everything from electricity to headphones to making sure everyone can hear, see and talk to each other. It's a very deep, involved process. I'm afraid to say, I've done projects like this before. [Laughs.] Before I came to America, I was an engineer for Vangelis for about three and a half years. We used to set up studios in the most bizarre places. We had them in hotel suites in New York and even on top of a yacht on the Aegean Sea. So I'd done that kind of thing before, and it's always an experience.

"But in the Los Angeles area, it's not really that difficult. It's great for rental companies; they have everything you need. The next thing you know, the equipment is on your doorstep. Then it's just a question of getting everybody placed where you need them. Because space was limited, we checked out a few different smaller consoles. We ended up using a Mackie."

Escovedo notes, "We tried to experiment a lot. I had the standard great sound that Jess set up for me, compressing the mics with great effects and everything. But sometimes I'd say, 'Let's do something different with guys switching to different instruments, too.' I even took one of the kick drum mics, held it my hand and sang through it." A few times during the project, however, Escovedo and her brother, Peter Michael, who helped out on vocals,

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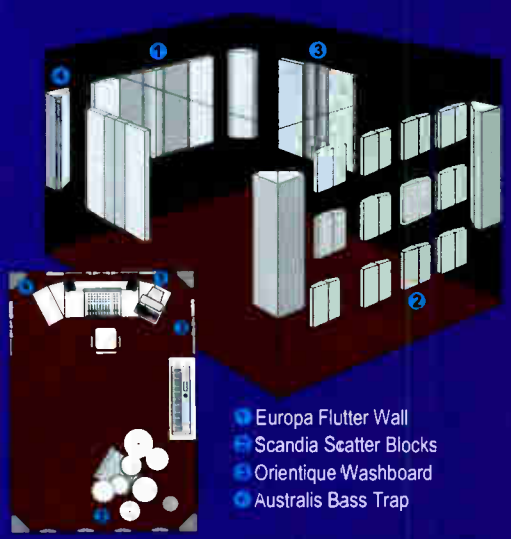

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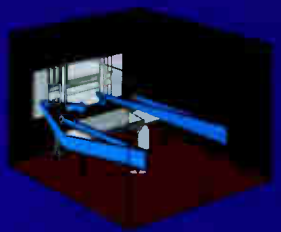

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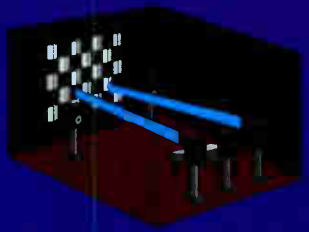

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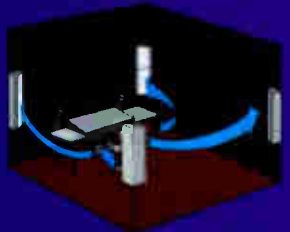

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drums and percussion, got carried away with the experimentation. Afterward, they found that getting things back to normal wasn't that easy. "The headache," she recalls, "was that once we started experimenting, we had to call the seconds in to re-wire things. Because we really did tear it apart with wires everywhere."

Sutcliffe confirms: "She'd change mics from the ones I set up, and I would come back from another project or mixing...'That doesn't sound like the 414 I had set up!' She would say, 'No, no, no. We ended up trying the kick drum mic on the vocal, and I really like the way it sounds.'" After a close to decade-long working relationship with Escovedo, Sutcliffe has learned to expect the unexpected. On the flip side, he generally knows what she wants before she says anything.

Mixing for the project was jammed into three days and done at Westlake Studios in Hollywood. Not surprisingly, Escovedo was involved with this end of the process, too. "My hands and feet are into everything," she laughs. "However, I trust Jess to do a lot of things without me. So I don't *have* to be there, but this was a fun project, and we did it together."

"On all the projects we've done together, it's definitely been a collaborative effort," Sutcliffe notes. "We mixed on a Neve V with Flying Faders, which is something she's really comfortable on. I set the mixes up and get them sounding really good. Then she'll come and we'll trade off some ideas. She'll grab a fader and get it to sound the way she wants to hear it. She may not get down to the exact frequency of what it is she doesn't like, but she has an end image of how she wants things to sound. Additionally, she's one of the best punch-in people around. She can do it on a dime.

"It's a great experience working with her; she's a consummate musician," he concludes. "She has a definitive idea of what she wants to hear at the end of the day, which is always great and makes everyone's job a lot easier. It can be a *long* day, though, because until she gets what she wants, nobody goes home. I think from a technical standpoint, we pulled it off pretty well. This was an analog project, and we used [some equipment] that wasn't necessarily up to some of the top studios' standards. But it still sounds pretty good for an album that was done at someone's house. I think it goes to show that if you have good musicians and you can get down to using what equipment you have, it can sound really good." ■

—FROM PAGE 205, COOL SPINS

Producers: Suzi Jane Hokum, Gary Usher, Larry Marks, Henry Lewy, The Burritos, Jim Dickson, Gram Parsons, Rik Grech, John Delgado, Marley Brant. Engineers: Mike Lietz, Eddie Brackett, Roy Halee, Charlie Bragg, Henry Lewy, Hugh Davies, Ed Barton, John Bradley. Studios: Western Recorders (Hollywood), Columbia Studios (L.A. and Nashville), Wally Heider Studios (Hollywood), A&M Studios (Hollywood), Capitol Records Studios (Hollywood). Remastering: Dan Hersch, Bill Inglot/Digiprep.

—Blair Jackson

Electric Light Orchestra: *Zoom* (Epic)

Okay, who's fooling who here? This is really just ELO mastermind Jeff Lynne's latest solo album; so much so, that he plays nearly every instrument on it. None of his former bandmates are anywhere to be heard. So, false advertising aside (and who can blame a guy for wanting to cash in on his former glory?), what we have here is a very strong pop record, fairly overflowing with memorable hooks, the unmistakable stacks and stacks of glistening vocals that characterize nearly everything Lynne does and more overt Beatle-isms than you'll find on some Beatles albums! I mean no disrespect when I say that Lynne is writing better George Harrison-style songs these days than George

is, and Harrison is impressed enough by the efforts of his longtime friend, co-producer and former bandmate (in the Traveling Wilburys) that he lends a hand; so does Ringo. Fans of Lynne's distinctive production techniques will certainly enjoy this eclectic offering. It's all over the map, stylistically, yet strangely cohesive—kind of like The Beatles were. Lynne seems to have taken a little something from everyone he's produced through the years, from Tom Petty to Roy Orbison, and filtered it through his own sensibilities. Maybe the Electric Light Orchestra is really just *all* of his influences.

Producer: Jeff Lynne. Engineers: Marc Mann and Ryan Ulyate, with additional engineering by Richard Dodd. Recorded at Lynne's L.A. home studio. *—Blair Jackson*

Ike Turner: *Here and Now* (Ikon Records)

Ike Turner's still got it! He still makes a boogie-woogie piano sing like nobody else, and his grooves are still as powerful as they were when he, Sam Phillips and Jackie Brenston gave us the

first rock 'n' roll record, "Rocket 88," in 1951. When I interviewed Phillips last fall, the venerable engineer/producer poked some lighthearted fun at Turner's vocal talent, but I bet Phillips would agree that Turner sings just fine on this album, and it goes without saying that instrumentals like "Ike's Theme" and "Swanee River Boogie" sound exciting and inspired. The style of this release is mostly roots rock 'n' roll with a '70s funk groove and Chicago blues horn arrangements, yet somehow these familiar elements manage to sound unique, fresh and new. With this glorious album, Turner seems to have taken back his music and his career. Ride back to the future with Ike!

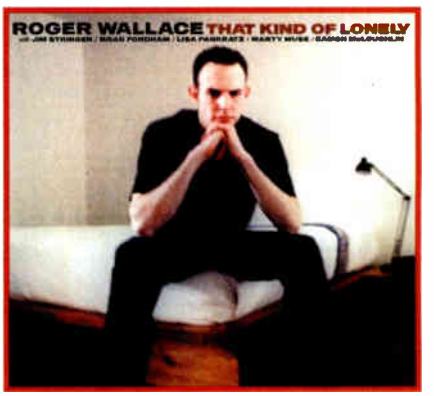
Producer: Ike Turner. Engineers: Ike Turner, Lucha Phillips, Benjamin Wright, Lamont Dozier, Leonard Jackson, Bill Dashell and William Brown. Studios: Ike Turner Studio (San Marcos, CA), D&L Studios (Escondido, CA), Paramount Studios (Hollywood), Ocean Way (Hollywood), Benjamin Wright Studio (Sun Valley, CA), Willie Mitchell's Royal Studio (Memphis) and Leon Haywood's EVEJIM Studio (L.A.). Mastering: Scott Hull/Classic Sounds (New York City). *—Barbara Schultz*

Roger Wallace: *That Kind of Lonely* (Texas Round-Up Records)

So much Americana, so little time…but I always have time to listen to a beautiful voice like Roger Wallace's. This is the sophomore release from a singer/songwriter who has become a fixture in Austin's neo-traditional country scene, and it's a real winner. Wallace's voice is strong, with great range and emotion; he moves easily from a Dale Watson-like baritone to Hank Williams' twang to almost Orbison-esque drama, and he's backed by a great little honky-tonk band. Wallace's original songs are very well-crafted, and he pays homage to his many influences with some covers, but nothing tired. It's the first time I've heard the J.D. Miller song "Ain't Gonna Waste My Time," and there's a hot, lesser-known Johnny Horton track, "First Train Heading South." Don't you just love it when somebody makes a fiddle sound like a train coming down the tracks?

Producers: David Sanger and Roger Wallace. Recording engineers: David Sanger, Jim Stringer, Frank Campbell and Mark Nathan. Mixing engineers: Frank Campbell. Recording studios: Abbey Trails and Bismeaux Studio (both in Austin, Texas). Mixing studio: Phoenix Mastering (Austin, Texas). Mastering: Jerry Tubb/Terra Nova (Austin, Texas).

—Barbara Schultz ■



COAST TO

L.A. GRAPEVINE

by Maureen Droney

Bands continue to love the idea of creating a studio where no studio has gone before. Stone Temple Pilots did it for 1996's *Tiny Music...Songs From the Vatican Gift Shop*. This year, STP again enlisted L.A.'s Advanced Audio Rentals to help provide the kind of sophisticated setup necessary to turn a Malibu mansion into an environment where they could record their latest release, *Shangri-La Dee Da*.

Secrecy surrounded this high-profile project, the title of which was reportedly inspired by life at the Mediterranean-style villa/recording studio, where the band holed up with their significant others, a raft of technical personnel and several tons of equipment. Bad boy lead singer Scott Weiland did manage to leak an early tease to *VH1 Radio*, boasting, "We're going to live there, sleep naked there and have massive band orgies there." Weiland also promised the "best music we have ever written." Plenty of people are rooting for these guys, who abruptly wrapped-up their previous album, 1999's Platinum *No. 4*, when Weiland, struggling with drug addiction, relapsed and was sentenced to a year in jail (of which he served five months) for violating probation.

Shangri-La, STP's fifth album, was engineered by Nick DiDia and produced, as all STP albums have been, by Brendan O'Brien. The North Hollywood-based Advanced Audio Rentals, which has worked with O'Brien on previous projects, was brought in at the pre-production stage.

"We outfitted Rage Against the Machine for their recording that was produced by Brendan at Cole Rehearsal Studios a few years ago," recalls AAR owner Paul Levy. "And for STP's *Tiny Music*, in '96, we set up in a 20,000-square-foot estate up in Santa Ynez, near Michael Jackson's ranch."

This time, the demands of creating a studio were bigger than ever. In addition to recording an album, rock photographer Chapman Baehler

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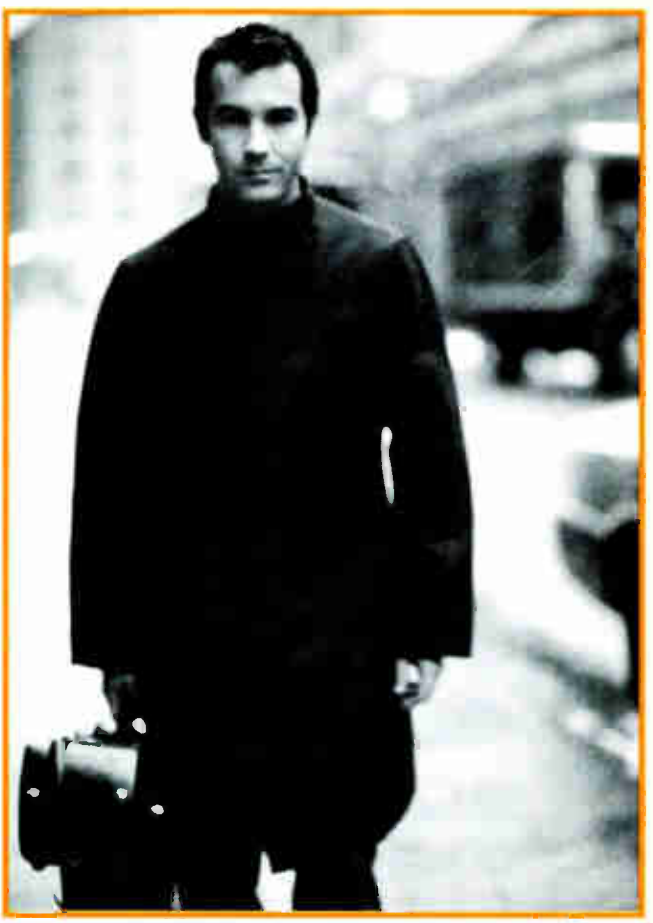

Duncon Sheik outside of his home studio in New York

NY METRO REPORT

by Paul Verna

In many places—especially New York—having a personal studio means carving out a small corner of a cramped space and imposing one's work on the rest of one's life, and vice versa. In such an environment, overdubs and editing are the most one can hope to achieve. As far as basic tracking and mixing go, the typical home studio operator takes a "don't try this at home" approach. Not Duncan Sheik. The Atlantic Records artist—never a creature of convention in the first place—has built an impressive facility in his Tribeca loft that can accommodate the entirety of a project, from basic tracks to final mixes.

In the short time since Sheik moved to his current apartment from a smaller space near City Hall, he hasn't had much time to take advantage of the facility. Between road stints promoting his latest endeavor—the "side" project *Phantom Moon*, released on Atlantic affiliate Nonesuch Records—and a variety of music, film and theatrical projects, Sheik has hardly been home at all.

That will change soon, and the timing couldn't be better, because Sheik has already begun writing and demo'ing his next Atlantic album and is due to start recording it later this year. "The only thing I'll do outside of this studio is cut strings in London," says Sheik of the upcoming project. "I'm going to try to do everything else here, including basic tracks. If it works, I'm home free. If not, I'll do a drum day or two at a studio in town."

A visit to Sheik's home reveals why the place is so ideally suited for recording. A large loft in a converted industrial building that once housed a bread factory, it features towering ceilings held up by huge concrete pillars. The floor, too, is made of concrete, which could have been covered over with virtually any material, but Sheik chose to leave it intact. "I'm going to leave the concrete, because it offers a great sonic contrast to, let's say, the

—CONTINUED ON PAGE 223

COAST

NASHVILLE SKYLINE

by Dan Daley

Suburban Williamson County is stirring. Fred Paragano, who has become one of Nashville's Pro Tools *wunderkinds* since he came to town four years ago from New Jersey, will build a substantial new recording facility in the Cool Springs suburb. Paragano plans to erect a new 22,000-square-foot building on a land parcel he bought earlier this year, half of which will be dedicated to two studios and control rooms designed by the Dallas-based Russ Berger Design Group. Paragano says he has not yet finalized major technology decisions, but at least one of the control rooms will house a high-end, large-format console, and monitoring will be 5.1 surround in both control rooms. The studio is slated to open around the beginning of 2002.

The facility will be a commercial/private hybrid; the idea grew out of Paragano's original plans for an elaborate home studio. "I had certain space requirements that I couldn't find anywhere else," he says. One studio will likely be home to his two extensive Pro Tools systems; the other will have a sizable tracking space. Paragano already has a large and growing clientele in pop and contemporary Christian music that come to him for his specialized audio skills on the Pro Tools platform. "If some of them also bring more of their projects to this studio, then it makes a lot of sense," he says. In addition, the other half of the building will be leasable, and Paragano intends to market it to other complementary music-based companies and individuals. He added that a rate structure will be de-

—CONTINUED ON PAGE 226

Producer James Stroud (left) and Colin Raye at Ocean Way in Nashville

At Audio Productions in Nashville, The Sopranos star James Gandolfini (right) is pictured with series poducer Martin Bruestle and the studio's Denise Lockart.

SESSIONS & STUDIO NEWS

SOUTHEAST

Audio Productions Inc. (Nashville) has been busy doing ADR work both at the studio and over ISDN lines. Recent projects included work for the concluding episodes of *The Sopranos* and some looping for the broadcast version of *The Mexican*. The studio also did the entire soundtrack—dialog editing, music editing and sound effects creation—for the independent film *Mi Amigo*...Mastering activity at **Masterfonics** (Nashville) included **Glenn Meadows** working on a big double-CD of tracks by the late, bubble-happy bandmeister **Lawrence Welk**, titled *Milestones and Memories*, and a new song called "You Are," written and sung by **Wynonna** for sister **Ashley Judd**'s film *Someone Like You*...At **Doppler Studios** (Atlanta), Da Brat was in adding her vocals to a remix of the **Destiny's Child** smash "Survivor." **Blake Eiseman** engineered with **Steve Fisher** assisting. Gospel artist **Babbie Mason** was in at Doppler cutting tracks for her next Spring Hill Records release. **Cheryl Rogers** produced, **Ronnie Brookshire** engineered and Fisher again assisted...At **Emerald Recording** (Nashville), singer/songwriter **Elliot Smith** was in cutting tracks with engineer **John Saylor**; **Jewel** did tracking and overdubbing with producer **Dann Huff** and engineer **Jeff Balding**, assisted by **Jed Hackett**; and the venerable **Oak Ridge Boys** were in with producer **Michael Sykes**, engineer **Pete Greene** and assistant **Matthew Beckett**. Sugar Hill recording artist **Allison Krauss** was in Emerald's Mix Room with producer/engineer **Gary Paczosa** and second engineer **Eric Bickel** mixing her soon to be released album. Atlantic recording artist **Tracey Lawrence**, who can now add co-producer to his list of accolades, also

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—FROM PAGE 218, L.A. GRAPEVINE

was also filming a behind-the-scenes documentary of the project, thus adding lighting and video equipment requirements on top of the already hefty P.A. and recording package. On the audio side, gear provided by AAR included everything from microphones, stands and splitters to consoles, Studer 24-track analog, Sony 3348 digital and Neve 1073 modules.

"I don't know if Brendan and Nick yet realize what a hat trick it is to throw in lights, video, a P.A. system with mic splitters and the recording gear, and not have a rats' nest of noise problems," comments Levy with a rueful laugh. "We supplied them with Equi=Tech ET2R isolation transformers, which take 120 volts, split it into two legs of 60 volts, and throw one side out of phase to eliminate noise and hum. Three of the Equi=Techs ran all of the technical power. Fortunately, the house had enough service to feed everything. Enough, but still borderline—right on the edge of throwing the main breakers most of the time. The Equi=Tech power conditioning really helped."

PHOTO: MAUREEN DRONEY

Advanced Audio Rentals owner Paul Levy

AAR began delivering equipment for the project to the multimillion-dollar hilltop residence in January. In February, a full-blown studio took shape, with the mansion's library tapped as the control room and the ocean-view living room serving as the studio.

"The band both rehearses and records with a small P.A. and monitor wedges," Levy notes. "The living room, which was huge and had an ocean view, was used as the main recording space. They had to hang velour drapes, put down carpet and do all sorts of stuff to control the sound, as there were hardwood floors and large areas of glass windows that needed attention. They used gobos to section off the main living room from the kitchen and the home's main entrance to create isolation in the main room for the drums, which were placed on a wooden platform."

The library/control room was fitted with an Otari Concept One 72-channel moving fader console that was used, according to Levy, mainly for monitoring purposes. A Neve BCM 10 sidecar, along with two racks of 3-band vintage Neve EQ, fed inputs to a Studer 827 2-inch 24-track and to Pro Tools. Guitar amps were set up in a bathroom, fitted with clay floor tiles, that were adjacent to the library.

"Basically, they used the Neve modules for mic inputs," explains Levy. "We rented them an 8-channel rack of 1073 modules, and they had another rack. There was something like 24 rented Neve modules. All the snakes fed from the main living room recording area to an adjacent room set up for percussion and keyboards, and all of those snake boxes fed the Neves. The output of the Neve 1073s fed the Studer 24-track, which could either send to their Pro Tools system or a Sony 3348. The 3348 was the archival machine; that's what they built up their tracks to and what they were going to mix from. Final takes were all recorded to the Studer 2-inch and then dumped to Pro Tools, edited and sent to 3348.

"Brendan has his own racks of gear, of course," continues Levy. "We did kind of a cool thing in that he shipped all his gear here ahead of the start of the recording. Then we prewired his racks in our shop, out to 9-pin Elco connectors. We have these portable TT patchbays that have Elco connectors in the back, so when we delivered his racks, along with the console, the Studer, the 48, the speakers—everything else we were supplying to the villa—we could then set up the remote patchbay right on top of the console to do all of the outboard patching. The Studer and 3348 patch right into the back of the Otari console: We modified the board so all I/Os come out to 9-pin Elco. The Concept One's power supplies are also connectorized to minimize setup hassles."

Levy says that AAR also provided "a ton of mics," from Telefunken 251s to Neumann 47 FETs, KM84s and 86s, AKG 451s and "the usual garden variety stuff" (i.e., Shure 57s, 58s and Sennheiser 421s), along with Lynx modules, a Tascam DA-45 HR DAT recorder, AKG and Fostex headphones, and Mytek Private Q headphone mix stations.

"We probably brought in somewhere in the vicinity of 4,000 pounds of stuff," laughs Levy, "and we were just supplying the recording gear—there were film guys, lighting—really, it was an insane amount of stuff."

PHOTO: MAUREEN DRONEY

Allen Sides (left) and Alan Yoshida inside Ocean Way Recording Hollywood

The common thread among all engineer/studio owner/equipment maven Allen Sides' endeavors is that he leads with his ears. His latest projects are no exception: Now open at Ocean Way Recording Hollywood is a mastering suite staffed by Alan Yoshida, and soon to be online is a new mix/overdub room that will feature a Sony Oxford digital console. I stopped in one balmy May day for a visit with both Sides and Yoshida to get the scoop on the latest at what is unquestionably one of the world's most renowned studios.

Yoshida's mastering credits cut across genres, ranging from Miles Davis, Bill

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Evans, Ella Fitzgerald and Duke Ellington, to Train, Morbid Angel, Brownstone and Tupac Shakur. The current collaboration came about when Sides heard a Yoshida JVC-XRCD remastering of one of his own recordings—and loved it. He sought out Yoshida, who at the time was a member of the A&M Studios mastering coterie being displaced by corporate merger and acquisition. The two hit it off and created what is now called Ocean Way/JVC Mastering.

"I loved Alan's remastering of a Count Basie recording I'd done," says Sides. "But I realized he was really onto something when he showed me that he could make a carefully tweaked, compressed CD of the alternative rock tracks I've been doing that was level-competitive with anything out there and still had punch."

The new mastering suite is housed in what was previously known as "The Blue Room," actually Sides' first studio in the Sunset Boulevard complex that began life in the '60s as United Western Studios. The Blue Room was known for its acoustics, so it was with trepidation that Sides allowed Yoshida to talk him into the structural changes that resulted in, among other things, a private lounge for the mastering suite.

"The reason I'm here is because of Allen's ears," comments Yoshida, who started his mastering career at The Mastering Lab before moving on to spend eight years at A&M. "And he's been really supportive. But I think it was a little hard on him when I wanted to make alterations in this room. It was like, 'You can't change it! Bill Schnee, George Massenburg—everybody—comes in here to listen to stuff when they need to figure something out!'"

Like most A&M alumni, Yoshida retains from that facility's legacy a preference for highly customized gear, and the main components of his new room are all hand-built by Ocean Way's esteemed tech, Bruce Marien. Digital conversion is handled by JVC and dB Technologies. "Everything is as point-to-point as we can get," Yoshida notes. "Every piece of wire has been listened to. There are no relays; we used only silver switches, everything is dual mono, we even run separate mains for left and right."

Monitor-wise, the Tannoy 3839 drivers are housed in Euro spec'd cabinets with custom crossovers and mounted in what Yoshida calls "soffit-less soffits." As a matter of fact, almost nothing in the room is hard-wired.

"My philosophy," Yoshida explains, "is if you make a mastering room similar to a recording studio, you compromise the signal path and you limit your ability to accept all formats. I think it's important that a mastering room can interface easily with whatever a client wishes. Here, it's easy to bring in any format, from Pro Tools to Fairlight. In this way, we don't impose any creative limitations on our clients."

Since starting up, projects at Ocean Way/JVC Mastering have included The Chick Corea New Trio, a Tony Bennett and Bill Evans album for XRCD, and a remastering of Henry Mancini's original 3-track soundtracks for *Charade* and *Breakfast at Tiffanys* (the latter, of course, including the classic "Moon River"). Current projects include Bob Hurst's Trio and Jason Faulkner's Sony Wonder project, *Bedtime With the Beatles*.

Meanwhile, down the hall, the Sony Oxford desk has found a temporary home in Studio C, where it has played host to projects for Barbra Streisand and B.B. King, among others, while waiting for the new Studio D to open. Sides, who in recent years has engineered numerous hit records for artists such as Goo Goo Dolls, Alanis Morissette and Green Day (in his "spare" time between running L.A. and Nashville studios, as well as Ocean Way To Go, a company that consults on home studios), has long been a fan of the board. After weathering its R&D trials, he is now seeing

PHOTO: DAVID GOGGIN

Graham Nash (right) was in at Bernie Grundman Mastering in Hollywood to supervise the CD release of the long-out-of-print 1972 album Graham Nash/David Crosby. Pictured with Nash are Classic Records president Michael Hobson (left) and Bernie himself.

it catch on among busy mixing engineers.

"The five different limiters and five different EQs on every channel of the Oxford sound so good that I finally can stay digital all the way, avoiding multiple conversions," he says about the 120-input Oxford. "The speed at which I can mix and the 100 percent recall in seconds have totally spoiled me. The console is so incredibly easy to operate—and I don't read manuals, ever—that someone who has never even seen the console can sit down and mix in 30 minutes. Virtually all the projects I record are now going directly to Pro Tools, and when I mix on the Oxford, bypassing the 888s, everything immediately sounds twice as good." ■

Got L.A news? E-mail MsMDK@aol.com.

—FROM PAGE 218, NY METRO REPORT

control room," says Sheik, his words resonating through the space. "The ultimate idea is to have audio tielines in the control room, the drum booth and the main space, all interconnected so I can work anywhere and still be the tape operator. I'm also installing a Gefen system that will allow me to move my computer monitor and keyboard anywhere within the apartment."

The control room at Sheik's place features a newly installed Calrec console that he purchased from a BBC studio in London. "I talked to [audio dealer] Dan Alexander in San Francisco about getting a board for, say, $10,000 or $15,000; instead of just having a Mackie like everyone else, to be maybe one degree more intense but without having to mortgage the house," explains Sheik. "So, Dan told me about this board in London that had been used mostly for classical recording. The construction of it is awesome, the EQ sounds great and the mic pre's are great. Since I don't need automation and a lot of features, this board seemed like a good idea for me."

A 32-channel desk, it is used mainly for its preamps and as a monitor, because Sheik doesn't plan on doing final mixing at home (even though the studio could handle it). Twenty-four channels of Pro Tools are normaled into the console, and its eight remaining channels are open for mic or line inputs.

Besides the Calrec and the Pro Tools rig—a TDM system running Version 5.1 of the popular program—Sheik's studio is outfitted with some choice analog outboard gear, including an Avalon VT-737SP tube mic preamp/compressor, a Tube-Tech 2B compressor, and Telefunken V-72A and Guiltronics 2TMP tube preamps. The mic assortment is similarly impressive, with a Neumann U87, several AKG condensers and two models built by Dave Royer of Mohave Audio: a C-12-derived condenser and a ribbon mic. For digital conversion, Sheik relies on an Apogee AD-8000, which is the front end of his Pro Tools and Emagic Logic rigs.

An avid collector ("I think I have a spending addiction," he once told me), Sheik owns a grand piano, a Hammond B-3 organ with a Leslie cabinet, a hammered dulcimer, a Slingerland drum set, lots of amps, and an extensive assortment of

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006	050	094	138	182	226	270	314
007	051	095	139	183	227	271	315
008	052	096	140	184	228	272	316
009	053	097	141	185	229	273	317
010	054	098	142	186	230	274	318
011	055	099	143	187	231	275	319
012	056	100	144	188	232	276	320
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019	063	107	151	195	239	283	327
020	064	108	152	196	240	284	328
021	065	109	153	197	241	285	329
022	066	110	154	198	242	286	330
023	067	111	155	199	243	287	331
024	068	112	156	200	244	288	332
025	069	113	157	201	245	289	333
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029	073	117	161	205	249	293	337
030	074	118	162	206	250	294	338
031	075	119	163	207	251	295	339
032	076	120	164	208	252	296	340
033	077	121	165	209	253	297	341
034	078	122	166	210	254	298	342
035	079	123	167	211	255	299	343
036	080	124	168	212	256	300	344
037	081	125	169	213	257	301	345
038	082	126	170	214	258	302	346
039	083	127	171	215	259	303	347
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035	079	123	167	211	255	299	343
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038	082	126	170	214	258	302	346
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FIELD TEST

—FROM PAGE 158, GIGASTUDIO V.2.2

so with GigaStudio: Here you get a sample for every single note, and it makes a real difference in the sound quality. Beyond that, all of the subtle qualities are present—hammer on/off, slides, mutes and aftertouch can be applied as one would with any standard controllers via a sustain pedal or mod/pitch wheel. This forces you into a slightly different mindset when playing, but taking the time to learn the ins and outs of each Giga instrument will yield far superior results to what most of us have grown used to hearing from keyboard instruments.

All of the sounds I auditioned impressed me, especially when I matched them against what I once considered acceptable. On one particular project I was working on, an EP for one of the bands I play in, we were unable to secure a room to track live drums. To the collective horror of my bandmates, I suggested tracking the drums through a set of Roland E-Drums and using the drum files off GigaStudio. To impress this group of indie purists bred on Elvis Costello and the Velvet Underground was no small feat. But the program did the trick—the crash and ride cymbals actually sound like cymbals and not that little fart sound that most drum machines make. The toms were not only correctly panned but had real depth and resonance. With the proper amount of reverb, a little kiss of chorus and a little bit of overall compression in Cubase, the project sounds like the stripped-down, "classic" rock record that was intended—despite that fact that it never saw life outside of a hard drive!

The effects package is also top-notch. In fact, as an avid VST user, the latency, control and overall sound of the NFX Series of effects made me downright jealous. The reverbs are some of the best I've ever heard and certainly the cleanest I've heard from a host-based system.

CONCLUSIONS

It's my job to find something to criticize, and a few things caught my attention. While the "Capture-to-Wave" function is a great idea, I'd like to see it expanded to include a scalable number of sub-group mixdown tracks. I think this will help out everyone working in film scores and post who now have to live with the additional production tasks of multichannel formats—cues don't come out of just two speakers anymore. With multiple mixdown tracks, scores could be broken into obvious pieces, and sound editors could make appropriate tweaks to individual sub groups, as opposed to recutting an entire performance. [*Editor: Just as we went to press, NemeSys reported that this feature is slated for Version 3.0.*]

I found that after several hours of use with fairly large performances, some of the effects wouldn't "let go" when they were supposed to; a quick save and restart always cleared it up, though. And it may have been an issue with the Delta 1010 interface I was using, but when I first booted up GigaStudio, the output levels were way, way too hot; this was another quick fix in the Delta control panel, but it's something that potential users should be aware of.

Otherwise, this is a classic in the making. The sound, the flexibility and the ease of use are absolutely top-shelf. I've been an ardent Mac user for years, and I'm certainly not jumping platforms, but the people at NemeSys will actually have to come to my home and take my review unit away with their bare hands. I'm not letting it go, because it sounds that good. ■

Robert Hanson is a musician/producer living in San Francisco; his parents think he is too skinny and pale.

—FROM PAGE 223, NY METRO REPORT

stringed instruments, including a baritone guitar and a *guitarrón* he acquired in Mexico. The collection and the studio have served Sheik well recently, particularly during the final stages of *Phantom Moon* and other projects that have ensued since then.

Phantom Moon is collaborative effort between Sheik and playwright Steven Sater. It was born when the pair met at Soka Gakkai International, a Buddhist organization to which they both belong. Sater had written a song lyric to his play *Umbrage*, and he asked Sheik to set it to music. The success of that co-writing experiment led to a fruitful partnership in which Sater contributes lyrics and Sheik music; Sheik calls it a "windfall," because music comes easier to him than words.

Although the basic tracks for *Phantom Moon* album were taped at New York's Sear Sound and the strings were recorded at Angel Studio in London, many of the acoustic guitar and lead vocal overdubs that give the work its intimate, Nick Drake-inspired sound were cut by Sheik in the privacy of his home. The album was engineered and mixed (at nearby Looking Glass Studios) by Kevin Killen, noted for his work with U2, Tori Amos, Peter Gabriel and Sophie B. Hawkins.

"I'm not going to say engineering is my forte at all, but I know how to get a really good acoustic guitar sound, and I know how to cut vocals," says Sheik. "There are certain things I know how to do well."

With its acoustic orientation, *Phantom Moon* is a departure from Sheik's first two albums, the pop/rock-oriented *Duncan Sheik* and *Humming*. The experience of recording such a stripped-down record has inspired the artist to pursue new creative avenues on future releases, starting with the forthcoming Atlantic project.

"Now that I made this kind of record in this particular way, I kind of feel much freer to play around with technology and pop music conventions in a way that I was resistant to for a couple of years," says Sheik. "It was a liberating process in that way."

With that, Sheik paused to play a recording of a work in progress. Like *Phantom Moon*, it was a predominantly acoustic number, but it was punctuated by warm synthesizer textures reminiscent of early '70s British progressive rock bands King Crimson, Emerson Lake & Palmer and Genesis.

"Now I'm in there doing things that I never did before," says Sheik. "It's amusing to me that I'm even working that way."

If having a full-fledged home studio with lovely acoustics is a luxury—particularly in space-starved Manhattan—then it can also be a burden. "The downside is the procrastination factor that it can engender, because you always feel like, 'I'll do that whenever,'" says Sheik. "There is a thing about booking time in a commercial studio where you go in and you get to work because you're paying all this money for it. [Laughs.] But that's my personal issue that I've got to work on."

In the meantime, there's work to do. Sheik and Sater are collaborating on a musical, and Sheik has a film score in the works. Then there's the Atlantic project, which he hopes to work on with Killen, Rupert Hine (who produced Sheik's first two records) and guitarist/producer Gerry Leonard. ■

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—FROM PAGE 219, NASHVILLE SKYLINE

termined after he makes final technology decisions.

Paragano's arrival in this burgeoning and affluent Nashville suburb also brings the potential for new competition in an area that has become home to many of Nashville's most successful producers, artists and musicians. Says Paragano, "Right around here is where most of my work for the last few years has been coming from." The area's growing music base

is also what drew Williamson County's largest studio complex, Sound Kitchen, there five years ago when its owners moved from Los Angeles; it has now grown to seven studios. Bulldog Studios, a Tom Hidley design and Nashville's first dedicated 5.1 mixing room, is in nearby Franklin. Numerous composers for television and film, as well as music producers, also have personal studios in the area.

So, will success change Williamson County? Probably, say area studios. Dino Elefante, co-owner of Sound Kitchen, sounds less than pleased with more competition coming to Williamson County, and Cool Springs in particular. "Maybe when the earth was covered with ice, all was tundra, and there were no mammals—maybe then was a worse time to open another recording studio," he says.

Ed Simonton is manager at Dark Horse Recording, which evolved from a private studio to a commercial one. He says that increased competition will likely have an effect on rates, but will also spur physical and technological expansion as facilities become more competitive. Underscoring that, Simonton says that the facility just added two new Pro Tools suites. "It's not like Music Row, but it's still a pretty delicate balance out here among studios," he observes.

Bulldog Studios owner Trevor Johnson agrees, but he adds that Williamson County has a strong base of contemporary Christian music, which constitutes more than half of the clientele for many of the studios in the area. "It's still a niche, but it's getting stronger," says Johnson. "If they can develop more mainstream acts—look at Creed's sales—Christian music could actually pull all of Nashville out of a slump."

However, Williamson County's building and zoning codes enforcement has become more active in recent years, more closely scrutinizing personal and commercial studios as the music industry deepens its roots in the county. Songwriter Wayne Kirkpatrick found that out when he bought a house for the sole purpose of writing and recording his own demos. He had to hire an attorney and go through three separate board hearings to gain codes approval, a process he thinks has become somewhat prejudiced against the music business. "I bought a house to write and record my songs in," he says. "I mean, what if I was a painter and set up an easel there, or a novelist with a word processor? Would that be in violation of codes? I don't know. It's a gray area."

Ed Simonton notes that Dark Horse went through its own codes procedures as it made the transition from a private to commercial facility. "There are restrictions, like on the number of cars we can have on the property at one time, or the number of employees," he says. "But, otherwise, there's not many other restrictions."

There have also been unsubstantiated rumors of commercial studios reporting home studios to codes. "I've never done that, but I've heard of it," says Trevor Johnson. "I do hope codes put a stop to a lot of these studios. But, at the same time, some of those studios are owned by clients of this studio, and we want to continue to interact with them. It's a tough call. It's all part of growing pains, I guess." ■

Contact Dan Daley at danwriter@aol.com.

—FROM PAGE 219, SESSIONS AND STUDIO NEWS

recently set up camp at Emerald to lay down tracks for his upcoming release…Dreamworks recording artists **Lifehouse** stopped by **APC Studios** (Atlanta) recently to promote their album *No Name Face*. The band sat down in front of a few lucky contest winners for an acoustic set sponsored by local radio station **WNNX**. A few days later saw RCA recording artist **David Gray** taking a moment out of his slam-packed tour schedule to do the same…Out at **Seventeen Grand Recording** (Nashville), the lovely **Martina McBride** spent some time in the Neve room working on vocals for her upcoming RCA album. McBride is co-producing with **Paul Worley**. **Clarke Schleicher** engineered. Schleicher came back to the Neve room with Warner Bros. artist **Dusty Drake** to do some mixing for Drake's upcoming album. Schleicher engineered and co-produced with Worley. **Allison Krauss** was also in the Neve room producing MCA's legendary **Reba McEntire**. Engineer **Paczosa** tracked and mixed with assistant engineers **Thomas Johnson** and **Jason Lehning**...Sony artist **Colin Ray** and producer **James Stroud** tracked some new cuts at **Ocean Way** (Nashville) with engineers **Julian King, Jed Hackett** and **David Bryant**...**Studio B Mastering** (Charlotte, NC) saw engineer **David Harris** working on such diverse projects as an **Alice Cooper** tribute CD produced by **David Wensil** of The Dead Kings and featuring a number of southeast bands; a project by **Snagglepuss**, recorded and produced by Carolina recording legend Don Dixon; and **Backyard Green**'s new CD, *Sanctuary*, produced and recorded by **Tracey Schroeder**.

NORTHEAST

Luna completed recording its latest CD at **Jolly Roger Recording** (Hoboken, NJ). The

The recently installed Soundtracs DS-M inside Studio A at LBS Studios (Manchester, England)

studio's own Gene Holder engineered and co-produced with the band....At Indre Studios (Philadelphia), G Love & Special Sauce were in to record broadcast sessions for a pair of local radio stations, performing tunes from their new album, *Electric Mile*, much of which was also recorded at Indre. Michael Comstock engineered. Also in at Indre was The Uptown String Band, recording a new album of Mummers songs—how Philly can you get?! Comstock recorded that one, too...Sound on Sound Recording (NYC) had The Verve Pipe in with producer Adam Schlesinger and engineers Chris Shaw and John Holbrook; former Blood Sweat & Tears belter David Clayton-Thomas was in with producer Steve Gutman and engineer Mark Partis; and Lavern Butler with producer Bruce Barth and mixer David Baker...At Bristol Studios (Boston), engineer/producer Chris Billias has been working with alt artist Kevin Turner on his new album, *Niko's Gold*. And actress/singer Rebecca Pigeon was also in at Bristol prepping her new album, *Tangerine*.

SOUTHERN CALIFORNIA

At Sound Image (Van Nuys), Roadrunner recording artists Slipknot sneaked into Studio A without their masks and cut tracks with producer Ross Robinson and engineer Mike Frazer, assisted by Matt Lavella. And Rick Springfield was also busy at Sound Image working on an A&E special with producer Bill Drescher at the board...Spicing up life at Track Record (North Hollywood) was former Spice Girl Geri Halliwell, working on a project with Platinum producer Rick Nowels, engineer Randy Wine and assistant Ai Fujisaki. At the same studio, former Guns N' Roses and Cult drummer Matt Sorum cut songs for a solo album, producing along with guitarist Lanny Cordola. The sessions were engineered by Kevin Smith, assisted by Eric Williams...New York engineer extraordinaire Jimmy Douglass mixed the new Missy Elliott album—*Miss E...So Addictive*—in Studio B at The Village (Los Angeles).

NORTH CENTRAL

Activity at Third Ear Studio (Minneapolis) included Squint Entertainment artists PFR tracking with producer Jimmy Lee Sloas and engineers Ritchie Biggs and Dan Leffler for a forthcoming release; and producer Tim Bomba tracked and mixed the metal band Sons of Poseidon...The hot, hot, hot girls from Destiny's Child stopped in at The Upper Room Recording Studio (St. Louis) to work on a release with engineer Jason McEntire. Also at Upper Room, former Uriah Heep keyboardist Ken Hensley was putting the finishing touches on a solo album, also engineered by McEntire...Guitarist/producer Bo Ramsey (Lucinda Williams, Ani DiFranco) was at Catamount Recording (Cedar Falls, IA) to add guitar dubs to Brother Trucker's new CD for Trailer Records. David Zoilo produced and Tom Tatman engineered.

NORTHWEST

Taking time off from his successful Showtime series, Chris Isaak tracked a bunch of new songs for his next album at Studio 880 (Oakland, CA). John Shanks produced with Mark DeSisto engineering and Tone assisting. No word on whether Isaak's nude muse from the show was along for inspiration ...Former Guns N'

Roses member Duff McKagen completed his latest LP, *Loaded*, at Jupiter Studios (Seattle). Producing, engineering and mixing was Martin Feveyear, with assistance from Jon Evie and Mike Easton...At Studio 13 (Portland), Patrick Kearns finished mixing the debut for the local group The High and the Mighty; and he was recording a live CD by comedian Dave Anderson... Rainstorm Studios (Seattle) christened their new location on Capitol Hill with sessions by punk rockers Johnny No Good, who cut their debut EP with engineer/producer Steve Carter. Tango Heart was also in working on a classic, Astor Piazzola-influenced tango album with engineer Paul Speer at the helm... New York engineer/producer Nicholas Sansano was out at Prairie Sun Recording (Cotati, CA) recording tracks for a new solo album by Galactic drummer Stanton Moore. Guests on Moore's album include bassist Chris Wood of Medeski, Martin & Wood, sax ace Skerik of Les Claypool's Frog Brigade and Brian Seeger on guitar.

STUDIO NEWS

Third Ear Recording (Minneapolis) recently upgraded to a vintage, early '70s, Class-A custom Neve console. They also purchased an Ampex ATR-100 half-inch mastering deck and Dynaudio monitors...LBS Studios (Manchester, England) has installed a new Soundtracs DS-M DAW console—the first of its kind in the UK—as part of a complete overhaul of their Studio A...Prairie Sun Recording in lovely, semi-rural Cotati, CA, has purchased and installed an 80-input SSL E/G+ 4080 console....Studio Atlantis, one of L.A.'s newest 5.1 rooms, has purchased a new SSL 9080 J Series console with the 959 surround module in their Studio A...Conway Recording in L.A. has upgraded to a new Neve 88R—what studio owner Buddy Brundo calls "the ultimate analog console"—for its famous Studio A. An 88R was also chosen for the new UK facility Sphere Studios in Battersea...CTC Studios has recently opened a new orchestral recording and film scoring facility in Watford, UK, called The Colosseum. The new facility includes an AMS Neve Capricorn digital console with an ATC SCM150 5.1/7.1 monitoring system. The first major project to be cut at the new room was the score for the new film *The Mummy Returns*...Plus XXX Studios (Paris) recently installed a Neve 88R analog console into its Studio 1. ■

Producer Gene Holder (left) and the members of Luna inside Jolly Roger Recording

Recording Brass AND Woodwinds

—FROM PAGE 84, FIVE APPROACHES

tic candor, "Mics—it doesn't make a *damn* bit of difference. Everybody has preferences, but it's not, in any way, the most important thing. The most important thing is the players and their instruments. You've got a good fiddle, and it's going to sound fabulous if you've got a decent mic in a decent spot. If you've got something that's too close or you don't have a good player, there's nothing you can do that's going to make it sound wonderful."

That said, Lewis *will* talk about her basic philosophy of miking and recording. "It all depends on the size of the hall and the size of the section," she begins. "I like chamber music miked a lot more closely than most people do. I'm tired of hearing so much room. I want chamber music to sound like I'm sitting in the room with the players and I can hear the individual instrument and some amount of actual noise. But a lot of people don't like that, so the common wisdom is to go much further away. What you've got to do is just listen and find what you like. If you put the instrument in a room and then start walking away from it, you'll notice you hear some things when you're close and other things when you're far away. You try to find a balance that gives you the elements of close and far away that you like. I know that sounds a little vague, but there's no formula for that. A lot of it is really knowing the music and the musicians and having some notion of how it should sound.

"One of the things that's particularly true with woodwinds is, if you're really close [with the mic], you get a lot of clatter from the keys; *tons*. There's a lot of mechanical action with those guys blowing and the clattering. Same with string instruments, of course—you'll hear the fingers on the fingerboard, you'll hear little squeaks and string noises that are just part of the instrument. The further away you get, the less of that you get. So, typically, you want to get far away enough that you hear a little bit of that, but it's not going to dominate."

For larger groups, such as full orchestras, Lewis says, "You put enough mics up that you can grab what you want, while still getting a basic sound off of the front array, which will always be your main sound. I would always use large-diaphragm mics for my front to get that great, big, wonderful sound and use small-diaphragm mics for spot miking. There is no 'right' way; that's just the way my mind works. Your own ears and your own sense of what the musical style requires is way more important."

Lewis will augment her main array with spot or sectional mics as the music requires. She lists "harp, guitar and quiet woodwinds, like an English horn or something" as instruments that sometimes need the reinforcement of a spot mic on a recording date. "I want to be sure that I can grab that part and it doesn't get lost," she notes. "I want to hear every instrument as clearly as I can. And to do that, I'll move the musicians around a ton until I get them in the spot that sounds the best. Then I also move the mics around relative to that spot. On a Women's Philharmonic [disc] done up at Skywalker, we had the brass section split on either side of the ensemble, so they were left and right. It was kind of unusual, but it sounded fine. Then, the next time we came in, they needed to hear each other a little more tightly, so we moved the horns back over onto one side. I'll do whatever works best; that's my philosophy." ■

Blair Jackson is Mix*'s senior editor*

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—FROM PAGE 170, SOUNDSCAPE R.ED

AES/EBU and S/PDIF (two channels in and four out) are provided for connecting DAT players and other digital toys. Sync ports include superclock, wordclock and MIDI. An optional Sync AV card ($649) handles video sync and LTC SMPTE operations for post work.

The entire system is balanced by the host controller card that you install into an ISA slot on your PC. In the absence of an available ISA slot, users can purchase a parallel port adapter. Low-cost PCI EPP parallel cards are also available for applications where the printer port is used by a sequencer dongle.

PLETHORA OF PLUG-INS

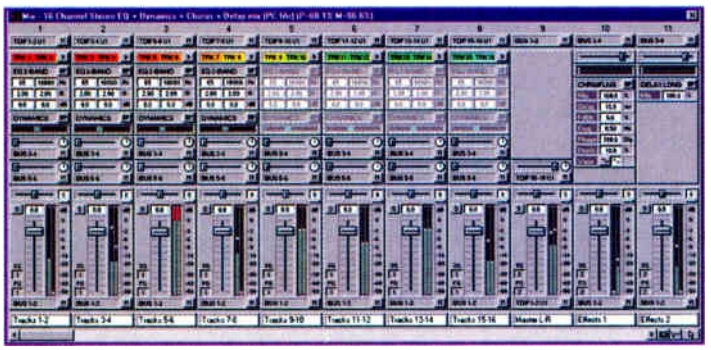
R.Ed includes an amazing complement of DSP plug-ins, including a Time Module for time stretch, pitch shift and sample rate conversion; an Audio Toolbox fielding chorus/flanging, dynamics, delay and dither; Wave Mechanics Reverb; TC Works Reverb; TC Works Dynamizer to handle multiband expansion, compression, limiting and several levels of mastering tasks; Synchro Arts VocALign for vocal overdubs and dialog replacement; Dolby Surround Pro Logic; Cedar Declick; Cedar Dehiss; Arboretum Hyperprism Multi-FX bundle; Aphex Aural Exciter and big Bottom Pro; Apogee UV22 Mastertools; and Sonic Timeworks Compressor-X.

The selection of plug-ins is impressive, and they all worked well. However, the graphic layout was a bit underwhelming. But once you're used to the look and feel of the plug-ins, you're good to go. Just remember that your selection of plug-ins will greatly depend on third-party developers and how quick they are to churn out product for R.Ed.

THE SOFTWARE INTERFACE

If there's a drawback of the R.Ed, it's the software interface. The system is based on Version 2 of Soundscape's earlier foray into DAWs: the SSHDR1-Plus. As you would expect, here you can handle nondestructive editing functions such as Cut, Copy, Move, Trim, Slip, Normalize and Fades in real time. You can work with any controller that you prefer: mouse, trackball, pen/tablet or other device. Punch-in/-out recording, editing on-the-fly and multiple undo/redo are provided, along nameable markers that can be dropped on-the-fly and used for looping and auditioning edits.

The software seemed to have been designed by a computer programmer and not a recording engineer. The interface is not overly intuitive, and many of the icons don't provide graphical clues as to what they actually do. There are no pop-up icon helpers to differentiate between the tools, although tool help is available by double-clicking in the toolbar. Viewing a waveform onscreen should be a no-brainer, and we wondered why Waveform mode is optional. [Editor's note: In the latest software, V. 3.3, Waveform view is now automatic.]



The mixer offers full recall of all parameters.

The ease-of-use factor tripped us up several times while doing a voice-over session for a 30-second TV promo. Our basic modus operandi was this: load in music strips from a DAT, select sound effects from a CD library, record and edit the voice-over talent, and then mix using a variety of plug-ins. While most of the session was smooth—and sounded great—the interface made the session arduous. Each task required several steps to choose your action before selecting what you want to apply the action to. These additional steps impede your speed, even while carrying out simple cut and paste tasks. [Editor's note: According to Soundscape, this is addressed via a new Multi-Function Tool function in V. 3.3. Here, the mouse pointer turns into an icon for fast access to any user-defined edit function when the pointer is moved over an audio segment. Also, customizeable function keys offer access to frequently needed tools or commands.]

We were impressed with the R.Ed system's lack of latency—there was no delay between the initial sound source and the sound at the outputs. The inherent sound quality was also a bonus, making R.Ed viable for all professional situations. And, drum roll please, the system didn't crash once—a comforting thought when you run sessions with clients underfoot.

ENDGAME

There are five factors that will put R.Ed on your "A" list:

1. The cost: It's less expensive than many competing products.

2. R.Ed sounds good.

3. It's super stable.

4. The IDE drives. For the reasons stated earlier in this article, IDE makes a lot of sense for the post pro environment.

5. Onboard DSP enhanced by the power of the Mixpander card. Soundscape has put a lot of effort into the DSP options, and the quality and diversity from third-party vendors is outstanding.

Soundscape's R.Ed does everything any other DAW editor does—and some functions are carried out with much more panache. But, until you're accustomed to using the system and take advantage of setting up the function keys, shortcuts, etc.—navigation will be slow. Our wish list for the next version of R.Ed also includes a improved manual and better implementation for the HUI.

Soundscape is in investment mode right now, so these improvements may be in the works. Considerable R&D is being done by the company, and a line of complementary products for R.Ed is offered, including the very powerful Mixtreme PCI card that provides 16 channels of 24-bit digital input and output via two 8-channel TDIF ports. It also has full 24-bit digital mixing and real-time DSP effects plug-ins. In addition, if you're concerned about DSP power, have no fear. The Mixpander card takes some of the load from the Mixtreme, allowing for fast and reliable DSP processing, as well as integration of any PC-hosted software running ASIO, MME or GSIF (Gigasampler/Studio) drivers. As R.Ed doesn't tax on the PC's processing, running GigaStudio or software synths should be no problem.

Another check in the "Pro" column is Soundscape's commitment to creating products that are backward-compatible. If you've already got the company's SSHDR1-Plus, then check out the company's trade-up program. And, finally, the price: about $5,700 for the standard 32-track system.

Soundscape Digital Technology Inc., 4435 McGrath Street, Suite 308, Ventura, CA 93003; 805/658-7375; fax: 805/658-6395; www.soundscape-digital.com. ■

Leonard Hospidor is a post engineer based in New York City. Andrea Rotondo Hospidor is an engineer and freelance writer.

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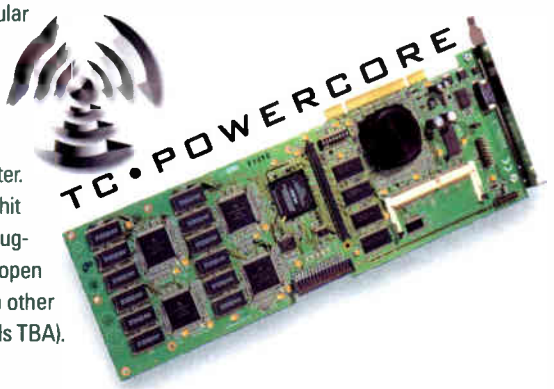
TC•PowerCore is a major breakthrough for Digital Performer's real-time MAS plug-in environment because it provides DSP-turbocharged plug-in processing. At last, the renowned TC TOOLS/96 studio-quality FX package (included), with TC MEGAVERB, TC Chorus/DELAY and TC EQ^{sat}, can be at your fingertips in Digital Performer, plus other TC | Works plug-ins such as TC MasterX (sold separately). These powerful TC plug-ins appear in DP's mixing board, just like regular native plug-ins, but they run on four powerful 56K DSP chips on the TC•PowerCore PCI card. It's like adding four G4 processors (equal to 2.8 gigahertz of extra processing power!) to your computer. Run 12 studio-quality TC plug-ins with no hit on your CPU power, and run other native plug-ins at the same time! TC•PowerCore is an open platform, so it will also run plug-ins from other respected 3rd party developers, too (details TBA).

TC | WORKS



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SADiE ARTEMIS

TIPS FOR INTERFACING TO A STUDIO COMPLEX

SADiE's Artemis is a 32-bit/32-track, PC-based workstation that uses its own card-set to handle all DSP and system control. Windows is only used to handle the graphic interface to SADiE's powerful engine, so you are not at the mercy of your computer's Windows resources. A wide range of options configures the system for any combination of music recording/editing/mixing, post or mastering applications. While these suggestions are geared toward the Artemis system, many of them are equally applicable to SADiE's other DAWs as well.

PRO INTERFACING

The "pro" side of professional audio devices comes from the way they interface with other pro gear in a studio complex. This is where SADiE shines. For example, consider a post-production facility having three audio recording studios, a mastering room and an equipment room/chief engineer's office, each with its own SADiE. From the equipment room, send a master video black-burst reference signal to each studio's control room. Connect the video reference signal to each room's wordclock generator, like an Aardsync II. Now your digital word-generator is synchronous with video clock. Gen-lock all your digital devices (digital console, DATs, MDMs, digital I/O effects processors, outboard DACs/ADCs and, of course, the SADiEs) to your wordclock. Lock your video machines to the video clock. Your analog I/O, digital I/O and timecode I/O should be accessible through patchbays for maximum flexibility.

By connecting the Sony 9-pin controlled devices (Beta decks, MDMs, etc.) directly to SADiE's 9-pin ports, you can control the SADiE and the transports of up to four machines from your SADiE. SADiE has Machine Control windows that pop up for each machine. From SADiE, you can toggle I/O monitoring on your analog or digi Beta decks, arm their tracks, locate, punch in, punch out, transfer to and from each machine, all with perfect frame/sample-accurate sync at any SMPTE rate.

LOCK AND LOAD!

I often lock my Tascam DA-98s to SADiE via 9-pin. Once the 9-pin control on the SADiE is engaged, the two act as one machine, each chasing and operating each other. Unfortunately, the Tascam does a poor job of handling timecode over the 9-pin cable as a master, while SADiE is more powerful as a slave. The simple fix is to switch SADiE's timecode type to LTC, rather than 9-pin TC. Connect the LTC out of the Tascam to the LTC on SADiE, and you are good to go. All the 9-pin transport controls continue to talk to each other. The DA-98's control protocol must be set to 9-pin—I also select BVW-75 emulation, though other emulation settings should work equally well. I frequently transfer eight discrete tracks of audio from the Tascam to the SADiE via AES, edit the tracks, master the audio, then lay them back to the Tascam, many times in sync with a corresponding picture. It is fast, reliable and precise.

SADIE—YOUR WAY

Like most DAWs, SADiE's virtual mixer and tracks can be configured in numerous ways. Onscreen drop-down windows, the mixer and control panels can be arranged and sized to fit your particular project. SADiE can create desktop templates, and a Set Up window can store system defaults (sync sources, hot keys, pre/post-roll times, PQ parameters, etc.), so SADiE works *your* way. It's comprehensive but potentially time-consuming if you have to set them each time you run the application. To accommodate this, SADiE has a "users.ini" file to save all of your preferred settings. It's cool, but there's a bonus for users with multiple systems: After creating the ideal startup configuration on one machine, simply copy the template files and user.ini files via your studio's LAN to each of the other SADiEs in the house. Now each SADiE in the facility starts and runs exactly the same. Each engineer can work from the same uniform beginning.

UPGRADES AND MORE

In a facility with multiple systems, upgrading SADiE software is a breeze. Simply go to www.sadieus.com and download the latest executable program file (free upgrade) to a directory in one of the studio computers. Then go to each SADiE and navigate over Windows network neighborhood to the computer with your upgrade file. Double-click the file and answer yes to all of the default questions. You'll be done within five minutes—maintaining consistency among multiple machines couldn't be easier. ■

BY JIM FOX

An active engineer/producer for 28 years (and loving it!), Jim Fox operates Lion and Fox Recording Studios in the Washington, D.C., area. Visit the facility at www.lionfox.com.

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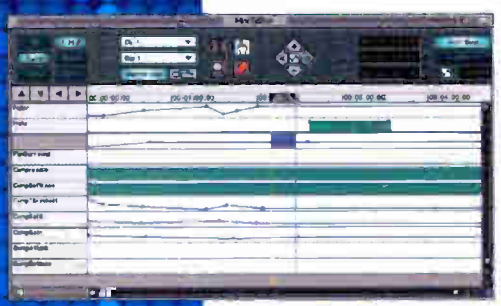

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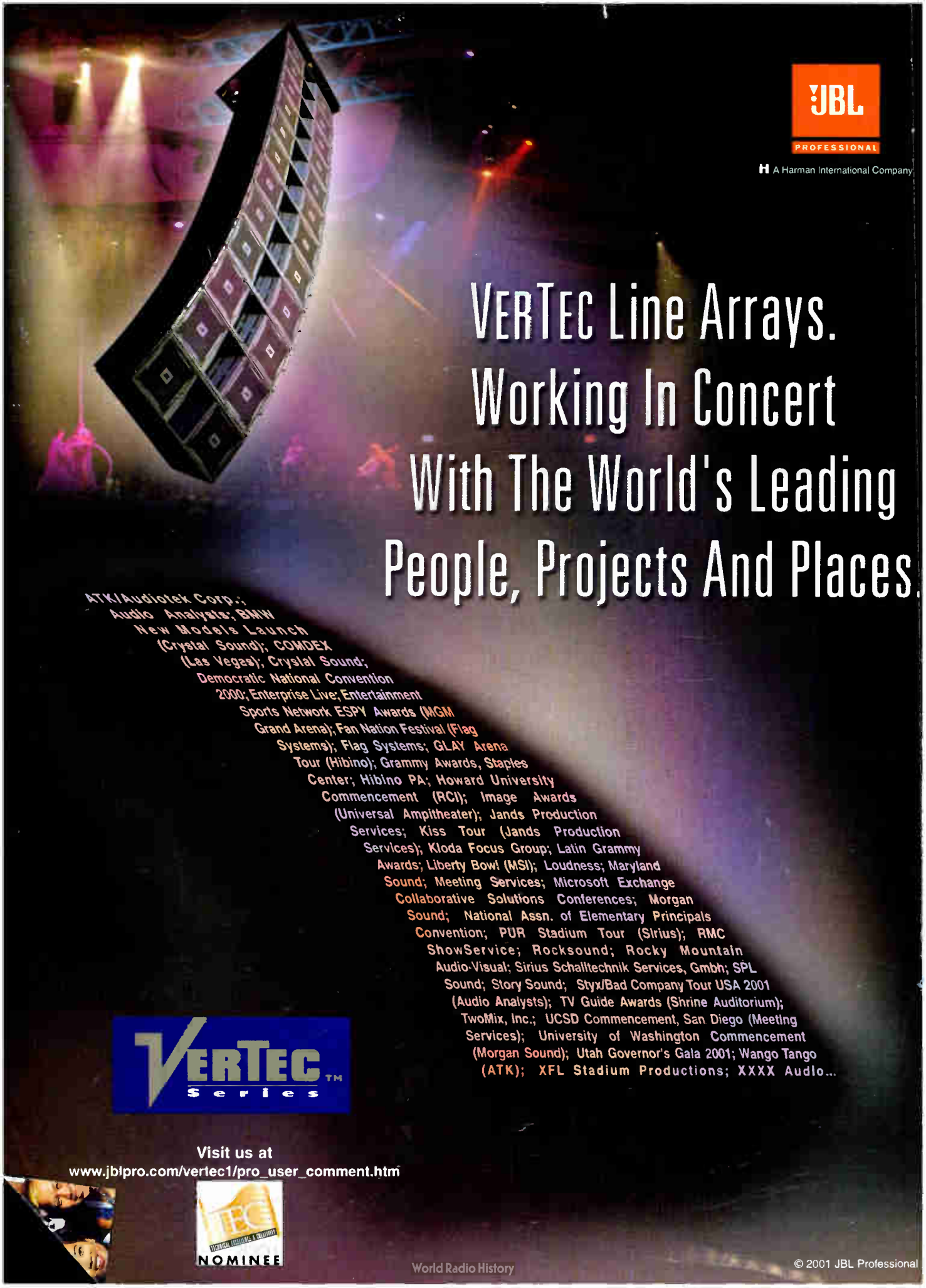

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