

MIX

PROFESSIONAL AUDIO AND MUSIC PRODUCTION

for sound picture

- 'Collateral' and 'Shark Tale'
- Mix Master: Alan Meyerson
- New Products

Ribbon Mic Renaissance

Vintage Designs,
New Technologies

The Singer Meets The Song

Tips for
Recording
Vocals



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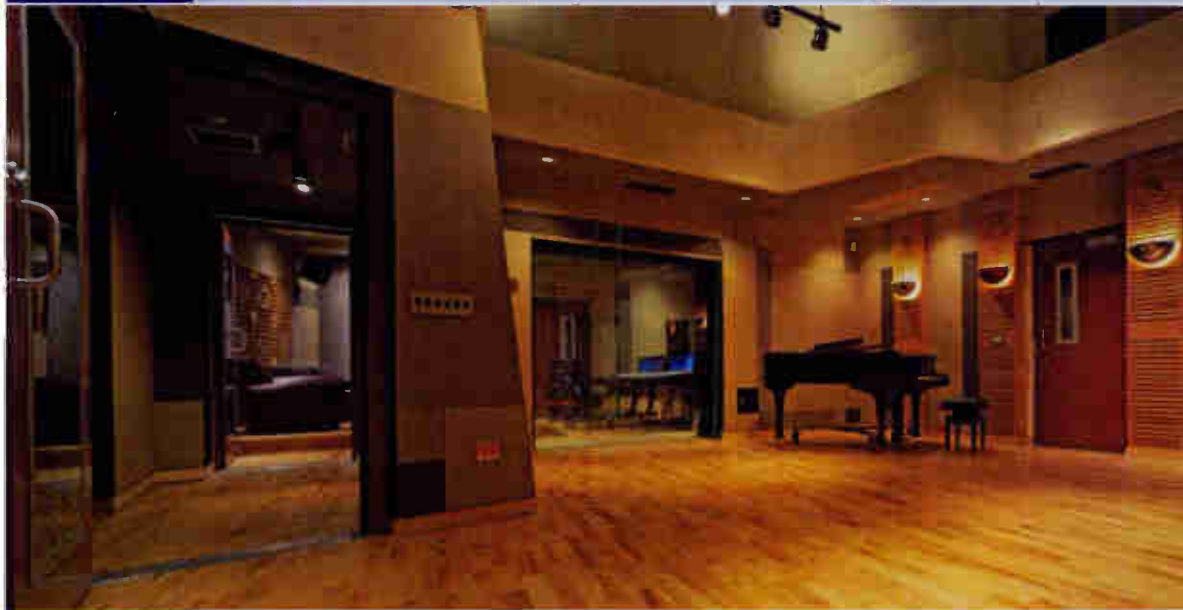


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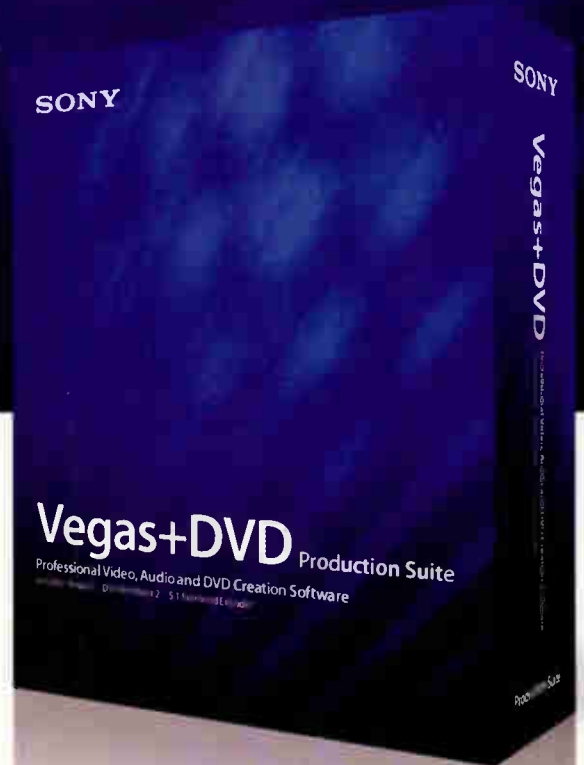
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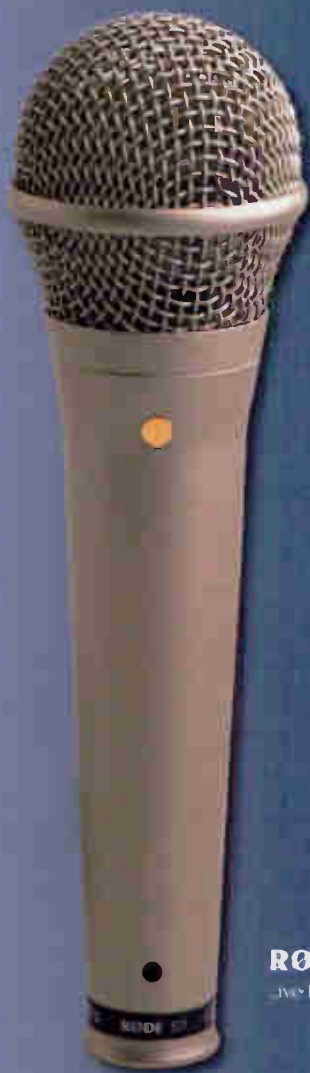
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PROFESSIONAL AUDIO AND MUSIC PRODUCTION
September 2004, VOLUME 28, NUMBER 10



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On the Cover: Full-service post facility RavensWork, Venice, Calif., recently installed a Fairlight DREAM Constellation, with PMC monitoring and Bryston amps. Photo: Jeff Boxer, Clark Davis. Inset: Steve Jennings.



features

32 Recording Vocals

In addition to finding the perfect microphone for a session, engineers and producers must set up the entire vocal chain and establish the right artistic vibe to record vocals. *Mix* checks in with Mike Mangini (Joss Stone), John Porter (Los Lonely Boys) and Steve Rosenthal (Ollabelle) on specific projects, while Al Schmitt and Tom Lord-Alge share their time-tested rules.

40 Ribbon Renaissance

Ribbon mics of yesteryear are back in demand for those seeking that "warm," "musical" and "syrupy" flavor—and manufacturers are responding to the call with re-issues and new designs. *Mix* surveys this year's offerings and adds in tutorial and historical information.

50 Former Creed Members' New Beginning

What else is there to do when your band breaks up but rejoin under a new name, add a new vocalist and come out with a new album. Such is the creed of Alter Bridge, who have just released their Ben Grosse-produced album, *One Day Remains*, on Wind-Up Records.

63 2004 TEC Awards Voter's Guide

This year's ceremony, held October 30 in San Francisco, will see production duo Jimmy Jam and Terry Lewis receive the Les Paul Award, while George Lucas and Elliot Scheiner gather onstage to be inducted into the TEC Hall of Fame. Check out the guide to this year's nominated people and products—and then fill out your ballot!

76 The Ninth Annual Mix L.A. Open

Each player's shot was a "hole-in-one" at *Mix*'s annual golf tournament, as all of the proceeds benefit hearing health and awareness charities. *Mix* recaps the event through words and pictures.

118 Summer NAMM 2004

This may have been the last year for audio professionals to gather in Nashville for Summer NAMM (the show hits Indianapolis in 2005), but there were numerous products to see and hear.

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

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The Singer and the Song (and the Engineer and the Psychologist)

The May 2004 *Mix* focused on "The New Means of Production." To counterbalance all of the technology in that issue, the closing page featured a simple photo of Frank Sinatra standing in front of a Neumann U47 at Capitol, with a brief note about how all of the technology in the world doesn't mean a thing if you don't have a singer and a song. A number of readers sent letters agreeing with that sentiment, and it holds true today just as it did in Frank's era. But, sometimes the singer can be helped by a little artistry on the part of the engineering/production team.

A great mic/preamp combo is a plus, but occasionally, the finest mic is totally wrong for a certain voice. As we get older (and not necessarily wiser), many of us become set in our ways, reaching for the same mics time after time. Often it's the right choice, but veteran engineers can recall singers who didn't work on a pristine C-12, only to sound great on an SM57. As another alternative, today's great handheld mics sound fine in front of 50,000 cheering fans, so why not in a studio where the only rule is that there are no rules?

Unfortunately, recording is not an exact science. And unless you happen to be working with Aretha, Whitney or Celine, coaxing the optimal performance from a vocalist takes a rare combination of technique, patience and—sometimes—a bit of luck. More often than not, the solution lies in putting singers into an environment in which they feel comfortable. This may be as simple as dimming the studio and/or control room lights or lighting a few candles to set the mood and reduce that "fishbowl" feel that vocalists often get in the studio.

On the tech side, check those pop filters (external or mic grilles) to see if they need cleaning—before the session. Take time to get a rough monitor mix *before* your artist puts on the 'phones and have a nice vocal reverb preset (and/or a room mic) available to add ambience if your vocalist tracks better with it—not all do. Some singers also like performing to the more "finished" sound of a compressed cue mix—another idea worth considering. If you're planning to try several mics, then have them set up (and warmed up, in the case of tube mics) beforehand. They don't have to be press-conference-crammed in front of the performer, but having them ready with their gains preset will speed the session should you need to audition several mics.

Speaking of auditions, one overlooked factor is headphones: A tight, sealed pair will cut down on track bleed, which is absolutely essential in some situations, but some vocalists prefer open-air (semi-sealed) types that often lend a more natural sound. You can't sing if you can't hear, so try giving your artist a choice.

A successful vocal producer is often equal parts psychologist and technologist. Getting a great vocal track combines many factors, and sometimes it's the little touches that make a huge difference.

George Petersen
Editorial Director

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World Radio History

Letters to Mix



THE DOPPLER EFFECT

During the years, I have looked to *Mix* for factual and up-to-date articles on the recording business and I would say in general that *Mix* is the premier source for information about our industry. However, a recent article on recording in Atlanta (June 2004, "Life Is Peachy") gives me cause for concern. Doppler Studios (pictured) is not mentioned in the article.

Now I suppose a lot of studios can say they weren't mentioned, and I'd bet that every time you feature a city or region, somebody feels like they've been left out. I'm not one for bragging and chest-thumping, [but] I find it hard to believe that a quality article on music recording in Atlanta would fail to cover activities at Doppler Studios—especially an article in *Mix*—because we regularly send you news on sessions here and you faithfully publish most of them.

Since last fall, we've had sessions with Whitney Houston, Chingy, Dropsonic, Monica, Ludacris, Disturbing the Peace, Maxi Priest, Yolanda Adams, Holly Williams and others. We tracked an album for Third Day with producer Paul Ebersold, hosted a 5.1 mix session for Incubus with producer Brendan O'Brien and engineer Nick DiDia, and Kevin Bond won two Grammy® Awards for his work here with T.D. Jakes and Donnie McClurkin.

I don't know what phenomenon caused you to miss us. I'm a little disappointed, but I'll get over it. And I'm still going to read your magazine.

Bill Quinn

Doppler Studios

PATENT POLITICS

I just read George Petersen's piece ["Editor's Notes," July 2004] on Clear Channel's claim that it controls all live recordings available on the day of the event. Like him, as soon as I heard the story, I immediately went to www.uspto.gov to read the patent. Petersen's description of the patent says it all: It's like getting a John Deere lawn mower, a weed eater and a leaf

rake and claiming a patent on lawn care.

I'm 54, been across the planet a couple of times playing music and sold a couple million records. Still broke. Point being, I've seen a lot of screwy, unbelievable stuff. This Clear Channel move, along with the patent itself, is the most outrageous thing I have ever heard of. Though not at all a patent authority, I'm pretty sure that a patent is not [supposed to be] attainable if the idea has already been done or is so logical that someone in that art would come up with the same idea. J.J. Cale first told me his idea of a truckload of cassette duplicators at the gig so everybody could leave with a copy of the show they had just seen, 30 years ago.

We need to get a large legal firm (a prominent music attorney advises to go outside of the music business) to do some pro bono work and challenge the patent on behalf of the whole industry. Maybe if we stop Clear Channel on this one, it will expose its overall modus operandi that it will mark the beginning of its demise.

Thanks. Keep after them.

Steve Ripley

The Tractors

MORE THAN JUST A MEMORY

I just wanted to let you know how much I enjoyed (and admired) your decision to put the picture of Sinatra, "The Singer and the Song," on the last page of the recent [May 2004] issue. The magic of music is what recording engineers still want to capture and it often starts with a song and a singer. Very sentimental and right-on. I taped that page to my office wall.

Brad Smith

Hal Leonard Publishing

TUNING IN TO RADIO

The Nashville music scene is a tough market to get any recognition. Most people in the biz are out for themselves and have little time for the many talented people who follow their creative hearts and musical passions. In Rick Clark's "Nashville Skyline" (July 2004), he calls attention to the Nashville music scene not for the Music Row perspective, but from the neighborhood side of the music business that makes the majority of the Nashville talent base.

Nashville is a fantastic town for music. As the owner of the Radio Café, I have had the fortunate opportunity to work with outstanding musicians and songwriters not from 16th Avenue (Music Row), but right here in East Nashville. Rick briefly rippled the surface of the talent pool and brought forward the neighborhood side of a tough road to hold. My old friend and

soundman, Skip Litz, was a fine example of the true heart of music production. He worked for the love and enjoyment of creating music.

Although most people give credit to Music Row for the Nashville music scene, your magazine has realized that music comes from the hearts and front porches of songwriters and musicians. In our community, every house has a porch and every other house has a songwriter or musician hanging around waiting for their buddy to drop by to pick, sing and write.

Thanks for the attention and goodwill.

Mac Hill

Radio Café

PRODUCER VERSION 2.0

In "Feedback" (July 2004), Todd Zimmerman touched on some topics that are 180 degrees out-of-phase with my personal reality. He spoke of homogenizing audio through new technology. In response to his letter, "The New Means of Over-Production?" which addressed the future of digital via the virtual studio, I'd like to reply with the following thoughts.

Yes, you can see complete detail clearly on a computer. It is what we use a VU meter and a scope for. But nothing has changed—we are still using our eyes.

Yes, our plug-ins are going to [become] obsolete, but so has our 1/2-inch 2-track.

Yes, the medium is more precise and, thus, more repeatable. This has changed, but this is where, as great producers, we need to change so we [don't become] obsolete.

Embrace the state-of-the-art. Do it better. Tweak your plug-ins longer to get the sound you like. EQ tracks with your seasoned ear. It is non-destructive; you can undo instantly! Mix it five ways and listen to it in the car and on your boom box in the garage. Today, you can render your five-minute song and burn it to CD faster than it would take to listen to half of the song in real time! No more ground loop hums and cross-track bleeds. There's less time taken in setting up logistics and more time to be creative.

Dialing-in an old sound or coming up with a great new one is in our hands. When we hold on to the past and lose touch with [what's new] and state-of-the-art, it's not just our old rack gear going obsolete: We do.

Larry

Scott Webb Creations Sound Design

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YOU'VE GOT MAIL, STUDIO CENTER!

Customizing the audio greetings for AOL 9.0 Optimized SE was the largest single project in the 38-year history of Studio Center Worldwide Audio (Norfolk, Va.), with Trent Toner serving as project manager. The finished product included more than 144,000

audio files featuring eight voice actors from four different countries, employing the work of 17 audio engineers and administrative staff in three states, weeks of pre-production and auditioning voice talent and months of work.

All audio was recorded at 16-bit/44.1 kHz to Pro Tools, with the raw takes broken up into manageable groups of 25 names. Studio Center engineers then used Pro Tools' Strip Silence feature to remove excess audio, topped and tailed each phrase, and applied limiting to the male voices to increase the "apparent" loudness. With the edits complete, each engineer uploaded his or her work to Studio Center's FTP server, where it was verified by Toner. "More than 500,000 edits occurred during this process,

with each engineer performing approximately 42,000 edits. Just the most famous phrase of the project, 'You've got mail!' was heard at least 35,000 times in Studio Center control rooms during the edit phase of the enormous project," Toner said.

AOL requested that all files be delivered in .WAV format with levels of -16 dB to -12 dB with -1.5dB max peak. Two sets of voice files were sent: one for reference at 16-bit/44.1 kHz and the second loaded online. To keep download times to a minimum, files could not exceed 60K. At 16/44.1, the files averaged more than 150K. The optimum balance was achieved at 16-bit/11.025 kHz; 8-bit/22.050 kHz was also tried, but the increased noise floor was more harmful to the sound.

In addition to coming up with a unique file-naming system, all files needed to be multiplatform-friendly, as all recording and editing were done on Mac G4s but the integra-



Project manager Trent Toner

tion at AOL was done on Windows-based machines. Toner and AOL decided on the following formula: us_ygm_f_james.wav, in which "us" is the country designator, "ygm" is the phrase said, "f" is the talent gender and then the name of the talent.

To hear your name and Studio Center's work, access the U.S. sounds by installing AOL 9.0 Optimized SE at AOL keyword: Upgrade; an AOL account is required. Once signed on, go to keyword: Event Sounds. Select "Change" and then "Add Your Name."



U.S. talent Chris Kepics (left) was recorded using an Audio-Technica AT4060 routed through a Demeter VTMP-2 mic pre and compressed at a ratio of 2:1 on a dbx 160. The signal was then routed to a Yamaha O2R and recorded on a Pro Tools MIX Plus system. Pattie Walden (right) was recorded with a Neumann TLM103 through the same vocal chain as Kepics, but compressed at 2.5:1.

JERRY GOLDSMITH, 1929-2004



Academy Award-winning composer Jerry Goldsmith died on July 21 in his Beverly Hills, Calif., home after a long battle with cancer. Goldsmith, a classically trained composer and conductor, was nominated for 18 Academy Awards, won one and took home five Emmys in his 50-year career. His latest movie theme was for last year's *Looney Tunes: Back in Action*; past credits include *Hollow Man*, *The Mummy*, *Small Soldier*, *Deep Rising*, *Air Force One*, *L.A. Confidential*, and numerous TV series such as *The Fugitive*, *Star Trek*, *Dr. Kildare* and *The Twilight Zone*.

MALEKPOUR FORMS DISTRIBUTION FIRM

Audio Exchange International (AXI, Rockland, Mass.) has been formed by Dave Malekpour of Professional Audio Design to distribute high-end U.S.- and European-based audio products. AXI, Steinberg USA and the Nashville Nuendo Users Group debuted WK Audio's ID Controller for the Nuendo system at SAE during the Summer NAMM Convention as part of the company launch. AXI will also handle distribution for Audient, Aurora Audio, Desk Doctor, Advanced Tech Services Group and PAD.

"AXI was formed to bring pro audio products to an exclusive group of dealers so that they can gain access to many top-shelf systems not currently available to them," explained Chris Walsh, AXI's director of sales and marketing.

For more information, contact AXI at 909/948-0997.



Peter Frampton was one of the many guests who attended the U.S. intro of the ID Controller at Summer NAMM.

POST FACILITIES SHOW STRONG GROWTH WITH AUDIO UPGRADES

BSKYB, LONDON

BskyB's audio post department has purchased seven Fairlight Satellite workstations; the sale, systems integration and support were supplied by Fairlight's UK business partner, Tekcare Limited. BskyB's head of sound operations, Vaughan Rogers, said, "We set up a stringent set of evaluation criteria and the Satellite met or exceeded all of them and proved to be the quickest editing platform for our

style of operation. Our crew has noticed a distinct improvement in sonic clarity, probably due to the Fairlight QDC engine."

DOLBY LABORATORIES, SAN FRANCISCO

With Dolby technical facilities manager Tom Bruchs' and Dolby senior VP Ioan Allen's help, Dolby Laboratories' screening room received an audio upgrade via 11 QSC DCA amps providing

system power, RAVE (Routing Audio Via Ethernet) signal transport and a half-dozen BASIS 922az for network monitoring and control—with system flexibility a key factor. "I never know what will be coming up the stairs, so I have to be ready for anything," Bruchs noted. "One day, an engineer from within our laboratories may approach me with a test or experiment that needs to be done; the next, I could be working with a standards group from within the motion picture industry. In a place where anything can happen and probably will, I have to react quickly and know that the technology supporting my efforts will keep pace with whatever may transpire."

NUENDO GOES LIVE WITH JIMMY KIMMEL

The Jimmy Kimmel Live show, broadcast from El Capitan Entertainment Center in Hollywood, has gone native with a new PC running two Steinberg Nuendo 96/52DSP PCI interface cards and six Nuendo DD8 format converters that interface with three Yamaha



Bart Chiate, Jimmy Kimmel Live music mixer

O2R96 mixers via AES/EBU and are driven by Nuendo and Wavelab software. The system records 48 simultaneous channels of 24-bit, 48kHz multichannel audio from several performance locations, including three stages on the set.

According to Bart Chiate (pictured), the show's music mixer, "I can record 48 tracks wide at 24/48 on the 7,200 rpm IDE boot drive of my little 2.6-gig PC with only 1 gig of RAM and the system is rock-solid. Not even a hiccup. You have to move fast and be ready for anything. I can archive a show for a tenth of the cost of our tape-based system—the bean counters love that!"



Pictured from left: QSC cinema manager Francois Godfrey and Dolby Laboratories' Tom Bruchs and Ioan Allen

ON THE MOVE

Who: Stuart DeMarais, Fairlight worldwide sales and marketing director

Main responsibilities: manage day-to-day commercial activities of the company.

Previous Lives:

- November 1990-March 2004, various roles at Solid State Logic Ltd.
- June 1989-November 1990, attempted music producer
- September 1986 to May 1989, sales positions at various data communications companies

If I could do any other job, it would be...running my own helicopter charter business because I enjoy commerce and would get to indulge in my passion for flying helicopters.

The best concert I saw was...Steel Pulse in 1978 because it was the first time I'd been to a proper gig. It opened my eyes to reggae.

Currently in my CD changer: Stereophonics, White Stripes, Alicia Keys, Tanya Tucker, Divine Comedy and Savage Garden, because I've got to have some Aussie music in there somewhere!

When I'm not in the office, you'll find me...supporting one of our three kids in their perpetual activities while working out how I can sneak off to grab another hour in the helicopter.



HIDING OUT AT HYDE STREET

Hyde Street Studios (San Francisco) had a six-week lockout with San Francisco Bay Area-based Brigitte DeMeyer and musicians Darryl Jones (bass); guitarists Chris Rossbach, Johan Carlberg and Joacim Bachman; Jim Pugh on keys; and Daniel Lanois on pedal steel. Rev. Brady Blade (Dave Matthews Band, Emmylou Harris, Daniel Lanois, Indigo Girls) served as producer and drummer, while Nic Manders handled engineering duties with assistant Stephen Armstrong.



Pictured from left: Johan Carlberg, Darryl Jones, Jim Pugh, Brigitte DeMeyer, Steve Armstrong, Chris Rossbach, Nic Manders, Brady Blade and Joacim Bachman

FORT WORTH: WHERE THE WILD WEST MEETS CREATURE COMFORTS

Digital Post & Production (www.digipostpro.com) spent the past three years constructing its Pro Tools-based 5.1 recording and mixing facility, including three iso rooms and one medium-sized control room; monitoring is via Genelec 1032A and 10904 subs. With comfort and a creative atmosphere at the top of his design list, studio owner Randy McCoy's efforts resulted in excellent acoustics via planed spruce and fabrics used throughout the rooms.

A look into the equipment racks reveals pre's by Avalon and



PreSonus, with mics from Neumann, AKG, Sennheiser, Shure, Electro-Voice and Audio Technica. A 42-inch plasma monitor flush-mounted in the front control room

wall enables quick configuration for sync-to-picture work. Unusual use of wood includes the customized Argosy producer desk with its 4-inch-thick Douglas Fir wood top. "We

wanted to provide an upscale place in our market that is as unthreatening as possible and allows creativity to soar," said studio owner Steve Regian.

INDUSTRY NEWS

NRG Recording (Los Angeles) named **Ashley Arrison** as studio manager...Announced at Summer NAMM, **Bert Tunks** was promoted to president of independent rep firm **Ron Tunks Sales** (Pompano Beach, FL)...The **Recording Academy's Texas Chapter** (Dallas) announced its new Board of Governors, including Dallas-based recording engineer **Chris Bell** of Luminous Sound Studios as its president...Most recently with ARTISTdirect Records, **Jim Swindel** joins **Gibson Guitar Corp.** (Nashville) as executive VP, entertainment relations...Broadcast industry vet **Bruce Goldfeder** is **Venue Services Group's** (White Plains, NY) new director of engineering...**Turbosound** (West Sussex, UK) brings in a new sales director: **Rik Kirby**...**Scott Stover** is now responsible for Audio-Technica's (Stow, OH) presence in Arizona, Montana, New Mexico, Southern California and Canada as the company's territory manager. In other company news, **Signal Marketing** (Midvale, UT) was awarded Rep of the Year for the second year in a row...Two new promotions at **Roland**



Ashley Arrison

U.S. (Los Angeles): **Doug Hanson** to the newly created position of director of product management and marketing and **Paul Youngblood**, director of sales...**QSC** (Costa Mesa, CA) new hires: **Samuel Hynds**, cinema product specialist; bassist **Mahlon Hawk**, retail sales engineer; and **Jeff Pallin**, director of marketing...Expanding **Martin Audio's** (Kitchener, Ontario) North American sales operations, the company appointed **Jonathan "JP" Parker** to national sales manager...**Fishman Transducers** (Wilmington, MA)



Scott Stover

named **Matt Belyea** and **David Fournier** to newly created posts of national sales manager and product manager, respectively...**Gepco** (Des Plaines, IL) welcomed **Mario Zavala**, Western regional sales manager, and **Emerald Communications** (Duluth, GA), distributor in Florida, Mississippi, South and North Carolinas, Alabama and Georgia...**Elizabeth Marshall** joined **Cerwin-Vega** (Chatsworth, CA) as domestic sales assistant...New distribution deals: **Tascam** (Montebello, CA) handling **Nomad Factory** (Beverly Hills) plug-ins in the U.S.; **Numark** (Cumberland, RI) distributing **Akai Professional Musical Instruments** (Pomona, CA) in the Americas; **American Music & Sound** (Agoura Hills, CA) appointed U.S. distributor for **NetCIRA™** (Tokyo), a division of **Fostex Japan**; and **SF Marketing** (Montreal) exclusively representing **Genelec** (Natick, MA) in Canada.

FROM ALASKA WITH A/V SAN

With nationwide clients and satellite locations in Orange County, Calif., and Washington, D.C., **Mirror Studios** (Anchorage, Alaska, www.mirrorstudios.com) owner **Charlie Hewitt** finds himself depending on **Studio Network Solutions' A/V SAN** technology to efficiently manage media between clients, talent and studio.

Hewitt recently employed A/V SAN on a session that connected tracking and post in Anchorage with voice-over talent in D.C.—all done in real time. "During the session, the producer asked that the music we had used in a prior session be played back to the talent for timing purposes. The beauty of SNS' A/V SAN PRO is its transparency. All media is stored in one central location and everything shows up as a local drive. We called up the prior session, grabbed the music track and flew it into the current session for playback to D.C., all in less than 90 seconds. No hot-swappables, no pulling from the archives, no power-down/up routines." The A/V SAN system comprises just under a terabyte of hard drive space, several Fibre Channel cards and a fiber-optic switch that communicated the sessions via a Mac G4.—*Breann Lingle*



Mirror Studios audio engineer Ken Sease (left) with John O'Hurley (aka, Seinfeld's J. Peterman)



Mirror Studios control room, featuring Pro Tools and A/V SAN

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NOTES FROM THE NET

RIAA TO CERTIFY MUSIC DOWNLOADS

The RIAA announced that it will award Gold, Platinum and multi-Platinum certificates to digital downloads from legit online services. Sales of 100,000 will receive the Gold award, sales doubling that will receive Platinum status and multi-Platinum will be awarded to sales of 400,000 and increase in increments of 200,000. Current certificate requirements for singles and albums are 500,000 for Gold, 1 million for Platinum and 2 million for multi-Platinum.

NAPSTER FINDS RETAILER ITS BEST BET

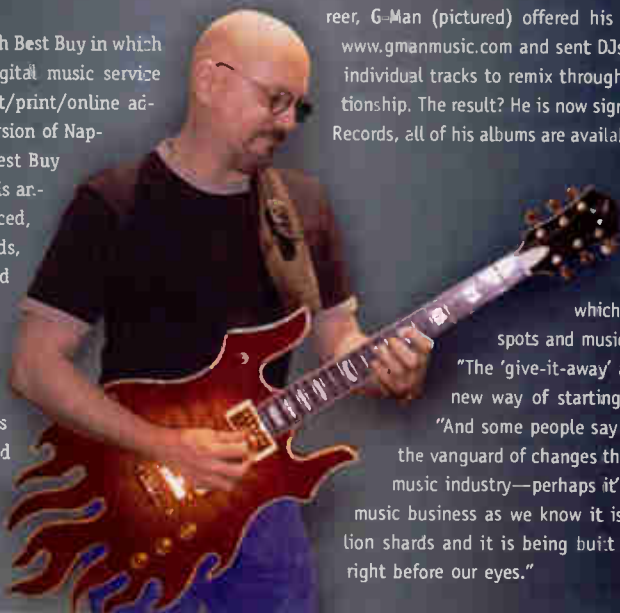
Roxio's Napster has signed a multiyear agreement with Best Buy in which the retailer will promote Napster as its leading digital music service through in-store marketing activities and broadcast/print/online advertising. Best Buy will also market a co-branded version of Napster, which will be available at www.bestbuy.com. Best Buy will receive Roxio stock worth up to \$10 million. This announcement comes a year after Best Buy announced, along with Hastings Entertainment, Tower Records, Trans World Entertainment, Virgin Entertainment and Warehouse Music, the industry's first retailer-driven digital music consortium, dubbed Echo (www.echo.com). In early June 2004, these retailers pulled the plug on Echo, citing mounting development costs, numerous rivals offering bargain prices and minimum sales. Best Buy VP Scott Young told CNET, "We want to work with the leading services that serve our customers' needs. It didn't make sense to us in the near term to focus on [one thing; i.e., Echo] and say that's the answer."

FESTIVAL EXPRESS RETURNS—IN NET FORM

Launched for THINKFilm's upcoming film, *Festival Express*, www.festival-express.com features some never-before-seen film footage, exclusive clips, theatrical trailer and release information. Starring Janis Joplin, The Band and the Grateful Dead in the 1970s, the movie documents the multi-band, multi-day festival as filmed by Peter Biziou and Bob Fiore.

G-MAN USES P2P TO LAUNCH CAREER

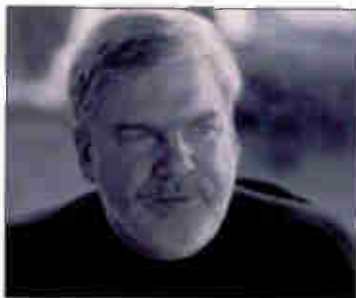
Rather than go through the major-label network to establish a career, G-Man (pictured) offered his first album for free via www.gmanmusic.com and sent DJs (including Matt Forger) individual tracks to remix through a P2P file-sharing relationship. The result? He is now signed to indie label Delvan Records, all of his albums are available on Apple's iTunes, his catalog is administered by Janssongs.com and he has opened his own company: G-Man Music Radical Radio, in which he creates songs, radio spots and music for film, TV and games. "The 'give-it-away' approach may be a cool new way of starting a career," G-Man said. "And some people say this method puts me in the vanguard of changes that are overwhelming the music industry—perhaps it's both. I think that the music business as we know it is splintering into a million shards and it is being built up into something new right before our eyes."



DAVID BAKER, 1946-2004

Grammy Award-winning engineer/producer David Baker died in his sleep on July 14, 2004. Baker had recorded for ECM, Enja, Blue Note, Atlantic, Sony, Verve, Black Saint/Soul Note, MaxJazz, Universal/Polygram, among many other labels. His long-term working relationship with Shirley Horn earned him a Grammy Award in 1998 for *I Remember Miles*. Other artists Baker worked with include Will Boultware, Dave Liebman, Richie Beirach, Larry Coryell, Maceo Parker, Sun Ra and Medeski, Martin

& Wood. Recently, Baker devoted his time to doing archival recordings for Jazz at Lincoln Center's 2003/04 season, including performances by the Dave Brubeck Octet and Toots Thielemans.



615 MUSIC TURNS 20

615 Music celebrated its 20th anniversary in New York City at the 2004 PROMAX & BDA Conference (June 23-25, 2004). Commenting on the company's achievement, president/CEO Randy Wachtler said, "Twenty years? It certainly doesn't seem that long! Getting to work with some of the greats in broadcasting and being recognized as a leader in our field has been gratifying for me personally and our great staff. There's been tremendous change in our business with all the new technology. I have no doubt that trend will continue. The part that won't change is writing memorable music."



It all starts with writing great melodies that touch people. That's the part I love and really why I'm in this business. I'm looking forward to the next musically fun 20 years."

To celebrate the anniversary, the company created a DVD in which music luminaries, including Alan Parsons (pictured), offered their "Happy Birthdays."

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Tape Op Forum



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Sound On Sound review July 2004


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World Radio History

RavensWork

By Heather Johnson

As a business entity, RavensWork, one of the industry's leading post-production facilities, stands out among the art galleries, boutiques and cosmopolitan-casual restaurants lining Abbot Kinney Boulevard in Venice, Calif. But the recently expanded facility, with its modern design and ample natural light, actually seems right at home in this artistic Los Angeles suburb.

Owner/mixer Robert Feist began planning RavensWork's current expansion more than four years ago after the company outgrew its former Venice space. "We opened with one room eight years ago," Feist recalls. "But with only one studio, you quickly find yourself in situations where clients need to make revisions and you're working until midnight to accommodate them." Feist opened a second room with significant success and then began looking for a new larger location to better suit his growing client base and employee roster.

With the help of architect Eric Rosen and acoustical consultant John Storky of Walters-Storky Design Group, Feist moved into his existing facility, which now features three mix rooms—occupied by Feist, Eric Ryan and Chris Canning—all of which include Fairlight DREAM Constellation consoles, a fully integrated audio editor and automated audio mixer offering up to 192 channels on 48 mix buses, simultaneous generation of multiple surround formats and bus-to-bus mixing for multistem work, among other features.

The editor/mixers, installed earlier this year, are complemented by a Fairlight Pyxis nonlinear video machine; Event Electronics 20/20, Yamaha NS-10, and PMC TB1 and TB2 monitors; Hafler and Bryston power amps; several Lexicon reverbs; an Eventide H3500; Yamaha SPX-900; and software such as BIAS Peak 4 and SoundSoap and ProPellerhead Reason and Recycle.

The recent Fairlight DREAM install marks the completion of Feist's upgrade plans and solidifies the multifaceted company's position in the upper-echelon of post facilities. "The Fairlight has been a great platform for me," says Feist, who previously owned one Fairlight FAME and two MFX3 systems. "The DREAM console has features that other platforms don't have. It's really the first real integration of a DAW and a digital console that works together without losing a lot of features."



Foreground, from left: producer/studio manager Katherine Morgan, music/sound design Johannes Hammers, owner/mixer Robert Feist and mixer Eric Ryan. Background: mixer Chris Canning

The editor/mixer can also handle multiple audio file formats, which is imperative as post evolves into a tapeless industry. "We rarely see tape; we rarely even see DATs anymore," says Feist. "It's all OMF, .AIFF and .WAV files. They come in over the Internet, over our FTP site or people bring in data files on CDs. That's one of the biggest changes we've seen over the years, and being able to handle all these formats and convert and import them into our system is important."

Many of those OMF files come from resident music composer/sound designer Johannes Hammers, who recently completed projects for Lincoln Mercury, Showtime and Jaguar, among others. "We're fully networked; I'm on a separate platform in my own room," says Hammers, who works on an Emagic Logic system. "When I'm finished, I'll put the OMF file on a central server, the guys up in the machine room put that on the mixer's drive and they can open it from there. With the Fairlight, it doesn't really matter what platform you're creating sound on. If you can make an OMF file, the Fairlight will open it up."

Hammers joined RavensWork two years ago after a seven-year stint at Machine Head, followed by co-launching Conning Hammers Klok + Wagner, and later working out of the Chris Bell and Company studios. "It was just a natural fit," Feist says of Hammers' move to RavensWork. "We've known

each other for more than 10 years, and because of our increasing demand for sound design and music composition, his presence really helps fill a void."

In addition to mixing for commercial broadcast clients such as Toyota, the U.S. Air Force, Sirius Radio, Acura, Nissan and Infinity—"We do a lot of car commercials," Feist says—RavensWork has also hosted mix sessions for music videos from Ricky Martin, *NSync, Jennifer Lopez, Destiny's Child, Aerosmith and Alicia Keys, to name a few. The studio also handles voice-over recording, ADR, video and audio duplication, and digital transmission via ISDN lines. "Like many post facilities, we'll record voice-overs interstate and even internationally," says Feist. "We can hook up a digital line and do real-time recording. We do this on a weekly basis to New York, San Francisco, London, Japan—all over the world."

With its wide array of services and interconnectivity, RavensWork serves as a one-stop shop for the post-production community, where clients can benefit from the latest digital technology, top-notch engineers and a view of the Pacific Ocean less than a mile away. "Several years ago, I thought about doing something very different with my life," Feist recalls. "But then I realized that the best that any of us can do is to do what we do best and offer it." ■

Heather Johnson is Mix's editorial assistant.

NEW!

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part down an octave, changing filter settings on a bass sound, shortening release time of a synth sound, or other common tweaks.

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World Radio History

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Is It Real?

Or Is It Memory Dumping?



ILLUSTRATION: RICHARD DOWNS

Soft synths, software samplers, virtual instruments—whatever you want to call them, these things can be pretty amazing. Complex, but amazing.

And as they are a crucial component in my quest for a true virtual studio and may even be something that you are looking at, I thought a bit of conceptual foundation might be in order. But then I usually do.

To start with, you might assume a few things that are not necessarily so. The typical path to this point is reasonably predictable: You get into these things when it becomes clear that the time has come to move up to the next level. You have played with samplers/keyboards/workstations for a while, but it's time to print your final sounds. So now you need high sample rate, high bit-depth audio, intelligent and prolific layering, and all those useful effect layers like fret noise, breath overlays or pull-offs. And you need predictable control of all this if there is to be any hope of realistic musical expression. Tall order for a bunch of samples on a DVD.

You know by now exactly what you don't want: cheesy

layer switching, samples shared over 10 notes (or worse), looping after one second, noise or compression artifacts.

But, some of these sample libraries and even self-contained virtual instruments do in fact loop, some have quirky or outright dumb layer decisions and others have, well...weird noises. Then there are those that are okay but sound sterile and boring. But others...well, they can truly knock you over.

To fully appreciate the complexity, potential and dangers of playing in the deep end, you need simply stop and think about how these libraries are made. In truth, you are not buying the instrument alone; you are buying a record—thousands of records, actually. And to be exceptional, or even acceptable, everything has to be right, or at least pretty damned close to it.

The instrument must be in absolutely perfect shape. Seem obvious? Well, consider a synth. A real one—one with a keyboard, knobs, displays and a back-breaking gravitational component. With under 200 meg total, for *all* its instruments combined, each gets only about three

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~ Steve Parr
~ Sharon Rose

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~ Bob Ezrin

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bytes. Every trick in the book (and several nasty illegal ones) are used to minimize sample size and maximize efficiency. Each synth has a couple of showcase instruments that are allocated a disproportionate amount of sample ROM to—well, let's face it—sound better than the competition, leaving all the other voices to fight it out with pitifully small allocations of sample memory. Sad but true.

Let's take a look at this season's battlefield: acoustic pianos. Each company does everything it possibly can to squeeze the most impressive acoustic piano it can out of their synth's ¼-inch outputs. To say they put a lot of work into it is a ridiculous understatement. But, reality interferes with their dreams.

Each note can only be so long—say three seconds max. After that, they resort to looping. Always audible, always unrealistic, always distracting: looping. Even “perfectly” executed loops, though free of pops and burbles, are dead, as the rich swimming harmonic evolution that is the life of a sustained chord must be absent or there will be a clearly audible discontinuity as the tail meets the head again—or a horrible unnatural tonality when the section is reversed to overcome this problem.

Anyway, to suppress repetition of identi-

fiable components, either in looping or in notes that share the same sample, most dynamic components are actually removed. Everything from fret buzz on a bass to hammer noise in a piano must go, as it would be

Each synth has a couple of showcase instruments that are allocated a disproportionate amount of sample ROM to—well, let's face it—sound better than the competition.

pretty much a giveaway if eight adjacent notes had exactly the same mechanical instrument noise because they were actually the same sample clocked out at different rates. Such are the realities of keyboards. They can't be perfect instruments. They are, in fact, often somewhat *neutered* instruments.

And while realization of the skill that goes into creating the rare exceptional ones—given their constraints—may move one to feel respect at the fact that the dog dances at all, or even feel awe at how good they *do* sound, the thinking professional must face the question of what could be done if these constraints were literally removed.

With no constraints or limitations to speak of (at least none of the ones the hardware guys are plagued with), can perfection be achieved? Shall I pull my typical trick and make you read the whole column to find the answer? So many questions. I will spare you and answer them right here. Can perfection be achieved? Nope. I have been banging around with a very good cello for some time now, and though I have produced a track totally suitable for commercial release, it seems I just ain't no Yo-Yo.

So. Within the limitations of playing non-keyboard instruments with a keyboard, a “perfect” instrument means one that is in optimum condition, properly tuned, mechanically sound and equipped with new strings. Unless it's a drum. Then it can have old strings. What separates computer-based virtual instruments from keyboard workstations

—CONTINUED ON PAGE 172

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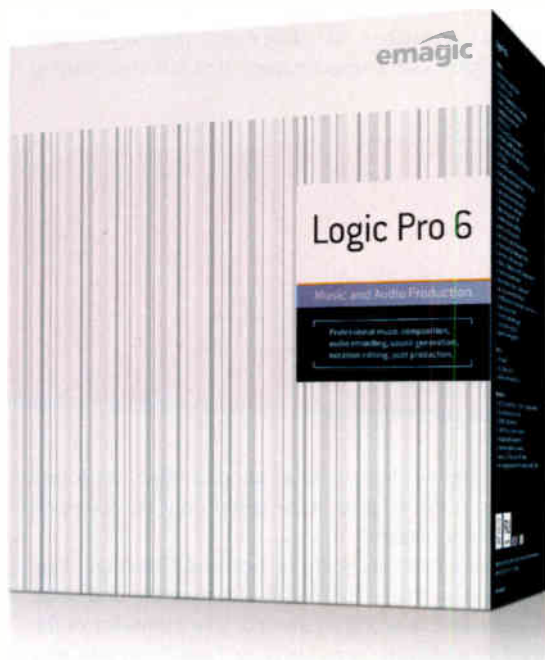
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Out of the Garden

A Woodstock Memory

The other day at a party for a soprano friend (she's a singer, that is, and not a member of a certain family), I found myself performing with several other musicians I had never met before in an impromptu chorus, serenading the birthday girl with a medieval German canon. Shortly thereafter, a slightly inebriated guest confronted me to ask if this little group could do a request. "We can try," I said. "Sing 'Woodstock,'" he said.

Because we didn't have any electric pianos (which Joni Mitchell, who wrote the song but wasn't at the festival the song commemorated, used) or electric guitars (which Crosby, Stills, Nash & Young, who had all the chart action with the song and *were* there, used), we would have had to whip up a quick a cappella version. For a group who had worked together all of five minutes (which was even less than CSN&Y had on that historic occasion), that would have been difficult. So we begged off. Instead, I offered to tell the gentleman a story. "I was at Woodstock," I said. He looked at me in admiration and confusion as to how someone so young-looking (hah!) could have accomplished such a thing. "But," I added, "I left." His admiration immediately turned to disgust. "How could you do that?!" he yelled. So I told him. And because it all happened exactly 35 years ago, I'll tell you.

I was in high school on Long Island, about 20 miles outside of New York City. Being a conscientious sort at an early age, I bought advance tickets to the festival as soon as they came out, which made me one of approximately 186,000 (according to the Woodstock Statistics page at woodstock69.com). As I didn't yet drive, I hooked up with my friend Roger (not his real name), who was a couple of years older. In college and at home for the summer, Roger arranged to borrow his mother's Plymouth Valiant to get us up to White Lake, N.Y. I had big plans after the festival, too: I had a girlfriend up in Montréal whom I had met the year before at music camp, and when the music was over, I intended to hitchhike up to visit her for a few days. I even had a plane ticket for the trip home. It was going to be the teenage adventure of a lifetime.

Early on Friday morning, the first day of the festival, we left Long Island equipped with two sleeping bags, two rain ponchos, a couple of changes of underwear and a canned ham, figuring—as the posters promised—there'd be plenty of food available once we got to Max Yasgur's farm. It was normally a two-hour drive up the New York State Thruway and Route 17, but we figured to allow some extra time for traffic. A little after noon, about 10 miles from the site, we stopped dead. For the next several hours, we crawled around the back roads and cow paths of Sullivan County, watching the local farmers and Hassidic Jews on their tractors and front porches with as much curiosity and trepidation as they were watching us.

Around 6 p.m., we were waved off of a dirt road by someone vaguely official-looking and directed into a field where we would park. It was the only sign of authority we would see the entire time we were there. We left the ham, the underwear and the sleeping bags in the car, but grabbed the ponchos. We could see several streams of people who seemed to be headed in more or less one general direction, so we followed as best we could. We couldn't see or hear anything resembling a concert as we trekked over fields and downed fences, through clumps of bushes, and around oddly placed tents and trucks. After a while, we began to hear a kind of roar in the distance. We came over a ridge and caught the faint strains of a singer named Bert Sommer wailing



about losing his virginity. Over another ridge, we found ourselves at the edge of what could only be described as a sea of humanity.

The scale of it was not to be believed. The huge stage looked like a small city, and the performers and stage techs like insects scurrying around. The perimeter of the natural amphitheater was lined by Porta-Sans, and way off in the distance were cone-roofed tents surrounded by hordes of people, which we figured must be where the food was. People were seated on blankets, straw mats, their jackets or just in the dirt.

Roger and I found a spot between two blankets, laid our ponchos down in the dust and sat down. Soon, Tim Hardin took the stage. Although we could hardly see anything, the sound was amazingly clear. What we could see, however, was that Hardin, a great songwriter, was having a lot of trouble staying vertical. (Apparently, he had recently resumed a heroin habit, which eventually killed him.) After just a couple of songs, he left the stage. I told Roger that I needed to use a toilet. "Please don't move," I begged, "or we'll never see each other again."

I did a broken-field walk up the hill, stepping as lightly as I could over blankets, backpacks, coolers, and conscious and unconscious people and got in line for one of the Porta-Sans, where I waited for about 15 minutes. In-

Buying Gear in the 21st Century

Navigating today's music technology landscape

These days, buying music technology equipment is more complicated than ever before. There's an incredible array of inexpensive, extremely sophisticated hardware and software products available offering unprecedented power to musicians, engineers and producers. However, we're faced with so many choices that it's often hard to figure out what to buy, let alone how to make it all work once it's set up in the spare bedroom/garage/basement/multi-million dollar studio.

In decades past, you'd likely turn to your local mom-and-pop dealer who knew you well enough to understand your needs and help figure out what piece(s) of gear would get the job done. However, these days, national chain music retailers and faceless internet companies have all but driven the local dealers out of business. The likelihood of finding a salesperson at one of these "gear supermarkets" who actually understands the gear they sell and will be working there long enough to take the time to comprehend your needs is slim at best. Ever tried to get any useful information from an actual human at most online retailers? It's like asking an ATM for investment advice – good luck!

WHAT'S A MUSICIAN TO DO?

Thankfully, there are alternatives. Sweetwater Sound, for example, has managed to blend the benefits of national retail (seemingly endless stock and great prices), local mom-and-pop shops (recommendations from a knowledgeable staff that's been there for years and a genuine commitment to post-sale support), and online dealers (the ability to research and buy any of thousands of products 24-7 and a generous free shipping policy). The result is a full-service retailer with a devoted following.

How do they do it? It starts with the philosophy of Chuck Surack, who founded the company a quarter century ago and is still actively involved in its day-to-day operations. "I started our retail division because, as a gear junkie myself, I wanted to support my own 'habit' and support my friends. I couldn't find a dealer who knew the gear well enough to help me make good decisions about what would work best for my needs or was able to help me if I had a problem after the sale." Surack continues, "I had a working studio, so my job was running the studio. I wanted to be able to trust that there was someone whose job it was to stay on top of the technology and who would take the time to understand my needs and help me make the right decisions about what to buy. Since that sort of music retailer didn't exist, I decided to do it myself."

FAST FORWARD 25 YEARS...

Today, Sweetwater's success is based on the same philosophy. Every Sales Engineer at the company is a musician with a solid background in recording and/or live sound, a prerequisite for their



Sweetwater Sales Engineers take the time to fully explain the gear they sell to their customers — in person or on the phone.

"Even though Sweetwater's prices are among the best around, it is their service, professionalism, can-do spirit and willingness to go the extra mile that will keep me coming back for many years to come."

Christopher Dykes

employment. They also go through an extensive training program in the first several months of their tenure and spend several hours each week learning about the latest music technology directly from the manufacturers who build it. Sweetwater customers are encouraged to build a one-on-one relationship with a single Sales Engineer, who in turn gets to know that customer's needs. The result is a truly consultative, low-pressure sales experience that is totally unique among national retailers. As long time Sweetwater customer Dan South recently said in an online forum, "The 'Sweetwater Difference' is that they CARE about their clients. I've been dealing with the same guy at Sweetwater for over ten years, and I've had nothing but FIRST RATE service for all of that time."

Sweetwater backs their consultative sales approach with a top-notch tech support and service staff who install complex computer based DAW systems, offer operational support over the phone and in person, and can repair virtually everything they sell. Plus, with a warehouse full of gear, they enjoy the sort of quantity discounts that allow them to offer prices as good as or better than the competition.

So if you're looking for a really great music retailer, give Sweetwater a call at (800) 222-4700 or check out their website at www.sweetwater.com. You'll be glad you did. ■

side the unit, it was dark and putrid beyond belief. After I accomplished my mission, I inched my way back down the hill to try to find my spot. It was getting dark, and by the time I rejoined Roger, nearly three-quarters of an hour had gone by. As I sat back down on the lumpy poncho, Ravi Shankar was making himself comfortable on the stage, which was now covered by colorful carpets. From the distance, he looked (with apologies to Robert Klein) like a raisin poking out of a dollop of whipped cream on a bed of flowers. As the sun fell behind the Porta-Sans and the lights around the amphitheater came on, he announced "a raga tonight." The tamboura droned, he plunked out a few mournful notes on the sitar and it started to rain.

Roger and I looked at each other and wordlessly stood up, grabbed the ponchos, put them—dust and all—over ourselves and started the long trek back to the car. Somehow, we found it. When we managed to dry ourselves off a little, we cracked open the canned ham. After a few bites, we said to each other, "This is really stupid," and started the car.

We didn't get very far, however, because what had earlier been a grassy field was now a vast muddy ditch and our back wheels

In the weeks that followed the Woodstock festival, I didn't tell too many of my friends the story, because I was a bit embarrassed that I had chickened out and split from what was supposed to be the defining event of my generation.

spun helplessly. Out of the darkness and the rain, eight hippies, unbidden and silently, lifted the car up and pushed it forward a few feet, just enough so the wheels could grab. We lurched along the rain-soaked field, and 50 yards later, we got stuck again. Another phalanx of hippies appeared and helped us on our way. After four such incidents, we finally found ourselves on pavement, inching through the still-arriving crowds and randomly abandoned vehicles. By around 2 a.m., we were back on Route 17 heading south. Exhausted, we pulled over on the shoulder as far as we could, and heedless of the tractor-trailers barreling past us in the night, went to sleep.

When daylight broke, we resumed our journey down the freeway, listening to the

road-closings and other disaster reports on the radio, marvelling at the steady stream of abandoned cars on the northbound side of the road. We got on the Thruway and had breakfast at the first rest stop we came to, which looked like a Red Cross shelter after a major earthquake. We finally pulled into my driveway around 9 a.m. to the great astonishment and thinly disguised relief of my parents.

For the next two days, I watched the news reports from the festival on television and was very happy I wasn't there. A lot of the people being interviewed said they were having fun, but it didn't look like much fun to me.

On Monday, the day the festival was to end, instead of sticking out my thumb on an

—CONTINUED ON PAGE 173

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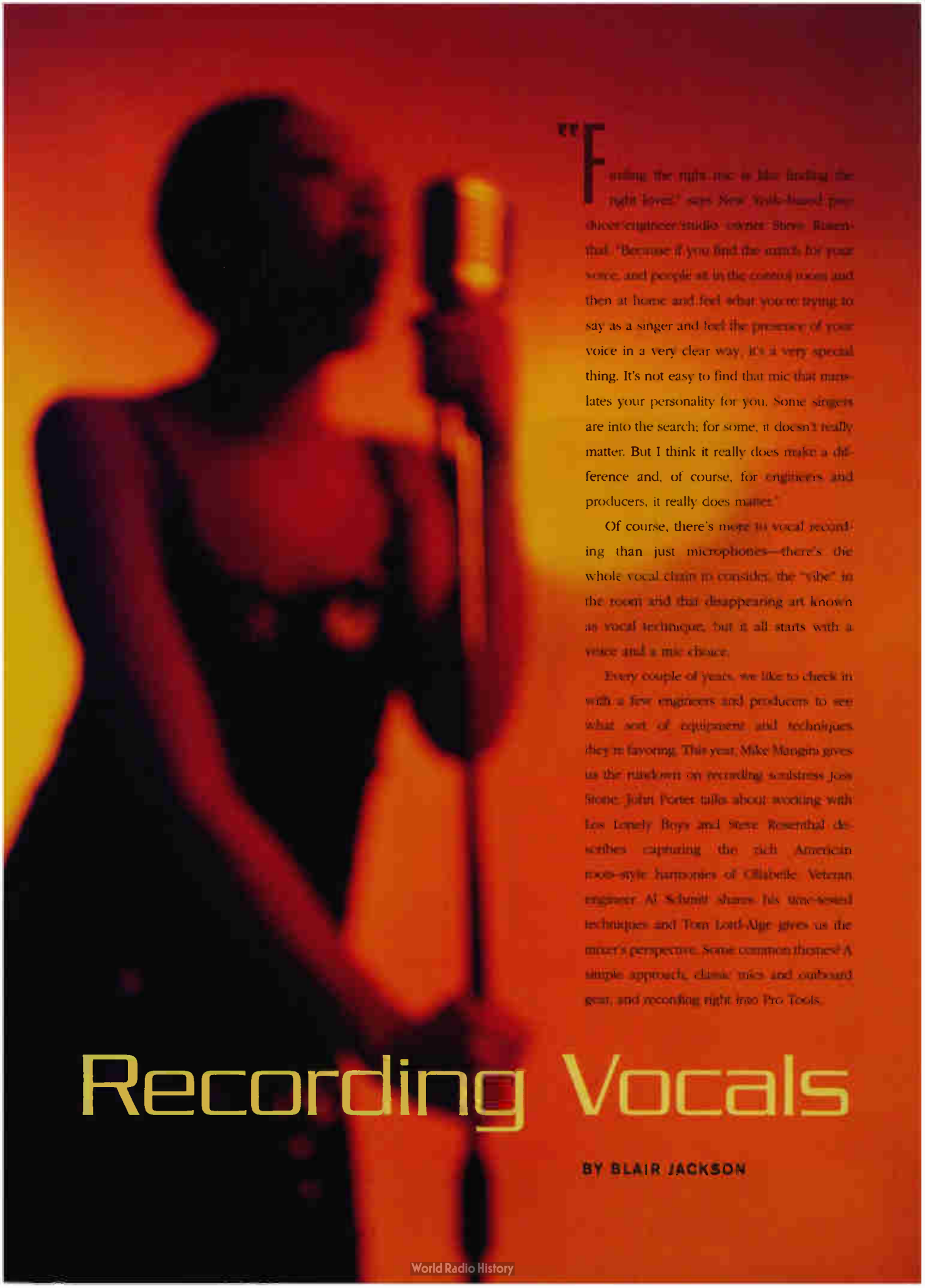
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"Finding the right mic is like finding the right lover," says New York-based producer/engineer/studio owner Steve Rosenthal. "Because if you find the match for your voice, and people sit in the control room and then at home and feel what you're trying to say as a singer and feel the presence of your voice in a very clear way, it's a very special thing. It's not easy to find that mic that translates your personality for you. Some singers are into the search; for some, it doesn't really matter. But I think it really does make a difference and, of course, for engineers and producers, it really does matter."

Of course, there's more to vocal recording than just microphones—there's the whole vocal chain to consider: the "vibe" in the room and that disappearing art known as vocal technique, but it all starts with a voice and a mic choice.

Every couple of years, we like to check in with a few engineers and producers to see what sort of equipment and techniques they're favoring. This year, Mike Mangin gives us the rundown on recording soulstress Joss Stone; John Porter talks about working with Les Lonely Boys and Steve Rosenthal describes capturing the rich American roots-style harmonies of Gillieckie. Veteran engineer Al Schmitt shares his time-tested techniques and Tom Lott-Alger gives us the mixer's perspective. Some common themes? A simple approach, classic mics and outboard gear, and recording right into Pro Tools.

Recording Vocals

BY BLAIR JACKSON

AN EXERCISE IN SIMPLICITY



MIKE MANGINI

Capturing Joss Stone's "Soul"

Many were startled last year by British singer Joss Stone's powerhouse debut album, *The Soul Sessions*. Could that incredible voice really belong to a 15-year-old? What a lot of people might not know about the album is that "there was no editing whatsoever," says the album's co-producer, Mike Mangini, who, with engineer Steve Greenwell, tracked the dates at Hit Factory Criteria in Miami using veteran players from that city's famous TK Records scene.

"*Soul Sessions* was truly a live record. The band played live and we didn't manipulate it at all. And all of Joss' vocals were live takes. She just went and sang it a few times, a take was picked and that was it." Although the album was recorded to Pro Tools, the workstation was used solely as a recorder. "I'd never made a record like that in my entire career," Mangini says with a chuckle.

Evidently, the strategy worked: *Soul Sessions* has sold more than 2 million copies worldwide and there's great anticipation for her second album—also produced by Mangini with S-Curve Records head Steve Greenberg and Betty Wright, and engineered by Greenwell—due in September and called *Mind Body and Soul*. That album, Mangini says, "is more in line technically with the way records are made today," meaning that



Pictured from left: Mike Mangini, Nile Rodgers, Joss Stone, Betty Wright and Steve Greenberg at Hit Factory/Criteria



there are overdubs and editing, though *no* pitch correction. The new album was tracked at Hit Factory Criteria, Right Track and Chung King (both in New York City), with vocals and overdubs added at Mangini's Manhattan studio, which is equipped with an old Neve console.

From the outset, Mangini says he could tell Stone was special and was pleasantly surprised at how easy she was to record—not usually the case with young singers. "She had made a few writing demos with a number of people, so putting on a set of headphones and singing to a track was something she was already pretty comfortable with," he says. "But she had never sung in front of real people playing. So we went down to Miami and here are these 50-year-old guys—for the most part, set up in the



Joss Stone at the mic during tracking sessions for her impressive debut, *The Soul Sessions*.

Al Schmitt: A Few Tips From the Pro's Pro



Al Schmitt has a career spanning more than four decades and hundreds of albums with everyone from Jefferson Airplane to Ray Charles to Diana Krall. The multi-Grammy winner is also one of the true good guys of our business—a generous soul always willing to offer his wisdom to others if asked. He's worked with a few decent singers through the years: Sinatra, Jarreau, Dolly, Carly, Celine—the list goes on forever.

While Schmitt certainly has favorite mics, he is also always open to change. "For instance," he says, "I'm still using the great 67 that we use on Diana [Krall] all the time, but even with her, on a couple of songs on the new album [*The Girl in the Other Room*],



she wanted a harder sound and she's playing really heavy on the piano, so we wound up trying an SM7." [On Krall's award-winning live *One Night in Paris* album, Schmitt used a Neumann 150 on her vocal.]

"Obviously, it depends on the voice what mic you use," Schmitt continues. "I can hear a voice and know what I want to do. Like with Al Jarreau, I hear his voice and I know I want to get a mic that's crisp and will pick up all the little nuances of his phrasing and also little things he does with his mouth. So the last time I worked with him [*Accentuate the Positive*, released this year], I wound up using a new Brauner tube microphone and it was just great. It held up and captured everything really well. Jarreau's dynamic range is really good: He'll go from almost a whisper to being really loud and I

hate to use a lot of limiting, so I do a lot of *hand* limiting. You know what the song is and where he's going to get really loud, so I'll pull the fader back a little bit.

"On [jazz singer] Jane Monheit's new album [*Taking a Chance on Love*], I used a Didrik tube microphone, which is built by hand by this guy in Sweden [Didrik De Geer] and there are only 24 of them in the world. Wow! It's unbelievable! It's also like \$15,000," he adds with a laugh. "[Producer] Peter Asher turned me onto it. We used it on Jane Monheit and it was perfect. She really belts it out, but she could not hurt this microphone. I'm sure I'll be using one again sometime—it's definitely special."

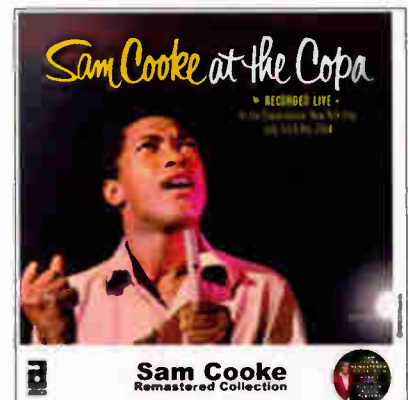
Speaking more generally about recording vocals, Schmitt says, "When I can possibly do it, I put the mic in omni, unless it's someone standing out in the middle of a brass section or something—which I did with Sinatra—or like Diana, who plays and sings, and then I'll open up the mic all the way around. With her, it's in the cardioid position.

"I've been using three different preamps, depending on the mics and depending on the vocalist. One is an old Neve 1073, which is always pretty dependable. Then John Oram made a preamp for me that is just killer—actually, it's a preamp and op-



tical compressor and equalizer all in one, and it's fantastic. And then I've also been using the Martech [MSS-10], which is an old standby. From there, I'll usually go into a Summit compressor; at the most, I'll pull on it a dB or two. I use it more for the sound. I also got a 3-band Tube-Tech that I've been using a lot.

"There was a thing years ago called microphone technique," Schmitt says wistfully. "Rosemary Clooney and Sinatra and these people had it and that's now a lost art. It was learning how to come in on the lower notes and lean back on the higher ones and move their head a little so the air wasn't hitting



right into the mic in certain places. With someone like Rosemary Clooney, I would set the fader and I would never have to touch it again—she would be perfect all the time. In those days, too, the singers always came in really prepared. A lot of singers today don't; in some cases, they don't even know the song, which makes it tough. But, generally, I've been very fortunate to work with so many great singers." ■

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"I found the mic's all-around usefulness, smooth high-frequency response and warm sound make this one a solid winner."

Mix July 2003 **Barry Rudolph**

The AT3060 large-diaphragm cardioid condenser phantom-powered tube microphone. To put it simply, just ask for 'the new tube' from A-T.

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always listening.

room ready to jam and start to build a sound, and she's supposed to stand up there and sing in front of these guys. I think that was a tough transition for her: to actually sing with a band. But she has amazing pitch. Now she's like an old pro!" [Laughs]

When it came to choosing a mic for Stone, "We tried a few different ones, but Steve Greenwell and I settled on the Sony C-800. We tried [AKG] C 12s and a couple of Neumann mics, but they kind of had a *sound* to them—they changed how she sounded—so we went with the C-800,

which seemed totally transparent. So that was the mic we used primarily on both records, and then we'd also go through an Avalon 737 [preamp]."

Mangini says that sometimes with thin-sounding younger singers, he chooses a mic such as a [Neumann] 67 or 87, or C 12 to add warmth, but that was not the case with Stone. "With Joss, though, her voice is so dark, so warm to begin with, my concern is more it being *clear*. So a lot depends on what the singer's bringing to the table," he says. With a singer as potent as Stone, Mangini adds,

"Nine times out of 10, her vocals are dead-dry and way up front in the mix. There might be a double of a vocal on a chorus, but there's never one of the lead vocal. We rarely use reverb; once in a while, some delay. It's compressed and slightly EQ'd—we're fairly aggressive with the LA-2As—and we have the vocal sitting right up front."

JOHN PORTER

Los Microfonos de Los Lonely Boys

With an awe-inspiring resume that includes The Smiths' early albums, Bryan Ferry, B.B.

Tom Lord-Alge: A Mixer's Perspective



Here's a plea to tracking engineers from one of the top mixers in the business: "Record a vocal with as little amount of stuff on it that you can bear to," says Tom Lord-Alge, whose credits include a ridiculous number of successful albums during the past 20-plus years, by "everyone from Manson to Hanson," he jokes, and includes the likes of Billy Joel, Blink-182, Pink, Goo Goo Dolls, Hole and Avril Lavigne. "If you feel you need the vocal to be really compressed, try doing it on the monitoring side, because now with Pro Tools, it's so easy to just throw a plug-in compressor and a little EQ on the monitor side and that will still allow you to go in and change it in the future. There are engineers who over-compress or they take out all the breath; there are all sorts of bad things engineers do that cut down my options when I'm mixing. I always feel like I'd rather get a plain Jane recording, which is basically flat, rather than someone's idea of what the finished mix should sound like, because sometimes it gets to a place where it's unrecoverable. Having said that, *I* used to be the guy who recorded with all that stuff on it," he adds with a laugh. "Just put up a mic and a good mic pre,

maybe just a touch of compression on the way in." And leave the rest to you? "Exactly!"

"The other thing I'd comment is lay the f*** off the Auto-Tune. Holy shit! Have 'em sing it again! A lot of cats get lazy and put the Auto-Tune in and print it that way. If you're going to use it—if you *can't* have the singer sing it again and then manipulate it via other performances—just go through and fix the words [with Auto-Tune or some other pitch corrector] rather than running the whole pass through Auto-Tune. Automate it so it shuts off and on. I can't stand it when it's on the whole track."

The past several years, many pop and hip hop records have become laboratories for interesting vocal mixing techniques, with dou-



bled and tripled lead vocals, stacks upon stacks of harmony parts fighting for space in arrangements and effects ranging from extreme electronic alterations to subtle ghosting becoming commonplace. Certainly the ubiquity of Pro Tools and other workstations has accelerated this trend, but Lord-Alge notes that, "Us mixers have been doing all these things for years. It's just become a lot *easier* now with

Pro Tools because it just becomes cut-and-paste. One of my favorite things to do is maybe a quarter-note repeat or a whole note ghost and then maybe the next time it happens, maybe it will be a triplet so it mixes up the rhythm a little bit. Another one of my favorite things to do is one of those repeat-type things, where I'll sample the lead vocal, move it to the spot I want it and maybe either cut a word out or stretch a word to make it so it's slightly different. And Pro Tools makes all of that very, very easy."

Stacking vocals has never been easier, says Lord-Alge. "With the endless amount of voices and DSP power you can stick in your computer, there's no such thing as a comp-down anymore—although I still find myself going down to stereo these days. If I get sessions that are say, 20 or 30 vocals—let's say 10 or 15 channels make up a chorus stack—I'll get a blend of it and then bounce it down to two stereo tracks and then, if during the mix I feel I need to adjust the blend, I'll re-open the originals, make adjustments and print it in again. I've just always felt more comfortable running the minimum DSP that I can.

"I use Pro Tools as a tape machine on steroids," he continues. "I still come out discretely into an SSL console and still use the console and my array of outboard gear to flavor it. Like with filtered vocals, which I've certainly used on Avril's records and some others, I've never found anything that sounds better than using the highpass and lowpass filters on the SSL and then carving in the frequency you want to stick out using the SSL compressor. What I do find very handy with Pro Tools is the fact that I can do what I call rough-in EQs: If I hear something and think, 'That definitely needs some top end, boom, put a plug-in in, add a bit of top end and then I'll finish it off on the console.'" ■

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John Porter works to get standout performances from vocalists by adapting to their needs.

King, Ozzy Osbourne, Ryan Adams and so many others, John Porter could well rest on his laurels, but instead he plugs on, still doing vital work. The L.A.-based Englishman's latest hit is Los Lonely Boys' self-titled album, which has produced the inescapable video hit, "Heaven."

Porter is an old hand at recording vocals and for this project, which was cut at Willie Nelson's Pedernales Studio in Texas (where the Boys hail from), he kept his recording approach simple. "I have some [Shure] SM7s, which I think are really great and they've saved me in all kinds of situations and with all kinds of instruments. They're really suited to being in a room with a lot going on. And they sound great. So that was my mic of choice for the tracking dates. There was also an old tube [Neumann] 47 that was a favorite of Willie's that I used a little. I had some baffles out in the room with them for some isolation, but they were right out there in the middle of it." Porter says his vocal chain comprised "the SM7 into a Neve 1073 and an LA-2A or an 1176. I use very simple compression; I don't use too much—I'll go 3 dB at 3:1 or 4:1. And we used Pro Tools|HD.

"After I've done the tracking," Porter continues, "if I'm going to be doing overdubs, then I'll do a mic shootout: put up everything we think might work. If there's a Soundelux Elux 251, I'll try that, a tube 47, C 12, or if there's anything that anyone particularly likes, I'll try that. I might have certain mics I'll use for certain purposes. If there's a singer that's a little honky [not referring to any racial stereotype!] or has too much of a certain frequency, an Electro-Voice RE-20 might work. Sometimes, too, if the singer wants to sing in the control room with the monitors blasting, I'm not averse to using a 58. But I'll always put the SM7 up. I'll put it up against the more expensive mics and it's quite often the mic of choice.

"Recently, I produced Missy Higgins for Warner Bros. (with engineer Rik Pekkonen) and we put up the usual bunch of mics, and the studio had a couple of modded 87s that were tube 87s and those beat the 251 the 47 the 67 and the C12 for that particular project. I'll always use whatever sounds best on a particular voice and the choice may change for different songs."

Porter says he did some comping on Los Lonely Boys: "I would do three or four passes at the vocals and then I'd do a comp and then if there was any line to be replaced, we'd do that. But they're good performers and they sing in tune.

"Vocalists, particularly, quite often have a way of working and it's the producer's job to adapt to that to a certain degree," he continues. "Singing is a very personal thing and you want the artist to be comfortable with it. If they want to fill the control room with sand and build a duck pond under the console to get what they want, that's fine with me as long as it's in the budget!"

As for other vocal recording tips, "When I'm recording now, I don't use EQ. I used



to," says Porter. "That said, sometimes when I'm mixing, I might really use a lot of EQ to get the vocal to fit in the track right, especially with R&B vocals where there's a lot of attack. But I would hate to [use it whilst tracking] because when you do, there's nowhere left to go. The other thing I'd say is, left to my own devices, I rarely use pop shields either because with the tools that are available now, you can deal with those kinds of problems with Pro Tools and I think people sing better into a microphone without the distraction of the pop shield.

"But there are no rules," Porter concludes. "A good performance transcends everything."

STEVE ROSENTHAL

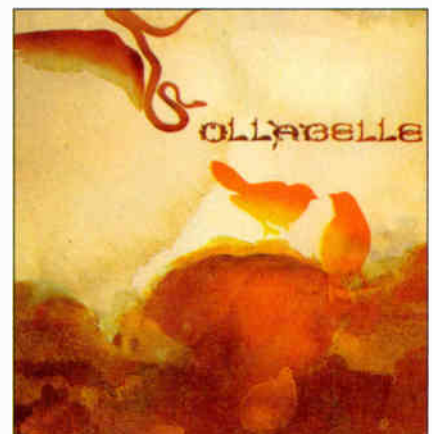
The Roots Sound of Ollabelle
Occasionally, quality does prevail. Case in point: Ollabelle. Five years ago, the chances



Steve Rosenthal made the most of Ollabelle's signature vocal harmonies using Alan Lomax-inspired tracking techniques and mic placement.

of an album of (mostly) traditional gospel songs performed by a group of white singer/musicians based in New York probably would not have found much of an audience, much less a label to release it. But ever since the success of *O Brother, Where Art Thou?*, there is a new, mostly urban, audience hungry for the emotional resonance of American roots music. And though Ollabelle isn't going to make anyone forget the Swan Silvertones or the Golden Gate Jubilee Quartet, they might actually lead people to those groups from yesteryear, plus they pack a wallop of their own. They're clearly the real deal.

That's what producer/engineer Steve Rosenthal felt, too, when he first saw the group at a New York club called 9C a while back. He should know: Among the many old records Rosenthal has spearheaded for restoration in the past several years are more than 100 recorded or collected by the great musicologist Alan Lomax, who traveled the world—and all over America—capturing indigenous music in the pre-television age. Rosenthal was so "blown away" (as he put it) by Ollabelle that he offered to bring the



group into the recording studio he owns—the beloved New York City vintage gear paradise called the Magic Shop—and make an album on-spec.

“I wanted to make a live record with them,” he says. “It’s more like a document of people who can actually play and sing than a studio-produced record where you dump it into Pro Tools and put everything to the grid and auto-tune everything. Everything was recorded live in the studio, including the vocals.

“I set the room up in an interesting way,” Rosenthal continues. “I built these little rooms or booths for [singers] Amy [Helm] and Fiona [McBain] and had them facing Glenn [Pascha] directly; at that point, those were the three main singers in the band. I encouraged them to bring things and hang them in their booths—rugs, paintings, plants—to make them more comfortable. Being in the studio for singers can be very intimidating, especially in a situation where I’m looking for them to be inspired and sing and get a live performance. It’s important for them to be relaxed.

“I was also careful to set them up in a way where they could all see each other, but



PHOTO: ERIC MCMAHON

Ollabelle from left: Fiona McBain, Tony Leone, Byron Isaacs, Glenn Patscha, Amy Helm and Jimi Zhivago

where I still got enough isolation that if I had to punch something in, I could. But I was really encouraging them to get the performances while the tracks were being laid down.”

Is that the influence of Lomax? “No question about it,” Rosenthal says. “The quality of the recordings he made using just a pair of RCA mics, a passive mixer and the mic pre’s from his Ampex 2-track are amazing. For him, the magic was mic placement.

When you hear Fred McDowell recorded on his porch at his house in Mississippi, you get the presence of the artist and the feeling of the place. But Lomax was really one of a kind.”

Not surprisingly, Rosenthal likes vintage mics and outboard gear; still, the low-budget project was tracked to Pro Tools. “For Fiona and Amy, I used two U67s and for Glenn I used a 47 and an old RCA ribbon mic—that was a suggestion from the engineer I worked with on the basic tracks, Juan Garcia. Of course, with three or four Neumann mics live in a room, you can get a lot of leakage, but we had the booths and a little leakage can often work to your advantage.”

Rosenthal used the 1079 preamps from his 56-input 80 Series Neve console as part of the vocal chain “and the two ladies were also in LA-2As and Glenn was in the Distressor, which is a really fun box. I don’t put a lot of boxes on my records. I have two EMT stereo plates here and that’s basically it: room ambience and a little plate on the vocals. But I’m very much into having it sound very present.”



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AEA R88



Coles 4038



AEA R44 shell

Ribbon Renaissance

BY SARAH JONES

Rebirth in Re-Issues, Introduction of Innovative Designs

Everything old is new again. When ribbon mics emerged in the 1930s, their “natural” sound, directional characteristics and noise-reduction capabilities offered distinct sonic advantages over their predecessors in broadcast, film and music recording. A few decades later, with the introduction of lightweight, sturdy condenser microphones, ribbons were suddenly considered unwieldy and impractical, and with the exception of a couple diehards, production all but stopped. But as the microphones disappeared, the legend lived on and classic ribbons grew very difficult to come by.

The qualities that make them prized are many: “Warm,” “musical” and “syrupy” are words often used to describe a ribbon mic’s trademark sound, which is attributed in part to a gentle proximity effect that becomes pronounced within a few inches of the mic, as well as an inherently flat frequency response with a smoothly attenuated top end. They’re naturally bidirectional, perfect for both mid/side (M/S) and Blumlein stereo recording techniques. In addition, the low mass of a ribbon diaphragm allows for fast transient response. Ribbons also offer a wide dynamic range, useful on everything from capturing low sounds from stringed instruments to handling extreme SPLs at high frequencies, making them an ideal choice for miking brass and percussion.

But such sensitivity also means that ribbon mics are fragile and require special handling. The ribbon element is quite delicate and can be destroyed by strong gusts of air, voltage spikes or even by storing the mic horizontally. (See “Care and Feeding of Ribbon Mics” on page 46.) Because conventional ribbon mic elements translate very subtle move-



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ments of the ribbon into tiny voltages, output levels are extremely low and the choice of a preamp is very important. There is the opportunity for more control over the sonic character of a signal, but because much more gain is needed, the preamp must be clean at high gain levels. (Also, be sure to choose a preamp with a relatively high input impedance. Several manufacturers recommend that the input impedance of the preamp be five times the output impedance of the mic, because a ribbon mic's output impedance can fluctuate when source material reaches the ribbon's resonant frequency.)

Although only a handful of manufacturers produce ribbon microphones today, there are a variety of design options from which to choose. At one end of the spectrum, purists at AEA craft exact replicas of the venerable RCA 44 and 77 ribbon designs that reproduce every classic detail, right down to the original aluminum-element material. At the other end, Royer has taken advantage of modern manufacturing technology to introduce such "radical" concepts as active circuitry and dual-ribbon elements for stereo recording. If you're thinking of adding a new ribbon to your mic collection, be sure check out the following models.

RIBBON OPTIONS

After two decades of using, servicing, and selling both vintage and contemporary ribbon microphones, engineer and mic designer Wes Dooley, head of Audio Engineering Associates (www.wesdooley.com), began experimenting with his own ribbon designs, and in 1998, released a handcrafted re-creation of the legendary Large Ribbon Geometry (LRG) RCA 44 ribbon microphone. (See "Radio, 'Talkies' and Birth of the Ribbon" on page 44 for more on vintage ribbons.) AEA also manufactures two "big ribbon" originals: the music-friendly R84 and the new R88 stereo microphone. The ribbons, which are more than two inches long, are made from aluminum leaf originally manufactured for RCA in the '70s.

The R44C (\$4,000) is a replica of the RCA 44B 44BX, incorporating a 1.8-micron ribbon made from material originally manufactured by RCA, and features a black and silver "radio" finish with polished chrome grille, yoke and cushion-mount. R44C parts are interchangeable with the original RCA 44B and BX. The mic comes with a hard-wired XLR output cable and shock-mount/mic stand adapter, all housed in a vertical case for proper shipping and storage. The AEA R44CNE International Edition (\$3,000), introduced in 2001 to honor

NAMM's 100th anniversary, combines elements of American and English RCA 44 production for reduced weight and hum sensitivity. An "X Motor" Option (\$450) offers 6 dB more output than the original RCA 44B and BX, with a slightly more "forward" sound. Other options include the M Option (\$100) for hand-tuning to stereo match a pair of new R44 mics, an R44CNE chrome-finish grille and custom case options.

AEA's R84 (\$1,100) is an all-purpose mic that combines design elements of the 44 and the British 4038 ribbons. The R84 boasts -52dBV/Pa sensitivity, extended frequency response (to 20 kHz) and, like the R44, better than 165dB SPL handling above 1 kHz. The R84 comes in a foam-lined case and includes a shock-mount and 10-foot cable. A R84DJV variation (\$1,200), optimized for close-up voice reproduction with adjusted proximity effect and heavier protection from moisture and windblasts, and a matte-black

R84 TV version (\$1,200) are also available.

The R88 (\$1,895) incorporates a matched pair of LRG figure-8 ribbon elements oriented at 90 degrees from each other in one microphone. The R88 transducers evolved from the R84 but are more exposed, imposing minimal hardware between the musicians and the matched ribbon elements. This 14x2.5-inch mic offers -52dBV/Pa sensitivity and 165dB SPL at 1 kHz. Output impedance is 270 ohms. The black "stealth-finish" R88 includes cable and built-in shock-mount, plus a locking angle adapter for flexible positioning.

AEA also manufactures museum-quality RCA 44 and 77 Series shell reproductions and props, including an RCA 44 replica internally prepared to mount a compact side-address microphone (such as a Schoeps CMC64V) inside. Custom mic flags, plaques and lamps are also available.

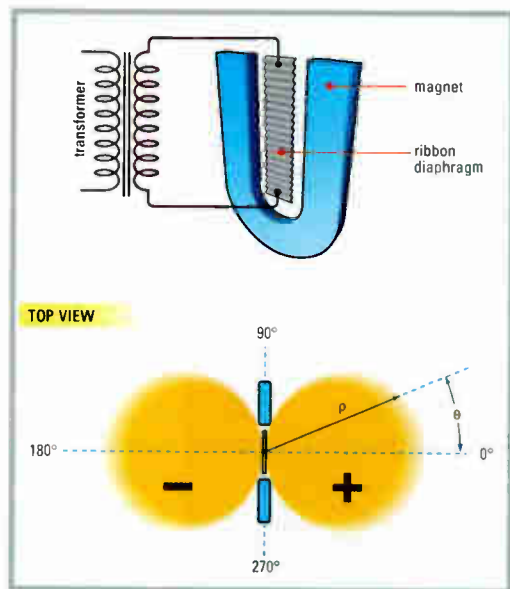
Beyerdynamic (www.beyerdynamic.com)

How Does a Ribbon Mic Work?

A ribbon microphone is a type of dynamic mic in which a thin, corrugated strip of aluminum suspended between two poles of a strong magnet serves as the diaphragm and voice coil. The ribbon reacts to velocity of air particles (rather than the pressure, as with moving-coil dynamic mics), and as it moves within the magnetic flux field, it generates a small AC voltage proportional to this velocity. Clamps attached to either end of the ribbon also serve as contact terminals: Wires carry the signal to a step-up transformer, which then raises the output voltage and boosts the output impedance to a usable level for a preamp, typically around 150 to 300 ohms.

Because the ribbon element responds to sound waves arriving from the front or back, but is insensitive to sound coming from the sides, most ribbon mics have a natural bidirectional pattern (see diagram above), which makes them ideal for eliminating unwanted noise between two sources or for use in M/S and Blumlein stereo recording configurations. Classic ribbon designs do not contain internal electronics—just the ribbon, magnets, transformer and occasionally a passive highpass filter network.

—Sarah Jones



Top: A ribbon suspended between two poles of a magnet responds to the velocity of air particles moved by a sound wave. Bottom: A ribbon microphone is characteristically bidirectional. Sound arriving from 0° and 180° generates movement, while sound arriving at 90° and 270° is rejected. A figure-8 pattern is also known as a cosine pattern, expressed here as $\rho = \cos \theta$.

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offers three ribbon microphones. The M130, designed for an “uncolored” sound, is a compact mic based around a double-ribbon element offering a figure-8 pattern and is ideal for use with Beyer’s M160 for true M/S stereo recording. The M160, designed for instrumental miking and M/S recording, is also a double-ribbon design, this time featuring a hypercardioid pickup pattern.

The M260, optimized for vocals and speech in broadcast or recording situations, features a single-ribbon design with a hypercardioid pattern and has a built-in highpass filter. The mics come with threaded microphone clamps; optional ac-

Beyer M130



cessories include cables, stands and pop screens. The M130 and M160 state an output sensitivity of 1 mV/Pa, and the M260’s output sensitivity is 1.2 mV/Pa. The M130 and M160 retail for \$599; the M260 retails for \$349.

A classic mic still in production after more than 40 years, the Coles (www.coles-electroacoustics.com) 4038 (\$1,400) was originally designed by the BBC as a broadcast recording mic, but is used today in a variety of studio applications. The bidirectional mic features hum-balanced wiring and a magnetically shielded transformer, and is contained in black-enameled brass housing with perforated brass grille. Mics come in a foam-lined rigid plastic carrying case with mount and XLR connector; options include stand adapters, elastic suspension for use with booms, velvet storage bag and a custom case package for matched pairs. A limited-edition bronze-finish Millennium Edition 4038 (\$1,600) comes in a wood collector’s case and features a custom solid brass shock-mount/stand adapter.

The bidirectional 4040 (\$1,500) is the newest ribbon mic from Coles, designed for extended top-end frequency response (said to reach 30 kHz) and higher output. The 4040’s ribbon/magnet assembly includes its own internal shock-mount, which can be secured for transit, separating it from the main body of the microphone. The gold-plated mic comes with an adjustable, universal stand-mount and a hard storage case. Sensitivity for both mics is -65 dB (1V/Pa); distortion is less than one percent at 125dB SPL. Impedance is 300 ohms; the 4038 is available in a 30-ohm version for long cable runs and special mic pre’s.

Another Coles classic, the 4104B (\$800) was originally developed by the BBC for commentators and is commonly used today in mobile satellite broadcasts and other excessively noisy environments due to its high degree of noise cancellation. The aluminum ribbon is protected by fine nylon gauze, and the mic is secured in a brass, perforated case with PVC-covered handle. A “press to talk” button and handy hygienic kit with

Radio, “Talkies” and Birth of the Ribbon

PHOTOS: L AND R: LIBRARY OF AMERICAN BROADCASTING, UNIVERSITY OF MARYLAND. CENTER: PHOTO COURTESY SHURE BROS.



The stuff of legends, from left: Woody Allen with Johnny Carson and his RCA 77; Eartha Kitt works a Shure SM-33; and Bob Hope with an RCA 44

Ribbon or “velocity” microphones were developed in the 1920s by engineers at RCA, with the first commercial model, the 44, appearing in 1931. The 77A ribbon microphone, introduced a few years later, combined two ribbons (one velocity and one pressure-type) for a unidirectional (cardioid) pattern. The ribbon element design, which offered superior directional characteristics for reducing noise and improving speech intelligibility, was instantly embraced by the broadcast and recording industries. In addition, the “talkies” movie boom created a huge demand for directional microphones, and many manufacturers in both America and Europe, including IBM, Shure, Electro-Voice, Bang & Olufsen, Western Electric and Marconi, began developing ribbon mics. Some notable examples include the STC 4033A, which was produced to

meet the needs of talkies and contained ribbon and moving-coil elements, with variable pickup patterns; and Beyer’s first durable “short-diaphragm” ribbon mic. In addition, the BBC designed many successful ribbon mics for its own use, such as the legendary PGS, which was later manufactured by STC as the 4038, taken over by Coles in the 1950s and is still in production today. Ribbon microphone development peaked in the ‘40s and ‘50s, but these fragile, heavy designs fell out of favor during the next decade, eclipsed by the development of new smaller and lighter condenser microphones. With the exception of a handful of models, ribbon mic production stopped until the late 1990s, which ushered in the era of re-issues, vintage reproduction and new high-tech designs.

—Sarah Jones

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Known for 25 years for its wireless mic technology, Nady Systems (www.nady.com)



Nady RSM-2

recently branched into ribbon microphones with the introduction of the RSM-2. Retailing at \$439, the RSM-2 is based around a low-tension, 2-inch-long, 2-micron-thick ribbon design, with a figure-8 pattern and a stated 165dB SPL capability. Construction is turned-brass, featuring internal shock-mount construction; the grille

assembly is available with a choice of gold or platinum finish. The mic ships in a soft padded carrying case and includes an integrated yoke stand-mount and XLR cable; a pop filter is optional.

Russian manufacturer Oktava (www.oktava.net), once that country's largest supplier of microphones (even supplying transducers to the Russian space program), returned to ribbon technology after a long hiatus with the debut of its ML52 a few years ago. The mic features a double 25-micron-



Oktava ML52

of Oktava mics.

Rather than emulate the classics, Royer Labs (www.royerlabs.com) microphones employ sleek modern designs that take advantage of current magnet developments, materials and mechanical construction. Five mics are available: Royer's first mic, the R-121 (\$1,195), released in 1999, incorporates a 2.5-micron aluminum-ribbon element in an offset design that allows for a brighter response on one side of the figure-8 than the other. The R-121 can take 135dB SPL, and offers sensitivity of -53 dBV, ref. 1V/Pa. Output impedance is 300 ohms (200 ohms optional) and satin-nickel and black-matte chrome finishes are op-

thick aluminum ribbon element with a classic figure-8 pattern. ML52 specs include 1mV/Pa sensitivity. The ML52 lists at \$299, including foam-lined carry case and stand-mount. A shock-mount is optional. Oktava recently introduced the MA2 pre-amp, designed to match the impedance

Care and Feeding Of Ribbon Mics

By Wes Dooley

We recording engineers often swap stories about tough lessons we've learned: We remember when we didn't record a rehearsal that was the best performance. We learn that media is cheap and performance magic is unpredictable. Here are important lessons we've learned about using ribbons, ranked roughly in order of importance.

- Strong wind is an enemy. Don't blow into a ribbon microphone. A ribbon element is as thin as any condenser diaphragm and it's only clamped at the ends. This is good for bass and smooth, fast transients, but large air movements can stretch a ribbon to the point where the sound quality changes. Air movement can be caused by theater curtains closing, slamming a mic case shut or spring breezes when the cartage company opens studio doors.

- Don't leave your amp turned up when changing an instrument. Air blasts are a ribbon's worst enemy. If you don't turn the amp down when you plug an instrument in, the speaker cones try to launch themselves out of the cabinet.

- Cover a ribbon microphone when not in use. This protects it from wind and "tramp iron," the fuzz that covers a magnet after dragging it through a sandbox or across a workbench. If enough gets collected, it will obstruct the ribbon.

- Phantom microphone power can snap a ribbon if you have a shorted mic cable or bad power supply. Usually, a ribbon mic ignores phantom power. Rarely, however, is not never, as we know well from repairing mics. Turn off the phantom power a few minutes before plugging in and let the voltage bleed off.

- Store long ribbon mics vertically. The middle of the pleated ribbon can droop from the pull of gravity. This lowers the tension, which can dull the response or cause the output sensitivity to change, depending on where the ribbon flops in relation to the magnetic gap.

Ribbon Mics in Action

Capturing Offbeat Percussion for Michael Jackson's "Don't Stop 'Til You Get Enough"

By Bruce Swedien

Using ribbon mics in the initial recording of percussion tracks can definitely make life easier when it comes to mastering a recording. Here's how it works: If you have the Michael Jackson album *Off the Wall*, listen to "Don't Stop 'Til You Get Enough." Listen carefully to the percussion: It is Michael and his brothers playing glass bottles. I wanted the glass bottle percussion in this piece of music to have a unique sonic character and a great deal of impact in the final mix.

The year was 1979. I used a mic technique that came from my experience during the days when it was difficult to put much transient response on a disc. I used all ribbon, or velocity, microphones to record the glass bottle percussion section. The mics I chose were my RCA 77DXs and RCA 44BXs.

If I had used condenser microphones, with the condenser mics' ability to translate the entire transient peak of the bottles, the bottles would have sounded great played back from tape in the control room, but when it came time to master, such an incredible transient peak would have minimized the overall level—on disc, cassette or CD—of the entire piece of music. In other words, condenser mics would have compromised the dynamic impact of the sonic image of the entire piece of music.

Legendary recording engineer Bruce Swedien is currently in the studio with Ricky Martin.



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tional. The R-122 (\$1,695) was the first in Royer's Active Series, which introduced (gasp!) phantom power to the world of ribbon microphones, to address gain and impedance-matching issues. The Active Series mics contain fully balanced, discrete head amplifier systems with ultralow-noise FETs. This system is said to handle 135dB SPL and gives the R-122 13 dB greater sensitivity than the R121, with the same sonic quality. Both R Series models are traditional bidirectional patterns.

In Royer's SF Series, the SF-1 (\$1,395) is a compact, classic figure-8 model. A low-



Royer SF-1

mass, 1.8-micron ribbon is housed in Royer's proprietary cross-field motor assembly, designed with four powerful neodymium magnets and permendur iron pole pieces for the shortest front-to-rear ribbon path length, which improves high-frequency response. The mic's iron case forms the magnetic return circuit, which allows low-leakage flux for higher sensitivity. The matte-black SF-1 is a mono version of the original mic in Royer's SF Series, the Royer/Speiden SF-12 (\$2,495), a stereo coincident ribbon mic based on a Bob Speiden design with two matched "microphones" placed one above the other, each aimed 45 degrees from center. Sensitivity is less than -52 dBV (Ref. 1V/Pa). Output impedance is 300 ohms. The brand-new SF-24 phantom-powered stereo ribbon mic (\$3,795, see review on page 134) offers the same sonic performance of the SF-12, with Active Series technology for impedance-matching and 14 dB greater sensitivity (-38 dB). Output impedance is less than 200 ohms. All Royer mics come with socks and protective wood cases; options include shock-mounts and windscreens.

Fans of ribbon mics, rejoice: Whether you're looking for a perfect reproduction of a classic model or something completely new, there's a microphone for you. ■

Sarah Jones is Mix's features editor.

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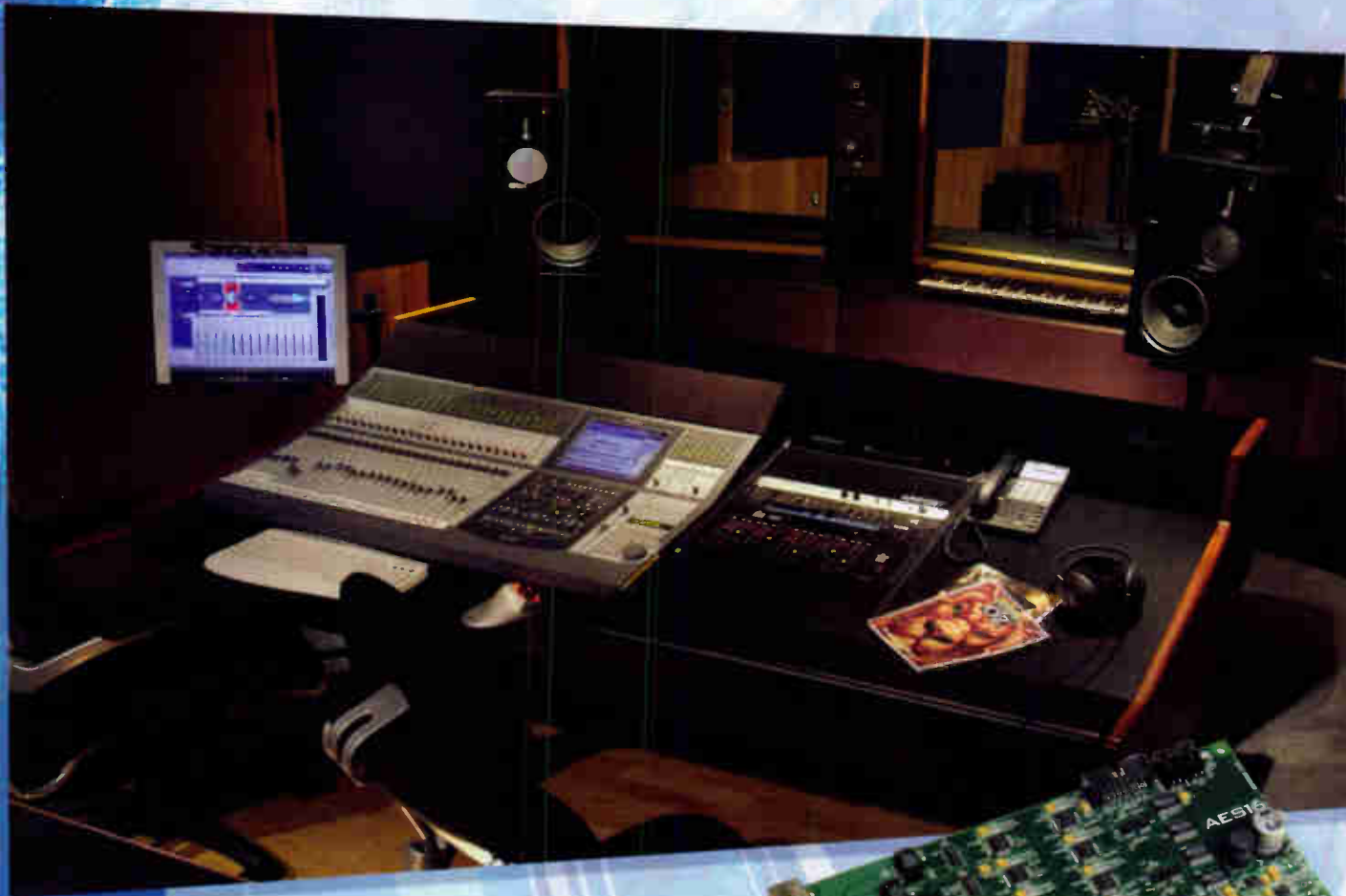
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Weird Ribbon Mic Tricks

A ribbon mic in front of a kick drum is a recipe for disaster, as the drum's enormous air pressure can instantly distort/destroy the mic's sensitive ribbon. However, you can often get a huge—yet safe—kick sound by laying a ribbon mic on a pillow inside the drum, with the mic's element pointing straight up toward the ceiling so the air flows across (and not into) the mic. For guitar overdubs, try putting a ribbon (or other figure-8 mic) between two 4x12 cabinets that face each other. As the back side of a figure-8 mic is out-of-phase with the front, wire one of the 4x12s out-of-phase, experiment a bit with mic-to-cabinet distances and you've got a massive guitar sound like no other!

—George Petersen

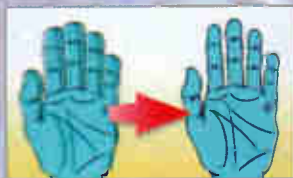
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Alter Bridge

FORMER CREED MEMBERS LOOK FOR A NEW BEGINNING

Alter Bridge, an Orlando, Fla.-based newly signed rock act on Wind-Up Records, faces the universal challenge encountered by bands releasing a debut album: the long, hard road to Gold and Platinum status and the even longer path to multi-Platinum or Diamond RIAA sales. But selling albums by the truckload is not an alien concept to the members of Alter Bridge: Three-fourths of the group were founding members of Creed, the late-'90s band that lived a rock 'n' roll Cinderella story and stealthily dominated what was then called alternative rock radio, subsequently sell-

PHOTO: PAMELA LITKY



BY STROTHER BULLINS

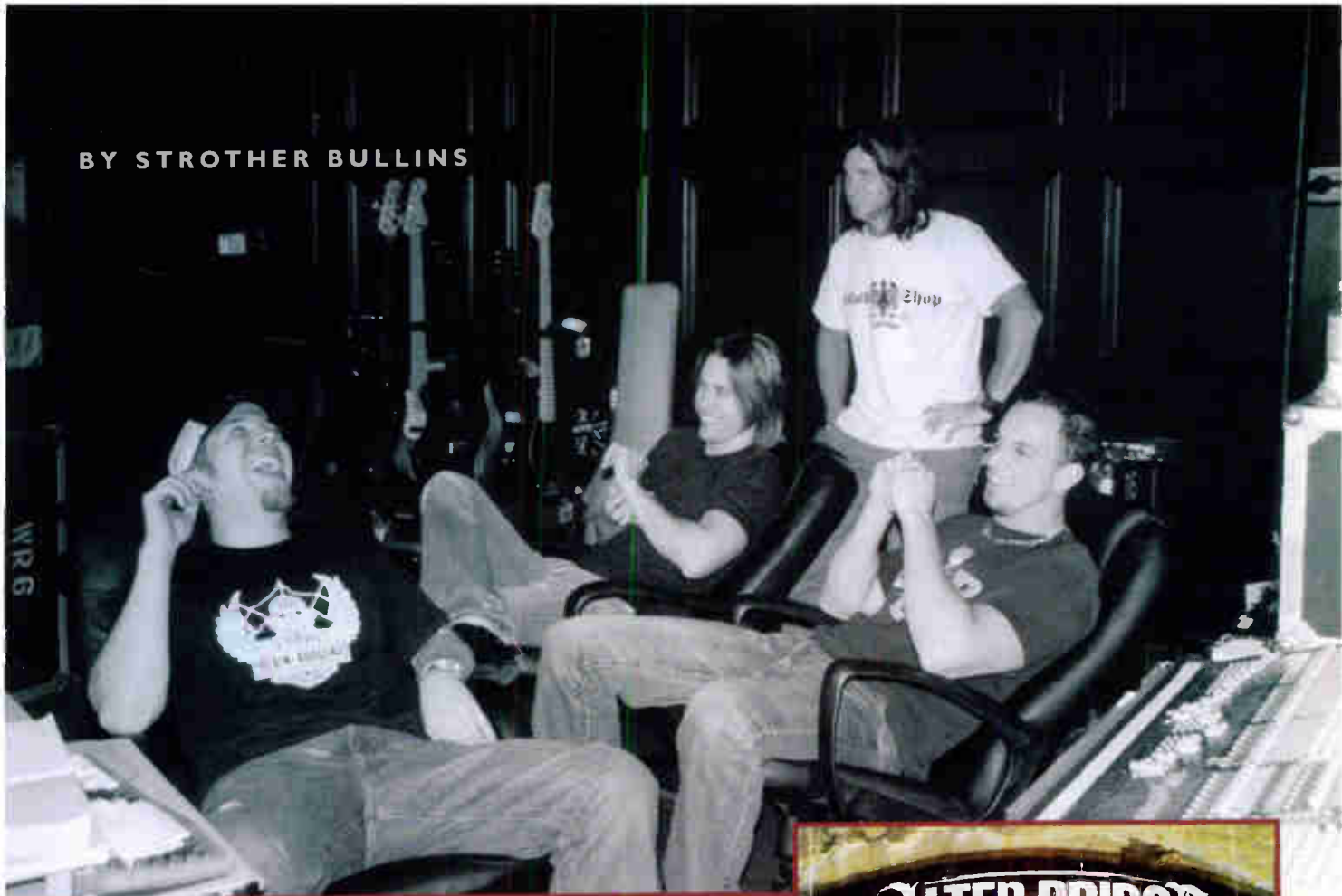


PHOTO: PAMELA LITIKY

Alter Bridge is, from left, Scott Phillips (drums), Myles Kennedy (vocals/guitar), Brian Marshall (bass) and Mark Tremonti (guitar/vocals).

ing more than 30 million CDs worldwide.

Alter Bridge is hopeful that *One Day Remains*—their new album produced by Ben Grosse—will be embraced by Creed fans and those who never cared for the distinctive vocal style of Creed's former lead vocalist, Scott Stapp. Still, these seasoned musicians are thoroughly aware that lightning rarely strikes in the same place twice. With that in mind, the band—which includes former Mayfield Four vocalist Myles Kennedy and ex-Creed members Mark Tremonti (guitar), Brian Marshall (bass) and Scott Phillips (drums)—proceeded with a clear mission: to record the best rock album they can and have fun doing it.

If anything, abandoning a name synonymous with success, bringing in a new, stylistically different vocalist and instigating a musical rebirth speaks volumes about the confidence Alter Bridge has in its music. "As Creed, we achieved a lot of success and we know what that's like," explains Phillips. "Now, our priority is to have a good time and to perform some of the best music that we've ever done. We just can't wait to unleash Myles, our new monster singer, on the world."

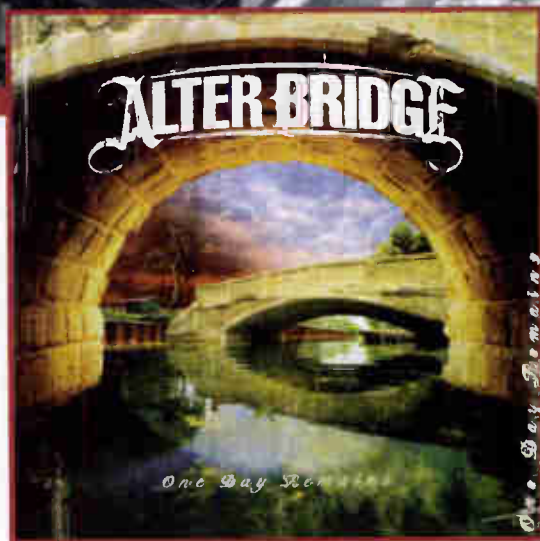
While recording *Weathered*, Creed's last studio album, Tremonti and Phillips became interested in learning Pro Tools. Engineer Shilpa Patel was a Pro Tools operator for Creed during the *Weathered* sessions, and as the founder of Orlando's Center for Pro Tools training school, was the perfect person to get the guys tooled up. Marshall—no longer a Creed member by the *Weathered* era—stayed busy recording projects at home on his own Pro Tools unit. After agreeing to collaborate on the Alter Bridge project, the three began an industrious Pro Tools-based songwriting system.

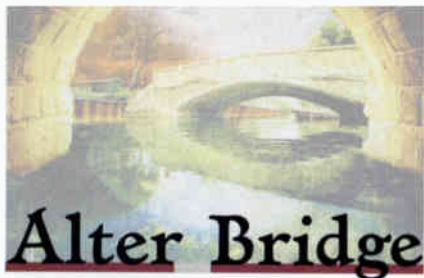
"That's why so many artists are learning Pro Tools and buying systems these days," reasons Patel, who is also credited as Pro Tools op for the Alter Bridge sessions. "It's a completely different world from putting down ideas on an old 4-track or something. If Mark records something at his house, he can take it over to Flip [Phillips] or Brian. It gives them another way to be closely involved in the recording process

through showing the engineer what they want by doing it first."

This proved to be especially useful during their lead vocalist search. "It made a huge difference," explains Phillips. "Mark would do Pro Tools demos—he initially gave Myles eight or nine songs—instead of giving him a tape or a CD. Myles would then be able to put his vocals down on the files and it turned out to be amazing. That kind of flexibility is great for working together as a band."

As a side effect of becoming so Pro Tools savvy, the members of Alter Bridge became extremely particular in selecting a





Alter Bridge

producer for *One Day Remains*. While very proud of the Creed back catalog, Alter Bridge—along with Wind-Up and the band's management—chose to recruit fresh production expertise.

"We agreed that it would be a better idea to use a different production team, get away from any comparisons with Creed and really make this stand on its own," Tremonti recalls. "I was talking to John Connelly from Sevendust and he said that the best producer he had ever worked with was Ben Grosse. I talked to Scott about it and he said, 'Dude, I've been telling you about him for the longest time!'"

Grosse gladly accepted the invitation. From the beginning, Grosse shared Alter Bridge's objectives for *One Day Remains*. "The general goal was to make this not be a Creed record, but with that same level of quality in the songs," explains Grosse. "And it does. I'm shooting for a big, juicy, cinematic sound to set the tone for a new band."

Alter Bridge soon found themselves with Grosse and his recurrent engineer, Blumpy, at Atlanta's Tree Sound Studios to begin recording basic tracks. Because of the immediate need for a single, the production team tracked drums for the whole album and all tracks for three complete

songs at Tree before heading to Grosse's The Mix Room in Burbank, Calif., for mixdown. "We needed to have a single out before the album was finished," explains Grosse. "We didn't know what the single would be, so we picked three songs and finished those."

Alter Bridge tracked live in Tree's Studio A, which features a Solid State Logic 4064 G+ console and main monitor system by George Augspurger. The console was only used for monitoring, however. "We used as many vintage Neve mic preamps as we could get our hands on, no compression and recorded directly to Pro Tools," says Blumpy. "They were all playing in the same room, including the singer. At that point, it's all about the drummer and if he's getting the vibe. I know that a lot of people don't go this way because of isolation issues, but the vibe is most important. It just needs to rock."

Those rocking drum tracks went down via a Neumann U47 FET on the kick, a combination of AKG C 414s and Sennheiser MD 421s on toms, "lots of Shure SM57s" scattered about and Cole 4038 ribbon mics for the room—a "pretty standard selection," according to Blumpy. "For drums, we take as many tracks as we can. At mix, we might use the overheads if it's a rocking tune, but if it's a slower song, we might not use the overheads and use direct cymbal tracks. We get it covered like a blanket and we take out what we don't need."

Following the early mix of the first three songs in L.A., the Alter Bridge sessions returned to the South, but this time to Tremonti's lakefront home in a posh Orlando suburb. The home, which was in the final stages of construction during the sessions, served as a great location to record guitars, bass and vocals for the rest of the album due to its high ceilings, absence of furniture and acoustic flexibility. "What's now unique about this project is that we're recording in a castle," Grosse jokes while pointing out of a French Gothic-styled window overlooking Tremonti's back yard and large pool.

However, recording drums at Tremonti's home was never a consideration. "Even if you could make one of the rooms sound right for drums," Blumpy explains, "you would still have to rent all the equipment for it to be doable. Between the cabling, all the mic preamps and being able to hear, it was best to go to Tree."



PHOTO: STROTHER BULLINS

While recording at Tremonti's home, Alter Bridge used the second floor's largest space as a temporary control room. The Pro Tools|HD recording rig used a mostly Neve 1073 front end with a Midas live console.

The second floor of Tremonti's home hosted Alter Bridge's makeshift modular studio setup. One large room acted as the main control room—equipped with a Midas live console strictly used for monitoring purposes—while other treated spaces served as overdub locations. Arguably the most crucial room to the production was Tremonti's amplifier room, a sizable space fully lined with various amp selections, centered on Tremonti's favorite amp, the Mesa Boogie Dual Rectifier. "We threw up a bunch of different things and combined them," explains Blumpy. "Again, it's all about keeping the vibe going, so we set up as much stuff as possible. That way, there's only a little bit of work to do when we want to make changes."

For guitar amp microphones, the band used "lots" of Shure SM57s, an AKG 414, an Audix D6, a BLUE Dragonfly, a pair of Royer 122s and two Cole 4038s, one of which almost lasted the whole project. "Mark does that 'chug' thing and on the very last song, one of the Coles popped," explains Blumpy. "That's fine, because it sat there in the same spot the whole time. One last song, one chunk, and that was it." To record Kennedy's vocals, a microphone shoot-out ensued between a Neumann M49, AKG C 12 VR, Neumann U47 and a Telefunken ELAM 251. The Telefunken won and was used with a Neve 1073 and EAR 660 Fairchild-type limiter/compressor straight to Pro Tools.



PHOTO: STROTHER BULLINS

A Mesa Boogie-dominated wall of guitar cabinets fills Tremonti's makeshift amp recording room. An AKG 414, Audix D6, BLUE Dragonfly, Cole 4038 and several Shure SM57s capture the sounds of this mighty rig.

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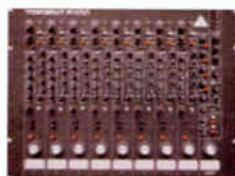
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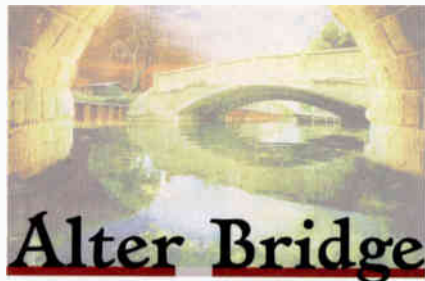
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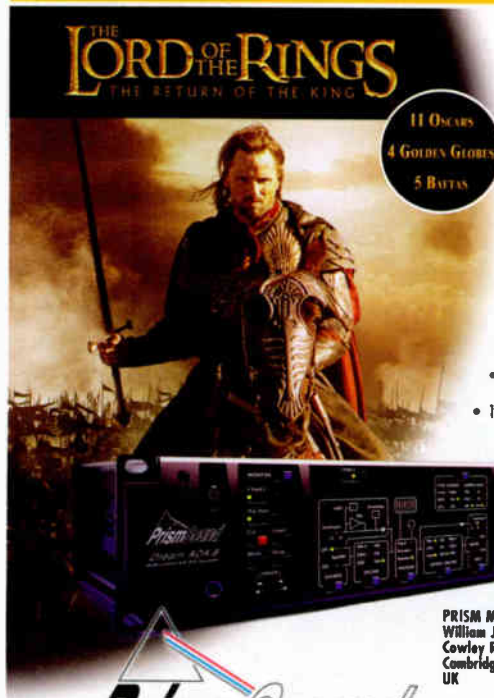


While there were plenty of guitar tracks recorded for the Alter Bridge album, Blumpy claims that he and Grosse have dramatically simplified their means of track management. "When we were first able to have 64 tracks of Pro Tools," recalls Blumpy, "we'd dump each cabinet to its own track and not have enough outputs at mix, so we'd then combine them to one output together. We'd then wonder, 'Why are we making this such a pain in the ass for ourselves?' So we started to just cut all the cabinets we used to one track. That's how we do it now: one track, one take. In the end, we never end up modifying what we were recording on separate tracks, so why go through the hassle of mixing all these different options? It keeps things straightforward for mixing—every track has an output and it all goes to the board."

On the home's first floor, Blumpy set up a Mac-based edit suite running Pro Tools and Emagic Logic. "I'm a Logic guy," he explains. "I transfer the songs over to Logic, work on them and transfer them back to Pro Tools. I've been using Logic for years and do so in a dual configuration, running TDM and native hardware so I have both options. For more effected stuff, I always do it in Logic. It just sounds better to me. I love the fact that I have so many options in Logic, and for sound design stuff, Logic blows away Pro Tools."

Grosse claims that he wouldn't have normally chosen to partially track an album, mix and then continue tracking, but he admits that it did give him an interesting perspective for completing the rest of the record. "It's sort of a double-edged sword," he says in retrospect. "I would have preferred to finish the whole record, but there wasn't time up front and we had to move. Now, after having finished three songs completely, it's like I'm on the second album. I have experience, know what's around the corner and know what problems may come up at the end of a song. This is something that you normally don't have the luxury of knowing until you're on a second album. It's almost like you better understand the movie you're making because you've watched it already."

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World Radio History

Richard Marx

Happy Cruising Down the Middle of the Road

Richard Marx recently copped a Song of the Year Grammy for "Dance With My Father," a song he co-wrote with Luther Vandross. But if, in your mind, that signals a comeback for the singer/songwriter, who had a succession of smash hits in the late '80s before fading from public view, you're wrong. Although his time in the spotlight may have passed (temporarily at least; he is releasing a solo album this year), Marx has enjoyed great success during the past decade as a songwriter and producer, working his magic on tracks by the likes of Josh Groban, *NSync, Emerson Drive, Sarah Brightman and others.

The son of Dick Marx, a well-known Chicago-based jingle writer, Marx began professionally singing at the age of five. By his mid-teens, he was heavily into writing and producing. His big break came when Lionel Richie, who had heard one of Marx's tapes, encouraged him to come to Los Angeles. After graduation, Marx took the advice and ended up singing background vocals on several of Richie's solo hits, including "You Are," "All Night Long" and "Running With the Night."

After contributing background vocals to Madonna and Whitney Houston records, Marx placed his song "Crazy" in the hands of Kenny Rogers, who recorded it and another Marx opus, "What About Me." Both songs reached the top of the country charts, opening the floodgates for Marx the songwriter.

But he wanted more, and by 1987, his debut album had been released and embraced by the public. *Richard Marx* yielded four hits, including the Number One song "Hold on to the Nights." His sophomore effort, *Repeat Offender*, released in 1989, went triple-Platinum. A pair of Number One singles, "Satisfied" and "Right Here Waiting," shook loose from this album, which to date has sold more than 5 million copies.

Although his solo career lost some of its luster in the mid-1990s, Marx continued to write hits for other artists and his production career expanded. In 1999, he produced *NSync's version of his song "This I Promise You," and in 2003, he built a recording studio on lakefront property that is adjacent to the Chicago home he shares with his wife and children.

Some people might think that you and Luther Vandross make an odd musical couple. How did you two begin writing together?

Luther and I have been friends since about 1990. I was



PHOTO: CLAY PATRICK MCBRIDE

always a big fan of his. We met at an American Music Awards show when we were both up for awards. He won and I lost! We exchanged phone numbers and would call each other from the road.

I was making *Rush Street*, my third album, and there was a track on it that leaned more toward R&B than anything I'd ever done. Luther was kind enough to sing backing vocals on that and another track, "Keep Coming Back," which was a hit for me. After that, we began writing together.

"Dance With My Father" won several Grammys last year. How was that song written?

About a year ago, Luther called me up and said that he had an idea for a song and wanted me to write something to a concept of his. That's how we work. All he had was the title and a concept. Luther barely knew his father, who died when he was a child. He knew that I had a close relationship with my father, and I think he wanted a collaborator with whom the message would resonate.

I threw up a simple Stylus loop, played the most basic Rhodes part possible and put a melody on top of it. I was really surprised when Luther asked me to send him the MIDI file of what I'd done. He loved the simplicity of it. He used different sounds, but basically used the parts from my MIDI file, which, frankly, mortified me!

As producers, Luther and I part in a very fundamental way. He hates the idea of working with a drummer



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because he's obsessed with finding the perfect groove. I don't care if there's a bad hi-hat pattern if the overall feel is good. Luther never cuts with a rhythm section, although he always adds a percussionist or other live element as an overdub. He replaced my Stylus loop with a drum machine that sounds a lot like an old-fashioned 808. It's not what I would have done. I probably would have over-thought things.

At any rate, Luther wrote lyrics to my track. He ended up squeezing a lot more words onto my melody than I had anticipated, and so he had to alter the one I'd originally given him. It all worked out pretty well.

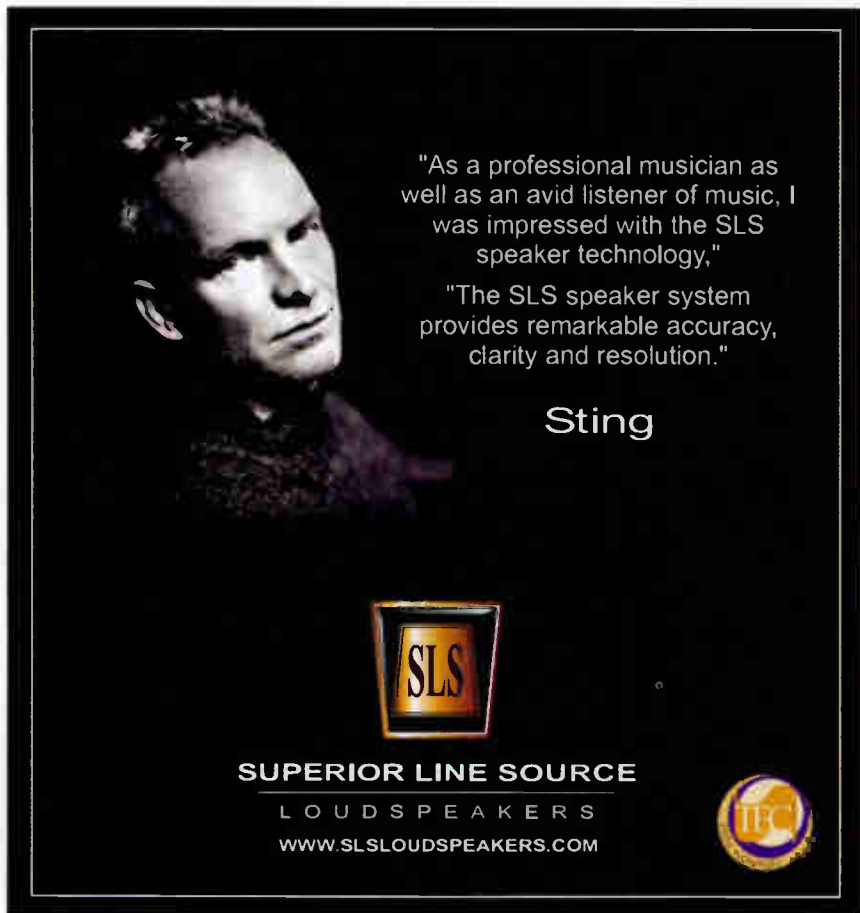
What made you decide to build a studio adjacent to your home?

I work a lot in Nashville and I wasn't looking to build a facility to cut basics in, at least initially. I wanted to have a comfortable room for overdubs. I work a lot with a great engineer named David Cole. David has a studio called Noise in the Attic in his Manhattan Beach [Calif.] home. David tracks all my stuff and then mixes everything in his place when we're done overdubbing. In between, I needed a place where artists could come and hang out for a week or two at a time tracking overdubs.

Vincent Van Haaff designed my facility, Renegade Studio. My main requirement was that I didn't want a space that looked like a studio. I wanted it to feel more like a beautiful guest house. As a result, we've got a stone fireplace in the control room and floor-to-ceiling windows that look onto Lake Michigan in the back of the control room. Vincent's job was to take the aesthetic requests and make them work sonically. We got lucky the first time. It's a great-sounding space that's warm, cozy and comfortable.

What console are you using?


There is no console, aside from a Mackie HUI, which we use to help us monitor. We've got a Pro Tools HD system and a pair of Genelec 1031s; nothing really fancy. Our mic collection is pretty decent; we find mics that work for a particular application. To tell you the truth, we've found that the Audio-Technica 4060 works on just about every singer we put it in front of. It never seems to fail to do the trick. I used to use that big Sony mic—the one that looks like a rocket ship, the 800G. Luther loves it. However, I'm able to get a warmer sound out of the 4060, and I haven't found a singer who's not happy with its sound. We also have a couple of [AKG] C 12 VRs and an older Neumann TLM 170. The TLM 170 is pretty decent, but it needs a lot of servicing.




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Best of friends for My Own Best Enemy (L-R): engineer David Cole, guitarist Shane Fontayne, bassist Mark Brown, drummer Gregg Bissonette and Richard Marx

Have you recorded any basic tracks in the room yet?

We have, and the results have been encouraging. It's not a huge room, but we've got a 25-foot-high ceiling and the sound is extremely live. That can be problematic, but needing to figure out how to soak up the ambience is a good problem to have. We get an enormous drum sound from the room, and it's great for rock 'n' roll. Getting an intimate sound is a bit trickier. We've got two iso booths: one with a stone floor, the other with a wood floor. It will be an excellent space to track in once we figure out how to soak up some of its ambience.

What outboard gear do you rely on?

The Avalon 737 is my mic pre of choice these days, and I really like the Manley Vox Box—it's great for bass guitar. We're also using the Grace mic pre, but for everything else, we're embracing Pro Tools. I can't remember the last time I used an outboard synth. I rely heavily on the three Spectrasonics plug-ins: Stylus, Atmosphere and Trilogy. I really like the fact that you can set up a basic loop in Stylus and then filter parts out in real time. I haven't moved over to a G5 though, so I have to print tracks quickly or I'll run out of CPU power. Still, most of my production over the last several years has been nonsynth and unsequenced, so the G4 hasn't held me back that much.

What production deals are you working on at the moment?

I just signed a production deal with Sony Records. [Sony boss] Donnie Ienner has asked me to be a utility player for him. He wants me to cherry-pick acts, write material and help produce on a variety of Sony pop and rock 'n' roll projects. Things on the

Sony family side are very exciting right now.

I'm really pleased with the record of standards that I'm cutting now with Hugh Jackman. Hugh's a wonderful singer; he was so good in *The Boy From Oz* [the Broadway musical about singer Peter Allen]. And my kids loved him when he played Wolverine in *X-Men*. We're working around his Broadway schedule. I'll fly into New York on a Thursday. Hugh will come straight to Sony after his Thursday night show and track from about 11 p.m. to 1:30 in the morning. We'll grab a couple of hours during the next day and then a couple more after his Friday show.

Hugh's never made a record before, and he's doing a great job. My idea was to take these great songs—"That Old Black Magic,"



Grammy Award-winning songwriters Richard Marx (left) and Luther Vandross for their "Dance With My Father"

"Smile," "All the Way," "And I Love Her"—and slow them down as much as possible. You get these long phrases that let Hugh act the songs. We put together a great band: Peter Erskine on drums, Christian McBride on bass, Dean Parks on guitar and Billy Childs on piano. We tracked seven songs in two days out in L.A. at Studio B in Capitol.

We also spent a lot of time last summer

"The Deuce"



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working on a project with Emerson Drive, a band out of Nashville. It was a pleasure to work with these guys. They'd only begun to scratch the surface of their potential when we met, and they were willing to work as long as necessary to make the best record possible. The single, "Last One Standing," has moved into the Top 30 on the country charts, and the album was released in June.

How's your new album going?

We're done! *My Own Best Enemy* is being released on EMI/Manhattan Records on August 11. I produced it with David Cole, who engineered and mixed it. I also wrote all of the music and lyrics, with the exception of one song, "Suspicion," which has a lyric from [Tubes singer] Fee Waybill. Half of the album was tracked at Ocean Way in Nashville. I used a great power trio, which I use on other projects when I'm in Nashville, as well: Steve Brewster on drums, Glenn Worf on bass and J.T. Corenflos backed me on acoustic guitar.

I tend to flip things around and give the more aggressive material to the Nashville guys. They don't get to play this kind of stuff very often and so they bring something special to the effort. However, the most aggressive rock song, "Colder," features one of the teams I put together for the L.A. session: Matt Lang [drums], Lance Morrison [bass] and Mike Landau [guitar]. I also worked with another trio out there that featured Gregg Bissonette on drums, Mark Brown on bass and guitarist Shane Fontayne. Michael Thompson also overdubbed on several tracks. His combination of sounds and the atmosphere he creates is brilliant.

The single, "When You're Gone," which we recorded in Nashville, is a kind of throw-back, almost like an old Stones track. Keith Urban played the solo and sang backing tracks. He killed it! For my money, he's one of the top five guitar players in the world.


How important is it to you that this record succeed?

Let's be honest. The world is not holding its breath waiting for another Richard Marx album. Making *My Own Best Enemy* was more like a hobby, which we completed while I was in the midst of making the Emerson Drive album and working on a number of other projects. Although it took almost a year to complete, if you compressed all the time into one solid block, I'd say we worked on it for two months. I'm very pleased with the results, but I'm also grateful that I have the opportunity to work on a variety of other extremely interesting assignments.

Gary Eskow is a contributing editor to Mix.

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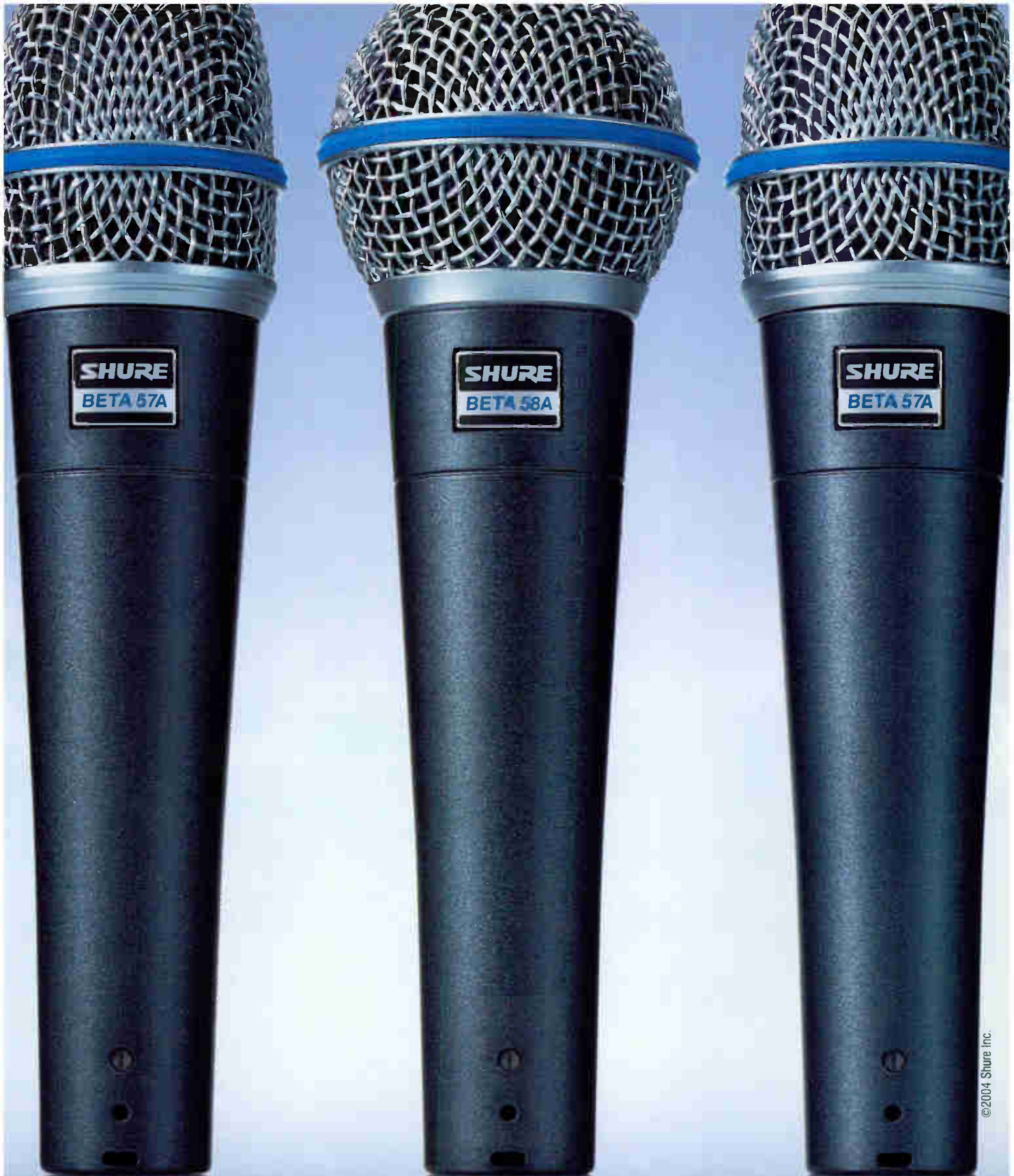


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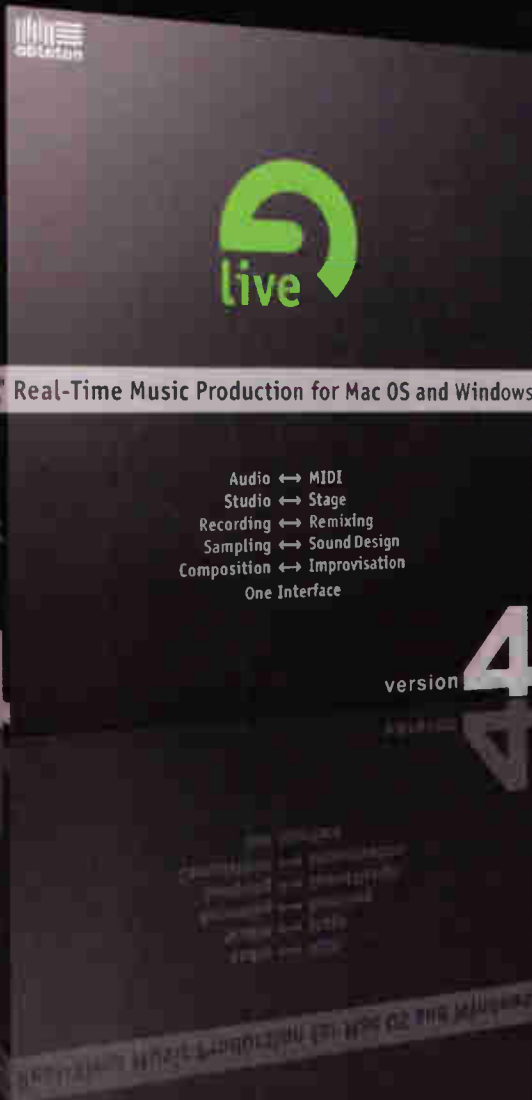
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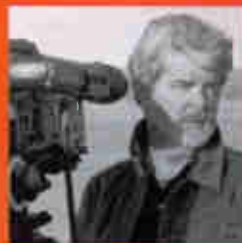
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Mix Magazine – As the leading magazine for the professional recording and sound production industry, *Mix* covers the entire spectrum of professional audio and music: studio recording, live sound production, sound for picture and multimedia, digital audio technology, facility design and construction, broadcast production, education and more. Founded in 1977, *Mix* reaches more than 48,000 professionals worldwide. *Mix* also publishes the annual AES New Products Guide, the Mix Master Directory, the MixLine series of e-newsletters, and mixonline.com. *Mix* is the founding sponsor of the TEC Awards.



Shure Inc. – Founded in 1925, Shure is one of the world's leading manufacturers of microphones and audio electronics. Best known for reliable, high-performance microphones such as the legendary SM57 and SM58, Shure is also a global leader in wireless systems, circuitry products and phono cartridges. Recent products such as the SM86 microphone, SLX and ULX wireless systems, KSM studio microphones, PSM personal monitors, and P4800 system processor confirm Shure's ongoing commitment to providing innovative products that help people produce their sound.

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The Burst Collective – The Burst Collective is a consortium of composers, producers, songwriters and performing musicians, operating as three entities under one creative umbrella: Burst Media: commercial music production; Burst Records: artist development, licensing and publishing; and Burst HQ: state-of-the-art production facility. Their music has been heard in national ads (GM, Microsoft, BMW, Gatorade), top-tier programs, and on networks worldwide (HBO, NBC, ABC, CBS, NFL, BBC, SAT1).



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Digidesign – Digidesign provides high-performance audio production solutions for the professional and project studio markets. Pro Tools™ HD, Digidesign's flagship system and the industry-standard audio workstation, brings unrivaled sound quality, power and flexibility to the music and post-production communities. Digidesign's Pro Tools LE project studio line includes products that provide professional results while suiting virtually any budget. Digidesign also hosts an expansive Development Partner community, offering a large variety of options that complement both Digidesign product families.



Ex'pression College for Digital Arts – Ex'pression is a digital arts college offering Bachelor's degrees in Sound Arts, Animation and VFX, and Digital Graphic Design. Located in the San Francisco East Bay area, the school's Total Immersion program allows students to earn their degrees in just two years, working with some of the best practitioners and equipment in the industry. Throughout their education, students have the opportunity to be mentored and taught by professionals from internationally recognized entertainment technology companies and studios.

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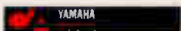
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A. STUDIO DESIGN PROJECT

Awards go to Architect or Studio Designer, Acoustician and Studio Owner. Check MFEA website for studio photos and descriptions.

BiCoastal Music, Ossining, NY

Architect or Studio Designer: Blane K. Kelley, AIA/Russ Berger Design Group
Acoustician: Russ Berger/Russ Berger Design Group
Studio Owner: Hal Winer

Boston Skyline Studios, Boston, MA

Architect or Studio Designer: Michael Blackmer
Acoustician: Munro Associates, London, UK
Studio Owners: Todd Harris, Ethan Harris, Pete Peloquin

Forge Recording, Oreland, PA

Architect or Studio Designer: John Storyk, WSDG
Acoustician: John Storyk
Studio Owner: Sheldon Granor

The Hospital, London, UK

Architect or Studio Designer: Studio 440 Architects
Acousticians: Studio 440 Architects/Paul Gillieron
Acoustic Design
Studio Owner: Paul Allen

Sterling Sound Chelsea Phase III, NYC

Architect or Studio Designer: Francis Manzella Design Ltd.
Acoustician: Francis Manzella Design Ltd.
Studio Owner: Murat Aktar

B. TELEVISION SOUND PRODUCTION

Awards go to Supervising Sound Editor, Re-Recording Mixer, Production Mixer and Audio Post Facility.

Alias, ABC

Supervising Sound Editor: Tom deGorter
Re-recording Mixers: Robert Appere, Ed Carr
Production Mixer: Douglas Axtell
Audio Post Facility: Todd-AO, Burbank

Late Show with David Letterman, CBS

Supervising Sound Editors: Jim Rose, Harvey Goldberg
Re-recording Mixers: Seth Mintz, Pete Pelland, Tom Yang, Alton Norwood
Production Mixers: Jim Rose, Kevin Rogers, Tom Hemmann, Larry Zinn, Gary Kiffel, Harvey Goldberg, Michael Muller
Audio Post Facility: Ed Sullivan Theater, NYC

Saturday Night Live, NBC

Re-recording Mixers: Chris Seeger, Jay Vicari
Production Mixer: Robert Palladino
Audio Post Facility: NBC, NYC

The Sopranos, HBO

Supervising Sound Editor: Jason George
Re-recording Mixers: Kevin Bums, Todd Orr
Production Mixer: Mathew Price
Audio Post Facility: Todd-AO, West L.A.

24, Fox

Supervising Sound Editor: Bill Dotson
Re-recording Mixers: Mike Olman, Ken Kobett
Production Mixer: Bill Gocke Audio
Post Facility: SoundStorm, Burbank

C. FILM SOUND PRODUCTION

Awards go to Supervising Sound Editor, Sound Designer, Re-Recording Mixer, Production Sound Mixer, Score Mixer and Audio Post Facility.

Finding Nemo, Disney/Pixar

Supervising Sound Editor: Gary Rydstrom, Michael Silvers
Sound Designer: Gary Rydstrom
Re-Recording Mixers: Gary Rydstrom, Gary Summers
Production Sound Mixer: Doc Kane
Score Mixers: Dennis Sands, Armin Steiner, Thomas Vican
Audio Post Facility: Skywalker Sound, San Rafael

The Matrix: Revolutions, Warner Bros.

Supervising Sound Editors: Dane A. Davis, MPSE, Julie Evershade, MPSE
Sound Designers: Dane A. Davis, MPSE, Eric Lindemann
Re-Recording Mixer: John Reitz, Greg Rudloff, David Campbell
Production Sound Mixer: David Lee
Score Mixer: Armin Steiner
Audio Post Facility: Danetracks, West Hollywood, Warner Brothers Post-Production, Burbank

Master & Commander: The Far Side of the World, 20th Century Fox

Supervising Sound Editor: Richard King
Sound Designer: Richard King
Re-Recording Mixers: Doug Hemphill, Paul Massey, James Bolt
Production Sound Mixer: Art Rochester
Score Mixer: John Kurlander
Audio Post Facilities: Warner Bros. Feature Post-Production Editorial Dept., 20th Century Fox/John Ford Stage, Burbank

Pirates of the Caribbean: The Curse of the Black Pearl, Buena Vista

Supervising Sound Editor: Christopher Boyes
Sound Designer: Christopher Boyes
Re-Recording Mixer: Christopher Boyes
Production Sound Mixer: Lee Orloff, CAS
Score Mixer: Alan Myerson
Audio Post Facility: Buena Vista Sound Studios

The Lord of the Rings:

The Return of the King, New Line
Supervising Sound Editors: Mike Hopkins, Ethan van Der Ryn
Sound Designers: David Farmer, Ethan van Der Ryn
Re-Recording Mixers: Chris Boyes, Michael Semanick, Michael Hedges
Production Sound Mixer: Hammond Peek
Score Mixers: Peter Cobbin, John Kurlander
Audio Post Facility: Park Road Post, Wellington, New Zealand

D. REMOTE PRODUCTION/RECORDING OR BROADCAST

Awards go to Remote Engineer, Production Mixer, Music Mixer and Remote Facility.

Dave Matthews The Central Park Concert, RCA

Remote Engineers: John Harris, Joel Singer
Production Mixer: Ian Vysick
Music Mixers: John Alagia, John Harris, Jeff Juliano
Remote Facility: Efnanel Music, NYC

Alison Krauss + Union Station Live, Rounder

Remote Engineers: Gary Paczosa, Tracy Martinson, Adam Blackburn
Music Mixer: Gary Paczosa
Remote Facility: Efnanel Music, NYC

Bruce Springsteen & The E Street Band, Live in Barcelona, Sony/CBS

Remote Engineer: Tim Summerhayes
Production Mixer: Brendan O'Brien
Music Mixers: Brendan O'Brien, Nick DiDia, Billy Bowers
Remote Facility: Sanctuary Mobile, UK

The Concert for George, PBS

Remote Engineers: Paul Nickson, Will Shapiand
Production Mixer: Ryan Ulyate

Music Mixers: Geoff Foster, Jeff Lynne
Remote Facility: Sanctuary Mobile, UK

76th Annual Academy Awards, ABC

Remote Engineer: David Hewitt
Production Mixer: Ed Greene
Music Mixer: Tom Vican
Remote Facility: Remote Recording, NYC

E. TOUR SOUND PRODUCTION

Awards go to Tour Company, FOH Engineer and Monitor Engineer.

David Bowie, "Reality"

Tour Company: Firehouse Productions, Red Hook, NY
FOH Engineer: Pete Keppler
Monitor Engineer: Mike Prowda

Toby Keith, "Shock'n Y'all"

Tour Company: Sound Image, Escondido, CA
FOH Engineer: Dirk Durham
Monitor Engineer: Earl Neal

Radiohead

Tour Company: Firehouse Productions, Red Hook, NY, Audiotek, Burbank, CA
FOH Engineer: Jim Warren
Monitor Engineer: Graham Lees

Simon & Garfunkel "Old Friends"

Tour Company: Clair Brothers Audio, Lititz, PA
FOH Engineer: David Morgan
Monitor Engineer: Tim Holder

Rod Stewart, "Rod Stewart Tour"

Tour Company: Sound Image, Escondido, CA
FOH Engineer: Lars Brogaard
Monitor Engineers: Davey Bryson, Robin Fox

F. RECORD PRODUCTION/ SINGLE OR TRACK

Awards go to Recording Engineer, Mixing Engineer, Mixing Facility, Producer, Recording Studio, Mastering Engineer and Mastering Facility.

"Bring Me to Life," Fallen, Evanescence

Recording Engineers: Jeremy Parker, Dave Fortman
Mixing Engineer: Jay Baumgardner
Mixing Facility: NRG, N. Hollywood
Producer: Dave Fortman
Recording Studios: Ocean Studios, Burbank, Track Record, N. Hollywood
Mastering Engineer: Ted Jensen
Mastering Facility: Sterling Sound, NYC

"Calling All Angels!" My Private Nation, Train

Recording Engineer: Nick DiDia
Mixing Engineer: Brendan O'Brien
Mixing Facility: Southern Tracks Recording, Atlanta, GA
Producer: Brendan O'Brien
Recording Studio: Southern Tracks Recording, Atlanta, GA
Mastering Engineer: Bob Ludwig
Mastering Facility: Gateway Mastering, Portland, ME

"Crazy in Love," Dangerously in Love, Beyonce

Recording Engineers: Jim Caruana, Pat Thrall
Mixing Engineer: Tony Maserati
Mixing Facility: The Hit Factory, NYC
Producers: Rich Harrison, Beyonce Knowles
Recording Studio: Sony Studios, NYC
Mastering Engineer: Tom Coyne
Mastering Facility: Sterling Sound, NYC

"Hey Ya," Speakerboxx/The Love Below, OutKast

Recording Engineers: John Frye, Robert Hannon, Pete Novak
Mixing Engineer: Neal Pogue, The Hit Factory, NYC
Mixing Facility: Larabee Sound, Los Angeles
Producer: Andre 3000
Recording Studios: Stankonia Recording and Tree Sound Studios, Atlanta, GA and Larabee Sound Studios, Los Angeles
Mastering Engineer: Bernie Grundman
Mastering Facility: Bernie Grundman Mastering, Hollywood

Over 100 Grammy®, Dove, and CMA Artists Trust Their Sound To ADK.



▲ A-48



▲ Area 51



▲ ST



▲ LE Vienna



▲ Hamburg

"I used the ADK TC microphone to record vocals for one of my artists I usually use a Neumann® U87 or a Telefunken® 251 on. It blew me away. I love the "proximity effect" of this microphone. The body of the sound, the presence in the midrange, the smooth top end; I couldn't believe it! If this is any indication of the quality of the rest of the ADK line, you have a serious hit on your hands!"

**-Bob Rosa, Grammys-Winning Mixer/Engineer:
Whitney Houston, Mariah Carey, Ednita Nazario,
Paulina Rubio**

"After hearing the TT, I was not surprised that Ray Charles and Johnny Matthis selected two of the TT Tube mics for their vocals. That the TL Decca-Tree set up-up works well on Grand Piano was a nice bonus. But what surprised me most was how many uses we found for the original model A-51s. Tracking Guitars for James Taylor to Drums and Horns. ADK Mics were everywhere on our 80 piece live orchestra sessions. Most mic companies have one or two good microphones. With ADK, you get an Arsenal!!"

-Terry Howard, Producer/Engineer: Ray Charles, James Taylor, Michael McDonald, Willie Nelson, Barbra Streisand, Duran Duran, Merle Haggard, Ellis Hall

"The Vienna is an absolutely beautiful sounding microphone! It has all the warmth of a rare vintage mic, but adds a slight presence boost in the high end that just screams 'expensive'! A producer could have a closet full of ONLY ADK mics, and still be ready to record ANY session in ANY style! How many mic manufacturers can say that?"

**-Ted Perlman, Producer, Arranger, Composer:
Ron Isley, Bob Dylan, Burt Bacharach, Young MC,
Chicago, Kellie Coffey**

"ADK Commemorative Tube Mics are a Gas! We used them with the Cincinnati Pops Orchestra and our Vocals Really Soared!!"

-Tim Hauser, Vocalist, Manhattan Transfer

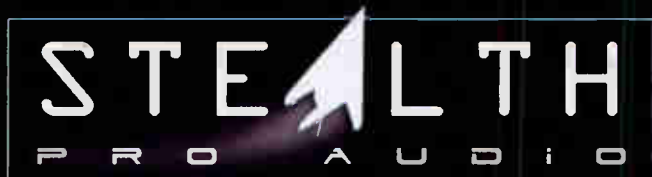
"I've now used the ADK Model "S" on almost everything including vocals, guitars, and drums. They remind me of very expensive German mics I have tracked with before."

-Adam Kasper, Producer/Engineer, Cat Power, REM, Pearl Jam, Soundgarden, Foo Fighters

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"Where is the Love," **Elephunk, Black Eyed Peas**

Recording Engineers: Tal Herzberg, Dylan Dresdow
Mixing Engineer: Chris Lord-Alge
Mixing Facility: Image Recording, Hollywood
Producers: will.i.am, Ron Fair
Recording Studio: Record Plant, Los Angeles
Mastering Engineer: Brian Gardner
Mastering Facility: Bernie Grundman Mastering, Hollywood

G. RECORD PRODUCTION/ALBUM

Awards go to Recording Engineer, Mixing Engineer, Mixing Facility, Producer, Recording Studio, Mastering Engineer and Mastering Facility.

Dangerously in Love, Beyonce, Sony Music

Recording Engineers: Carlos Bedoya, Jim Caruana, Focus, Guru, Stan Wallace, Mark Batson, Pat Thrall, Dan Workman, Michael McCoy, Chris Carmouche, Vincent Alexander

Mixing Engineers: Tony Maserati, Scott Kieklak, Ray Bardani, Dexter Simmons

Mixing Facilities: The Hit Factory, NYC; The Hit Factory Cntena, Miami, FL

Producers: Beyonce Knowles, Mark Batson, Scott Storch, Focus, Missy Elliott, Craig Brockman, Andrea Heard, Sherrod Barnes, Bryce Wilson, D-Roy and Mr. B, Nat Adderly Jr., Errol McCalla Jr., Matthew Knowles

Recording Studios: Allurious Studios, NYC; Baseline Studios, NYC; COE.BE.3 Studios, Stone Mountain, GA; The Enterprise, Burbank, CA; The Hit Factory, NYC; The Hit Factory Criteria, Miami, FL; Patchwerk Studios, Atlanta, GA; Right Track Studios, NYC; Silent Sound Studio, NYC; Soho Studios, NYC; Sony Music Studios, NYC; South Beach Studios, Miami, FL; Stankonia Studios, Atlanta, GA; Sugarhill Studios, Houston, TX.

Mastering Engineer: Tom Coyne
Mastering Facility: Sterling Sound, NYC

Elephunk, Black Eyed Peas, A&M Records

Recording Engineers: Frank Wolf, Dylan Dresdow, Tal Herzberg, Cortez Farris, Jason Villaroman, Jun Ishzeki

Mixing Engineer: Tony Maserati
Mixing Facility: Record Plant, Los Angeles, CA

Producer: Ron Fair
Recording Studio: Record Plant, Los Angeles, CA
Mastering Engineer: Brian Gardner
Mastering Facility: Bernie Grundman Mastering, Hollywood

Fallen, Evanescence, Wind-Up Entertainment Inc.

Recording Engineer: Jeremy Parker
Mixing Engineers: Dave Fortman, Jay Baumgardner (track 2)

Mixing Facilities: Conway Recording Studios, Hollywood, CA; NRG Recording Studios, N. Hollywood, CA; The Newman Scoring Stage; Bolero Studios
Producers: Dave Fortman, Ben Moody (track 4)

Recording Studios: Track Record Inc., N. Hollywood, CA; Ocean Studios, Burbank, CA; NRG Recording Studios, N. Hollywood, CA; Conway Recording Studios, Hollywood, CA; Ironwood Recording, Seattle, WA; The Newman Stage, Twentieth Century Fox, Hollywood, CA
Mastering Engineer: Ted Jensen
Mastering Facility: Sterling Sound, NYC

Hail to the Thief, Radiohead, Capitol

Recording Engineers: Nigel Godrich, Darrell Thorpe
Mixing Engineer: Nigel Godrich
Mixing Facility: Ocean Way, Hollywood, CA
Producer: Nigel Godrich
Recording Studio: Ocean Way, Hollywood, CA
Mastering Engineer: Bob Ludwig
Mastering Facility: Gateway Mastering, Portland, ME

Speakerboxx/The Love Below, OutKast, Arista

Recording Engineers: John Frye, Robert Hannon, Pete Novak, Padraic Kernin, Brian Paturskili, Reggie Dozier, Darrell Thorpe, Terrance Cash, Matt Still, Moka Nagatani, Vincent Alexander, Matt Still, Chris Carmouche
Mixing Engineers: Pete Novak, John Frye, Dexter Simmons, Neal Pogue

Mixing Facilities: Larabee Sound Studios, Los Angeles, Enterprise Recording Studios, Burbank, CA, Stankonia Recording, Atlanta, GA, Ocean Way Recording, Los Angeles, The Hit Factory, NYC

Producers: Antwan "Big Boi" Patton for Boom Boom Record Productions and Andre "3000" Benjamin for Slumdrum

Recording Studios: Stankonia Recording and Tree Sound Studios, Atlanta, GA and Larabee Sound Studios, Los Angeles, Enterprise Studios, Burbank, CA, ZAC Recording, Atlanta, GA,

Mastering Engineer: Bernie Grundman
Mastering Facility: Bernie Grundman Mastering, Hollywood

OUTSTANDING TECHNICAL ACHIEVEMENTS

A. ANCILLARY EQUIPMENT

Apogee Big Ben 192kHz master clock: Big Ben with Apogee's breakthrough C777 digital clock revolutionizes a studio environment by syncing all digital devices with incredible precision and flexibility. With features like SureLock, format conversion, optional FireWire connectivity, termination sensing, and advanced and intelligent clocking, Big Ben makes an immediate enhancement to sound quality that can be heard.

Audio-Technica ATH-M20 headphones: These pro monitor headphones feature a low-profile, closed-back design that delivers exceptional clarity and isolation. Rich bass response and extended high end come from 40mm drivers, each with a neodymium magnet structure and copper-clad aluminum wire voicecoils. Features: adjustable/cushioned comfort headband, 1/8-inch stereo plug and snap-on 1/4-inch adapter, ultraflexible 10-foot coiled cable and 30 to 20k Hz frequency response.

Sennheiser HD650 headphones: The audiophile HD 650 open, dynamic headphone design was developed from the award-winning Sennheiser HD 600, with improved materials for even better sound reproduction. Its 10 to 39,500 Hz response offers listeners expressiveness and emotion while maintaining precise, lifelike reproduction to satisfy the most demanding listener.

SPL Surround Monitor Controller: This analog volume control/switching matrix for system-independent 5.1 and stereo monitoring is designed to provide only the necessary functions with excellent audio quality. The SMC offers a cost-effective speaker/source-management solution for essentially any audio application, including surround and stereo production; DVD-V, DVD-A, SACD and DTS authoring; film/video post, video/game creation; and A/V and multimedia production.

TerraSonde Digital Audio Toolbox: The Digital Audio Toolbox provides a complete set of digital audio test, troubleshooting and utilities in an affordable hand-held device. Functions include transparency test, bit-stream analyzer, lock tests, bitscope, latency test, jitter meter, clock and sample counter, distortion meter, digital signal generator, digital cable tester, level meter, sample rate converter and Sony 9-pin tester.

Whirlwind E Snake digital snake system: The Whirlwind E Snake™ system comprises E Snake Frames and E Snake Control™ management software. Two or more frames connected via a 100Mb Ethernet switch with Cat-5, fiber optics or the Whirlwind E Beam laser can replace the traditional analog audio snake. E Snake utilizes CobraNet, the industry standard for real-time, multichannel networked audio, and individual E Snake Frames may be used as high-quality mic/line access nodes on existing CobraNet networks.

B. DIGITAL CONVERTER TECHNOLOGY

Apogee Rosetta 800: The Rosetta 800 offers eight channels of Apogee AD/DA conversion with a multitude of connectivity options and core Apogee features such as SoftLimit, UV22HR and Intellilock dual-stage clocking. With an X Series expansion card installed, the Rosetta 800 makes a direct connection to Pro Tools or any FireWire-enabled computer, providing compatibility with virtually any audio production environment for pro and project studios alike.

Dolby DP563 With Pro Logic II: The DP563 encoder puts program material with up to five channels into either Dolby Surround or Pro Logic II formats for 2-channel analog or digital applications, including television broadcasts, radio, commercials, video games, CDs and VHS tapes. The DP563 features digital I/O, a pre-processing stage to premix 5.1 material for Dolby Surround or Pro Logic II encoding, individual channel trims, output gain control, output limiter and metadata control.

Metric Halo ULN-2+DSP: This 1RU bus/battery-powerable FireWire interface with four inputs and eight outputs of comprehensive simultaneous I/O offers 24/96kHz AD/DA conversion, two channels of Ultra Low-Noise preamps (130.5 dBu EIN), stereo digital I/O (AES and S/PDIF), balanced send/return path, and individual monitor and headphone outputs with front panel level controls. Onboard DSP provides access to Metric Halo signal processing without sacrificing a computer's processing power.

MOTU 828mkII FireWire audio interface: This one-rackspace FireWire audio interface for Mac and Windows offers 20 channels of input and 22 channels of output that are expandable to 80/88 channels. Features include 10 channels of 24-bit/96kHz analog I/O on balanced TRS connectors and two Neutrik XLR/TRS Combo connectors with built-in mic pre's; ADAT Lightpipe I/O; S/PDIF; latency-free 20-input/8-bus monitoring; stand-alone operation with front panel LCD programming; and drivers for all major audio software.

Prism ADA-8 with DSD interface: The Prism Sound ADA-8 multichannel AD/DA converter range adds a DSD interface module compatible with the multi-coaxial standard DSD format, along with the Cat-5 24-channel SuperMAC format. The new module allows DSD masters to be printed direct from any PCM format.

Universal Audio 2192 master audio interface: Combining Universal Audio's analog sound heritage with cutting-edge DSP technology, the 2192 features sample rates to 192k; real-time transcoding between AES/EBU, S/PDIF and ADAT; and support for single- and dual-wire AES modes for interfacing to the modern DAW studio. Class-A analog circuitry provides detail and clarity via a DC-coupled, fully dual-differential, matched FET, all-discrete, no capacitor, no compromise analog signal path.

C. AMPLIFIER TECHNOLOGY

Architectural Acoustics ICS 4200: Designed for permanent installs, the ICS 4200 industrial power amp features four independent, 200W amplifier channels in a compact, fan-cooled two-rackspace chassis. The ICS 4200 can supply maximum output power to both low-impedance (4 and 8 ohm) and high-impedance (70-volt) loads simultaneously in single-channel or 2-channel pairs. Channels A and B or channels C and D can be operated in low or high impedance or bridged mode.

Camco Tecton Series: The Tecton Series feature Camco's High-Efficient-SMPS (Switch Mode Power Supply), delivering the same high-level performance, low dynamic distortion and superior sound quality that characterize Camco's successful Vortex range but at a more accessible price. The series has 10 compact, lightweight models, ranging from 2x 300W up to 2x 1,950W for use with high or low impedances and in three operational modes: parallel mono, bridged mono and stereo.

Introducing the

AN-16/i-M Mic Input Module

The newest member of Aviom's powerful
A-Net digital snake family.



A ONE CABLE SOLUTION FOR ADDING 16 MIC SIGNALS TO YOUR DIGITAL AUDIO NETWORK

- Sixteen high quality mic preamps, with 24-bit A/D converters
- XLR mic or 1/4-inch TRS balanced inputs on combo jacks
- 48-volt phantom power on each channel, with LED
- Rumble filter switch (85Hz roll off) on each channel
- Balanced insert send and return jacks (1/4-inch TRS)
- Continuously variable gain knob
- Phase switch per channel
- Built-in passive mic splitter



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Crown i-Tech: Crown's flagship amp for touring and corporate P.A., all i-Tech Series models are 2RU and weigh less than 28 pounds. i-Tech amps feature patented Class-I switching output design, global regulated power supply with PFC, integrated studio-quality DSP with 24-bit/96kHz converters, AES/EBU digital and analog inputs, front panel LCD for easy menu-based setup and full amplifier diagnostics, and integrated IQ Network control.

Hot House Model One Thousand: Fully differential from input to output and utilizing a split-dual toroidal power supply, this radical new design uses intelligent output device technology to yield a transparent, low-distortion, high-fidelity, yet bulletproof pro amp. It sidesteps sonically degrading, traditional external thermal bias and protection circuits for the benefits of pure Class-A operation without the drawbacks, providing excellent timbral and spatial detail, effortless transients and precise, deep LF response.

QSC Audio SRA-2422 studio reference amp: Based on QSC's acclaimed DCA Digital Cinema Series technology, the SRA is the first amp created to bring this world-class cinema reference standard to a critical listening environment. Now, the pristine highs and seat-rumbling lows of QSC's legendary "Power Behind the Pictures" is available to studios, film/video post facilities and high-end residential installations, offering a sleek design that's at home in the most demanding décor with superb performance.

D. MIC PREAMPLIFIER TECHNOLOGY

Demeter VTMP-2c: The original VTMP-2a was the first tube preamp nominated for a TEC Award. The tradition continues with the VTMP-2c, updated in a hand-built, limited-production version. The VTMP-2c retains the original's classic sound but adds new features such as continuously variable gain, new Jensen mic transformers, active balanced outputs, 2-stage low cut, 10-segment LED meters and more. Each unit is hand-signed and numbered by designer James Demeter.

Focusrite ISA 430 MkII Producer Pack: The ISA 430 MkII brings together several classic Focusrite designs in one comprehensive production tool. Features: transformer-based mic pre with variable impedance and "air" feature; 192kHz A-D conversion; vintage compression modes via the multiformat (VCA or optical) compressor; classic Focusrite EQ design; and the ability to function as four separate modular processors: mic pre, EQ, dynamics and stereo ADC.

Millennia Media TD-1 recording channel: Millennia's new Twin Topology® half-rack recording channel—the company's seventh TEC-nominated product—the TD-1 includes the acclaimed HV-3 preamp, a first choice for classical music recording. TD-1 also offers selectable tube or all-discrete solid-state DI amplifiers; multiple impedance selections; twin Reamp® outs; Speaker Soak® input; dual-band fully parametric EQ; audiophile-grade headphone output with gain, polarity flip, pad, custom DIT-01 output transformer (3 Hz to 300 kHz); and total ground isolation.

Oram Pro GMS-AI Schmitt: The Pro-Channel™ is AI's dream tracking box, with pure analog switching between three different mics for comparison, an optical compressor and a 6-band EQ with step-switching for precise resetting. The optical compressor can be switched pre/post the EQ bands. The sound is soft-knee and translucent, and features attack, release and ratio. The EQ has six bands that can be individually switched in/out. All bands have fine 25-step controls of 24dB range.

SPL GainStation 1: This compact, single-channel unit has two separately controllable preamp stages, a transistor and a tube preamp stage. Optimal gain points can easily be determined for each stage and combined, providing flexible sound tailoring for mics and instruments. The fully discrete Class-A circuitry of the GainStation 1 operates on a 60V rail. The feature set includes peak and FET limiters and switchable input impedance.

SSL XLogic 4-Channel SuperPre: The XLogic Mic Amp provides four of the legendary XL 9000 K Series SuperPre preamps in a single-rackspace unit with optional remote control. Designed to work stand-alone, remote-controlled or directly from a suitably configured SSL XL9000 console, the XLogic SuperPre puts the acclaimed quality of these world-renowned preamps right next to the source to be captured.

E. MICROPHONE TECHNOLOGY/SOUND REINFORCEMENT

AKG Emotion TriPower C5900M: The C5900M has the pure, articulate sound of an AKG studio mic in a package designed for use in concert applications. Like a studio condenser, the C5900M has a low-frequency roll-off switch and -6dB pad to tailor the mic's response to the application. Its special spider suspension, spring-steel wire-mesh grille and solid construction make it a rugged and reliable choice for demanding artists and engineers.

Audio-Technica Midnight Blues MB3k: The Midnight Blues Series stand-out performance microphone, the MB3k dynamic vocal mic, has an extended frequency response specifically developed to capture lead, backup and choral vocals. Its high-energy neodymium magnet structure provides improved output and extremely fast transient response. Other features include A-T's Magna-Lock silent switch, soft-touch finish, a 60 to 14k Hz response and gold-plated XLR connectors.

Audix Micros: Comprising two models—M1245 and M1290—the Micros are the smallest condenser microphones in the world with an integrated preamp and detachable cable. These studio-quality mics offer high-quality performance with very low noise and wide dynamic range, and are available in a variety of polar patterns and sensitivities. Due to their size and performance, the Micros are used on everything from drums and percussion to choirs and symphonies.

DPA Microphone A/S 4088 cardioid microphone headband: Specifically designed for use in feedback-prone environments, this adjustable headworn mic is small and light weight with a miniature boom that attaches to the headband frame, capturing both ears for a secure, comfortable fit. Its uncompromising sound quality and high-SPL capabilities make it the perfect choice for pros requiring clarity, realism and increased gain before feedback.

RØDE S1: The S1 employs a true condenser transducer for studio-quality reproduction. The S1's sophisticated highpass filter and supercardioid pickup dramatically reduce undesirable low-frequency background and handling noise—virtually eliminating feedback. The five-piece hardened-mesh head protects the transducer, while filtering breath, wind and plosive noise without affecting sensitivity or frequency response.

Sennheiser Evolution e935: The e935's new cardioid neodymium/boron dynamic capsule delivers exceptional gain before feedback (3 to 6 dB greater than e835) and high 2.8mV/Pa output while producing a very clear "airy" vocal sound. The e935s sonic excellence is complemented by an elegant, new tapered black handle and Audi blue grilles. Like all Evolution microphones, the e935 boasts an unprecedented 10-year warranty.

F. MICROPHONE TECHNOLOGY/STUDIO

Audio-Technica AT3060: The AT3060 delivers warm, classic tube sound with a hand-selected, individually tested and aged tube and a large-diaphragm cardioid condenser element providing high sensitivity, smooth sound and low noise. A shock-mounted tube assembly dampens mechanically coupled vibrations. The AT3060 operates on 48V phantom power, has a 50 to 16k Hz response and comes with the AT8458 shock-mount.

Neumann TLM 127: This large-diaphragm studio condenser mic has omni and cardioid patterns, although an optional power supply adds remote-control switching between five directional characteristics: omni, wide cardioid, cardioid, hypercardioid and figure-8. The mic also features a 14dB attenuation switch and a two-position highpass filter switch for a -3dB cut at 15 Hz or 100 Hz.

RØDE K2: The K2's HF1 capsule is the result of designing and building thousands of tube mics. The sound quality combines modern high-end specs with the character and subtleties of the legendary '50s mics. Totally variable control of the K2's polar patterns provides flexibility for any recording situation.

Schoeps CMC6 xt: The CMC6 xt is the latest addition to the acclaimed Colette Modular Microphone System. Combined with one of the company's capsules with frontal sound incidence, the user can benefit with an extended frequency range from 20 Hz to more than 40 kHz. The CMC6 xt can be driven by either 48V or 12V phantom power, retaining a very low output impedance of 35 and 25 ohms, respectively.

Soundelux e49: This remote variable-pattern tube mic (continuous from figure-8 to cardioid to omnidirectional) uses Soundelux's KK47 large-diaphragm capsule and a unique head grille, designed to replicate the acoustic and mechanical sonic signatures of the original tube 49. The E49 uses the Soundelux SteadyState fixed-bias-type tube amplifier, which is similar to the original but has lower noise and distortion.

Telefunken Ea M12: Celebrating the 50th anniversary of the original C-12 microphone, Telefunken North America offers the Ea M12. Each system is handcrafted in the U.S. using the original Austrian blueprints and meticulously duplicating the original C-12 specifications. The Telefunken Ea M12 features a TK-12 capsule with nine polar patterns, T14 transformer and NOS 6072 tube.

G. WIRELESS TECHNOLOGY

AKG WMS 4000: This wireless system offers a 120dB dynamic range and 35 to 20,000 Hz response. Its unique frequency search and management scheme makes setup and operation simple and reliable, and a Smartbattery system delivers 12 hours of operation from each charge. A full range of available accessories can customize a WMS 4000 system for any application.

Audio-Technica Artist Elite AEW-4250: Featuring the AEW-T5400 large-diaphragm cardioid condenser handheld transmitter and the frequency-agile AEW-R4100 receiver, the system offers True Diversity operation, advanced digital Tone Lock squelch and dual-companion circuitry that processes high and low frequencies separately for unmatched sound quality. IntelliScan™ automatically finds/sets the best available frequencies on all linked receivers.

Electro-Voice RE-2: The RE-2 Series brings sophisticated pro features to an affordable price point. The RE-2 is a completely programmable, frequency-agile system with one-touch Auto-ClearScan™, operating over 28 MHz, with XLR mic or line-level output and many other features.

Sabine 2.4GHz SWM7000: The SWM7000 redefines what a wireless system can do. Usable worldwide, Sabine's 2.4GHz Spread Spectrum wireless is immune to analog and digital television interference, and is packed with built-in digital signal processing (mic modeling, onboard compression, Feedback Extremator™, etc.) and a clever battery-charging system. With multiple control options and a digital audio output, the SWM7000 is innovative, flexible and engineered to sound as good as the best wired mics.

I'LL NEVER SWITCH

:: Benjamin Wright ▶ Producer, Engineer, Arranger, Songwriter

"SONAR 3 Producer Edition is the program that PC users everywhere have been waiting for. It's powerful and user friendly."

Benjamin Wright was a very happy man when he watched the Grammy Awards this year. He provided string orchestration for the two biggest albums: OutKast's *The Love Below* and Justin Timberlake's *Justified*. Benjamin has had a long career with a string of hit recordings under his belt, working with such acts as Brandy, Destiny's Child,

Dru Hill, Aretha Franklin, Quincy Jones, James Ingram, Janet Jackson, Michael Jackson, and many others. Two years ago, out of necessity, Benjamin was forced to adopt a new digital audio workstation.

"I made the logical decision and chose SONAR. My peers had been telling me for some time that I needed to check it out. Once I saw SONAR for myself, I knew it had everything I needed and more to keep me making music on the PC. Now with SONAR 3 Producer Edition, I am happier than ever."



SONAR³

PRODUCER EDITION

Visit www.SONAR3.com/Wright to read the full interview with Benjamin and hear his latest production work with the Temptations on *Legacy* available in record stores now.

World Radio History

cakewalk

Sennheiser Evolution Wireless G2: In 1992, Sennheiser "evolutionized" the world of performance wireless with its original Evolution wireless series. Again pushing the limits of audio performance, ruggedness and ease of use, the redesigned G2 features much smaller body packs, larger backlit LCDs, AutoScan™ function, 1,440 selectable frequencies within a 36MHz switching bandwidth and an intuitive user interface.

H. SOUND REINFORCEMENT LOUDSPEAKER TECHNOLOGY

Bose L1: Ten years of research into the problems of conventional systems led to the radical Cylindrical Radiator™. Unlike conventional speakers, the new speaker radiates sound across the stage and throughout an audience of several hundred with little change in tone or level. This entirely new approach to amplification places a Cylindrical Radiator loudspeaker behind each player, replacing the monitor system, P.A. speakers, backline instrument amps and mixing consoles.

Community M12: This compact, rugged glass-composite monitor offers clean sightlines for the audience and the camera. Specially molded channels and cable clips bring the speaker cables out of the back or either side for easy positioning. The M12 has a 12-inch woofer and a 2-inch exit HF driver on a molded one-piece asymmetrical horn with a 90° pattern at the top and 40° at the bottom, allowing full-range monitor output close-up or at a distance.

EAW KF730 SLAM: The KF730 SLAM (Small Line Array Module) packs a six-driver horn-loaded KF Series design into an amazingly compact enclosure, setting a new record for output-per-cubic-meter. The full-sized mid/high horn fills the entire face of the enclosure, ensuring broadband 110° horizontal pattern control. The unique Phase Aligned™ LF design extends horizontal pattern control into the LF, and a bi-amplified powering configuration (passive mid/high) reduces total system cost and complexity.

Martin Audio W8LC: This compact, three-way all-horn line array offers the same audio quality, consistent coverage, high efficiency and rapid setup of its popular predecessor, the W8L Line Array system. This true "mid-sized" system is ideal for small arenas, theaters, clubs and rentals. The W8LC's exceptional performance grows from Martin Audio's unique design and time-tested horn-loading techniques, which transcend the typical compromises of other line arrays.

Meyer Sound MILO: This high-power curvilinear array is a four-way, self-powered system with nearly 4,000W of onboard amplifier power, and Meyer Sound's proprietary complex crossover, protection and monitoring circuitry. Patent-pending QuickFly® rigging makes MILO setups fast and easy. Lightweight, powerful, reliable, easy to use and sonically pristine, MILO's popularity continues to increase rapidly, with its success spawning the new MILO 120, an expanded coverage version.

SLS RLA/2: This compact ribbon line array is designed for medium to small venues. Its light weight (60 pounds per module) and small size, along with the convenient rigging, make it perfect for permanent installations, corporate events production or anywhere a large imposing speaker system is prohibited. Each (LS8800) module of the RLA/2 Ribbon Line Array has two 8-inch high-powered cone drivers and one SLS PRD1000 proprietary push/pull neodymium ribbon driver.

I. STUDIO MONITOR TECHNOLOGY

ADAM S4V-A: The S4V-A is the most affordable ADAM monitor using the A.R.T. midrange unit, which translates the advantages of ADAM's folded ribbon technology to frequencies down to 600 Hz. The benefits of this driver are numerous: It frees the midrange from typical coloration caused by cone drivers, it has excellent dispersion and it has the ability to create a remarkably natural soundfield.

Dynaudio Acoustics AIR 25: AIR 25 is the latest (and largest) AIR Series reference monitor. The three-way active main monitor has two 10-inch woofers, a 5.5-inch midrange and a 1.1-inch soft-dome tweeter. With four built-in amps enabling more than 1,200W of power, AIR 25 is designed for larger studios that require substantial power, with an extended frequency range that's equally suited for stereo and multichannel monitoring.

Event Electronics Studio Precision 8: This bi-amped two-way system has an 8-inch mineral-impregnated polypropylene cone woofer and a 1-inch Ferrofluid-cooled soft-dome high-frequency radiator—both using neodymium magnets. Features include 35 to 20k Hz frequency response, active fourth-order asymmetrical crossover, continuously variable input sensitivity, HF and LF trim controls, dual linear-flow bass ports and a gloss-black "piano" finish.

Genelec 7073A subwoofer: The 7073A active subwoofer offers powerful and precise bass reproduction for large stereo or surround installs. Its 19Hz LF cut-off and 124dB peak capabilities are sufficient to handle the most demanding high-SPL applications. The 7073A features four 250W amps, one for each one its four 12-inch drivers. Driver-overload protection and power-on signal muting are included, as is a built-in 6.1 bass manager.

JBL LSR6300 Series: JBL's LSR6300 monitors go beyond "accurate" to solve problems in the mix environment. RMC™ (Room Mode Correction) technologies compensate for acoustic problems induced by the room's boundaries and provide greater accuracy at the mix position in any sized control room. With patented JBL transducer designs and a host of features for working pros, LSR6300 studio monitors eliminate the guesswork from mixing.

Tannoy Ellipse 8/10: Built on Tannoy's award-winning loudspeaker technologies, the Ellipse range is the first of a new generation of studio monitors using Dual Concentric™ drivers, Tannoy's WideBand™ technology, and proprietary amplification and active circuitry. The unique elliptical birch cabinet offers a striking appearance and a clean, uncolored acoustic representation of the recording.

J. MUSICAL INSTRUMENT TECHNOLOGY

Arturia Moog Modular V virtual synth: Developed with Bob Moog, MMV is a virtual Moog Modular for Mac/PC. Possibilities include nine oscillators, three filter slots, two LFOs, six envelopes, VCAs, mixers, triggers, a 3x8 step-sequencer, etc. Based on TAE™, a revolutionary technology dedicated to the emulation of analog circuits, MMV brings excellent sound quality of sound with the ease of 500 presets of this legendary synthesizer.

Korg Triton Extreme: The Triton with attitude, the Triton Extreme offers more of everything that made the Triton family the workstation of choice for thousands of producers and musicians the world over. Tricked out with vacuum tube processing, USB audio CD burning and data sharing, CompactFlash data storage, digital I/O and stuffed with sounds, it's everything Triton—taken to the Extreme.

Moog PianoBar: In minutes, PianoBar turns virtually any acoustic piano into a powerful MIDI controller without affecting the feel of the piano keys. It includes a scanner bar to sense the keys' motion with infrared technology, a pedal sensor that follows the sustain and soft pedals, and a control module housing the MIDI controller functions and a general MIDI sound module.

MOTU MachFive: This universal software sampler plug-in offers unprecedented compatibility and operability with all major plug-in formats, soundbank libraries and sample formats, from Giga to SampleCell to Kurzweil. Load any sample—even multichannel 5.1 samples—in seconds. Stream large samples from disk. Fine-tune your sounds with on-the-fly crossfade looping and many other advanced features.

Roland V-Synth: This expressive new instrument is the first synth to offer multiple oscillator technologies with real-time control over a waveform's pitch, time and formant. Sounds can then be processed through new COSM filters, a killer arpeggiator and a powerful control interface, including a TimeTrip pad and intuitive touchscreen, plus revolutionary TimeTrip Pad and Twin D-Beams.

Taylor Guitars/Rupert Neve Expression System: The Expression System (ES) is a magnetic-based acoustic guitar pickup with a balanced output. The ES uses a string pickup and two body sensors to accurately capture the tone generated by the vibrating top. The ES preamp features Mr. Rupert Neve's signature EQ curve in the correct frequency ranges for acoustic guitar.

K. SIGNAL PROCESSING TECHNOLOGY/HARDWARE

Drawmer SP2120: The SP2120 eliminates the possibility of "unauthorized" sound pressure levels, preventing noise levels from exceeding limits you set and protecting speakers (or ears!) from damage. Inserted before the amplifier stage, the P2120 combines multiple time-constant and AGC circuits so small overloads sound louder—even though they're not. The protection is transparent to the ear, maintaining the specified volume level without degrading the sound quality.

Eventide H8000: This 8-channel hardware processor offers nearly 1,500 of Eventide's best music and post preset algorithms. Offering more power than Orville, the H8000 features Monolithic Tandem™, in which both processors operate together on large complex algorithms, including 5.1 reverb and 96kHz effects. It has eight channels of AES/EBU, ADAT and S/PDIF digital I/O, and premium quality stereo analog I/O with >110 dB of dynamic range.

Roger Linn Design AdrenaLinn II: This unique guitar effects processor combines 24 superb unique amp models with an innovative beat-synched effects generator. Effects include tremolo, flanging, filter sweeps, random filtering, audio delay and even programmable looping filter sequences—all synched to the internal drum machine or MIDI clock. Also included are classic filter effects like auto-wah, talk box and guitar synth sounds, with emulations of classic Moog and Oberheim filters.

SSL XLogic Multichannel Compressor: This two-rackspace 6-channel compressor uses classic SSL center-compressor design elements within a SuperAnalogue design topology. This brings the dual benefits of spectacular surround audio performance with a universally acclaimed compressor characteristic.

TC Electronic Reverb 4000: Reverb 4000 is a true stereo reverb that includes emulations of the classics and algorithms from its predecessors: System 6000 and the M5000. Features include instant front panel access for live use, 44.1 to 96kHz sample rates and 24-bit processing, AES/EBU, TosLink, S/PDIF, ADAT, analog inputs and outputs, and USB controlled via a Mac or PC.

Universal Audio 2-1176: The 2-1176 features the trademark sound of its 1176 ancestor and can run in stereo-link or dual-mono operation with independent compression and gain controls in dual-mono mode. The 2-1176 preserves the classic all-button or "British" mode of the legendary 1176LN and adds a new 1:1 compression ratio option, allowing it to be used as a "tone box" for coloration without compression.

L. SIGNAL PROCESSING TECHNOLOGY/SOFTWARE

Antares Filter: Filter lets composers, remixers and engineers harmonically shape their tracks with surgical precision or animate them with almost limitless tempo-synched rhythmic effects. With four true stereo multi-mode filters, powerful modulation capabilities and features specifically targeted at rhythmic, groove-based music composition, Filter provides the power to create dynamic effects that range from subtle to extreme.

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World Radio History

Eventide Octavox harmonizer: Derived from Orville for Pro Tools TDM, Octavox is an eight-voice, time-based, diatonic harmonizer pitch-shifter plug-in. Each voice can be manipulated quickly and intuitively. Dragging harmonized intervals across bars and beats allows musical rhythmic sequences to be created from a single note. Each voice features a four-octave range, delay and individual pan controls.

Focusrite The Forte Suite: The Forté Suite plug-in brings the signature sound of the Focusrite's legendary Forté Studio Console to Pro Tools|HD and HD Accel users, via accurate software representations of the classic ISA 110 EQ and ISA 130 compressor. These entirely new algorithms in the EQ and Dynamics modules may be deployed separately, in mono, stereo and for compression—up to 7.1 surround.

TC Electronic Restoration Suite: Restoration Suite offers four real-time plug-ins for audio restoration. DeScratcher includes patented new technology that eliminates distracting impulsive-type errors in audio material. DeNoise is optimized for broadband noise removal, from tape hiss to static environmental noise. DeClick repairs crackles and clicks and features a streamlined user interface with only two key parameters. DeCrackle removes artifacts and repairs constant surface noise.

Unique Recording Classic Console EQs: The URS Classic Console Equalizer is designed to re-create the pro analog recording studio sound to the Pro Tools studio. These 192kHz multi-shell plug-ins work with TDM, RTAS and AudioSuite for use on the entire PC/Mac Pro Tools platform, including Mbox, Digi 001, Digi 002, Digi 002 Rack, Pro Tools|24 MIX, Pro Tools|HD and Pro Tools|HD Accel.

Waves IR-1: A convolution reverb with flexible classic controls, IR-1 allows editing of all the traditional parameters and offers new controls to easily shape the reverberant space. IR-1 includes an extensive library of samples and presets that re-create the sonic environment of carefully sampled real acoustic spaces and classic hardware devices, using technology based on years of research.

M. WORKSTATION/RECORDING TECHNOLOGY

Digidesign Accel: PCI-based HD Accel DSP cards supercharge Pro Tools|HD systems by delivering nearly 2x the power of first-generation Pro Tools|HD cards. With up to 50 percent more voices and bigger, better mixes at any sample rate (up to 192 kHz), Pro Tools|HD Accel's substantially increased DSP power and optimized plug-in support result in dramatic workflow acceleration and surround mixing flexibility.

Lexicon Omega Studio: Omega Studio is an integrated computer recording system that includes the Omega 8x4x2 USB I/O mixer, ProTracks Plus™ 32-track recording software for PC, BIAS Deck 3.5 SE for Mac and the Pantheon™ world-class Lexicon reverb plug-in. Omega Studio comprises all components necessary to transform a computer into a professional 24-bit recording studio.

MOTU Digital Performer 4: Digital Performer lets users record, edit, arrange, mix, process and master audio and MIDI tracks to produce musical recordings, soundtracks for film and television and other audio production tasks. Version 4 adds many new features, including virtual instrument tracks and track freezing, an elegant new user interface and a nearly bottomless feature set.

SADiE DSD-8: The SADiE multi-channel DSD-8 represents the flagship model of the SADiE Series 5 Mastering Editor range. The DSD-8 is capable of full editing/mastering of 64fs DSD signals and incorporates complete authoring facilities for the SuperAudio CD format and can produce Scarlet Book cutting masters for SACD and Red Book masters for CD.

Steinberg Nuendo 2.0: The culmination of years of engineering, Nuendo 2.0 was developed to take the advantages of flexible, native PC and Mac systems to a new level of versatility by performing any task for audio professionals working in composition, film, broadcast, music, post-production, surround, game sound and multimedia.

TC Electronic PowerCore FireWire: PowerCore FireWire brings TC-quality processing to VST- and AudioUnit-host applications. It includes two types of reverb, multiple compressors, chorus/delay, parametric EQ, a synth, a guitar amp simulator and two PowerCore FireWires can be daisy-chained or combined with PowerCore PCs for more processing power.

N. SOUND REINFORCEMENT CONSOLE TECHNOLOGY

Allen & Heath PA28: With Allen & Heath's legendary sound quality and innovative design, the PA Series are ideal for houses of worship, nightclubs, schools, conference rooms and traveling musicians. Like all A&H mixers, the PA Series boast pots nipped down to the front panel, individual circuit boards, solid copper bus bars and the full, natural British EQ of an Allen & Heath desk.

Crest HP-Eight: The HP-Eight combines Crest audio quality with modern, efficient construction. Available in portable 24-channel and 32-channel frames, and installation-size 40, 48 and 56-channel frames, it features 4-band EQ, eight analog subgroups, 2-channel matrix, full talkback and monitor systems, 4-channel scene mute, 10 aux sends on each mono input channel and more.

InnovaSon Sy80: The Sy80 digital console features 80 inputs, 80 outputs, 80 faders and 48 mix buses, and allows an unlimited number of inputs to be "stacked" beneath a single "development" fader, letting the user designate a zone of faders anywhere on the console.

Midas Verona: Available in six sizes from 24 to 64 channels, the 8-bus Verona is equally at home in live concert or broadcast applications. Designed by the team responsible for the Midas XL4 and Heritage, Verona's sonic performance surpasses that of current digital consoles and many high analog consoles.

Soundcraft LX7II: The updated LX7II features a new mic preamp and 4-band EQ based on the acclaimed EQ in the MH3 and MH4 touring consoles. Other standard features include frame sizes up to 32 mono inputs and four stereo input/returns with four groups, main stereo output and a dedicated mono output for center clusters, along with direct outs on the first 16 inputs for multitrack recording.

Yamaha PM5000: The PM5000 retains the layout of the PM4000 with the versatility of the PM1D. All audio signals are handled in the analog domain, yet it offers advanced recall for up to 990 complete scenes. Features include comprehensive input channel functions, versatile 35-bus configuration for house or monitor applications, 12 VCA groups and a four-stereo/eight-mono matrix.

O. SMALL FORMAT CONSOLE TECHNOLOGY

Allen & Heath Xone:92: The Xone:92 was designed by listening to the needs of pro DJs, offering great filters and a full-on MIDI implementation that's wrapped in a package with tremendous creative control in the widest range of applications.

Mackie Control Universal: This desktop control surface for Logic Audio, Pro Tools, Digital Performer, Sonar, Nuendo, Cubase, Samplitude and Cool Edit Pro features eight Penny & Giles motorized touch faders, V-Pots for fast tweaking and a full-screen status/operations LCD. An optional extender expands the number of available control/faders.

Soundcraft Compact 4: This 4-input mixer is perfectly suited to many applications requiring simple mix facilities, but comes into its own when recording vocals and music onto computers using a soundcard. A variety of input sources are handled, including mic, line, DI for guitars and keyboards, and stereo inputs for keyboards, CD/tape or turntable (with RIAA equalization).

Tascam FW-1884: The FW-1884 is a professional control surface with audio/MIDI interfacing via FireWire high-speed data protocol. With eight channels of audio mic preamps, 4x4 MIDI interface, and flexible editing and mixing controls, the FW-1884 offers a powerful front end for recording workstations.

Trident S100: The John Oram-designed Trident S100 delivers that seriously warm analog tone that recent products never seem to approach. Ideal with workstation production or any digitally processed audio path, it's an affordable 8x6 rackmount mixer of superb quality, with six output buses for simple 5.1 assembly, eight mic/line-level preamps, classic Trident Oram British EQ, five auxes and a headphone amp.

Yamaha O1V96: This digital console features 40 simultaneous mixing channels with full-resolution 24-bit/96kHz audio, a range of stereo effects with 32-bit internal processing, ADAT I/O, full automation and instant scene recall. The user interface and large display allow analog-style hands-on operation, with eight user keys for assignable functions and full integration with DAWs and computer-based recording software.

P. LARGE FORMAT CONSOLE TECHNOLOGY

API Vision: This surround mixing/recording console provides 5-channel panning on each fader, two moving faders on each channel, 24 main, three stereo buses and a dedicated 5.1 mix bus, along with comprehensive multiformat monitor facilities. Featuring resettable switch assignment and API's 200 Legacy Series mic pres, dynamics modules, 550/560 EQs, fully resettable bus and input switching and an all-discrete signal path, Vision is custom-built to each user's specification.

Fairlight Dream Constellation: This fully featured digital audio mix console with high-end automation and processing provides the same level of operation and functionality found in dedicated large-format digital audio mix consoles. However the Dream Constellation also includes a fully integrated 48-track disk recorder and editor and is delivered at a significantly lower cost and with a high degree of user-adaptability.

Oram Pro/Trident 24/80 Combination: The 5.1 Trident Series 80-Oram BEQ-PRO24 Combination is the result of John Oram's vision of a truly professional stereo/5.1 analog console, putting his '70s and '90s module designs in the same frame for a sound quality that's far superior to any mixer in its category. The magic of Oram's circuit design, individual retro-size aluminum front panels and all-metal pots combine with the very latest in surface-mount technology.

Soundtracs DS-00: Offering scalable, medium- to large-format digital consoles in the mid-priced range, the Soundtracs DS-00 digital console features touch-screen control and a variety of add-on modules, making it a truly user-designable system. Specialized additions include a FP film section, EX fader channel extender modules and HD user-definable bay for fitting custom controllers, phase meters, etc.

SSL C200: The C200 digital production console represents the latest evolution of SSL's "knob-per-function" design, specifically for 5.1 audio and multipurpose studio applications. Based on new processing technology, the C200 delivers superior audio performance at 48kHz and 96kHz operation, with all of the automation features of SSL's previous generations of music consoles.

Studer Vista 6: Based on its impressive Vista 7, Studer's Vista 6 on-air digital console features a simplified center section, comprehensive busing, optional remote bay and the ability to incorporate third-party hardware options into the console.

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L.A. Open

All photos by Paul Lester unless otherwise indicated.

It was another gorgeous day at the Malibu Country Club, as an almost sold-out field gathered to play a round of golf at the Ninth Annual Mix L.A. Open, held June 14. The winning team, with a score of 56, was Team Greene, second place went to Threshold Sound + Vision and third place went to Absolute Music. The Closest to the Pin contest was won by Mike McCormick. Mike Plotnikoff was the Longest Drive winner, and J.D. Andrews captured the Longest Putt award. Through the support of the event's generous sponsors, the Mix L.A. Open was once again a huge success. Proceeds of the golf tournament and silent auction will go to the House Ear Institute's Sound Partners program and the Sound Art program of Los Angeles. For more information, please visit www.mixfoundation.org.

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The Greene team (L-R: Dusty Stump, Andy Greene, Michael Greene and Will Greene) did it again—taking first place for three out of the past four years.



The Threshold Sound + Vision team (L-R: Mike Schell, Spencer Beard, Peter Barker and Tom Lee) finished in second place and were given their trophies by Ed Cherney (r) and Hillel Resner (l).

"I Switched"

Who: Andraé Crouch

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L.A. Open

All photos by Paul Lester unless otherwise indicated.



Mike McCormick (l) was the winner of the Closest to the Pin contest, sponsored by Mix magazine.



PHOTO: MAUREEN DRONEY

The Record Plant team members get ready for tee in.



J.D. Andrews (l) took home the award from the Longest Putt contest.



Mike Plotnikoff walked off with a Cobra 440 Driver as winner of the Longest Drive competition, sponsored by Audio-Technica.

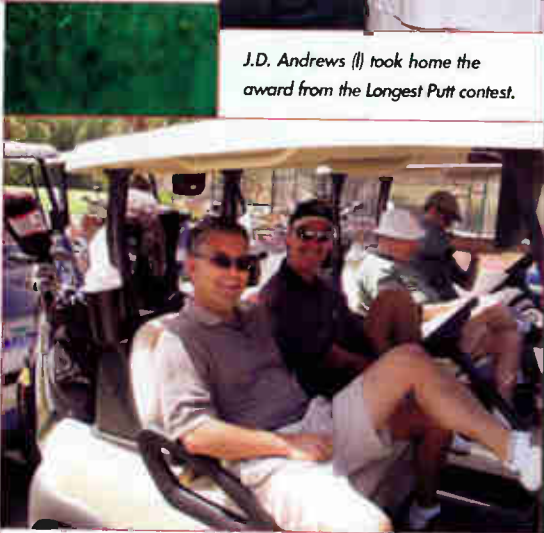


PHOTO: MAUREEN DRONEY

Hole sponsors Design FX take it easy in the carts, which were sponsored by KRK Systems.



Mix Foundation president Hillel Resner (far left) and Honorary Chairman Ed Cherney (second from right) present the award to third place winners, Absolute Music. L to R: Ryan Andrews, Joe Milla, Jeff Benninghofen and Johnny Hagen.

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Shark Tale: A Different Kind of Fish Story

Sound Designer Wade Wilson Talks About His Undersea Challenges

By Blair Jackson

O kay, let's get the comparisons out of the way right up front. DreamWorks' new *Shark Tale* doesn't have much in common with *Finding Nemo* except that it takes place underwater. And unlike last year's hugely successful Pixar film, *Shark Tale* never makes it to dry land. It's also darker and edgier, with lead character Oscar—a fast-talking two-bit hustler voiced by Will Smith—being menaced by an underwater mafia and a very dangerous femme fatale. With a cast that includes Robert DeNiro, Martin Scorsese, Angelina Jolie, Renée Zellweger, Jack Black and Ziggy Marley, among other notables, the film has boatloads of personality to spice up what is basically a comedy adventure.

Animated films always provide a fun and challenging canvas for sound designers. *Shark Tale's* supervising sound designer, Wade Wilson, has a strong background in animated features, live action films, TV and computer gaming. Originally a musician and programmer, Wilson got his start in sound doing effects on a Synclavier for three seasons of *The Simpsons*, and then spent four years at Soundelux in Hollywood working with supervising sound editor Wylie Stateman on everything from *The Perfect Storm* and *Unfaithful* to *Shrek*, where he first worked with *Shark Tale* director Vicky Jenson. Wilson's other work has included sound design for such diverse projects as *Mystic River*, *Elf*, *Torque* and the instant camp classic, *Eight-Legged Freaks*.

Supervising sound designer Wade Wilson in his home studio



"Animation is really my field of choice," comments the Southern California native. "Even if you look at a film like *The Perfect Storm*, a lot of what I was designing was for CGI, which is basically animation."

Though working as an independent for some time, Wilson says that Jenson and DreamWorks' chief of animation post, Jim Beshears, "suggested that I go over and meet the team at Technicolor-Weddington to potentially do *Shark Tale*, and now it looks like it will be a long-standing thing. It's been such an honor and a pleasure to work with Richard Anderson, who is the supervising sound editor on the show and helped design effects. He's an unbelievable human being and he has the energy of a 25-year-old. I grew up watching films he won Oscars for, so to be his second man and on the team is really a joy for me."

Wilson's design suite at Technicolor-Weddington is equipped with a Pro Tools MIXPlus system and JBL LSR Room Mode Control speakers, his speaker of choice for the past five years. He has a nearly identical setup in his home studio and notes, "The JBLs translate so well to the stage, and with removable SCSI drives, I can take material from the sound

design suite at work, come home and create new sounds, take my drive back to work, plug it in and I'm ready to go." And though Technicolor-Weddington recently began upgrading its rooms to Pro Tools|HD, Wilson asked to wait until he finished *Shark Tale* to switch.

"The MIXPlus has plenty of power for me with all the plug-ins I have," he says. "Also, I still love to use the keyboard like I used to on the Synclavier, so I started using SampleCell with my Pro Tools a few years ago. I approach sound design very musically, and therefore, I'm often creating 'chords' of sounds. So if there's going to be a door hit or a huge sonic moment, it's not going to be in just one frequency range; I'm probably going to play a chord with it. I'll take sounds and do some pitch-shifting on the keyboard so I can play them all at once." Among the plug-ins Wilson employs are "a lot of the Waves Bundle stuff. There's also some plug-ins by Wave Mechanics that I really like. The Lexicon plug-ins and reverbs are favorites, especially when I get to the dub stage. I also use a lot of the TC Electronic plug-ins and Hyperprism."

Obviously, working on sound for an animated feature is different than for live action films, as the production track—the dialog—is recorded first and then the film is animat-

—CONTINUED ON PAGE 84

Sounds of L.A. Propel *Collateral*

Reality-Based Effects Inside a Taxi

By Maureen Droney

Collateral, directed by three-time Academy Award nominee Michael Mann and starring Tom Cruise and Jamie Foxx, is a dark thriller with a psychological edge and an intense, tightly focused soundtrack. Nighttime Los Angeles sets the mood. The plot: A cab driver taken hostage by a hit man is forced to drive the killer as he makes his rounds, from hit to hit, during one night in L.A.

While Mann (*Last of the Mohicans*, *Heat*, *Miami Vice*) is recognized as a purveyor of strong visual style, his sonic style is equally well-developed.

"Michael's like an athlete who doesn't want to leave anything in the locker room," says *Collateral's* supervising sound editor, Elliott Koretz, of *Soundstorm*. "Working with him is balls-to-the-wall high intensity all the time. He

has a serious commitment to excellence and to finding uniqueness sonically and visually. In *Collateral*, there's nothing superfluous. Down to the minutiae of helicopters in the backgrounds, every little sound and the frequency it occupies is important."

While directors these days are often highly conversant about sound, it's rare to find one who can actually discuss frequencies. Mann, a fixture on the dubbing stage, can definitely talk the talk. "He says that the most creative parts of the movie for him are writing and mixing," Koretz says. "His seat is at the board between

—CONTINUED ON PAGE 86



PHOTO: COURTESY DREAMWORKS

Quality Screening, Four at a Time

NT Audio Builds Specialized Theater for Film Prints

By Maureen Droney

The hottest place in Los Angeles to see and hear a movie isn't open to the public. It's NT Audio's patent-pending state-of-the-art theater. That's where quality control gets done on the 35mm soundtracks of some of Hollywood's biggest movies, from *The Lord of the Rings* and *The Last Samurai* to *The Passion of the Christ*, *Shrek 2*, *Spiderman 2* and *I, Robot*. With top-of-the-line Kinoton FP30 ECII projectors, dubbing stage-quality sound and La-Z-Boy-style seating for up to 15, well, it doesn't get any better than this. It's hard to believe, but QC'ing a major film is still a very demanding job. Now, thanks to NT Audio's innovative theater that can simultaneously screen four sound formats, the job takes a lot less time than it used to.

As a company, NT prides itself on being quietly predictable. The bulk of its business isn't glamorous; it's the special-

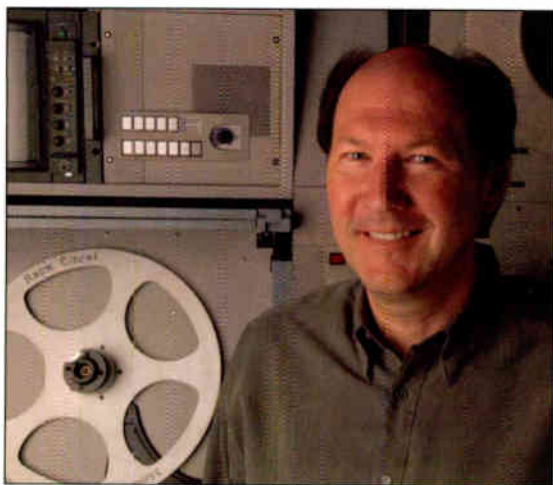


NT Audio's patent-pending, state-of-the-art theater

PHOTO: GARY GALVIN

ized, way-behind-the-scenes work of optical soundtrack recording. [See sidebar on page 82.] But in reality, the com-

pany is anything but predictable. In fact, its record of innovation is quite remarkable. Back in 1983, company founder



Peter Bulcke, NT Audio's COO

Tom McCormick pioneered the use of half-speed recording for the film industry's optical soundtracks. Until that time, half-speed recording was generally only used to master vinyl records, where it was known to improve frequency response. NT's successful introduction of the process to film, and the consequent sonic improvement it created, became the cornerstone of the company's business. Currently, NT is the world's largest producer of optical soundtrack negatives.

NT was also instrumental in developing the process of recording all three current digital sound formats along with analog sound onto the same optical negative. This Quad recording process, which was first applied in 1995 on Twentieth Century Fox's

Die Hard With a Vengeance, was a huge innovation that enabled distributors to eliminate multiple-release print inventories.

It's Quad recording that led to the development of NT's patent-pending theater, an innovation that's helping to simplify the lives of today's overworked filmmakers. At the theater, not only can you check your print in the absolute highest-quality environment, but you can also check all four formats at the same time. It's simple, but ingenious: Four people in separate sound environments

can view the same projected image while independently A/B switching between film playback or master soundtrack elements. Each acoustically isolated listening room is capable of up to 6.1-channel monitoring, with the main theater equipped for 8.1-channel playback. Each room controls a custom audio router that allows instant switching between audio formats on the composite film print or the print master mix, which may be used for comparison. During listening, the digital soundtracks are also simultaneously checked for defects by computer programs monitoring the data error rates from the film playback.

"This is the principle," explains NT COO Peter Bulcke. "They see the same film while hearing a different soundtrack. The people

monitoring the soundtrack in each room are also monitoring the QC software of each digital format. If they see spikes, they know something is wrong. But they also always listen. The software doesn't show whether there is actually sound or not. If the master, for example, has perfect silence, the QC readout will say it's perfect. You have to listen to know that the silence shouldn't be there."

In addition to the print that's being quality-checked, a master soundtrack, in either hard drive or magneto optical disk format, is also synched up. If it's suspected that something is wrong, then the master is auditioned for comparison.

Although the theater was designed to check audio, Bulcke notes, "We've done everything possible to get the best picture. The projector has a three-bladed shutter, which takes the strobe effect away for a very stable, clear picture, and daily we tune not only the audio, but also the projection systems."

A normal theatrical projector has two sound heads. NT's custom projectors have five—one for each digital format—and two analog readers. [Ed. note: Two analog readers are required due to the industry trend away from silver-striped analog soundtracks to more environmentally friendly magenta or cyan soundtracks. Silver soundtracks are read with white light, magenta or cyan with red. As both are currently in use, NT's projectors accommodate both.]

The main theater's B-chain comprises five JBL 5671 three-way cinema loudspeakers with an additional JBL 5641 low-frequency enclosure for L/Lc/C/Rc/R channels. Surround speakers are 10 JBL SP212A two-way cabinets with two Electro-Voice TL880D double 18-inch subwoofers. Amplification is by QSC DCA Series, with a Crest 8001 for subwoofers. Crossovers for all channels are Lake Contours. The three smaller QC rooms each contain six Genelec 1029As with Genelec 7070A subwoofer/bass-management systems.

The theater opened in January 2003 after a year of construction, and it's been booked nonstop since. "Word of mouth went out very fast," says Bulcke. "The first customer who listened called his mixer and said, 'You've got to hear this!' The mixer came in and said it sounded exactly like the mixing stage. They loved it.

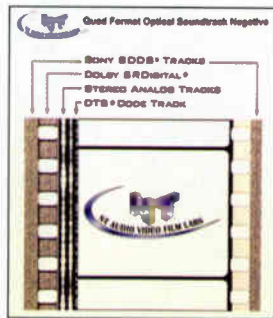
"The fastest way they could previously QC was to book multiple theaters," he continues. "They would, for example, check reel one in theater one. When they finished, it would go to theater two, and they'd start with reel two in theater one. They always had to move one print and they had to run

Four Channels of Audio, One Piece of Film

Currently, 35mm release prints delivered for exhibition typically contain four soundtracks: Analog stereo, usually recorded with Dolby SR that can be matrix-decoded to play back in 4-channel surround, and three digital audio tracks—Dolby Digital, DTS and SDDS—which provide their respective 5.1-channel discrete mixes. Each system, although different in method of delivery, hardware and audio capabilities, shares the identical 5.1-channel printmaster mix as a source. Given the varied distribution of playback hardware throughout the world for the three digital audio systems, the major studios generally place all four sound formats on release prints, allowing individual movie theaters the choice of which format to use.

Once the post-production sound team completes the printmaster mix for a motion picture, the audio elements are given to the optical sound house to create the optical soundtrack negative, or OSTN. The OSTN is then sent to a film lab that aligns the OSTN with the corresponding picture negative and creates a composite print containing the combined picture and all soundtracks. Before release prints are made for theaters worldwide, the post-production sound team must approve all of the audio formats on the OSTN. Once the soundtracks have been checked, the OSTN is approved for printing and hundreds, or thousands, of release prints are made for local theaters.

—Maureen Droney



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it four times. If there was a mistake somewhere in the soundtrack while they went through all the stages, they lost all the time they'd spent. With us, they can do the job in a third or fourth of the time."

Innovation hasn't halted at NT. Early in 2004, the company introduced the first laser sound recorders to the Hollywood community. Based on state-of-the-art optical and DSP technology developed by NT during a three-year process, the laser recorders have now replaced the original half-speed process, resulting in an even more accurate image, improved high-frequency response



At NT Audio, its projectors (pictured) have five sound heads instead of the normal two.

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"It's just another extension of what we do here," states Bulcke. "It's a very innovative environment, basically because of Tom and the creative people he hires. He's always encouraged them to bring their creativity into the workplace. We're an engineers' company, founded by an engineer, and we're always changing and improving." ■

Shark Tale

—FROM PAGE 80

ed around the dialog and storyboards. (In this case, dialog recording was done by Larry Winer, among others worldwide, mixed by Carlos Sotolongo and supervised in post by Thomas Jones.) Wilson started working on ideas for the film fairly early in the process based on conversations with the director reading the script and, later, hearing the pre-recorded tracks.

"We'll work on various artistic ideas independently, and then we'll spot the film with the director, the picture editor and a couple of the producers who are involved creatively with the project," Wilson explains. "Even if you're still dealing with some rough animatics and frozen animation, generally they have the timing together and you know where you're going with a scene. In animation, there usually isn't a temp mix; we go right to the pre-dub stage to build for the final. It's nice to send some sound effects material over and some cut sequences that we've created to play for the filmmakers to make sure we're headed in the right direction."

What kind of remarks might the director make at that stage? "Well, Vicky Jensen felt that some of the fish movement was in a higher register that seemed to interfere with



Lenny (shark) talks with Oscar

dialog for her," Wilson recalls. "She has some of the most incredible ears I've ever worked with, so this didn't surprise me. So now what we're doing is recording some special sounds for the higher frequency: smaller fish movements that have a silkier texture to them rather than a splashy high-frequency water sound. We'll do that, with some EQing, and it should be great."

WATER RECORDING

Not surprisingly, *Shark Tale* required a lot of underwater recording—everything from fish

motion to bubbles to under-sea impacts. Wilson says that the perfect place to do that work ended up being in large swimming pools. "If you go out into the middle of the pool and do movements, you don't get a lot of slap-back sound, which is what happens if you use too small a tank." Wilson says. "In these large pools, it really sounds like it's being recorded in a bigger environment."

Though Wilson generally does most of his effects recording on DAT (and occasionally Deva), for the in-pool material, the SFX recordists recorded straight to Pro Tools. "There were some [recordings] with hydrophones and some using regular condenser mics with condom setups," he recalls. "We've been experimenting with all sorts of things. We don't want anything in this underwater environment to sound too metallic. It's all coral reefs and things that are made out of organic, natural material, so that's been a challenge. We're trying to create sounds that have a different tonality than metal."

That said, Wilson did have a session in which he "went to a place where they keep industrial pipes and did a bunch of recordings using rubber hammers and percussion mallets and *played* the pipes," he says. "A lot of great tonalities came out of that, which I'll manipulate into the soundtrack. Richard had a Schoeps mic and was running the DAT, and I was doing the pounding." Some of that material will show up in a specifically programmed rhythm sequence built around a new version of the funk classic "Car Wash," sung by Christina Aguilera and Missy Elliott.

FISH FROM SCRATCH

As for fish movements, "We've been attaching fabric and different materials to a 4- or 5-foot-long dowel, taking that underwater to a certain level and doing movements with it," Wilson explains. "We want to give characterization to the movement of the fish with very specific textures. The sound will then be a combination of various different sounds layered together—as few of them as possible to make it work. In a film like this, size specificity is very important. When a shark is swimming by or you have a very tiny fish, those have to feel very different. So it's all about the

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layers and choosing the right ones."

Some of those decisions will be made on the dub stage by effects re-recording mixer Anna Behlmer, who's working, as usual, with partner Andy Nelson, who previously worked with Wilson on several films, including *Shrek*. Wilson also credits *Shark Tale's* Foley artists—One Step Up (Dan O'Connell and John Cucci)—with coming up with top-notch fish movement and bubble effects. "They're a very creative team," Wilson says.

"We've done millions of bubbles, and bubbles are a wonderful texture that we'll layer in with the fish movement," he adds. There are, not surprisingly, many ways to generate bubbles for a recording, including blowing into liquids and doing air tank releases underwater.

Wilson notes that the sound team also worked hard to create interesting ambiances for the film's different set pieces, even though in reality, an undersea cave, for example, doesn't sound much different than an undersea plain. "Fortunately, we don't have to be constrained by reality," Wilson says with a chuckle. "We want there to be a sense of different locales, and one way to do that is to have them sound different. The final ambiances will be assembled on the stage, with Anna doing some processing with the Lexicon and other processors no doubt. In general, we haven't been putting reverb into our material because we want [the re-recording mixer] to have more flexibility later. But I have been doing some sound design treatment with echo and even some Line 6 guitar processors I have for kelp fields under the sea."

Wilson and Anderson have been in contact with composer Hans Zimmer (whose team also scored *Shrek*) throughout the process, and Wilson notes that "at the best, the sound design, the effects and the music all work together in a seamless tapestry and you don't know where one ends and the other begins. Hans loves to get material early on and hear what we're designing. He makes notes on it and it helps him construct the score."

Though the final mix of an animated feature still involves the delicate balancing act between dialog, music and effects found on a live action film, Wilson says, "There usually aren't a lot of new shots and changes that come in [at the end of an animated film]. A lot of the things that we address on the stage are sync issues, because when we get final color timing and final animation, sometimes the sync can slip a frame or a half-frame here and there, so we'll be manipulating dialog and trying to get the best sync we can, and also making sure that the sync on all our impacts and other effects are exactly what



Collateral's editorial and mix crew blow off some steam at a wrap lunch.

we cut. It's still a lot of work no matter how powerful computers become."

Wilson is convinced that all of this hard work will translate into a first-rate film. "This film is totally unique, and the soundtrack we're creating is unlike anything I've ever done before," he says. "We've really had a great time working on it." ■

Collateral

—FROM PAGE 81

the mixers [Mike Minkler on dialog and music, Myron Nettinga on sound effects]. He watches what's going on and occasionally says, 'Roll off the low end,' or, 'Give me a little mids.' He definitely gets it. He also understands a mixing console's capabilities."

Collateral's sound is reality-based, with, according to Koretz, "not a lot of abstract design, except for a bit in the beginning where we introduce our characters. When we meet Tom Cruise, he's walking through an airport. I designed some very diffused airport sounds where you get the feel of a lot of people, but it's nonspecific, except for his footsteps. It stays that way until Cruise—seemingly accidentally—bumps into someone for what's really a bag exchange. At that point, we snap to very real sounds where everything is sharp, clear and defined. So there's some design, but for the most part, the movie is real sounds, well-thought-out to accompany what's happening."

With only two main characters, *Collateral* is sharp, focused and linear. It's also very intimate. Everything happens in

one night, most of it in one taxicab. "We used real sounds to manipulate emotions a bit," explains Koretz. "After Cruise kills his first victim and Jamie Foxx has figured out what's going on, Jamie becomes very upset. As he's driving, we tried to come up with tension-filled sounds of the city."

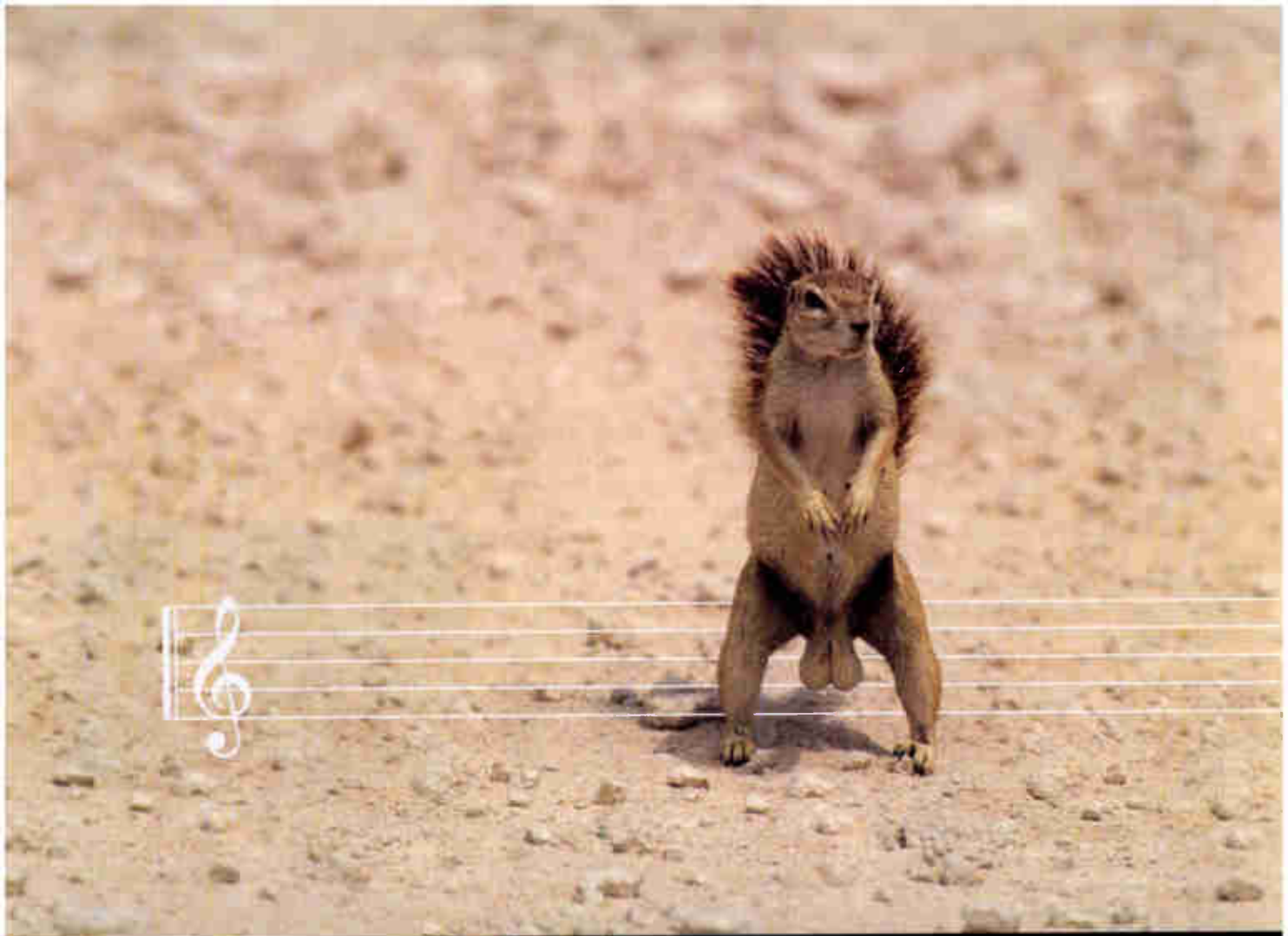
The Doppler of an alarm going off, the buzz of a light, people arguing, car speakers booming hard-core rap all contribute as the city becomes an element in the undercurrent of Foxx's anxiety.

Collateral wasn't spotted in the traditional sense, in which, prior to the start of cut-



Sound designer Elliott Koretz (left) and sound effect mixer Myron Nettinga at Todd AO West Studio 3

ting, all involved watched footage to decide where sound design was needed. Instead, early on, the sound team received a script to work from and spotted much later in the process. In another departure, Mann insisted on having his principal crew together in one location at his own Westside facility. "We didn't work in our own offices," says Koretz. "Everybody—the picture editor, the music editor, myself and my crew—moved to the



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Field recorder Bruce Barris

Westside. It actually made for a lot of synergy. It brought the sound crew more into being a creative part of the whole process as opposed to being those 'off-site sound guys.'

"I was able to look at cuts with the picture editor and discuss what would work sonically, and I was able to easily feed him sounds on a daily basis," he continues. "Michael makes a lot of his critical decisions based on what's in the Avid. So it was important for me to get my more-finished work to the picture editor and the Avid where Michael could hear the correct guns, the correct taxicab, et cetera. In the end, it made the transition from Avid to dub stage easier. It was also convenient that we were located just a few blocks from the stage so we could get together with the mixers to discuss strategy and how to lay things out."

A hefty amount of fresh recording was done. "I got a lot of support from the associate producers and others in Michael's

organization to go out and get things I wanted," comments Koretz. "We got a Metrolink commuter train, a big part of the end of the movie, to ourselves for an evening. That was great because it's a fairly new system with a unique sound. Michael is also knowledgeable about guns and a stickler for their sound. So they lined me up with the on-set armorer, and we went to a private shooting range where we recorded six channels of guns."

For the Metrolink scenes, the team experimented with multiple setups and discovered that mics placed on either end of a subway car were optimum. "The distance from one rig to the other mimicked the distance from front to back in a theater," says Koretz. "That gave us an incredible sense of movement as the train sped along."

Shotguns, automatic machine guns, pistols and semiautomatic pistols were close-miked with Sennheiser MD421s, AKG D-112s, and Shure SM57s and SM7s. For distance, a mono shotgun Sennheiser MKH416 and a Neumann RSM 191 stereo condenser were used. Recording was to DAT: two Fostex PD2s and one Panasonic SV-255. "We set up to get the most variety," explains Koretz. "We had extreme close-miking with mics set up behind us for echo and exterior slap. Back at the office, we synched up and mixed the channels on a ProControl to create either exterior or interior shots as needed."

With something like 23 of them in the movie, cabs were a major component.

According to Koretz, the main cab was recorded in six channels. "I'm a big fan of multi-channel recording," he comments, "because you can get the nuances of the surround information in there. Since the cab was such an important part of the movie, we recorded it any way we could: under the hood, in the tailpipe, in the front and back seats."

Challenged to find Los Angeles night sounds that surpassed the stereotypical, Koretz and assistant editor Bruce Barris pulled all-nighters unearthing the unexpected, including, according to Koretz, "Guys steam-cleaning sidewalks at 2 a.m., a refrigerator starting up through an open window,



Michael Mann (left) and Elliott Koretz

laughter echoing down an alley and some very disturbing street people activity."

The movie pays homage to L.A.'s multi-ethnicity. For one scene in a Korean nightclub, that meant actually getting recordings from Korea. "Michael was adamant about the walla being in Korean," explains Koretz, "but the reality is that the younger generation all speak English. Ultimately, we hired someone in Korea who went to discos there and recorded the material."

Koretz describes his crew as lean and mean. "I prefer to have a small crew that stays on as long as possible. I think that leads to more quality control and better communication. I can't say enough about everybody who worked on this one. I'm the point man, but they do quite a bit of heavy lifting to make it all happen. And for this picture, my crew was definitely dwarfed by the music crew. [Laughs] James Newton Howard is the main composer, but there's a variety of different music for different scenes from composers Tom Rothrock and Antonio Pinto to Paul Oakenfold and Audioslave. And there was an army of music editors.

"Although right now I'm a little tired," he admits, "I feel that working with Michael has made me a better designer and supervisor. He challenges people and the end results have been movies that are unique works of visual and sonic art." ■

—Maureen Droney

Music by Many

Music supervisor Vicki Hiatt previously worked with director Michael Mann on *Heat* and *Ali*. "Michael brings a lot of people into the mix," she comments. "For example, Brazilian composer Antonio Pinto, who did *City of God*, was—in 'Michaelese'—'the architect of Vincent's [Tom Cruise's character] deconstruction as it occurs throughout the course of the film.' That's not necessarily what he was hired for, but that's what he wound up being. His music appears in reel 3, as the night starts to fall apart for Vincent, and it propels that dramatic line. James Newton Howard's music is the emotional tension binding the diverse sensibilities that are the story of *Collateral* and Los Angeles.

"Tom Rothrock's music wound up being Fanning's story on some level. Fanning is the LAPD detective with intuition about what's happening. Tom's music is in the cue where we see Vincent for the first time, and also where we see Max cleaning up his cab and getting into it."

Multiple music choices were available on the dubbing stage at all times. "Michael swaps the music in and out," Hiatt continues. "But after he's chosen a music cue, the picture changes. Our job is to keep the feeling intact even though the scene gets shorter or longer. That's where the music editors really need to know what they're doing. We were really lucky on this film; we had a lot of very skilled people.

"With Michael, it takes a lot of people and there's a great deal of organization involved. It's hard, but Michael puts in three times as much work as anyone else does, so it's also very rewarding. And because his style is so painterly, it's always visually stimulating. There's never a dull day at work."

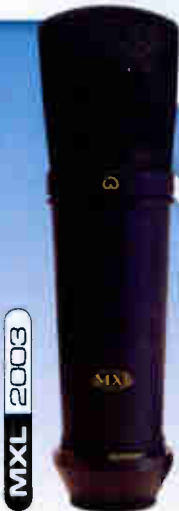


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Alan Meyerson

Scoring Mixer With a Digital Affinity

It took a while to catch up with top music scoring mixer Alan Meyerson. This year was less than half over and already he'd been behind the board for several very big movies, including *Catwoman*, *Shrek 2*, *Man on Fire* and *Kill Bill Vol. 2*. Dealing with the tight production schedules and ultrahigh pressure that are now de rigueur on major motion pictures is nothing new for Meyerson; you've heard his work on many of them, from *Crimson Tide*, *Speed* and *Traffic* to *Black Hawk Down*, *The Italian Job*, *Pirates of the Caribbean*, *Pearl Harbor*, *Gladiator*, *Shrek* and many more.

Music scoring is a rarefied world in which the quest for high-quality sound remains unrelenting. There are expensive musicians (often lots of them!), expensive gear, expensive scoring stages and, frequently, brutal time constraints. Add to that the demanding personalities inherent to such high-stakes creative situations: directors, composers and studio executives. This is not a business for the fainthearted.

But Meyerson seems to thrive on the job's pressure. He was certainly enjoying himself the day I corralled him at the Newman Stage on the Fox Pictures lot in L.A. The session was for *Steam Boy*, a high-profile Japanese anime directed by Katsuhiro Otomo, who's widely credited with being the founder of the genre. Meyerson was co-producing [with Kei Momose] the



A bit of background: You started out as a record-making engineer. How did you transition to film scoring?

I'd gotten to the point where I was tremendously frustrated with the record business. It seemed like the era for my style of mixing had come to a close. I wasn't a good fit for hip hop and I was considering other directions. I was at a party one night with my manager at the time, and, jokingly, I said that maybe I should meet someone like Hans Zimmer. Nothing came of it, but later, just by coincidence, one of my neighbor's kids got an apprenticeship at [Zimmer's company] Media Ventures. As it happened, Hans had a partner at the time that I'd known from when I lived in New York, so I told the kid to say "Hi" for me. He did, and Media Ventures ended up calling me and asking me to drop by. Long story short, I did a little overdub session with Hans. He was pretty happy and the rest, as they say, is history.

Back to the present: What's your microphone setup for today's session?

For a session like this, it's important to have superclean, low-distortion mics for close-miking. I use a combination of Schoeps CMC6 amplifiers with MK4 cardioid capsules and Sennheiser MKH 80s. I also have a pair of mid-distance mics; in this case, I used my Brauners. My surround mics are basically a Decca Tree LCR: two surround mics and a dedicated LFE [low-frequency energy] or subwoofer mic. I'm using Neumann M150s on the LCR, Sennheiser MKH 800s on the left and right surround, and a Neumann TLM 170 for the LFE. I mix them down to either 5.1 plus stereo close mics or LCR plus stereo close mics.

Today, we're basically doing three passes per cue: one each of low stuff like taikos or frame drums, one of mid



Effects cut out and Hans Zimmer's score carried the scene when the helicopters approached Mogadishu in *Black Hawk Down*.

soundtrack, and the day was dedicated to the percussion section of doom: an all-star collaboration with top session and touring cats Michael Fisher, Alex Acuna and Luis Conte that featured an array of priceless taiko drums, *darabuka*, tambourine sticks and countless other exotic instruments.

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stuff or "skins" like *djembes* or *cajons*, and one of high stuff like shakers or tambourine sticks. All three musicians play on each pass. We just build this ungodly noise that I can have fun with in the mix!

How many tracks are you recording and what's on them?

By the end of today, there will probably be 20 to 25 tracks of percussion per cue.

What is your basic orchestral mic setup these days?

It changes all the time, but my starting point is pretty conventional for film score. I'll use a Decca Tree configuration for my main LCRs with wide mics left and right. I tend to use four spot mics on the violins—no matter the size of the section—two viola mics, two cello mics and then a bass mic per stand. Other than the first bass mic, which I keep pretty loud, the spot mics are there only to help articulate a part when needed. Otherwise, they're either very low or extinguished.

I tend to use stereo woodwind miking that is above and in front of the section. I do record woodwind spots, but I only use them in an emergency. The French horns take care of themselves in the room mics, but I record a French horn feature mic. For the brass, I'll record a brass feature about 10 feet in front of the whole section, at the same height as the Decca Tree. I use the tuba and bone spots somewhat. The trumpet mics stay off most of the time.

Would you consider your sound to be preamp-dependent?

I do have my own preamps: 30 channels of Grace, eight channels of Neve 1063s and six channels of Fred Forssell's Fetcode. Fred made the Millennia tube-side of the Twin Topology, and at one point, he decided to build his own. In a case like today's percussion session, where there are a lot of level changes, I like the Grace because it's remote-controlled. I've got the amplifiers outside in the studios and the controllers inside the control room.

You work at a lot of different studios.

Yes, but I'm still based out of Remote Control [formerly called Media Ventures]. Not only is it a great place, but I have all my gear there! I love the people and the quality of the mixes I get there. And I love the Euphonix System 5 console. With the System 5, in conjunction with the Sony Oxford compressors and EQ that I've been using lately, I'm set. I don't need to use much of anything else.

But what about all your other gear?

Really, the only thing I still use [hardware] a lot for is bus EQ or compression. Across the orchestra, I'll tend to do some bus EQ and



Meyerson, pictured from behind, setting up the board to record the percussion section for Steam Boy's soundtrack at the Newman Stage on the Fox Pictures lot.

occasionally I'll use some bus compression across the overall LCRs of different groups. And when I mix, I always have my Manley Massive Passives across the orchestra. I also have two matched Neve 2254s that I tend to put across the percussion bus, just for a little tickling to make things a little louder. I sometimes use my Avalons for synths or solo stems. I also still love my TC Electronic 6000 as an orchestra reverb, but otherwise, there's just too much good stuff available in the computer now: effects, EQ, even compressors.

Not to beat the drum, but the Oxford compressor is really fantastic. It gives you a beautiful "overall." I also love the multiband compression that's available now. I love the Waves C4 because it has so much control for de-essing on vocals and because I can find frequencies to pop out on percussion or guitar. It's like the old trick you can do with the Brook Siren 902. That's the greatest bass compressor in the world because it doesn't touch anything except the frequencies it really needs to control, like the "wolf" tones on bass. Now that kind of control is available to everyone with multiband.

Something I just bought is the Princeton digital reverb, the Eventide 2016 emulation plug-in. It's unbelievable how good it is. Maybe I've forgotten what the original 2016 sounds like, but the emulation is exactly what I was looking for when I was no longer able to find a good 2016.

I don't have a tremendous amount of vintage stuff. I have a rack of Neve EQs, a couple of Neve compressors and a couple of Pultecs.

Is that because for recording orchestras you can't risk the unreliability of older equipment?

Absolutely. And also, especially with microphones, it's because the self-noise floor of modern mics has gotten so low. I have three Dirk Brauner/Klaus Heyne tube mics that Dirk built and Klaus modified with an in-

credibly low noise floor. Royer powered ribbon mics are great that way also. With these kinds of mics, you can get the noise floor of a multi-miking situation, like an orchestra, far below where it used to be.

With analog tape, the tape was your definition for where the noise floor was, but it's a new world. When I break out my rebuilt [Neumann] M49s, which sound wonderful, there's a huge difference in the level of the noise. So now I use them more like a solo or feature mic that I'm going to turn on and off rather than leaving them open all the time.

What are some of the mics you use a lot?

Soundelux E47s, mostly on basses, and Sennheiser MKH 800s. The Sennheisers have five patterns. They also have frequency boosts, which is great when you're doing distance-miking where you're going to lose high frequencies through friction. If you use them as surround mics and just put the 3dB boost at 6k on, the boost puts a little of what's lost back without sounding EQ'd. I like that because I try not to EQ anything when I record orchestral.

When I record a rhythm section, of course, I EQ, but not orchestras. As a matter of fact, I don't even really touch the signal anymore! I've gotten to the point where I come right out of the preamp into Pro Tools. I don't really use buses unless it's a huge orchestra. Maybe I'll combine bass mics. Other than that, I hardly touch the board anymore during recording. Fortunately, or unfortunately, for me, during recording the console has become a very big, very expensive monitor desk.

It's all about the mics and the preamps.

Yeah, and with the Grace remote-control preamp, I can store the settings, so if I come back in to do a pickup session, everything is the same. I'm spoiled. The Grace preamps are fantastic, superclean and great for spot mics.

But for mixing, you're a heavy plug-in user. I like processing things, especially because

the scores I tend to work on, which I guess the industry calls "hybrid," have a lot of synths and synth percussion: elements that live in the composer's room before the music comes to me. There's a lot of processing involved and you need to have repeatability. If you're doing a big movie with 40 cues, to have to create all those sounds on the fly and then to have to change stuff from cue to cue is really a hassle. It's a lot easier to do it in the box than to try and do it on a console.

With Hans, we don't print anything anymore, plug-in-wise. Instead, when he's writing, he'll EQ and add reverb on the return. I have all the plug-ins that he has in his room duplicated in the mix room. When I open up a session, at least plug-in-wise, I start from his point of view, which is a tremendous advantage. If I had to unravel a 150-track Hans Zimmer pre-record from scratch, I would never finish. Instead, I start from where he left off and see what I can do to make it better.

Plug-ins, of course, have gotten worlds better in the last couple of years. And there's the whole "apparent" loudness trend that's going on with compression that's more frequency-based. It's not as obvious as over-compression; it's more subtle. The Sony In-



PHOTO: MAUREN DRONEY

The cast of Steam Boy's soundtrack "all-star percussion section of doom," from left: Alex Acuna, Meyerson with son Joseph, composer Steve Jablonsky, soundtrack co-producer Kei Mornose, music assistant Pieter Schlosser, Luis Conte and Michael Fisher

flator, Crane Song's Phoenix and Renaissance have a vocal compressor that's literally like an L1: You just pull one knob and it gets louder, but in a good way. It's actually pretty cool.

I especially like the Inflator. On *Last Samurai*, there was a cue where I just couldn't get the mix right. When I went into Hans' writing room and listened, I realized he had

an Inflator across his stereo bus. When I took the Inflator out, it was dead. I couldn't duplicate exactly what he did because I didn't have a stereo bus, but I've started using Inflators across individual tracks. That way, I can match Hans' sound, with the ability to be a little pickier about how much processing to use.

All of these things work great in moder-

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ation and all of the subtleties add up. It amazes me how little you can change things and still make a huge difference. That's something I find with my Massive Passives that I put across the orchestra bus and across percussion just a little bit. If you listen before and after, it makes this tremendous difference. Besides the EQ itself, I think it's that little bit of the saturation that happens in the tubes.

You do use the EQ, though.

Of course. Sometimes a little, sometimes a lot. On the Manleys, there are certain frequencies I go to: either 8k or 12k on the top

end, and 2.2 or 3.3k for articulation, where I can add 1 or 2 dB and bring out the detail of the interior voices of a sound. For a scoring session, I'll go down maybe to 63 or 80 Hz on the low end. If I'm working on a record, I'll go up to 120 and add a little bit of that. On film scores, I don't tend to cut quite as much in the lower midrange, maybe a little bit of 200 or something like that. On records, I'll clear it up at 300. I'll cut a little bit more there so it feels a tad carved out and it tends to make it pop a little bit more.

Remember, most of the stuff I'm working

on, when it's theatrical, is going through an X curve that's removing a little bit of the top end. There's also a screen between the speakers and the audience, so if there's a little bit extra on the top end, it doesn't hurt anything.

You and Hans have done more than 30 films together.

Yes, we get good sounds. I help him record a lot of the sounds that he'll use in his writing process, and when I discover a new cool plug-in, I immediately get it to him so that we can play with it together. We actually have a lot of fun.

You still get really excited about all this, don't you?

Are you kidding? I love this stuff. It's the greatest. The latest toy is the Sony Transient Modulator. You can take a room track and almost build a direct mic out of it. You can find the finest little threshold and then pop it up so much—it's sort of an expander, but a crazy mad-scientist version of what an expander should be. You can really mess things up.

The most fun is figuring out a way to take all that technology and all these interesting sounds—filtered percussion, filtered vocals, whatever it might be—and then mix it with a live orchestra. There are also times that we take what we record with the orchestra and do interesting things to it.

In *The Italian Job*, for example, in some spots I filtered the entire orchestra. I put it out of a 5-channel output and across the master fader using a McDSP Filterbank to automate filter moves on it up and down. Just past where you'd think it would be of any use whatsoever, it started to sound fantastic—a whole other element that didn't sound like anything you'd ever heard before and it made it into the movie.

The Euphonix console is great for doing that kind of automated thing. Basically, the way you work on that board is you create group masters with all the elements of a particular group embedded in them. So if you have 32 faders, you really have 256 returns, even if you're not looking at them. If I want just my orchestra, I can have that on a group and I can spill it out so that the orchestra is in front of me on individual faders. I can use the group master to either EQ or compress every fader in the group. But if I want to do an automated filter across the entire orchestra, I'm literally doing it across individual tracks, not across the 5.1 submaster of it. If you want, for example, you can EQ the whole group except the cello. It's global control with individual tweaking.

That's great if you've got the ears to know exactly what little area needs the tweaking.

Well, that comes from experience. You build

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up a database in your head of what things sound like, what works and how to narrow what you're looking for down to the two or three things you need to do at any given time to make things sound right.

You could try turning 100 knobs, but only three of them are going to work. Especially in film scoring, where time is so expensive, you need to know where those three knobs are in the first place.

We're always doing what we call "chasing the dub." With a lot of composers, if they're scheduled to be dubbing reel 3 tomorrow—combining music, dialog and effects—I'll be mixing the music for reel 3 tonight. That's just the way it is nowadays. Time compresses so heavily at the end of a project. You have to start from someplace that's already far down the line the minute the cue comes to you or you're never going to get it done. Before you even push up your first fader, you need to be 60 percent done. The way you do that is with the preparation that goes into the sessions.

You mean your setup?

Your setup, but also going back to your ears and being able to hear something and determine, right off the bat, what does and doesn't work.



An oddly quiet scene at Abbey Road, where Alan Meyerson is set to record this orchestra for Sinbad.

I often have to take some of the composer's pre-records and conform them to sound good in the theater. That means creating a center channel or creating surrounds, and doing it in a way that's not inelegant or obvious. Rule number one for all you young film mixers out there: You don't want to make your audience turn around. If they turn around, they're not looking at the screen and you've not done your job well.

You don't want to put primary elements in back. Let sound effects do that. You want

to find a way to create size and space around you and to make the music seem larger than life. That's the bottom line: You want to make the music just a little larger than it is in reality. And if you have this mental database of where to start, then you're far along the way. That comes, like anything else, from experience and practice. After all, you can't play a C major scale unless you know where the notes are! ■

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



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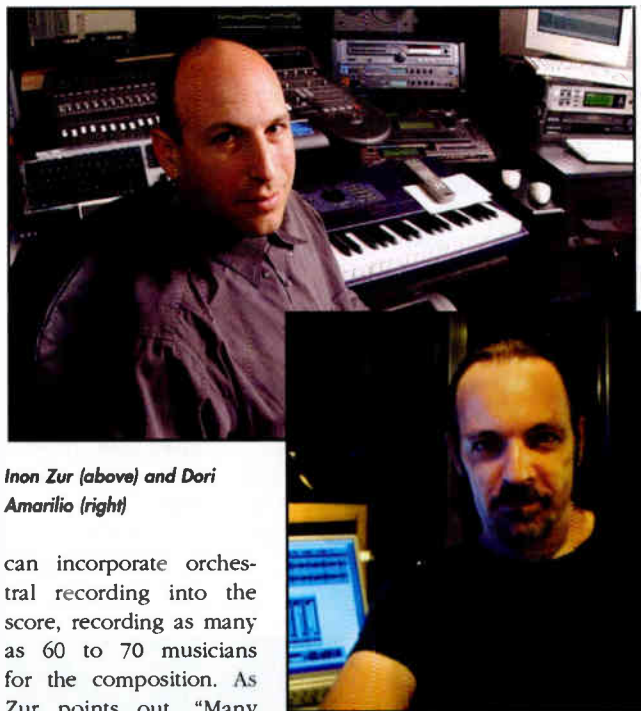
Music composers live deep in the heart of game development, working with the finest gear and a host of talented programmers and producers. Although original music was once viewed as almost an afterthought in games, these days, investing time and money into a video game score has become essential and composers are being challenged to create soundtracks on par with the movie industry.

Los Angeles-based composer Inon Zur (www.inonzur.com) and studio engineer/co-producer Dori Amarilio are busy in their studios these days, boasting a long line of credits in the industry; most recently, they've worked together on scores for the upcoming Viendi Universal release *Men of Valor*, Sony's *Champions: Return to Arms* and Atari's recently released *Shadow Ops: Red Mercury*. Zur, who has also worked extensively in the TV and film industries on projects for Fox Kids, 20th Century Fox and New World Entertainment, has been composing for video games since 1997, while Amarilio, a self-taught composer and musician whose influences include jazz and ethnic music, has been working with Zur for 10 years—or, as they recount, approximately 10 films, 20 games and 100 TV shows.

During their long creative partnership, the duo (who were both born in Israel) has developed a signature style, marrying Zur's compositions with effects from their extensive sound libraries. Each owns a studio: Amarilio's larger space serves as a venue to record soloists and groups, while Zur's 150-square-foot studio, which neighbors his home in Sherman Oaks, Calif., is ideal for composition, mixing and editing. This compact workspace was built for compatibility and configured to accept any audio recorded for a project. As Amarilio says of Zur's room, "Things can really be moved around for the sake of composing, overdubbing and premixes, and can be brought back for final mixes. Inon uses a huge library of samples and orchestral parts. Basically, it's supposed to accommodate any possible textural composition that Inon is asked to do, so the studio needs to be very capable, MIDI-wise."

Zur's studio handles the compositional end of things, with the technological help of Cubase, a Mackie D8B, three Tascam GigaStudios and extensive sample libraries including the Vienna Symphonic Cube, Garitan Strings and Miroslav choir, among others. Zur works in formats ranging from basic stereo to quad to 5.1. *Men of Valor* was recorded and then mixed in "proactive" 5.1 (mixed discretely in 5.1, according to Zur). Zur's studio uses Tannoy reference, Alesis and Genelec monitors. The studio also features Kurzweil, Roland and E-mu samplers, two E-mu synths, and Behringer, Alesis and dbx EQs.

Depending on a client's budget, Zur and Amarilio



Inon Zur (above) and Dori Amarilio (right)

can incorporate orchestral recording into the score, recording as many as 60 to 70 musicians for the composition. As Zur points out, "Many projects call for synthetic elements, but many of them have a Hollywood aura to them so they need this orchestral power behind them." Past sessions have found the two collaborating with the Northwest Sinfonia (Seattle), and the Salt Lake City, Seattle and Tel Aviv Symphonies. Closer to home, they have tracked in Hollywood's famed Warner Bros. Studios. When they travel, they travel light, bringing only their hard drive and working with destination studios' equipment lists and acquiring rental gear if necessary. Once the score is tracked, it's back to Amarilio's studio to record soloists and make final mixes for the producer's approval.

Zur and Amarilio take their jobs in game audio seriously: They are passionate about music, and beyond that, its impact on the state of gaming. As Zur explains, "[Staying on top of technology is] very important for the video game industry, because, in general, this industry is moving so fast—it's so dynamic. Computer capabilities allow us more and more quality, so we're trying to take every bit of advantage from a technical point of view to bring life to what will be the best, quality-wise, that we can give. Music for games is the fastest-growing [segment] both quality-wise and knowledge-wise in the industry, and sooner than we think, it will take its place in big consumer stores." ■

Breean Lingle is Mix's assistant editor.

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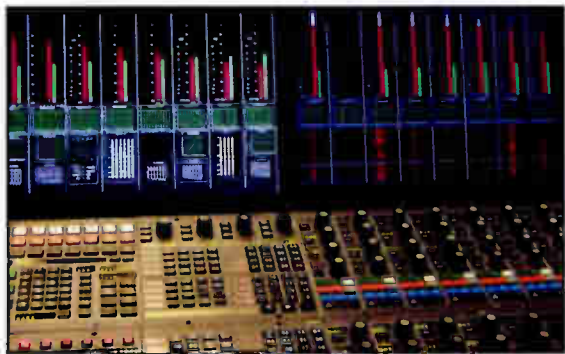


HOLOPHONE H2-PRO UPGRADE

The Holophone (www.holophone.com) H2-PRO multichannel surround microphone is now equipped with DPA 4060 omnidirectional mic capsules. Housed in a tough 7.5x5.7-inch, egg-shaped body, the mic has inset condenser capsules (5.1, plus top and center rear) to capture discrete sources in 5.1, 6.1 and 7.1. The feeds terminate in standard XLRs for connection to your mixer, preamps or recorder.

AMS NEVE DFC GEMINI/CINEFILE

AMS Neve (www.ams-neve.com) has paired its speed-supercharged DFC Gemini digital film console with the CineFile dubber, combining the mixing/recording/editing process into a single integrated solution. The board's innovative WavTrak display of audio track data provides the user with level and dynamics metering, graphical EQ curve and audio waveform information on each channel for a track-by-track graphical display of CineFile data. Additionally, events can be nudged backward/forward in time from the



DFC surface, offering users a very tactile feel when slipping tracks. StarNet Networking, unique intelligent cue storage, seamless integration with FX libraries, IP networking to studio infrastructure, facility-wide automated backup/restore, multimachine control and Encore automation complete the package.

SOUND IDEAS CARTOON EXPRESS

The latest effects library from Sound Ideas (www.sound-ideas.com), Cartoon Express offers 5,646 effects on 10 CDs packed with 1,000 cartoon sound clips and accents, including some 500 comedy one-liners (male and female) and 205 selections of unsavory body noises. It also includes several octaves of cartoon comedy sounds from dozens of musical and percussion instruments, with 3,700 trills, plucks, wobbles, twangs, bends, scratches, honks, animal sounds, toots, zips, boings, snaps and hits, not to mention instruments that talk and laugh. As a bonus, the \$795 set comes with a DVD version of the CD content in Broadcast .WAV format imbedded with metadata for quick searches via various PC/Mac applications.

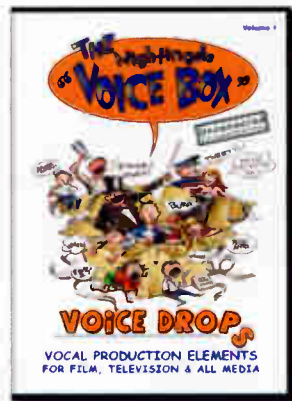
VIRTUAL KATY

Designed for sound editors by a top sound editor, Virtual Katy (www.virtualkaty.com) gives Pro Tools or Fairlight users the power to creatively deal with constant updates during a production. This Mac (OS X or 9.1+) or Windows XP software features simple comparisons between previous and current edit versions; "VK Change List EDL" for auto-conform resynching of PT sessions; auto-list updates logging/archiving; and batch importing. Virtual Katy is offered in both Premium and Lite versions and works with existing editing technologies, such as the Avid Cut List, OMFs and Pro Tools 5.1.1 and up, including Version 6.0 or higher.

AVID AVOPTION|V10

Now shipping for Windows XP users (a Mac OS X version is in the works), Avid's (www.avid.com) AVoption|V10 video interface for Pro Tools|HD com-


bins the company's DNA video hardware with custom capture and conform software for fast, efficient interchange with the complete family of Avid editors. Via a standard FireWire connection, the AVoption|V10 hardware supports Pro Tools playback of all Avid-created video media, including all JFIF (up to 1:1) and AVR resolutions, DV25 and DV50, multicam, interlaced and 24P/25P progressive scan. The Media Station|V10 software included with AVoption|V10 was designed specifically for the needs of the Pro Tools user, offering automated capture/conform of audio and video with full machine control, EDL import/opening of existing Avid sequences and complete control of the entire AAF/OMF export process. Also, audio from Pro Tools can be imported into Media Station|V10 to verify audio sync with the original video, lay back audio/video to tape or export digital movies for review/mastering/Web distribution.



NIGHTINGALE VOICE DROPS

Nightingale Music Productions (www.nightingalemusic.com) has released Voice Drops, volume four in its Voice Box series of production elements and sound effects created by the human voice. The \$129 collection includes an audio CD and a CD-ROM in .WAV format with more than 750 voice bytes, including vocal Foley (sneezes, burps, laughs, screams, etc.), kids, insults and telephone/radio voices, as well as hundreds of all-occasion sentences ranging from insults to greetings and announcements to conversational snippets and (cleared) famous lines from feature films. ■

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Music@Menlo Live



Violinist Ani Kavalian and pianist Kenneth Cooper at the Carte Blanche concert

Text by Steve Jennings

Mix spoke with Grammy Award-winning producer Da-Hong Seetoo, who is returning to record the Music@Menlo festival concerts (Menlo Park, Calif.). This year's performances cover five musical cultures—titled Italy, Vienna, France, Eastern Europe and Russia—and will air this month on Classical 24, a live classical music service broadcast, and on a series of specials available in 2005. The compiled recordings are also available on the all-new music label, Music@Menlo Live.

"With today's computer technology, all I need is this small compact setup," Seetoo explains. "To begin with, I can shed the mixer. All I need are mics and a preamp with an A-to-D converter and it goes straight to the computer. All the mixing and edits are done in the computer. I have a lot of hanging microphones, but don't use them all at once. For all the different pieces we are playing over the course of these concerts, I have it set up to cover every position onstage, and then I just use specific mics for each situation. The microphones are all Schoeps MK2H omni heads with [custom] electronics in the body I rebuilt myself for higher signal-to-noise ratios and maximum sound capabilities.

"The recording software is Magix Sequoia," he continues. "It's designed specifically for classical music and has wonderful crossfade editing that allows me to splice from one take to the other. The software handles everything from the recording stage to editing, mixing, mastering and CD burning—all in the same program. I'm using a MOTU 896 interface, which is a simple piece with eight analog ins and eight out channels. Stacking more of these, I can have up to 32 tracks if I need it."



Producer/engineer Da-Hong Seetoo

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News



A.C. Lighting (Buckinghamshire, UK) installed a 40-channel Soundcraft MH4 in London's Hackney Empire. Pictured from left: engineer Paul Gavin, tech manager Brian Wren and chief tech Othman Read

Digidesign (Daly City, CA) supported the recent Bonnaroo Festival (Manchester, TN), providing mobile units from recording production company Third Wave Productions (Chicago) with two ICON mixing systems with Pro Tools|HD3 Accel mix engines, multiple 192 I/O, 96 I/O interfaces and a selection of preamps. During the three-day festival, 70 live acts were recorded and mixed for a 5.1 video/DVD/CD release...The Maritime Rescue Sub-Centre (MRSC) in Helsinki, Finland, uses an Allen & Heath iDR DSP system for improving VHF radio communication for rescue operations in the Gulf of Finland. To accommodate five operators at separate console locations, each console worked off of remote control, used 16 outputs and up to four speakers. Finnish distributor AM Nordic Finland OY/XL Audio provided two iDR-8 digital mixing processors, eight PL-6 fader panels and five Rane MA3 amps...Branson Mall Theater (Branson, MO) installed an SLS RLA/2 line array to overcome challenges inherent to live performance and low ceilings, in the case of this intimate venue...Abe V. Systems Inc. (NYC) took delivery of 16 Adamson Y10 line array cabinets to be used at the third-annual La Maquina Musical Miller Lite Tour, which made stops in Dallas, Houston, Phoenix and Chicago.

FixIt

Kevin Sanford

Kevin Sanford is owner and founder of wireless equipment rental company Wireless First. Sanford and his team have successfully executed major live events such as the NFL Kick-Off in Times Square, NBA All-Star Game in Atlanta, Divas Live at the MGM Grand in Las Vegas and NBC's Tree Lighting in Rockefeller Center.



Having trouble getting range out of your wireless mics or in-ear monitors on the road? Remember, height is your friend. Unless you are 20 feet away from the source, a mic stand will not get the antennas high enough for proper transmission/reception to the receiver. Use lighting stands to get antennas up at least 10 to 12 feet. This ensures a line of sight between our antennas and transmitters. With the current DTV environment, it is crucial to coordinate your frequencies. Almost all wireless manufacturers have updated DTV charts on their Websites or check out the FCC's site. Getting a jump on the competition ahead of time may save you from a very long day on the road or in the studio!

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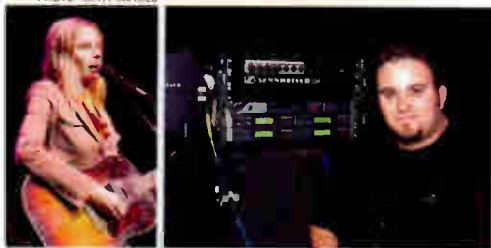
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PHOTO: GITY BANCES



On the Road

Ryan Cecil

Aimee Mann's monitor engineer Ryan Cecil is no stranger to intimate singer-songwriters—his resume includes Norah Jones, Rufus Wainwright and many others. While working with FOH engineer/production manager David Mann, Cecil reveals his tricks for working with the vocalist's "softer" side.

How much equipment are you carrying?

We carried a monitor system, microphones and some pre's for FOH. Sennheiser provided us with a full complement of mics for the tour [Mann is a Sennheiser Neumann-endorsed artist]: Sennheiser Evolution (602, 609, 903, 614), 421s and Neumanns on Aimee's vocals (KMS105) and overheads (TLM 193). Sennheiser's biggest contribution was the InnovaSon SY40 that they lent us, which allowed us to carry our own monitor console.

Aimee's East Coast dates on the current tour will also be available as a live DVD.

How did this work out?

The key to any good live recording is keeping the overall stage volume and FOH volume down, especially for a show where the band isn't playing and singing at "11." On the tour, the guitar and bass players' wedge mixes were bleeding into Aimee's mic, so we directed the wedges away from the center position and slowly weened the guys off those frequencies.

What is your must-have piece of gear?

A comfy chair! I was recently introduced to the Empirical Labs' Distressor on a JC Chasez tour and I don't see myself doing a pop tour without one. They just get the vocal right out there on top of the mix, and it stays there all night.

What do you do when you're not on tour?

I mostly work for Scorpio Sound (Boston). I spend most of my off-time during the winter skiing and snowmobiling. In the summer, there is no such thing as off-time.

Now Playing

Drowning Pool

Sound Company: Gemini Sound (Dallas)
FOH Engineer/Console: Stephen Shaw/Midas Venice 32
Monitor Engineer/Console: House-provided
P.A./Amps: House-provided
Monitors: House-provided
Outboard Gear: TC Electronic D1-2; Yamaha SPX-990s, SPX-90; BSS Audio compressors; Behringer gates
Microphones: Audix D4s, D2s; Audio-Technica 4050s; Shure 91s

Tony Bennett

Sound Companies: The Show Factory (West Coast), Altel and Masque Sound (East Coast), Eighth Day Sound and ClearWing (Midwest)
FOH and Monitor Engineer: Tom Young
Main Stage P.A./Amps: Meyer Sound self-powered MSL-4 or line array and V-DOSC
Monitors: Meyer MSL-4 (sidefills)
Outboard Gear: Summit DCL-200, Lexicon 480XL, Yamaha Pro R3
Microphones: Sennheiser SKM5000 wireless with KK105 head, MKH800; Neumann KM184; AKG 414; Audio-Technica 4033



Narrowing Down on 'Zumanity'

Opened at the New York-New York Hotel & Casino's 1,259-seat Zumanity Theatre with sound design created by Jonathan Deans, Cirque du Soleil's *Zumanity* found RF problems when using Shure's PSM 700 wireless in-ear system or one of Shure's hard-wired PSM 600 units. According to Pascal Van Strydonck, veteran Cirque audio orchestrator, "We're using 16 channels of wireless, both handheld and bodypacks, plus another 16 intercom drops. I've never had trouble with any of these systems; they're rock-solid. But for whatever reason, this time, my number was up. I don't know if it was the intercom talking to the Shure PSMs or the Shure PSMs eavesdropping on the intercom, but we had [interference] problems."

Van Strydonck brought in Shure's 8-input PA821 active antenna combiner, which decreased the number of antennas needed for his PSM 700 operation and sig-



nificantly improved RF performance. With eight mixes fed into the PA821 (the remaining four weren't experiencing any difficulties), only two antennas were needed and a third was kept as backup. "With the PA821, I was able to narrow down and refine my transmitting frequencies via the unit's filtering, which essentially eliminated everything that isn't part of a primary frequency. I've been doing wireless for 15 years and have never seen anything like this."

If price were the only factor, it wouldn't matter which name is on the console.

If a live sound mixing console were a commodity purchase, every console at a given price point would deliver the same performance. But would you trust your clients' system performance to just any console?

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The new HP-Eight mixing console bridges the world between high quality audio designs and efficient, modern construction techniques to offer several frame configurations. You can choose the ideal size, from easily portable 24- and 32-channel frames to installation-size 40-, 48- and 56-channel frames, to fit a variety of medium-capacity live performance venues and houses of worship.

It's not a commodity ... is it?

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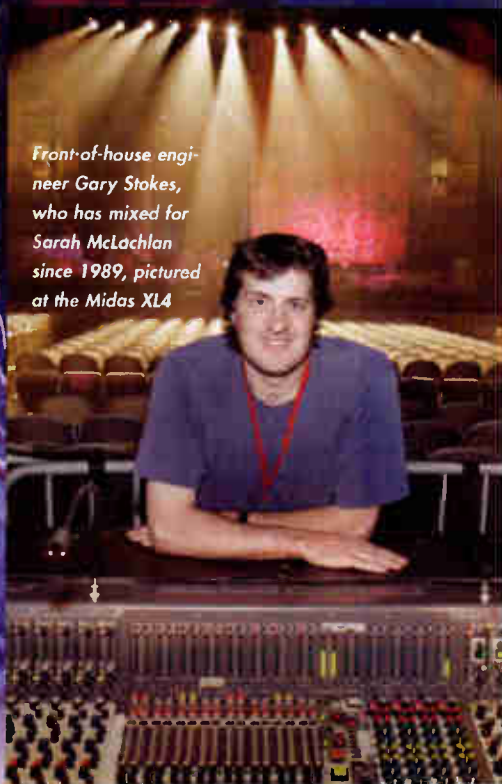
Sarah McLachlan


Sarah McLachlan (vocals/guitar/piano) sings through two Neumann KMS 150 wired mics and a Sennheiser KK105 RF mic with a Neumann 105 capsule.

Photos & Text by Steve Jennings

Since appearing on the music scene in 1988, singer/songwriter Sarah McLachlan has won the hearts of legions of devoted fans. This time around, McLachlan is out in support of this year's release of *Afterglow* with a seven-piece band. *MLX* caught up with the artist's front-of-house and monitor engineers at the new Glendale Arena in Glendale, Ariz.

Front-of-house engineer Gary Stokes, who has mixed for Sarah McLachlan since 1989, pictured at the Midas XL4





Ashwin Sood, drums/
vocals, uses a Crown
CM-311a headset.




Monitor engineer David
Pallett pictured on top of
the Yamaha PM1D


Monitor engineer David Pallett works on a Yamaha PM1D. His rack includes 12 Sennheiser EW300 in-ear monitor transmitters, 10 Furman SP20 headphone amps for wired in-ear mixes, a Sennheiser EM 3032 dual-wireless mic receiver,

Apegee Big Ben word clock for the PM1D and two True Systems Precision 8 8-channel mic pre's and a P2 analog 2-channel mic pre. "I recently added a Professional Wireless Systems GX4 antenna combiner/amplifier and helical antenna, which really helps keep the four onstage wireless mixes clean.

"Sarah is using Sensaphonics Soft 2X molds for in-ears," Pallett continues. "I primarily use the onboard compressors and gates on the PM1D. The only external device I have is a Focusrite ISA 220 Session Pack through which I route all of Sarah's vocal mics. The rest of the band uses Audix VX10s for vocals."




David Kershaw,
keyboards/
vocals/bass



Vincent Jones,
keyboards/
vocals



Kathryn Rose,
backing vocals



Sean Ashby,
guitars/vocals



Brian Minato,
bass/vocals



Luke Doucet,
guitar/vocals

Front-of-house engineer Gary Stokes mixes on a Midas XL4 and uses the board's direct outs for record feeds and automates effect sends, mutes and routing via two or three scenes per song. The desk also drives snapshots on a Yamaha DM1000 providing extra effects returns. "I even use a couple of the Yamaha's internal effects," Stokes says.

The house system is a Meyer MILO line array provided by Toronto's Sound Art. Describing the hang, Stokes says, "There are 16 MILOs in each left and right hang, plus two new 120-degree MILO downfills underneath and two more downfills under each of the eight MILO sides, 90 degrees to the mains. The new UP-J powered cabinets provide primary fills—they have a nice small profile and great sound—and eight Meyer M1Ds handle extreme near-field applications and some hard-to-reach spots. I've always been a Meyer fan, but this system seems to set a new standard for ease of use and quick setups.

"Our system engineer, Gord Reddy, uses SIA SMAART extensively and has a remote tablet to control the system, driving XTA processors while

listening to SMAART from anywhere the audience could go—and a few other places, as well.

"My main concern is getting across Sarah's emotion—the dynamic and dramatic mood she creates—and the bond her fans can feel." To do this, Stokes relies on an XTA D2 dynamic EQ for McLachlan's vocals. "It's cleaner than other devices I've used, and with one set of controls for two channels, I know both of her principal microphones always have the same setting."

A deeper look into Stokes's outboard closet reveals compressors such as Crane Song Trakker, Focusrite Session Pack, dbx 1605 and BSS Audio DPR-404 and DPR-944. "I can't get enough of the dynamic EQ," Stokes says. "I am also using the new TC EQ Station as a left/right insert—another dynamic EQ! I have a Rane RPM88 as a multipurpose insert doing some group delay and delaying my near-field monitors and headphone bus back in time with the P.A. An Apogee Big Ben clocks all of the effects and the DM1000 at 96 kHz to take the digital stuff a little closer to the nice analog world of the XL4."

Diana Krall



Large Venue, Intimate Sound

By Candace Horgan

Combining a seductive voice with superlative piano skills, Diana Krall has risen to the top of the jazz world. Krall, together with Norah Jones, accounts for a large percentage of sales on the Verve label, and this summer, Krall toured large venues that normally host rock superstars. In a genre that rarely gets much mainstream attention, Krall's latest release, *The Girl In the Other Room*, was even reviewed by many mainstream publications such as *InStyle*, the *Wall Street Journal* and *People*, among others. The album features many songs that Krall co-wrote with husband Elvis Costello and a smattering of interesting covers such as Joni Mitchell's "Black Crow."

Krall is supported on this tour by a small all-star band that includes guitarist Anthony Wilson, bassist Bob Hurst and drummer Peter Erskine. Whether playing long, exploratory instrumentals or dropping back to quietly, but smoothly, back Krall's elegant vocals, the group provides the perfect accompaniment. Translating the sound of a jazz quartet to 10,000 to 20,000-seat venues (including the Coors Amphitheatre in Englewood, Colo., where *Mix* caught up with

Krall in mid-July; photos taken at San Francisco's Davies Symphony Hall) is the job of front-of-house engineer Dave Lawler, who helped design the system Krall is currently using.

A TRAVELING DEMO

Lawler has been doing sound for 25 years now, and has been affiliated with Meyer Sound since 1986. He got the job with Krall after filling in at a couple of shows when her regular sound engineer had health issues. "Most of the time, I've used Meyer stuff," he notes. "We get other things sometimes, but 90 percent of the time, we get it from Meyer. I started working with them because they were doing the Vancouver World's Fair; in those days, I couldn't find anyone else who had the attention to detail they did—and they still carry that torch. This is kind of a traveling Meyer demo. Even



FOH engineer Dave Lawler at the Midas Heritage 3000

PHOTOS: STEVE JENNINGS

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the wedges up there are Meyer. We started out in April with this system. I worked with Audio Analysts [Colorado Springs, Colo.] to design this Milo line array system for Norah Jones' tour last year. When it came to this tour, since I had been on the design team for this, it seemed the thing to do."

For Krall, Lawler is mixing on a Midas Heritage 3000. "I like everything about it," he says. "I think it sounds great, and it is really versatile and fast. I looked at most of the digital consoles and since we are traveling around the world and there are only two of us [doing sound with monitor engineer Eric LaLiberté], I wanted to go with something I knew. With the opening act [Ollabelle], the console is full and we haven't had any problems with it yet."

Based out of New York, Ollabelle mixes gospel tunes with a sultry, blues rock sensibility to create a unique sound, which audiences have been reacting enthusiastically to. The band is fronted by two women with striking voices: Fiona McBain and Amy Helm. Helm is no stranger to the music world: Her father, Levon Helm, was the drummer and vocalist for The Band. The group is rounded out by Tony Leone on drums, Glenn Patscha on organ, Jimi Zhivago on guitar and Byron Isaacs on bass and slide guitar, all of whom sing as well. The group's self-titled debut CD was executive-produced by T Bone Burnett of *O Brother* fame, and includes soulful covers of "Elijah Rock" sung by McBain, and "Soul of a Man" sung by Helm.

With such strong voices, Lawler feels that it is important to build the mix around the singers. Lawler is using four Neumann KMS 105s for the vocals. The drums get an Audix D4 on the kick, a Neumann KM 184 on the snare, a Neumann KM 185 on the hi-hat and two Neumann TLM93s for overheads. Lawler has a Neumann KM 184 on

the guitar and a Neumann KM 185 on the bass, which he mixes with a signal from the DI. The pump organ gets an AKG 414. Lawler is using DIs on the Wurlitzer organ and Isaac's bass.

"Mixing them is interesting," says Lawler. "They are definitely careful about their sound and they like to soundcheck almost their entire set every night."

ENHANCING KRALL'S NATURAL TONES

Lawler says he is using very little in the way of effects processing for Krall. "We have a Focusrite Producer Pack for Diana's vocals and we insert a BSS DPR-901 into that pre. There are four effects units: We have a TC Electronic M1 and 2290 delay unit, and a Lexicon PCM 70 and 480L. We also have a BSS DPR-402 compressor for the opening act."

To get across the natural quality of Krall's sound, Lawler uses mostly Neumann microphones. "We have a KMS 140 on her vocal, two KM 100/40s on the piano and two Schertler transducers, and an AMT Brass PZM for the piano. The guitar has two Neumann KMS 105s, the overheads are two Neumann TLM 173s and the snare and hat are Neumann KM 184s. I use an Audix D4 on the back of the kick drum, and the toms have two Audix Micro-Ds. The bass gets a KM 185, and there is also a pickup on it running through an Avalon U5 DI.

"This gig is all about managing leakage because everything mikes everything. That is why I use the Neumanns; they have the best off-axis sound I've ever heard. It's super quiet. It is quite a challenge to mix that quiet. Any noise from the stage, like fans, can be heard. They have a lot of dynamic range that way, but it can be difficult, especially in theaters."

WORKING IN THE ZONE

Lawler became positively effusive when discussing the Milo line array system: "The console goes to three BSS Audio Soundwebs, and the SIM 3 machine is routed in through the Soundwebs so we can see everything. There is also a rackmountable PC power and cooling computer that runs all the



FOH engineer Dave Lawler uses a wireless tablet controller to test the Meyer Milo line array, as photographed at San Francisco's Davies Symphony Hall

Soundwebs. SIM 3 is the thing I really want to talk about. It's been 11 years since SIM 2 was put out and the third generation is a third of the cost, size and weight—it makes my life a lot easier. We set up the mics on all the zones on the right side and then we can see what EQ correction we are doing in real time upside down on the computer."

The P.A. is set up so that Lawler can achieve a similar sound in every part of the venue. "It has 22 zones overall," he says. "We break it into a lot of parts, fix each part and put it back together. SIM is a Meyer analyzer, and we have mics all over the venue to tweak the system. The goal is to get it to sound the same everywhere—same tone, same gain—which is quite challenging. It's a superdetailed rig and fun to mix on.

"Three lower cabinets on each array are on their own zone, and then I have two in the center on a reverse stereo with the right a left and the left a right, creating a good sound for those in the VIP area so things aren't muffled there. I've been a freelance SIM engineer for 10 years, so it isn't hard for us to figure out these venues and what to do for them. We try to stick to the facts, but there's a lot of mythology out there. Those cabinets on the P.A. are set up so I can mix from back to front in the venue. All the cabinets are self-powered. We have a wireless tablet controller that we can use to mute any cabinet using the Meyer Remote Monitoring System so we can see what's going on with it. Each cabinet can be muted one at a time or by



Monitor engineer/system tech Eric LaLiberté at the Midas Venice

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group. During the system test, we can hear the coverage of each cabinet. MAPP Online Professional is also used to design each array for all the venues on this tour. As far as the cabinets, we have eight Meyer M1Ds across the stage for nearfills and one Meyer M3D sub per side. On the array itself, we have three Meyer CQ2s on the bottom. The main array is 10 Meyer Milos and then another Meyer M3D sub on the top. We also have a pair of Meyer CQ2s for that reverse stereo pair in the middle.”

STAGE LEFT

Monitor duties on this tour are handled by Eric LaLiberté. “I’ve been doing sound since I was 18; 20 years now,” he offers. “I actually went to Trebas [Institute], a school for recording engineers in Canada. After school, I went on the road with bar bands doing lights and sound for a couple of years. I was freelance mainly for part of the years I worked in Quebec. I used to work for Rocky Mountain Sound in Vancouver, and we provided the sound for Diana for the last two tours, so they hired me direct-



Ollabelle (pictured L-R: Fiona McBain, Tony Leone, Glenn Patscha, Jimi Zhivago, Amy Helm and Byron Isades) were mixed by FOH engineer Dave Lawler.

ly to do monitors and system tech. I still work for Rocky Mountain Sound on breaks. After this leg, I will work for them for about a week and then I’m coming back out again.”

LaLiberté is mixing on a Midas Venice console, while all the wedges are Meyer UM-1P powered wedges. He also uses Soundweb for EQ and has no effects. Talking about the monitor desk, LaLiberté raves about the sound: “It’s not a monitor desk per se, but it has been modified for mixing monitors. I have to say that the sound is great. Even with a larger console, I don’t think it would sound better. It has a great preamp in it, as well.”

LaLiberté says that the overall monitor mix is fairly simple. “The guitar player gets piano and vocals. The drummer gets piano, vocal and bass. The bass player gets bass. Diana gets her vocal alone. It’s the first two to three songs that I have to adjust everything level-wise with a cue or two. The rest of the night I get to sit down and enjoy. With jazz, the dynamic swings are great, so they basically mix each other onstage. You don’t want to bring them up or down or you will get a dirty look.”

While many musicians have switched to in-ear monitors, LaLiberté feels that in the jazz world, in-ears can be more of a hindrance than help. “For jazz musicians, it is better if they hear it acoustically because they are so used to hearing it that way playing together in small settings,” he says. “The monitor levels are kept pretty low, so I don’t think in-ears are worth it for them.”

Candace Horgan is a freelance writer based in Denver.

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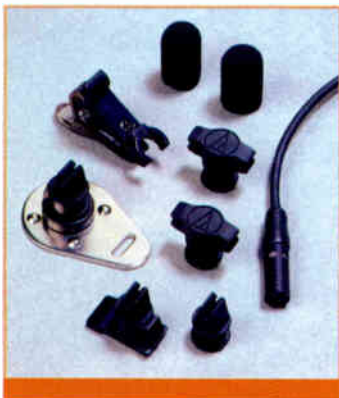


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L-ACOUSTICS VERSION 7.2 PRESETS

L-Acoustics U.S. announces that its latest Version 7.2 preset library is now available for free download at www.l-acoustics.com. New to V. 7.2 are two-way presets for the recently launched 115XT HiQ (in front, fill and monitor formats) for all supported DSP units. Additionally, V-DOSC, dV-DOSC and L-Acoustics preset libraries are now provided in SB2 format for use with BSS Audio's Omnidrive and Minidrive processors. XTA AudioCore .xbl files are additionally updated to include 115XT HiQ preset support. Otherwise, dV-DOSC and V-DOSC libraries remain unchanged for the V. 7.2 release.



DIGICO D5 RE

The latest addition to the DiGiCo (www.digiconsoles.com) product line is the D5 RE (Redundant Engine), a stand-alone outboard system providing total audio engine redundancy through a few simple connections to any DiGiCo D5 Live console. The RE is daisy-chained to the main console and stage racks via standard D5 fiber-optic cables and from the RE to the

mixer via two 5-meter BNC MADI cables. Add one crossed Ethernet networking cable between the Cat-5 ports on the console engine and RE, and the RE can mirror the D5 console. In the unlikely event that the master audio engine has problems, audio is automatically and transparently switched to the RE without interrupting the program. The flight-cased D5 RE contains a complete D5 engine assembly, two PSUs and trackball keyboard for setup procedure. An external monitor is required for console visuals.

ALCONS LR16B BASS LINE ARRAY

Expanding its successful L Series of array products, Alcons Audio (www.alconsaudio.com) introduces the LR16 Bass, a high-output bass system for permanent and portable applications. Designed as an LF extension to the LR16 line array system (in flown and stacked configurations), the LR16B was designed for the highest efficiency possible within the weight/size parameters set by the line array application. To achieve a higher efficiency than the conventional front-loading arrangement, the dual long-excursion, 15-inch neodymium woofers are double-vented and double-tuned in a bandpass-loading configuration, resulting in a 102dB efficiency (1W/1m, full-bandwidth, 46-200 Hz) with 3,200W power handling for 137dB peak SPLs from a compact cabinet. Special attention was paid to system weight: The cabinet is made of braced 0.6-inch Birch ply for a lightweight, rigid construction. In stacked configuration, the two-side usable flying hardware of the LR16B forms a stable foundation for LR16 arrays. The latest version of Alcons Ribbon Calculator (ARC™) prediction software is included, and the LR16B comes complete with flying-frames, Durotect™ scratch-resistant coating, handles, sliding/stacking strips and a limited six-year warranty.

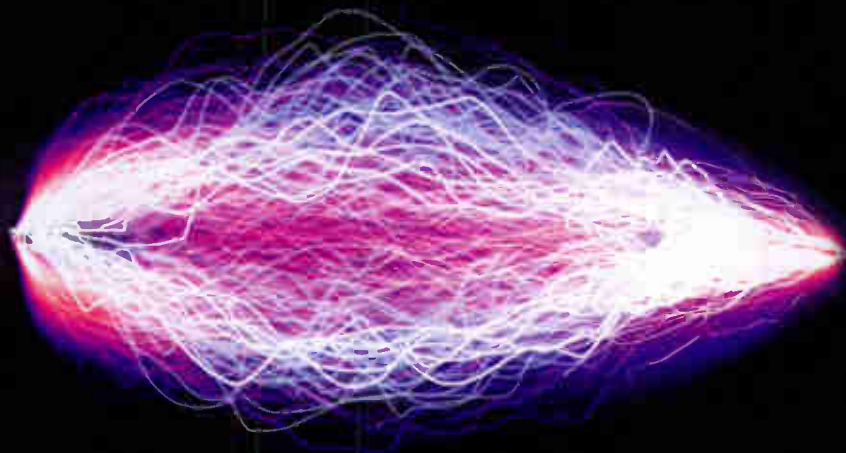


AKG WMS 400 WIRELESS SYSTEMS

The primary design goal for AKG's (www.agg.com) WMS 400 wireless system was to match wired mic performance in an affordable and easy-to-use system. Within seconds, the WMS 400 receiver scans, locates a clear frequency and transmits the data via infrared to the transmitter. Specs include 120dB dynamic range and 35 to 20k Hz bandwidth, with a 50mW RF output for dropout-free signals. Up to 12 WMS 400 systems can be used simultaneously in each of its two frequency bands for a maximum of 24 simultaneous systems. Receivers show all operating parameters, and if any fault condition (such as low battery) is detected, the display changes from green to red, easily visible from a distance. WMS 400 transmitters will deliver six hours of operation from a single 1.5-volt AA battery or eight hours of use from the optional high-current NiMH rechargeable battery. The WMS 400 is also compatible with accessories from AKG's top-of-the-line WMS 4000, such as the antenna multicoupler, power supplies, line amplifiers, and active and passive remote antennas.

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Pedant In a Big Box: Part Five

A Glossary of IT Terms for the Audio Professional

“**B**itstream” columnist Oliver Masciarotte once again scours his audio data dictionary to come up with another round of today’s top IT terms as they apply to the audio pro. Italicized words will be, or have been, defined in the glossary, some in upcoming issues.

MICROCONTROLLER: complete computers on a chip and contain, in addition to a CPU, memory and I/O. Microcontrollers are often used by *embedded systems* working transparently for the user.

mLAN: a well-conceived audio production-specific protocol overlay developed by Yamaha for the FireWire 1394 standard. As a proprietary protocol with licensing fees, mLAN has not enjoyed wide industry uptake.

MP3 (MPEG-1, LAYER III): MP3, a *perceptual subband/transform codec*, is part of the groundbreaking Motion Picture Experts Group (MPEG) standard for lossy compression of audio/video data. The motion video portion of the MPEG-1 standard was derived from the Joint Picture Experts Group (JPEG) standard for lossy compression of still images.

MPEG (MOTION PICTURE EXPERTS GROUP): An offshoot of the still-image JPEG, MPEG creates and licenses standards for digital multimedia file formats and infrastructure. The MPEG is under the *ISO* umbrella.

MPT (MUSIC PICTURES TELEVISION): the three consumables—audio, video and still images—driving consumer adoption of *storage* and *converged* products.

MULTICAST, MULTICASTING: an Ethernet addressing scheme that is used to target specific packets at specific device types (sort of MIDI System Exclusive for *IP*) or for broadcasting to all nodes simultaneously. Multicasting is a one-to-many approach to data distribution.

NAME RESOLUTION: refers to *domain name* resolution, a process whereby the *domain name system* is used to map human-readable *host* names to their corresponding *IP addresses*. This is the process that’s used to map human-readable Web addresses, such as *www.apple.com*, onto its “true” IP address, which is <17.112.152.32>.

NAS (NETWORK-ATTACHED STORAGE): a stand-alone storage “appliance” that provides *file-level* access via a *network* connection, typically *Ethernet*. NAS can reduce management overhead and eliminate unreliable cabling while increasing *in-band* traffic.

NETWORK: two or more computers connected to pass



ILLUSTRATION: PHOTODISC

data, metadata, management and control messages between *nodes*.

NFS (NETWORK FILE SYSTEM): a protocol for remote disk access over a *network*. NFS, a de facto standard developed by Sun Microsystems, uses *UDP* rather than the relatively more robust *TCP* protocol. In some circles, NFS also stands for Nightmare File System for the alleged unreliability of early Sun networks.

NIC (NETWORK INTERFACE CARD OR CONTROLLER): a hardware interface installed in a computer that provides a physical connection to a *network*.

NODE: a logical instance of a computer attached to a *network*. Nodes are usually instantiated by an *NIC*.

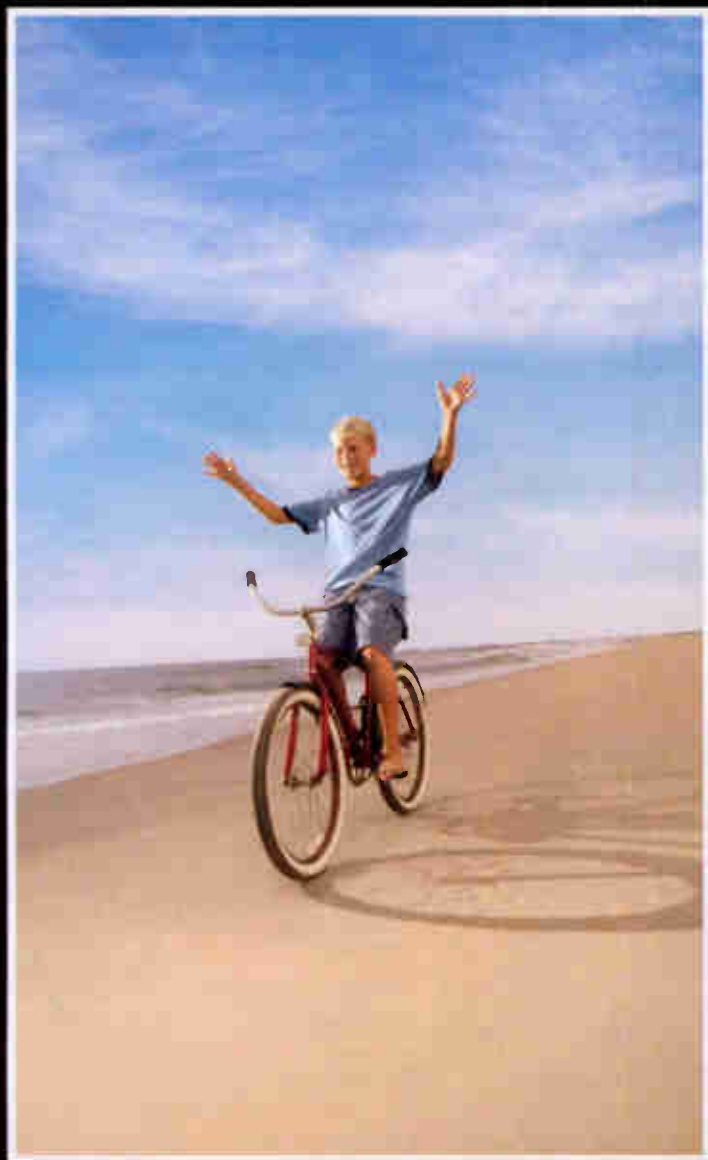
OC-NN (OPTICAL CARRIER-NN): Optical Carrier designations are used by *telcos* to denote *SONET* service tiers. OC-48 is equal to 48 times 51.84 = 2,488.32 megabits per second, while OC-192 is fat enough to seamlessly interoperate with *IP*-based 10Gig *Ethernet*.

OPERATING SYSTEM: the low-level software that provides a computer’s basic features and capabilities. Operating systems can be linked to specific *platforms* such as *Mac OS* on *PPC* or may, like *BSD Unix*, be available for a wide variety of *CPUs*.

OSI MODEL: The OSI, or Open Systems Interconnect (Reference) Model, is an abstract hierarchy developed by the *ISO* that provides a standardized conceptual framework for the functional components of a *heterogeneous* computer *network*. These components are a collection or “stack” of protocols arranged into seven “layers.” Layer 1, the *PHY* layer, deals with the literal nuts and bolts, while layer 7 formalizes the applications that interact with the human end-user.

OUT-OF-BAND: When an auxiliary signaling channel is relegated to a separate *PHY* to not rob bandwidth on the primary channel, that separation of signal

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paths is referred to as out-of-band communication. Out-of-band signaling is the opposite of *in-band* communication and both usually refer to the passage of management, control or *metadata* related to network resources such as *SAN nodes* and *LAN servers*.

OVERHEAD: In *IT* land, overhead refers to any service, protocol or process that requires resources in excess of those needed by default.

P2P (PEER TO PEER): a flat *network* hierarchy in which *clients* interact directly without the intervention of *servers*.

PACKET, TO PACKETIZE: A packet is an autonomous unit of *data* encapsulated by a protocol *header* and/or trailer. In general, the header provides *network* control and *routing* information to direct the packet through the *fabric*, while the trailer contains data to ensure packets are not delivered with corrupted contents. Packetizing refers to encapsulating data into packet form.

PACKET SWITCHED: A *stateless network* transport method in which individual *packets* are routed between *network nodes* via a combination of *packet header addressing* and complex *routing* algorithms de-

signed to optimize throughput. All nodes on the network are always on and able to send, receive and forward *packets*.

PAN (PERSONAL AREA NETWORK): a *network*, typically *wireless*, that operates within a very small area. PANs usually provide connectivity for miniature *peripherals* that someone can carry on his or her person.

PARALLEL: The opposite of *serial*, parallel refers to moving data in a side-by-side, simultaneous fashion, either physically or virtually, whereby each clock cycle moves or processes entire data *bytes*.

PB, PETABYTE: 1,024 terabytes. A petabyte, which was once thought to be an absurdly large amount of data, is currently not an uncommon amount of aggregate storage in the *IT* departments of enterprise and large entertainment companies.

PCI (PERIPHERAL COMPONENT INTERCONNECT): Originally an ad hoc standard introduced by Intel, PCI has become the world's most widely adopted *local bus* standard. The current PCI-X 2.0 64-bit bus standard provides a compact form factor and supports signaling speeds up to 533 million transfers per second, up

to 4.3 gigabytes per second of bandwidth, which is 32 times faster than the first generation.

PERCEPTUAL SUBBAND/TRANSFORM CODEC: codecs designed to reduce the data rate and/or size of a digital audio file. The encoder applies a psychoacoustic model to estimate whether, in any particular band of frequencies, the signal strength in that band is above or below the perceptual threshold relative to adjacent frequency bands. If the signal is above the masking threshold, then a spectral coefficient or value is generated to represent the signal in that band and the coefficient becomes the stand-in, or representation of, the actual audio in that band. If the signal is not above the predicted masking threshold, then that band of frequencies is tossed out to reduce the final size of the *essence*. ■

OMas took a break from reality to once again experience the feeling of sand between his toes. He put this installment together seaside while under the influence of SabaleSnacks.com's sweet/savory goodness and Elvis Costello's tasty When I Was Cruel.

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World Radio History

Summer NAMM 2004

Nashville Makes Its Final Curtain Call

By George Petersen and Kevin Becka

From July 23-25, 2004, some 20,000 music and sound pros dropped by Music City for the final appearance of the Nashville Summer NAMM. After a successful 12-year run in the Country Music Capital of the World, this once-small convention moves on in search of larger (exhibit) spaces, visiting Indianapolis next summer, followed by Austin in 2006. Despite a smaller exhibitor turnout at this show, we found plenty of cool new products. Here are a few highlights that grabbed our attention.

BRING ON THE HITS!

Summer NAMM has always been about guitars, and American Music & Sound smoked us with its reissue line of Hagstrom (www.hagstromguitars.com) guitars. Comprising imported and U.S.-made models, the series is true to the original, with the trademark fast and thin Hagstrom necks favored by players from Zappa to Hendrix. And, yes, the classic 8-string bass reissue is also in the works.

The big news at NAMM was Ableton's (www.ableton.com) Live 4, which brings full MIDI and DAW functionality to this acclaimed live performance recording/sequencing software. Live 4 adds a host of virtual instruments with its powerful on-

board effects and adds full VSTi and AudioUnits support, while still catering to the improvisational and live user. Live 4's implementation of drag-and-drop sampling and swing/groove functions for audio and MIDI clips is nothing short of stunning.

Not quite audio—it's part of Korg's (www.korg.com) VJ lineup—is Krossfour, a 4-channel video mixer/switcher for real-time video performances. Retailing at \$900, the compact unit has four composite video inputs with built-in time-base correction, so no sync/gen-lock gear is required, with easy pushbutton switching and a crossfader for dissolves, along with image freeze, luma-key and chroma-key (blue screen) compositing effects. Other than simply making weird live video candy for clubs, you could simply plug in a



PHOTO: RICK CLARK



Korg Krossfour

couple of cheap camcorders and knock out band videos in minutes or do on-the-fly four-camera shoots of the kids' theater or sports events. Amazing!

SOFTWARE EXTRAVAGANZA

The new 0404 digital I/O card was turning heads at the E-mu (www.emu.com) booth, along with its PowerFX software. The application allows all E-mu digital audio systems and Emulator X owners to run E-mu's hardware-accelerated E-DSP effects as full-blown VST plug-ins.

Tascam (www.tascam.com) is now shipping GigaStudio 3.0. In addition, the company showed the newest addition to its Nomad plug-in line: the Rockamp Legends for HTDM, RTAS and VST (Mac and PC). The plug features amp and tube simulations, in addition to a bundle of effects.

IK Multimedia's (www.ikmultimedia.com) AmpliTube amp-simulator plug-in (VST, AudioUnits, DX and RTAS) is now available for the Windows platform. The company also released the new Expansion Tank Series of SampleTank2 LE sound modules, SampleTank Free and T-Racks mastering software for Mac OS X.

SIGNAL PROCESSORS

Peavey (www.peavey.com) raised the curtain on its Dual FX Delta Unit, which can operate in series/parallel/mono/summed-mono modes. The single-rackspace unit features easy editing and 16 programmable effects: multiple reverbs and delays, compressor, pitch shifter, chorus, flanger, phaser, tremolo, rotary speaker, distortion, exciter and vocal eliminator.

BBE (www.bbesound.com) is now shipping MaxCom™, a dual-channel compressor/limiter/gate featuring an onboard Sonic Maximizer using the same BBE pro chipset that powers its 482i and 882i Sonic Maximizers, combined with smooth VCA dynamics from THAT Corporation. Each channel has linkable threshold, ratio, at-

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World Radio History





Zoom MRS-8

tack and release controls for dual-mono or phase-coherent stereo tracking.

Crest (www.crestaudio.com) revealed its MLM-2 and stereo MLS-2 studio microphone and line input intelligibility processors. The units offer an EQ and dynamics section and the SmarTube processor that adds tunable upper-frequency harmonics to the program material.

AFFORDABLE PRODUCTION

Recording gear keeps getting smaller—and cheaper: The FV160EX and VF80EX recorders from Fostex (www.fostex.com) are two new feature-packed portable multi-track recorders with built-in compression and effects, CD mastering and balanced mic preamp inputs with phantom power.

Zoom's (www.zoomfx.com) MRS-8 is a laptop-sized 8-track recorder/mixer with onboard drums/bass, 100 multi-effects, XLR mic preamp, DI input and 16-bit/44.1kHz recording to SD memory cards, MTC sync output, headphone out and DC (four AA batteries) or AC powering. Estimated street price is \$349.

Yamaha (www.yamaha.com/proaudio) unveiled two new MG Series mixers: the MG8/2FX and the MG12/4FX. The new units include phantom-powered mic preamps, 3-band EQ, onboard effects and a variety of I/O options. Also showing was the new MY16-mLAN card, which offers 16 channels of audio and MIDI on a single IEEE-1394 cable. The card brings mLAN to the DM1000, DM2000, 02R96 and 01V96 digital consoles.

Alesis (www.alesis.com) has updated its Multimix Series mixers. The latest units have balanced mic inputs with phantom power, onboard effects, 3-band EQ and integrated USB audio I/O for porting audio directly to a computer. There are a zillion mini-sized USB audio/MIDI keyboard controller/interfaces on the market, but Alesis wowed us with its Photon X25, offering 25 velocity keys, full-size pitch/mod wheels, 10 rotary soft knobs, 24-bit/48kHz stereo Mac/PC I/O and the revolutionary Alesis



A-Line Acoustics AL10

Axyz dome infrared controller from its popular AirFX.

AND THE REST

This show had fewer new mics than past years, but one notable exception is CAD's (www.cadmics.com) Equitek e60, a medium-diaphragm condenser that's voiced specifically for brass instruments, with a -20dB pad and a four-position bass roll-off filter. In other mic news, the line of studio condensers from SE Electronics is now handled by Sonic Distribution (www.sonic-distribution.com), with U.S. operations headed by industry veteran Bob Reardon.

The coolest new company debut at the show had to be A-Line Acoustics (www.a-lineacoustics.com), which showed a full range of P.A. cabinets ranging from small coaxial wedges to the AL10 compact line array. The latter features dual 10-inch woofers and a 1.4-inch HF driver/horn for 129dB SPL performance, with a slick EZAL™ (Easy Alignment) bracket system for simple, fast and precise aiming of stack or flown cabinets. All systems are made in the U.S. and feature birch ply construction, DuraTex finishes and Euroblock gas-tight wiring.

Summer NAMM pulls up its stakes in Nashville. bound for Indianapolis next July, but meanwhile, Winter NAMM returns to Anaheim, Calif., from January 20-23, 2005. See you there! ■

Hits You Might Have Missed

With lots to see, there is also lots that one can overlook.

Auralex (www.auralex.com) featured TruTraps, its latest studio acoustic problem solver. The panels install quickly, and to increase their low-frequency effectiveness, use the company's TruSpacers to offset the panels from the surface.

Discrete Drums (www.discretedrums.com) demoed its new Earthbeat Series Three, an 8-CD set featuring multi-track drum performances with companion percussion loops in Latin, African, Eastern and other world textures. Cool!

Hosa's (www.hosatech.com) new products might not change the world, but they can clean up that rat's nest of AC cabling in your racks. The PWD-400 puts a 3-prong convenience outlet on the back of an IEC power plug and, combined with its YIE-406 3-prong Edison to dual-IEC "Y" cable, lets you daisy-chain the AC on all of your low-wattage rack effects for a clean install.

M-Audio (www.m-audio.com) took the wraps off its new DX4 mini monitors. The pair offers 4-inch polypropylene LF drivers, 1-inch mylar tweeters and 27-watts/channel of onboard powering.

Wedgie (www.wedgie.com) offers a line of fun stocking stuffers for all your guitar pals, including a clip-on Mic Stand Pick Holder that replaces the sticky duct tape pick trick for keeping spares at hand. And the Wedgie Pick Holder is a small rubber wedge that holds extra picks on any guitar's headstock. Finally, a wedgie that you might actually want!



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Tools of the Trade



NEW APPLE G5S

The latest and fastest G5s are now available from Apple (www.apple.com), with every model featuring dual 64-bit PowerPC G5 processors. Other features include advanced liquid cooling, 8x DVD-R and three PCI slots. Units range from an entry model using dual 1.8GHz processors (\$1,999) up to a dual 2.5GHz unit (\$2,999). The new G5s can run Apple's new monster 30-inch flat-panel monitor (\$3,299). The new monitor demands so much bandwidth that it calls for the optional NVIDIA GeForce 6800 Ultra DDL graphics card with two DVI interfaces, also available from Apple.



EDIROL UA-25

The affordable, bus-powered UA-25 from Edirol (www.edirol.com) delivers audio and MIDI signals to/from the computer via a single USB connection. It features phantom powered mic preamps on TRS/XLR combo inputs, a hi-Z switch for instrument level signals, S/PDIF I/O, RCA outs, TRS

balanced I/Os, a direct monitoring switch for low-latency recording and an onboard limiter. Drivers are available for cross-platform use and include ASIO 2.0, WDM, Core Audio and Mac OS native. Price: \$295.

RADAR 24 V. 3.30 SOFTWARE

iZ Technology (www.izcorp.com) has released new feature-rich software for its RADAR 24 hard disk recorder. Features include Red Book CD burning, sample rate conversion, FAT32 and HFS drive format support, CD-R-to-DVD-R export, Broadcast .WAV file export and a file browser. Also new are extended 9-pin support for direct and fast file location, Sony Blue Laser Optical and Iomega REV drive backup support, and a boost in the increased number of available projects from 99 to 999. Price: \$99.

APHEX MODEL 228

The Aphex (www.aphex.com) Model 228 8-channel unidirectional audio level interface offers high-quality interfacing between consumer- and pro-level components. The single-rackspace 228 adds pro +4dBu outputs to consumer and semi-pro gear

ranging from multichannel DVD players to converters and outboard devices, with XLR balanced outs and ground loop-isolating unbalanced RCA inputs. Retail is \$349, including a test CD of calibration reference levels.

DISC MAKERS USB 2.0 CONNECT

Those duping with Disc Makers (www.discmakers.com) Reflex towers will be interested in the new USB 2.0 connect package. The new package offers direct

connection to a Mac or PC, facilitating the burning of a master directly from the computer's hard drive. The Reflex USB 2.0 connect package is included free with the Reflex1 duplicator and is \$139 for the ReflexPro4 and ReflexPro7.

SMARTDISK FIREFLY

Offering portable and small-footprint drive storage, the SmartDisk (www.smartdisk.com) FireFly USB 2.0 20GB portable hard drive is about the



size of a deck of playing cards. The unit supports USB 2.0 and USB 1.1 host systems and is Mass Storage Class-compliant, freeing the user from having to load drivers before use. Supported platforms include Windows 98SE, ME, 2000 or XP; Mac OS 8.6 to 9.x; and Mac OS X 10.1 or higher. Price: \$189.

PRO CO PROCAT

Targeted at heavy-duty environments in which Cat-5 quickly runs through its nine lives, Pro Co's (www.procosound.com) ProCat cable is designed to meet or exceed all standard Cat-5-compliance specifications. The outer jacket is made of overmolded 6.86mm PVC and the 5.72mm inner jacket contains four color-coded, twisted-pair 24 AWG stranded-copper conductors as a standard cable. ProCat is avail-



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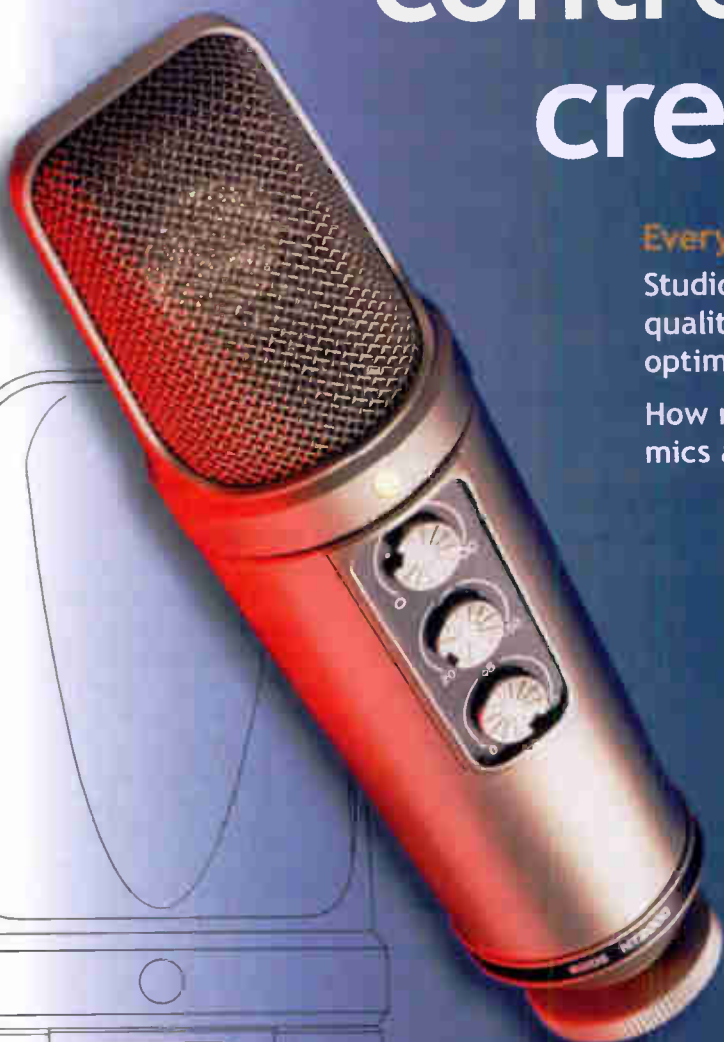
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SPL MIXDREAM

The SPL (www.spl-usa.com) MixDream is an active, cascable 16x2 analog outboard summing bus offering 16 inserts with individual and overall hardware bypass relays. This two-rackspace, Class-A unit also features a stereo limiter/expander, switchable master inserts with gain and switchable Lundahl output transformers. I/O is provided on Tascam-standard DB25 connectors with the main and monitor stereo outs on XLRs. The back of the unit is also home to a ground lift, voltage selector (110/220) and a power switch. Price: \$3,795.



ACARD ARS-3020

The new single-rackspace drive enclosure from ACARD (www.acard.com) holds up to four hard drives and is cascable with other 3020s for up to 15 TB of storage. The ARS-3020 supports Ultra160 LVD SCSI for transfer rates up to 160 MB/s. For even more cost-effective performance, ACARD's SCSIDE technology can turn an IDE drive into a highly efficient SCSI drive. The company also offers three PCI cards: the AEC-67160 single-channel Ultra160 SCSI adapter (PC, \$69), AEC-67162 2-channel Ultra160 SCSI adapter (PC, \$139) and the AEC-67162M 2-channel Ultra160 SCSI adapter for Mac (\$159).

WK AUDIO ID

The new German-made Nuendo controller from WK Audio (www.axidistribution.com) features 12 100mm motorized faders at 12-bit resolution, 12 small faders, 40 encoders with key function, trackball, ASCII keyboard, jog wheel, 30-segment meter bridge (24-channel and eight master meters) and a digital control room remote. The system is expandable by adding up to four fader packs, allowing for up to 120 channels. Also available are optional wood side panels, stand and joystick. Price: \$16,995.

TOAST WITH JAM 6

The Roxio (www.roxio.com) Toast CD/DVD burning software has all of the same features as Toast 6 Titanium with a number of extras, including BIAS Peak 4 Express mastering and mixing software.

frequency response from 20 Hz to 100 kHz. The fixed-omni mic can take more than 137 dB (1% THD) of SPL and outputs less than 22 dB of self-noise (A-weighted). Price: \$1,895.

NUENDO DTS ENCODER

Nuendo users looking for a quality three-to-one knockdown of their surround mixes or any other audio track will want to check out the new Nuendo-resident DTS Encoder. The encoder uses the Nuendo export dialog, which allows exports to be processed faster than real time. The encoder also creates additional discrete .WAV files of the exported audio corresponding to the number of encoded and internally decoded channels and automatically places them on newly created tracks in the Nuendo project. This lets users monitor the complete encoding/decoding process on a per-channel basis. Visit www.steinberg.net.

LEVELGROUND MEDIA LGM THERMAL PACK

Bargain hunters will love these three new affordable plugs from Levelground Media. Titled Vintasion 2.0, Fattenizer 2.0 and CrunchEQ 1.0, the trio features revamped interfaces, 64-bit internal processing and serial- or parallel-processing routing options to provide an unlimited set of processing effects. All three plugs support all AudioUnits-host environments and are available for purchase from www.levelgroundmedia.com. Price: \$54.95.

MARATHON G5 HORIZONTAL RACKMOUNT

For those lamenting that the sheer size of the new G5 is too wide for 19-inch rackmounting, Marathon (www.marathoncomputer.com) has an answer. The new rack assembly allows the computer to be mounted horizontally, is only six rack

Other features include the ability to share CD or DVD burners across a network, universal audio and video-file conversion, and Deja Vu for automatic data backup to CD or DVD with compression and encryption. The package is also bundled with Dolby Digital encoding/decoding software. Price: \$199.

SANKEN CO-100K

For those wanting to capture audio well above the audible spectrum, the new CO-100K omnidirectional condenser mic from Sanken (www.plus24.net) boasts a

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MY CLIENT
MY PATIENCE
MY MIND!

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units tall and is constructed of light-weight aluminum and steel to prevent sagging. It features ball-bearing, telescoping sliderails, allowing easy access to the case interior and rear panel connections and can adjust to rack depths from 21 to 34 inches (front to rear rail). The unit is easy to install and retails at \$250.

SENNHEISER EH150/250/350

Fresh from Summer NAMM, this trio of headphones from Sennheiser (www.sennheiserusa.com) delivers pro performance at an affordable price. The EH150 and EH250 offer a sealed design, while the EH350 uses Sennheiser's trademark Open-Aire design. All three units feature high-quality, 10-foot oxygen-free copper cables,

and are priced at \$59.95, \$99.95 and \$139.95, respectively.

SSL XLOGIC ADC CARD

Designed specifically to offer extended digital bandwidth to the XLogic Channel rackmount unit, the new internally mounted card draws on SSL's (www.solid-state-logic.com) C Series digital console technology. The expander includes an allowance for varispeed and pull-up/down frequency operation and accepts external sync from 32 to 200 kHz. It also has a selectable fixed-clock sample frequency in Master mode (44.1/48/88.2/96/176.4/192 kHz at 24 bits), and one ADC card can be shared between two XLogic Channel units. Price: \$650.



Upgrades and Updates

Yamaha (www.yamaha.com/proaudio) offers **V. 2 software for the O1V96** digital console as a free download for current users (included in new production models). New features include Studio Manager V. 2, application-specific functions, the ability to run Yamaha's Add-On Effects and expanded DAW control...**Apogee Digital** (www.apogeedigital.com) is shipping its **X-HD card**. The interface allows AD-16X, DA-16X, Rosetta 800 or Rosetta 200 owners to connect directly to a Pro Tools|HD or Accel system core card, eliminating the need for Digi HD I/O...**BIAS** (www.bias-inc.com) has released its previously Mac-only audio restoration software **SoundSoap** (\$99) and **SoundSoap Pro** (\$599) for the PC platform. SoundSoap is designed for the consumer/hobbyist, while SoundSoap Pro targets the high-end digital video, film, broadcast and multimedia pro...**Mackie's Mackie Control Universal Extender** now supports the newly released **V. 2.2**

of both **Cubase SX/SL** and **Nuendo**. Visit www.mackie.com for more details...**Universal Audio** (www.uaudio.com) has announced that the **UAD-1 Project Pak and Studio Pak** will include a special version of **FXpansion's VST-RTAS adapter**, designed exclusively for Universal Audio to enable the UAD-1 DSP card to be used with Digidesign Pro Tools (PC and Mac). Supported systems include M-Box, 001, 002, Mix|24 or HD running System 6...**Steinberg's Halion 3** is now shipping worldwide and is available for \$399 from authorized dealers. Check it out at www.steinberg.de...**The Audio Ease** (www.audioease.com) **BarbaBatch 4.0** is an upgrade of its audio file converter for OS 9 and OS X. Added file formats include Red Book CD, including extraction of separate songs, Sonic Solutions 32-bit files and Broadcast .WAV, including annotations and timestamps...**Ready for the new 64-bit world**, **M-Audio** (www.m-audio.com) has released new

Audio64 drivers for its Delta and FireWire series of audio interfaces. The drivers will allow full compatibility with Microsoft's imminent Windows XP 64-bit and "Longhorn" operating systems...**PreSonus** is now shipping the promised **CSR-1** (\$199.95 retail) optional remote for the Central Station studio control center. See www.presonus.com for details...**Digigram** (www.digigram.com) has resized its **PCX924v2, PCX22v2 and VX222v2** stereo sound cards to fit the short-length PCI format. With a length of only 175 mm, the boards now fit 5V, 5V+3.3V or 3.3V PCI buses, as well as computers with PCI-X bus. The new cards are fully compatible with existing drivers for the original longer versions...**Spectrasonics** has released new **Windows/RTAS-compatible updates** of its **Trilogy, Stylus and Atmosphere** plug-ins. The software is a free download for registered users from the Spectrasonics Website, www.spectrasonics.net. ■



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World Radio History

AKG C414B-XLS and C414B-XL II Microphones

Newly Improved All-Purpose Studio Condensers

Since 1971, the original C 414 Comb's birth date, AKG has upgraded, optimized and improved this studio standard's specs and feature set when better electronic components and advanced manufacturing techniques became available. All parts are now surface-mount devices for increased reliability and lower production costs. (Only the capsule is hand-soldered.) Despite the fact that these new models come with more accessories, they are priced less than their predecessors: \$999 for the C 414B-XLS, which replaces the C 414B-ULS introduced in 1986, and \$1,099 for the C 414B-XL II (pictured), replacing the C 414B-TL II.

NUMEROUS UPGRADES

There are 15 new changes, yet the new transformerless 414s retain the same sonic character as before. Apart from the XL II's gold front grille vs. the silver grille on the XLS, everything else, including all internal electronics, is identical. The only distinction between the XLS and the XL II is a difference in the capsules to achieve the desired acoustical response for each version. The XL II has a slight increase in response above 3 kHz, which is said to be better for individual vocals and solo instruments miked at a distance, while the flatter XLS is better suited for instruments and group vocals.

Both capsules use 1-inch-diameter, edge-terminated, six-micron-thick dual diaphragms suspended in an elastic capsule shock-mount system. This built-in shock-mount decouples the capsule from the mic's body, minimizing externally introduced vibrations. The body is the double trapezoidal shape, but 10 percent larger with a 20-percent bigger grille. The grille comprises two layers of cross-polarized screening that reduces plosives and unusually catches and refracts light. The die-cast body has a flat, grayish-blue finish and rounded edges, which are said to reduce unwanted reflections.

FULL KIT

With lower manufacturing costs, AKG can offer the 414s in a handsome aluminum carrying case with the package. Standard accessories include the H85 elastic shock-mount (which grips any mic from 19.26 to 26 mm in diameter), Euro stand adapter, a

square-shaped foam windscreen, external metal goose-necked two-stage pop filter that mounts to any mic stand or boom, dust cover, individual frequency plot of the mic and a multilanguage manual. There is also a stereo kit with two sets of these accessories and a stereo pair mounting bracket. The mics are also well-matched, and the typical sensitivity tolerance between any two mics is maintained to ± 0.5 dB.

NEW FEATURES ABOUND

One obvious change is that the old mechanical switches for pattern, attenuator and low-pass filter have been replaced with nearly flush-mounted electronic pushbuttons. Simply push either end of the button to step through the patterns, attenuation settings or filter choices. Settings are remembered after disconnection from phantom, and you can lock/unlock all of your choices by holding down the Pattern button for three seconds; the LED blinks red to indicate lock or unlock. This is a valuable feature when you're quickly moving the mic's position and inadvertently touch a button. A recessed LED above each value or polar pattern shows your choice by lighting green. The pattern LED has a limited viewing angle and doubles as an "aiming" guide, useful when hanging the mic in dimly lit studios. Instead of telling singers to keep their "nose on the pattern switch" to stay on-mic, they can just aim at the LED.

The pattern LED also acts as an overload indicator, turning red when you are within 2 dB of clipping. To minimize the typical changeover noise when changing pattern or attenuator, there is a momentary mute period before the mic becomes active again. All switching is done in the low-impedance section of the head amp circuitry, preventing intermittent noise problems when the mic is operated in high-humidity situations.

The new 414s have five pattern choices: cardioid, hypercardioid, figure-8, omni and the new wide cardioid position. Attenuation choices are now 0, -6, -12 and -18 dB, with attenuation achieved by changing the polarization voltage to the capsule. The new 414s have 6 dB more sensitivity, a low self-noise at 6 dBA and 134 dB of dynamic range.

The redesigned lowpass filter has positions at 0 (flat), -12 dB per octave @ 40 Hz,



-12 dB per octave @ 80 Hz and -6 dB per octave @ 160 Hz. The highest position on the old mics offered too much roll-off. I'm glad to see this change.

Coming later this year is an R 414 remote controller/power supply that can control two microphones independently or together. All of the mic's switchable functions can be controlled in finer steps than on the microphone itself. You'll have access to 13 different polar patterns, 3dB steps for pre-attenuation and more. Controller commands to the microphone are sent over standard 3-wire XLR mic cables in short, coded tone bursts at supersonic frequencies.

IN THE STUDIO

First up was a solo acoustic guitar recording. As there were three passes (basic track and two overdubs), I used a different stereo miking technique for each without EQ or compression. For the basic tracks, I used an M/S pair without pads and the 40Hz roll-off. The slightly brighter XL II, in figure-8 pattern, was the side mic and the XLS was the mid. I got great results with lots of low end, even though the pair was 18 inches away. The

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shock-mounts worked extremely well: no sound from foot stomping or rumble traveling up the stands.

I used two wide-space regular cardioids for the first overdub track. The mics were placed about two inches above my player's hands with the XL II at the middle of the neck and the XLS behind the sound hole. The second overdub used two similarly spaced omnis. For both setups, I used the 160Hz roll-offs to tame the cardioids' proximity effect and reduce the boomy bottom end. (The big-bodied acoustic was tuned down: C# for the low E string.) This technique produced a great sound—plenty to

work with in a remix with different ambiences for each guitar part. I noticed a thump when selecting any roll-off and an occasional "pop" when changing patterns, but these were not severe.

On drums, I tried close-miking and a more traditional two-microphone setup: the XL II overhead about four feet above the kick drum without the roll-off, no pad and in wide cardioid. The XLS hovered just above the front of the kick (no front head) about 12 inches away, aimed down at the center at an angle to avoid the windblast. I didn't use the roll-off in wide cardioid, but with the -12dB pad—more in deference to

the PreSonus M80 mic preamp that I used—it overloaded very easily. This setup produced a remarkable drum sound without EQ or compression on the '60s vintage Ludwig kit. The kick sounded close as if it was inside the drum but with more air. The rest of kit was well-balanced without any accentuated high frequencies.

The 414s were also great for close-miking the kit for a sampling/loop session. Although I usually don't use condensers in these situations, I put the XLS inside the kick with the foam windscreen on and set it to omni with the -12dB pad. This sounded more like how a dynamic would sound, except that I heard more player/beater imperfections with the 414. I put the XL II about six inches in front of the snare, just above the rim but below the hi-hat. The mic was switched to omni and did not engage the roll-off, but the -18dB pad was necessary. The snare sounded quite real with a good bottom end and a good balance between the top and bottom heads.

For vocals, I lined up the XL II, XLS and an older C 414EB P48. Set all to cardioid, no roll-off and no pad, a quick A/B showed the old 414 was darker and produced an occasional low midrange distortion peak compared to either new 414. Both new 414s had more output, were clearer-sounding, offered no distortion on peaks and let me hear all the way down into the noise floor of the studio without hearing microphone electronics. I used a Chandler EMI Channel mic pre and anywhere from 20 to 30 dB of mic gain without EQ.

My male singer is a high tenor and both mics sounded great on him. The XL II was brighter but without excessive sibilance or shrillness. A pop filter was not required, and the new grille pattern works for moderate wind. I recorded six vocal tracks, all at different distances and different polar patterns. All of my results were good and usable—it was hard not to get a good sound with these mics. They also looked impressive in the dim studio with their bigger size, gleaming grilles and three LEDs glowing. The new wide cardioid pattern is the one to use for vocals as it seems more forgiving of "wandering" vocalists.

The best-sounding, all-purpose studio microphones to come along, the new C 414s are ready for action! They handled everything that I threw at them and returned superb-sounding recordings ready for mix.

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M-Audio Octane Mic Preamp, A/D Converter

Affordable 8-Channel Unit With Surprising Features

The world is full of sound cards and other digital Lightpipe-capable devices waiting to be unlocked to the analog realm. M-Audio has answered that need with Octane, an affordable unit with eight mic and line inputs and ADAT digital outputs.

ONCE OVER

The 2-unit Octane is a fairly hefty box, considering that it's only 5¼ inches deep—*not* counting the 2-inch heat sink fins on one side—and uses a large 18-volt AC/3,500mA in-line external power supply. Its controls feel decidedly smooth and solid, and it has a semi-precious blue LED power-on light, which happens to be bright enough to read by.

On the rear, every channel has a balanced TRS post-preamp send jack that's normally to a balanced return/line-in jack beneath it, but both are happy with unbalanced signals, as well. These connections can be used as send/return loops for routing mic signals through external signal processors, or instead of returns, you can plug in line-level signals to be converted to digital.

This post-preamp signal routing scheme may seem obvious, but it should not be taken for granted. A lot of mic preamp/digital converters either don't provide send/return loops or just pad down the mic inputs for line-level signals. While the effect is often negligible, extra gain circuitry lowers the noise and distortion specs to some degree.

I also isolated the Octane mic preamps by recording from one of its preamp outs into a digital mixer, after which, I isolated its A/D converters by plugging a line-level signal into its line ins.

Octane's analog circuitry is extremely quiet and its A/D converters—*isolated* from the mic preamps by listening to the unit's line ins—sound as good as the digital mixer and better than the first-generation FireWire audio interface that I compared them to. Especially when you're listening to 2-track recordings rather than eight channels, the differences are pretty subtle. In my experience, there's a very short window in which you can hear them clearly, after



Each of its eight channels has a mic input with 50 dB of continuous gain, a three-LED meter, a 20dB pad and phantom power that can be switched in groups of four channels. Only channel 1 has a low-cut filter, and the first two channels have active hi-Z front panel instrument inputs with individual gain controls.

All of the even channels have polarity reversal switches, which is a very intelligent compromise compared to having them on all eight channels. If you're miking in stereo, you obviously don't need to reverse both channels. However, if you're using more than two mics on a source, such as when miking a drum kit, you can usually swap cables if you need to reverse a mic that is plugged into an odd channel. Slipping tracks by tiny increments in a DAW is a much more refined way to phase-align tracks anyway.

Channels 7 and 8 have an M/S decoding matrix with width control, an excellent fea-

Most budget units, including nearly all project studio-priced mixers, use a single TRS jack for unbalanced send/return loops. Octane is decidedly more pro in this regard. The Octane operates at 44.1 and 48 kHz. It has word clock in and out—another feature not to be taken for granted in a device in this price range—and ADAT optical out.

BUDGET UNIT, SOLID PRODUCT

I auditioned Octane with its word clock output driving a MOTU Digital TimePiece (DTP), which routed digital sync in various formats to the rest of my studio. In another test, slaving Octane to the DTP didn't have a notable effect on the recorded sound. This implies that Octane's clock recovery circuitry is up to snuff.

To hear Octane's mic preamps, I set up a pair of Oktava MK012 cardioid condenser mics and recorded acoustic guitar, cello, alto recorder and male-magazine-writer-attempting-to-sing into Pro Tools via a 24-bit ADAT

which the brain seems to have determined that it all sounds the same.

Having determined that the A/D conversion passes muster, I isolated Octane's mic preamps by listening to the rear panel send signal. They sounded just fine. Of course, at under \$94 a channel, you're not going to hear as much information about the room you're in as if you were using higher-end preamps. Also, 50 dB of gain is only just enough if you're using dynamic or ribbon mics from any distance. But these mic preamps are perfectly usable—another characteristic not to be taken for granted in a budget unit.

Octane is a solid product with a good collection of features and a good value. Anyone with a vacant ADAT digital input would do well to try it out. Price: \$749.95 MSRP.

M-Audio, 626/633-9050, fax 626/633-9070, www.m-audio.com. ■

Nick Batzdorf is an L.A.-based music and audio technology writer, composer, engineer, producer and musician.



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MILO Array



Royer Labs SF-24 Stereo Ribbon Mic

Beefed-Up Output Gain and Impedance Matching

What's better than a stereo ribbon microphone? In the case of the new Royer SF-24, the answer is a stereo ribbon microphone with plenty of output gain and worry-free impedance matching. The SF-24 incorporates all the best that Royer's stereo SF-12 ribbon mic offered, plus a proprietary electronic system comprising Royer-designed toroidal transformers and electronic buffering stages.

Royer's active system provides enough added output gain so that the user need not worry as much about marrying the mic to the perfect preamp. Also, the electronic system makes the need for perfect impedance matching between the mic and the preamp input stage a non-issue. I ran the mic through a number of mic preamps from low-end Focusrites up to SSL and Neve board preamps with great results.

STURDY AND EASY-TO-USE

My first impression of the SF-24 was that it is well made. When I opened the handsome outer suitcase, which houses the mic (impressively locked in its own case-within-a-case), cable, shock-mount and literature, it was obvious you get what you pay for (as well you should for \$3,800). The mic is heavy and all seams and fittings are top-notch: This is a precision instrument. The elements are each placed precisely at 45 degrees from center and 90 degrees from each other, with the Royer logo dead-center.

The shock-mount allows for instant and accurate placement of the mic and is one of the best and worst parts of the SF-24 (more later). The mic slides tightly into the mount with the logo fitting into a specifically designed indent—there is no question what is on- and off-axis. It provides excellent mechanical isolation and is small enough to let you fit the mic into tight places.

VERSATILE STUDIO TOOL

In the studio, I used the mic on a wide variety of instruments. Of course, the mic must have phantom power applied for it to operate. Once you get past the fear of pushing the 48-volt button knowing that there's a ribbon at the other end, the rest is cake. The shock-mount makes it a breeze to put the mic in X/Y in front of virtually anything and

get a great result. For the first test, I used the mic above a drum kit. The SF-24 provided a perfect stereo picture of the drums and offered the signature roundness on the transients for which ribbons are notorious. On another session, the mic was set up in a knee-high position in front of the kit with equally good results.

The SF-24 especially shined when used to capture occasionally troublesome instruments, such as soprano sax and steel drum. In the case of the sax, the mic was placed vertically halfway down the sax, aimed at the keys. The resulting sound was warm, smooth and sat in the track so nicely that it sounded "finished," even without fader moves or compression. The steel drum can be a nasty, edgy instrument that seemingly jumps in and out of the track at will. The ribbon's rounded transients and trimmed top end gave the instrument just the treatment it needed to be present without being annoying.

One of the most interesting sounds came from using the Royer close up on a guitar amp that was used for re-amping a guitar. The amp was placed in a medium-sized iso booth and set up using a tremolo setting through a single 12-inch speaker. Because of the placement and room size, the SF-24 provided an interesting stereo picture of the amp that wasn't present in the room itself—a happy accident that "made" the track.

The SF-24 was also used on bongos, the speaker of a Wurlitzer piano, a marimba and for recording a small orchestral ensemble, all with excellent results.

The Royer shined when used on an ensemble consisting of three trombones, french horn, tuba, two soprano saxophones and a trumpet. The mic was placed close to the group in front of where the conductor would stand. The room had a 16-foot ceiling and concrete floor and was moderately live. The mic rendered a nice stereo picture and went toe to toe with a Decca tree consisting of three Neumann U-87s.

The mic was also used as an M/S pair on a trumpet recording and as a drum overhead. The trumpet sounded remarkable when the mid mic was isolated. When decoded through an M/S matrix, it allowed for easy mixing of the room into the final product. M/S pairs can be a pain to set up when us-



ing two separate stands and mics, and while you think the Royer would be the exception, it is not. The shock-mount, while brilliant for X/Y applications, is clunky for M/S use. It is not at all easy to jump from X/Y to M/S, and I found myself having to go through unorthodox mic stand acrobatics to get the SF-24 into the proper orientation. This is one of the coolest uses of this product, but, frankly, the mount makes it difficult.

BLUE RIBBON RESULTS

Apart from my issues with the mount when used in an M/S array, I can't say enough good things about the SF-24. As with all mics, the SF-24 is not the magic transducer for all scenarios, but the Royer sounded so good in so many situations and was so easy to use, I would have to say that it was one of the most versatile mics I've ever used. The SF-24 came through with flying colors on almost every situation thrown in its direction—a rarity, indeed. For any seeker of scintillating sound, the SF-24 is a true find.

Royer Labs, 818/760-8472,
www.royerlabs.com.



Kevin Becka is a ribbon mic fanatic and the technical editor of Mix.

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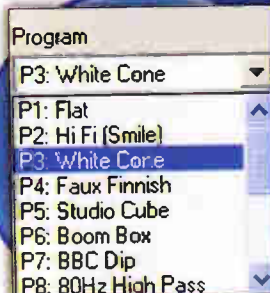
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- Eight editable user presets



Chandler Ltd./Abbey Road Passive TG Channel

Classic British Sound Meets New Technologies

The Chandler and Abbey Road crews have created another collectable classic, the Passive TG Channel. The single-rackspace unit contains a mic preamp and an equalizer that trace their origins back to the British EMI TG recording consoles—1970s “transistorized” equipment designed to replace the tube gear in use at worldwide EMI studios since the 1950s. In addition to The Beatles’ *Abbey Road* album, many other seminal records of the early ’70s through 1983 were recorded on TG consoles, including Pink Floyd’s *Dark Side of the Moon*.

The TG Channel comprises a single Chandler TG2 mic preamp, which is an exact copy (except for an additional buffer amp) of EMI’s TG12428 amplifier from the TG Series mixing desk. The equalizer is passive and loosely based on EMI’s TG12411 in-

front panel ¼-inch instrument direct jack that is available on the Chandler TG2.

A single 15-position rotary switch adjusts mic gain from -15 to +55 dB or line gain from -25 to +45 dB in 5dB steps. There are large buttons for selecting phantom on/off, phase flip and EQ in/out. The output control is like a master volume control on a guitar amp: You can overload the mic preamp and dial this back to a proper record level or back down the preamp gain and run output near the top for a more pristine sound.

UNIQUE EQ

All three bands in the equalizer are progressive Q types: Q increases proportionally with increased boost. All three sections have off positions, effectively removing them from the signal path.

curve that is flat from 20 to 3k Hz. After 3 kHz, it starts a slow rise, finally getting up to 1.5 dB at 16 kHz. The TG Channel’s preamp sounds like a cross between an API 512 mic preamp (Class-A/B) and Neve’s 1272 amplifier (Class-A). There is more dynamic range with a harder, clearer sound than the smoother Neve modules tend to have.

I put the TG Channel to work on a male singer who has a strong, high tenor voice that can thin out easily if the mic and signal chain are not right. I used a new AKG C 414B XL II microphone with anywhere from +20 to +30 dB of mic gain from the TG Channel. What a combo! I was able to open up the super top end (+4 dB @ 16 kHz) for a very transparent sound and also peak-boost 100 Hz by 4 dB to better print his lowest octave. I rarely boost low frequencies when record-



put module but with RC (resistors and capacitors) tone control networks replaced with LC (inductors and caps) types. Using LC networks instead of RC circuits makes it more like classic tube equalizer designs such as the Pultec EQP-1A3 or Lang PEQ-2.

Solidly handmade in the U.S., the unit features an all-discrete Class-A/B circuit with Carnhill/St. Ives input and output transformers. The hand-soldered Elma controls and switches are mounted to an internal frame—not directly to the front panel—of the all-steel cabinet. The half-rackspace PSU-1 external power supply will run two units.

FRONT PANEL

The unit offers a well-marked front panel featuring large positive-feeling pushbuttons and old-school radio pointer knobs. A rear panel XLR input connector accepts either mic or line-level inputs. The line switch relay routes inputs to the mic input transformer or further upstream in the circuit for a 10k-ohm line input. I’d prefer to see a separate XLR for mic and line, especially when wiring the unit to a patchbay. I also miss the

The equalizer starts with a high-frequency boost section with up to +18 dB of boost only. This section is really two equalizers: An RC type handles shelving for 16, 12, 8.1 and 6.8kHz frequencies; and an inductor-based peaking EQ circuit takes over for 3.9, 2.2, 1.8 or 1.2 kHz. There is also a hi-Q switch that increases the Q for the peaking equalizer only.

Designed to correct problems, the midrange or mid-cut section cuts up to 20 dB with a very sharp Q. The Q is very thin so you can remove mush without losing any power. Frequencies available include 350, 400, 500, 600, 700 and 850 Hz.

Finally, the low-frequency section boosts up to 20 dB with an LC peaking circuit for 50, 70, 100 and 200Hz frequencies. If desired, you can switch over to the LC shelving circuit to boost at either 100 or 200 Hz. There is also a low-cut switch for a roll-off that’s 3 dB down at 80 Hz.

IN THE STUDIO

Like the Chandler TG2, the TG Channel’s mic preamp section has a frequency response

ing vocals—either you get more plosives and pick up room tone and rumble, or vocals get boomy and too woolly sounding. The TG Channel’s low-frequency EQ is marvelous for fattening without adding boominess. No mid cut was required.

The unit’s EQ section was used again for a sorry-sounding kick drum I recorded. By peak-boosting at +8 dB @ 100 Hz and using the low-cut, I shaped the kick perfectly for a good 4dB squash by an 1176LN. Now a solid bass drum that actually sounded good enough for a song demo, I slightly “overdove” the preamp section for a more aggressive sound.

The Chandler TG Channel is the most tube-like of any transistor preamp I’ve heard and follows in the tradition and sound of Chandler’s whole line. Suggested retail price is \$1,900; the PSU-1 power supply is \$125.

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

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Bag End INFRASUB-12 Pro Powered Subwoofer

Extended Low End With 5.1 Bass Management

Bag End has been making speakers and subwoofers for nearly three decades, creating its first sub in 1986 that went down to 30 Hz and then building an even lower 8Hz version in 1990.

The new INFRASUB-12 Pro (\$1,980), the smallest member of Bag End's powered sub family (the series includes 12- and 18-inch models, with a 21-inch version on the way), is a good fit for midline mastering/project studios and installations in which space is a consideration. The INFRASUB-12 Pro carries enough power (400 watts continuous, sine wave output) to handle all kinds of low-end material, down to a user-selectable 20 or 8 Hz. Bag End's INFRA range employs electronic compensation to the uniform response that a sealed-box loudspeaker system exhibits below its resonance frequency, which reportedly extends frequency response well below audible range while reducing the system resonance's influence.

The INFRASUB-12 Pro handles bass management by accepting bass frequency content from the five surround speakers in a 5.1 system via balanced XLR inputs (A through E) and routing that mono-summed material to the sub. The passive crossovers then highpass content back out via five balanced male XLR connectors (-3 dB @ 130 Hz; -6 dB @ 95 Hz).

There's also a separate sub input (F) with adjustable gain for systems that already have LFE material generated, plus a -10dB offset switch for even more flexibility with cinema processors. A polarity reversal switch is handy for proper alignment with the rest of the mixed signals, and there's a separate level control for the infrasonic bass level. Thermal overload breakers protect the power amp in case of accidents or excessive levels. A detachable power cord and removable black front grille complete the package.

Because most subs aren't always visible, there's a handy power-on indicator and a Dynamic Filter Active LED in a box that attaches to an XLR connector/cable. It can sit anywhere—on a meter bridge or between monitors—to indicate that the unit is indeed on (trust me, you'll know) and when the unit may be running into Protection mode. In this mode, a dynamic highpass filter "slides" from the bottom of the frequency range up-

ward as needed to protect against system overload. The light lets you know whether what you're hearing is what's on disc.

SUB SETUP

Setting up and testing the INFRASUB-12 Pro was straightforward. The unit meshed smoothly with my existing KRK near-field surround and stereo speaker setup, with a useful roll-off point at 95 Hz (3 dB down @ 80 Hz). Bag End does not make specific speaker recommendations, but it does have its own M6s available for a complete 5.1/stereo system. After incremental sine wave testing and level adjustment of my space, serious subjective listening began with levels similar to the sub that was previously in place. I toggled between the two to set overall levels, eventually turning off my original subwoofer.

The INFRASUB-12 Pro's sound was a dramatic change from what I was used to hearing: tighter and smoother response (fewer hot spots, too), with a thrilling trip down to the lowest limits of human feeling, er, hearing.

The INFRASUB-12 Pro went through some serious workouts while I mixed several live projects for radio broadcast. The low-end material ranged from concert bass drum in a performance of Carl Orff's *Carmina Burana* with the Chamber Orchestra of Philadelphia, to a punchy, low-down, thumpy double bass from a live jazz date with the Randy Weston Trio, both recorded in Philadelphia's Kimmel Center.

THE RESULTS

The INFRASUB-12 Pro delivered effortless clarity. Mixing from a multitrack gave me a chance to re-evaluate and appreciate mic placement and pickup pattern choice. Working with high-end digital resolution and no-excuse microphones such as DPA 4006s and Neumann KM84s, the sub sheds new light on microphone choices and the smallest amounts of track EQ adjustment. It's wonderful to roll off nonessential sub bass from tracks that shouldn't add to the muddle in the first place (soprano solo mics, children's choir, bell chimes, etc.) while keeping the full-bodied punch of upright jazz basses and classical percussion.

The low end on these and other projects



came across tight and controlled, with true portability to other listening systems. My mixes with the INFRASUB-12 Pro aired shortly after the actual recording on my local NPR station and translated exactly how I'd hoped wherever I listened.

There is really nothing quite like experiencing smooth bass response down to and below 20 cycles without slop, delay or smear. Revisiting mixes of my own revealed low-end content between 20 and 40 cycles that I never heard before. It's scary to think about what many of us are routinely missing audio-wise, and that could become embarrassingly obvious as more and more systems like this become the norm.

After hearing a few commercial CDs on the INFRASUB-12 Pro, it's clear that many engineers still mix with too much kick and low end. The INFRASUB-12 Pro exposed many vocal plosives that were probably inaudible during mastering without a good sub. There also seems to be an alarming difference between genres, making one wish for an industry-standard level for low end. (Who wants to change subwoofer levels each time you change a CD?) For classical, jazz, pop, rock and beyond, the differences in levels at the very low end are amazingly disparate.

The Bag End INFRASUB Pro Series is a necessary step in the right direction—perhaps setting a new standard for accurate mix references. Anyone who's serious about mastering and creating portable mixes should have one of these as a reference tool.

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Upgrading the Trident Stereo Limiter Compressor

As I discussed in the last issue, the topic of IC op amp upgrades generates many questions. But those in search of answers may find what they seek by getting an oscilloscope and learning how to use it. This month, I'll examine one example of what can happen during the upgrade process. However, there are a few caveats before getting started. Be safe! Experiment at your own risk. We don't want any blown tweeters or fried electronics. And most of all, we want you back next month.

FIRST ENCOUNTER

On outward glance, Trident's single-rackspace stereo limiter compressor looks like a satellite module from the company's Series 80 console. Dated 1979, the schematic is filled with 10 MP741CP op amps, five per channel. When I last met one of these a few weeks back, two ICs in the signal path (per channel) were upgraded to Burr Brown OP132 op amps. The four new chips consumed nearly three times the current, translating to 11 milliAmps (mA) more than the power supply was designed to deliver. The schematic in Fig. 1 shows the original bipolar 16-volt power supply.

Trident's power transformer has two primaries and a switch for 110- or 240-volt operation. It also has two secondary windings that are wired in series, and the jumper between the two typically becomes the center "tap" for a bipolar supply and wired to ground. In this case, the unit is wired exactly as it looks, relying on the zener diodes to create a virtual center; aka, the 0V reference.

CONVERSION 101

AC is converted to DC via diode bridge "REC 70." Capacitors C27 and C28 do the filtering, followed by two resistors—R53 and R54—and a pair of zener diodes in the

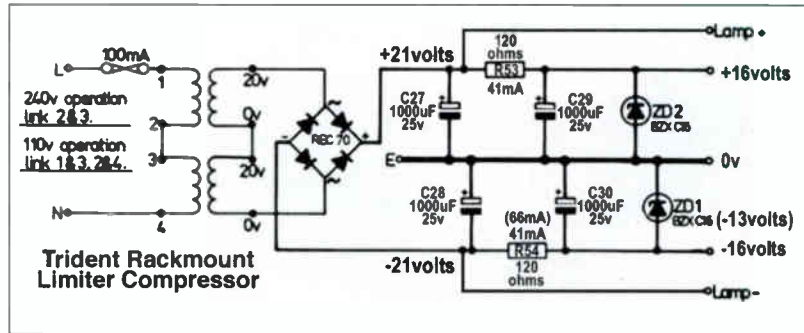


Figure 1: The original power supply schematic for the Trident rackmount limiter compressor uses zener diodes in the shunt regulator configuration.

"shunt" regulator configuration. (Earlier versions of the UREI 1176 have a single-ended version of this supply.) Diodes ZD1 and ZD2 are type BZXC16, not an easy European part to cross-reference, but the number 16 conveniently corresponds to the clamping voltage. As you can see in Fig. 1, the drop across each resistor is 5 volts, allowing the calculation $I = V/R = 5/120 = 41 \text{ mA}$ —the total current required by the zeners, the op amps and support circuitry. All supply caps were previously upgraded to Panasonic's HFC Series (designed for switch-

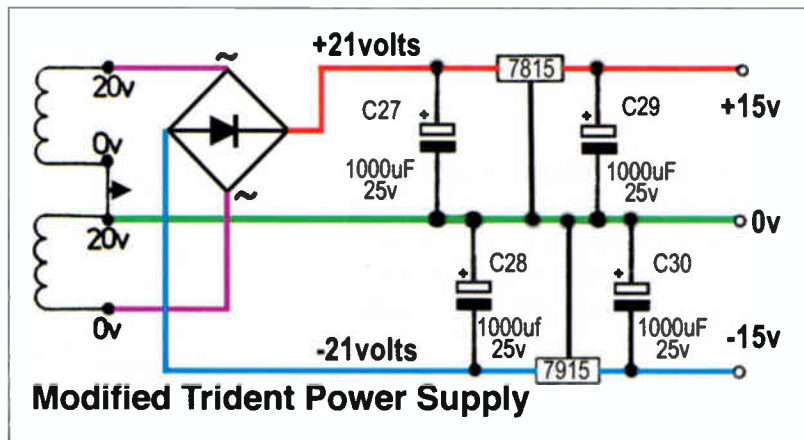


Figure 2: Trident power supply mods detailing the linear regulators (7815/7915) and a connection from the transformer center tap to the 0V (common) reference (in green)

ing power supplies and rated for 105° C): Overkill perhaps, but long-lasting and effective.

The 741 op amp (running on bipolar 16V) consumes 1.5 mA per leg, 15 mA total for the 10 chips. An ammeter on the support circuitry—the printed circuit board (PCB) without op amps—measured 20 mA for the positive rail and 25 mA for the negative rail, which is 35 mA and 40

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mA, respectively, with stock ICs. While the positive rail had 6mA headroom for the zener, the negative rail was within 1 mA of the calculated 41mA total—and that's without a signal. With the four OPA132 op amps installed, the negative rail was sagging at -13 volts (in parentheses in Fig. 1), making it impossible to bias the FET. (That's another article.) Translation: Regulation is barely possible with the original parts, let alone an upgrade.

The solution turned out to be pretty simple. In Fig. 2, the resistors are replaced with 15V "linear" regulator ICs—7815 and 7915—

and the zeners were removed. Fortunately, the linear regulators are more efficient than the shunt regulators because there was a chance that the extra load might have been too much for the transformer. In the meter circuit and sidechain driver, an additional pair of 741s were upgraded to 5534s (four total). Even this additional load was no

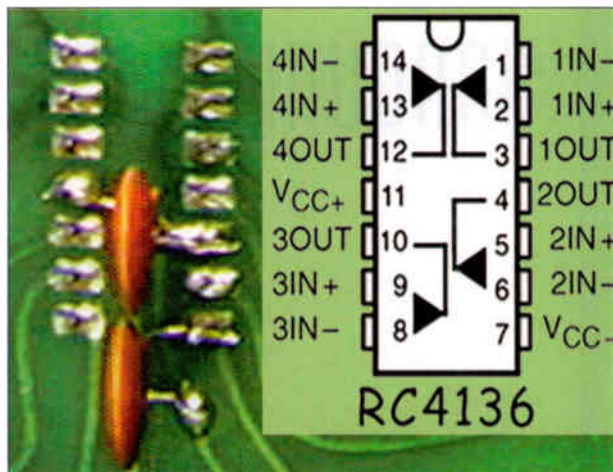


Figure 3: Ceramic-disc capacitors are connected from the power pins of this IC to ground to decouple (isolate) the amplifiers from the power supply. This preventive medicine safeguards against the possibility of oscillation. To prevent noise from corrupting the ground trace, it may be necessary to "reinforce," or lower, the impedance with an additional wire.

sweat once the power supply had ample reserve. The regulators do not require heat sinks, and the transformer runs cool.

RADIO DAZE

All this time, there were no oscillation problems among the eight upgraded ICs until an ammeter was inserted to measure the current. Prior to that test, there was less than 12 inches of cabling between the power supply and the main PCB, a short enough distance to keep resistance low. The meter cables added six feet in total, allowing the chips to reflect backwash into the now-spongy power rails and communicate among themselves. It was the very type of problem that could cause a false sense of security: no oscillation until the peak-to-peak signal approached the maximum output level before clipping. That's why an oscilloscope is such an essential tool.

As an added security measure, power supply decoupling caps were installed from the power pins of the two outputs to ground. These chips supply all of the post-processing make-up gain. Figure 3 details how 0.1µF ceramic-disc caps can be installed from the power pins to ground on what was formerly an RC4136 quad op amp (now a pair of OPA2604s) on the UREI LA-4. Depending on the PCB layout, the number and type of chips, cap values up to 10µF are typically applied. ■

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SINGER/SONGWRITER
NELLIE MCKAY
YOUNG, QUIRKY AND ALREADY
WORKING WITH A LEGEND

By Matt Hurwitz

"I like Doris Day, she's a good person," says Nellie McKay (pronounced "Mc-KIGH") of one of her vocal icons. "I'm a member of both her Animal League and Foundation. But then, her style and asexual persona have had an appeal for many women."

Thus is the dichotomy that is Nellie McKay, the street-wise young songwriter/performer who is garnering great notice throughout the music world. Her quirky music bounces alternately between smooth (and well-executed) jazz, rap and cute songs that, on the surface, come from the young girl singing them, but have the deeper social messages of a mature woman.

Now, jazz and rap aren't the types of music one usually associates with Geoff Emerick. "This is my first rap recording!" he says with a proud grin. Emerick, the engineering and/or production genius behind artists such as The Beatles, Badfinger,

America, Elvis Costello and Art Garfunkel, added those genres to his already long list of accomplishments with the Columbia release of *Get Away From Me*, McKay's critically lauded two-disc set.

"I was attracted to the lyrics immediately," Emerick says. "Elvis Costello immediately came to mind." McKay's songs have both a child-like sweetness and a hard-edged bite, reminiscent at once of both Doris Day and Eminem, as one critic noted. "Her level of maturity at such a young age is astounding," Emerick says of the 19-year-old. "You come across an artist of this caliber once every 10 or 15 years. And I don't do a lot of projects these days unless something really stands out like this did."

Emerick was introduced to McKay via a set of self-recorded demos in which she played solo on piano (as she usually performs live) with added synthesized instrumentation. "Her talent was quite evident to me immediately," he says. Then, in early August 2003, and with Emerick in attendance, McKay rehearsed for two days in a Manhattan rehearsal studio with a group of jazz musician friends before formal recording sessions began. "At first, I was a little bit concerned because we just had the jazz guitar,

—CONTINUED ON PAGE 152



Stuart Breed (left) and Geoff Emerick

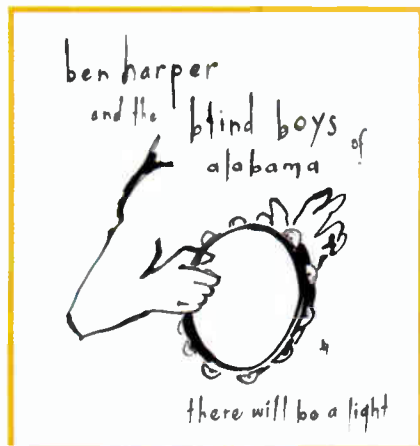
BEN HARPER & THE BLIND BOYS OF ALABAMA

HEAVENLY GOSPEL STAYS TRUE WITH ROCK INFLUENCES

By David John Farinella

Ben Harper is standing in front of the vintage Neve 8068 console at Capitol Studios' Studio B feeding lyrics to Blind Boy of Alabama Clarence Fountain. The legendary gospel singer is in the iso booth as the pair finish vocal overdubs to "There Will Be a Light," one of 11 songs and the title track, on a new Ben Harper with the Blind Boys of Alabama offering due in early September from Virgin Records.

While Harper is clearly enthusiastic about the sessions, throwing up his hands in jubilation when Fountain nails a line, this collaboration almost didn't happen. The Blind Boys team approached the singer/songwriter to produce an entire album for them, but Harper was busy with his own studio and live dates. "I'm making music at



such a rapid pace in the studio right now—doing my own thing—that I didn't want to pull away from that," he says. "So at first I had to pass and then they came back and said, 'Well, how about a couple of songs?' It was such a privilege to be asked and I had to look at my life and say, 'There should not be anything keeping me from working with these guys. They're one of the musical won-



From left: Clarence Fountain, Jimmy Carter, Ben Harper and George Scott in the heat of a session

ders of the world. They're like Niagara Falls or the Grand Canyon."

The idea was for Harper to produce two, maybe three songs for an upcoming Blind Boys release. So some time was booked at Capitol Studios, and engineer Jimmy Hoyson, executive producer Chris Goldsmith, the Blind Boys (which includes Fountain, vocalists Jimmy Carter and George Scott, Eric "Ricky" McKinnie on drums, rhythm guitarist Caleb Butler, lead guitarist Joey Williams and bassist Tracy Pierce) and musicians Juan Nelson (bass), Marc Ford (guitar), Michael Ward (guitar), Rock Deadrick (drums), Leon Mobley (percussion) and Jason Yates (keyboards) were assembled in late January. Harper, as producer, was aiming for a Muscle Shoals/Stax Records tone. Engineer Hoyson says, "I just thought big and warm and natural and old school. I wasn't particularly thinking about any artist or label in the past; I just thought about making it organic."

With that in mind, the project was recorded with a liberal dose of vintage gear. The vocal chain for Harper and the Blind Boys started with Neumann U47s running through either a Fairchild 670 compressor or an LA-2A into the Neve console's mic pre's. Capturing the Blind Boys' vocals was a challenge. "It's potentially scary," Hoyson admits, "but not so much, because I've done it so much now. We almost always have all of them singing at one time and they're able to

deliver an incredible dynamic range at any given moment, so you find yourself gain-riding four or five mics to tape, trying to keep your levels under control and watching the compressors. The other challenge is obviously that they're blind, so I'm constantly going out and making sure their microphones are positioned correctly. They have a tendency to reach out and touch them or feel where they are, and at the same time they rotate them."

The majority of Harper's vocals were recorded through a U47, as well, but on two songs he used a Neumann TLM 170 omni microphone that Hoyson had set up as a talk-back mic. "Ben was out in the room while we were doing a bass and keyboard bass, guiding them through 'Take My Hand' and we got an amazing vocal," Hoyson recalls. "It was a different sound and we just went with it. It didn't have some of the depth of the U47 and the width and size, but it just worked for the song and it sounded good on his vocal."

The team deviated from the vintage approach when a Pro Tools system was brought in, along with Pro Tools engineer Mike Glines. Harper and Hoyson tested analog vs. digital early on in the process: They actually recorded the Blind Boys to analog first and then dumped it to Pro Tools, but they quickly realized that for this project's logistics, they needed the extra tracks. "I just knew that a 24-track analog machine wouldn't handle

—CONTINUED ON PAGE 155

LOGGINS & MESSINA'S "VAHEVALA"

By Robyn Flans

Even though Loggins & Messina scored only three Top 40 hits—hard to believe for those who grew up listening to them—the duo made an awful lot of noise with their 1972 debut album, *Sittin' In*, a wonderful blend of country rock and folk sensibilities that made them favorites on college campuses and in the heartland for a time. *Sittin' In* was originally intended to be a project that would bring singer/songwriter Kenny Loggins to the public with his own album. But producer Jim Messina, who had already enjoyed success as a member of Buffalo Springfield and Poco, had so much input on the album that it was decided to retitle the offering *Kenny Loggins With Jim Messina Sittin' In*. When the album sold in the millions, they officially became a duo for their next self-titled album. "Your Mama Don't Dance," "Thinking of You" and "My Music" were their three Top 20 singles, but L&M were also FM radio favorites for a number of years, earning airplay for songs such as "House At Pooh Corner" and this month's "Classic Track," their long, flowing epic, the Caribbean-flavored "Vahevala."

At the time that Loggins was writing such *Sittin' In* classics as "Danny's Song," "House At Pooh Corner" and "Vahevala," he had absolutely no sense of the fact that what he was doing would ultimately define a moment in time in musical history. He was simply living in a \$65-a-month duplex apartment in East L.A., with a songwriter's gig at ABC Wingate for \$100 a week. Life was good for the 19-year-old fledgling writer, collecting pop bottles every Sunday to buy his weekly ration of peanut butter and refried beans. "When you're young, everything is ahead of you and it looks like a mountain you're going to climb," he reflects. "And it was."

As Loggins describes it, he was "on fire" with melodies and songs in those days, and writing came easily, including "Vahevala," which he composed with Dan Lottermoser, another songwriter with whom he shared the duplex until the hillside slid into Lottermoser's bedroom wall one day and he had to move. "Back in those days, I was such a hippie that if anyone was in the room while I was writing a song, I considered that energy to be important to the creation of the song and I might give you a songwriter credit.

"I don't mean to diminish Dan Lottermoser's contribution, but the truth is, Danny and I would stay up the night before, drink wine, get stoned and jam. I would tape the whole night and then the following day, I would go through four hours of cassettes and there might be a moment when we passed through an idea and I'd write a song based on that idea. With 'Vahevala,' the chorus—that simple one chord kind of thing—probably came through. So in that situation, in all honesty, he should have writer's credit because he was playing the guitar and we were jamming. Then the next night, he would come



home from work from his straight job, and I'd show him the three or four songs he wrote," Loggins says with a laugh.

"As far as writing the lyric, people ask me, 'What is 'Vahevala'? It was just a sound that came through," Loggins continues. "It caught my attention because it sounded like a place, so I made it up like a fantasy island that this kid came from, where he would sneak off the boat and party with the neighbors and sneak back on before the captain saw him. It was total escapist fantasy. What is most remarkable to me, when I look back on it, is how much joy is in it. It's such an 'I love my life' song."

Messina liked "Vahevala" immediately because of its energy and feel, which was quite unlike Loggins' other more folky material, which Loggins presented to him during their initial dinner at Messina's house. Neither Loggins nor Messina can recall the exact moment their professional relationship shifted from producer and artist to two artists working together, but both have thoughts on the subject.

"When we got together, Jimmy began showing me his stuff," Loggins says. "We will never know how much of that was actually planned by Jimmy. He likes to paint it as if it was a mutual decision based on trading tunes, but knowing Jimmy over all these years, I think he had it in his mind, at least, soon after we first got together."

Messina set about forming a band for Loggins, mostly calling on favors from musician friends due to a lack of finances. ("There was no money and no record deal yet," Messina recalls.) Naturally, he touted Loggins' talent and told them if there was a commitment, there would be money later if, indeed, the project succeeded. He enlisted Merle Bregante on drums, Al Garth on violin, Larry Sims on bass, Jon Clarke on sax and oboe, Michael Omartian (who left right after the recording of the album) on keyboards, and of course, Loggins, who was green, to say the least. "He was a great songwriter and singer, but had absolutely no experi-

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recording notes

ence," Messina recalls. "He didn't even own a guitar. I had to lend him my Strat and I brought in my old Buffalo Springfield amps for the rehearsals."

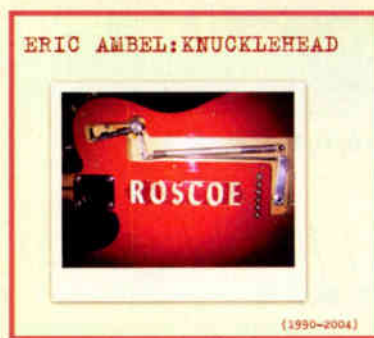
When Messina took the demos to Clive Davis, he hoped his involvement would sell Davis on this unknown quantity. "I told him I thought the best way to go would be to create a concept album, like in the jazz days where it was one artist sitting in with another. I said I thought it was a good way to introduce Kenny to the audience I had al-

ready as an artist I was producing, but also sit in with him. It would give me the opportunity to go on the road with him and get everything moving for him—get him a manager, a road manager, all these things he had never had before. At first, Clive really resisted and said he didn't want to invest in a record where it was going to 'break up' after the first album. But he finally went along with the situation."

Loggins was fine with the "sittin' in" concept. "I knew we had something special and

Cool Spins

The Mix Staff Members Pick Their Current Favorites



Eric Ambel: Knucklehead
(Lakeside Lounge)

Besides being a top-notch producer (Bottle Rockets, Nils Lofgren, Mary's Corvette), engineer and one of the true nice guys of the recording industry, Eric "Roscoe" Ambel is also a rock 'n' roller of the first order, as his distant past with the Del Lords and his new solo album of rock sessions spanning the past 14 years or so shows. Ambel may not be a great singer, but he's got his own "everyman" style, and he's definitely a kick-ass guitarist and fine songwriter who has assimilated influences ranging from the Rolling Stones to T-Rex to Neil Young, and came up with a cool, rockin' album I can't take out of my CD player. New York-types who've followed the many aggregations he's played with might be wowed by the different lineups. I don't know who *any* of these guys are, but I know what I like and what gets me off. Sprinkled amongst the Stones-ish originals are some great covers, from Tom Waits' "Union Square" to the Del Lords' "Judas Kiss" to my favorite cover of 2004: the Flamin' Groovies' "Shake Some Action," *finally* played with some real teeth. This disc is rough, ragged and completely right-on!

Producer: Eric Ambel. Engineered by Ambel and a bunch of other people at various studios (Coyote, 33 1/3, Column One, Cowboy Technical Services, Soundtrack) and other spaces around N.Y. Mastering: Scott Hull.
—Blair Jackson

Michel Petrucciani: So What
(Dreyfus Jazz)

The late Michel Petrucciani might have earned sympathy from some for surviving and triumphing over a debilitating physical condition known as "glass bones" for many years (before his death in 1999), but as this superb anthology proves, the diminutive Frenchman was a true giant of jazz piano—an excellent composer and an interpreter of



great power and sensitivity. This "Best of" set covers his years at the Dreyfus label (mid-to late '90s) and showcases him in a number of different settings, including solo, duets, trios, quartets and sextets; among the guests are Stephane Grappelli, Steve Gadd and Anthony Jackson, among others. Whether tackling George Gershwin ("Summertime"), Miles Davis (a truly breathtaking "So What") or his own tunes ("Home" is

—CONTINUED ON PAGE 158



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it wasn't a horrible thought to me to be a band. I could tell right away that the combination of Jimmy's Texas country Telecaster approach to my material was bringing something very fresh to the music. We definitely had Buffalo Springfield and Poco as a model, but my presence took it to another step because I wasn't from that history. I brought a folk and rock sensibility that he hadn't had before. The melding of those worlds is what made Loggins & Messina different."

Messina began "rehearsing the hell out of the band," as Loggins puts it, for three months before entering the Columbia Studios in L.A., where they completed all the tracks in a week, recording live, with Messina behind the board.

"My experience with Buffalo Springfield was that they did not rehearse," Messina says. "They came into the studio and said, 'Turn on the tape machine.' I realized how quickly you could eat up a lot of time and money if you weren't prepared. It is a lot cheaper to spend eight hours in a rehearsal hall than in a recording studio. That's why, when we went into the studio with all these complex arrangements and all the musicians we used, *Sittin' In* only cost \$30,000 to pro-

duce. I know the style in which we worked frustrated and pissed off the musicians because they had to rehearse so much, but on the other hand, they're still earning royalties

["Vahevala"] was total
escapist fantasy.

What is most remarkable
to me, when I look back on
it, is how much joy is in it. It's
such a "I love my life" song.

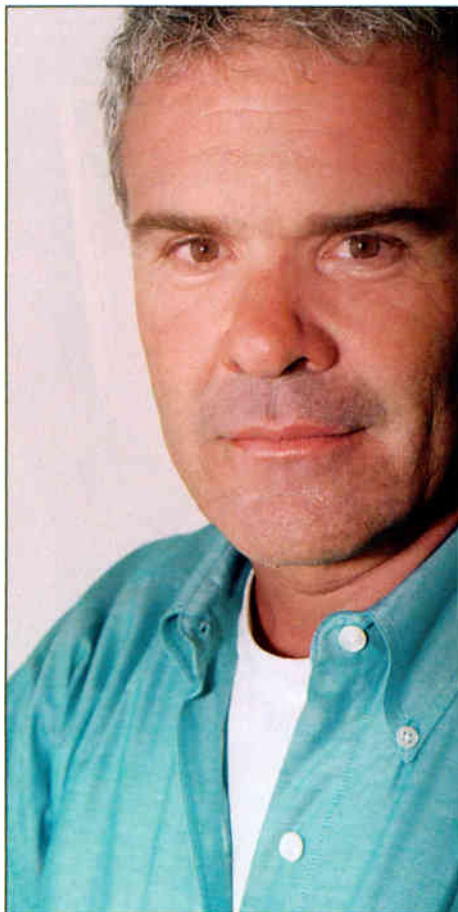
—Kenny Loggins

to this day," says Messina, who reveals that he and Loggins gave the musicians a piece of the pie for "going through the tough times."

For "Vahevala," Messina brought in Tommy Reynolds (of Hamilton, Joe Frank & Reynolds) to help with his concept of adding steel drums to capture the island feel he en-

visioned. "As I recall, he had grown up in Jamaica," Messina says. "I told him I wanted the guys to be able to play the instruments and told him there was one fellow I thought could handle it in particular: Michael Omartian. Tommy said to make it a full band, we'd need at least three [steel] drums, including a lead drum. He made these drums for us and showed them how to play them. I believe Michael played the lead drum, and Jon and Al played the others. Omartian, being the virtuoso he is, was able to pick up the sticks, and within a few hours, had it down. It took the song to a place where it wouldn't have ordinarily been able to go."

As he had with Buffalo Springfield and Poco, Messina brought Milt Holland in to consult, as well. "He was the extra man who didn't travel with us, but he was an ethnomusicologist and was able to bring different rhythms and things to the mix. The most difficult job of keeping the groove together is usually the drummer's responsibility, and I'd bring in this man who had eloquent time and put it in the drummer's ear, so it was like having a click track that has real feel, which freed the drummer up. It allowed me to take the grooves into areas that would ordinarily be unknown to us."



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By the time Messina began recording Loggins, technology was changing. "The boards started changing and we were getting real pan pots. We could begin to experiment a little more," says Messina, describing the equipment they used. "We used all Neumann 67 microphones, Pultecs for EQ on voices, a UA 175, which is a tube compressor I still own today, 1176s for certain things like the bass, and we used a set of mono Teletronix [compressors] in stereo on the overheads to keep the cymbal mics from killing us if they got hit too hard. It replaced the compression inside the drums in ways that it would control the level and enhance it, but not necessarily compress it to the point to where it would create an effect," says Messina, who recalls the console as being custom-made for CBS. "It never was one of my favorite consoles, but it did contain some good components and they were all tube preamps."

When the first album was such a success, the record company asked if the twosome could remain as a duo. But, ultimately, the way the duo was formed created the demise of Loggins & Messina. "As artists, we pretended to be equals, but then the producer had the final say," explains Loggins. "The producer was Jimmy, which created an inequity that I think was the beginning of the erosion of trust in the relationship. We had separate record deals because he was already signed under his Poco deal and then I came in and signed a solo deal. Jimmy then renegotiated his solo deal during Loggins & Messina. We had two separate solo deals and then his deal was sweetened after *Sittin' In*, which Columbia Records should never have done. That fosters an inequity and mistrust. At that point, we were really done. I kept going as long as I could hold on to my hippie ethic, but inevitably, it would break us apart."

Still, Messina feels he fulfilled his objective in the partnership. "When Kenny first came to me, I think he was thinking of making a nice little folk record, but in my opinion, folk music had come to an end and I felt he needed to go to the next step, the next generation," says Messina, who is still recording in his own home studio, writing and performing. "I saw him being a star."

Messina was right. With a couple of decades of hits under his belt as a solo artist, Loggins has now released his ninth studio album, *It's About Time*, even though he had almost retired. "My son, Luke, who was seven at the time, said to my wife, Julia, 'If Daddy stops singing, he'll die.' It was unbelievable. I could see when he said it, some part of him went ahead in time and

he freaked. We have an amazing connection. What I realized was I am a creative person and I have to stay creative for my own well-being.

"My goal is to write about the things that are happening to us now, those who have some experience in life." ■

NELLIE MCKAY

FROM PAGE 144

drums, bass and Nellie on piano, and I thought we might need a straight rhythm guitar," Emerick says. "But I decided that it was most important to focus on the lyrics, so after a short while, it didn't really bother me not having that other guitar."

Basic tracking took place at New York's Clinton Recording Studios, where Emerick could stay in familiar analog territory with the studio's Neve 8078 consoles. "I wanted to use Neve equipment," he says. "I'm a Neve person. Neve desks are musical to my ear; they've got a musical depth to them." The sessions were tracked on Studer analog 24-track tape machines without Dolby at 30 ips on Ampex tape. "I was a little bit concerned about print-through, especially during quiet passages, but luckily, there were no problems."

Emerick was assisted on the sessions by Stuart Breed, with whom he had worked on a number of projects in the mid-1980s, including Garfunkel's *The Animals' Christmas* and *Lefty*. (Breed has been Garfunkel's sound engineer for the past 20 years.) "I wanted Stuart's analog experience. We had worked together in England at AIR Studios," says Emerick. Adds Breed, "We hadn't worked together since 1986, so I jumped at the opportunity."

McKay and combo recorded four songs each day from August 4 through 6 in Clinton's Studio B, recording overdubs there the rest of the week before moving upstairs to the roomier Studio A. Six more tracks were cut—all using upright bass this time—the following Monday, with overdubbing, including string and brass one day, during the next two weeks including the 17th, the day of New York's last power blackout.

Basic tracking found the group performing live, complete with live vocals by McKay. "My approach with this, because it was jazz, was simply to go by feel," explains Emerick. "There was no click track; I didn't want to bring any computers into it." And, yes, that is a real drum loop heard on several tracks made from a two-bar drum take spliced together on quarter-inch tape and

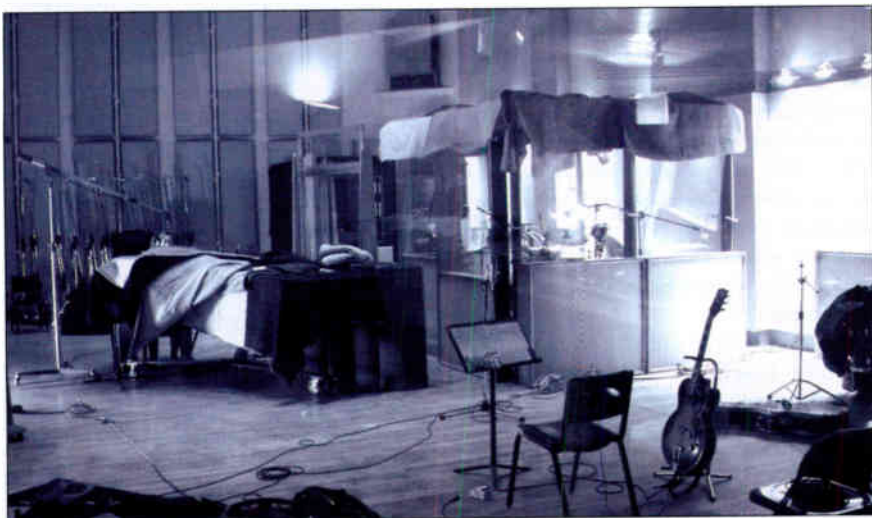
played on a tape machine with a pair of drumsticks, etc., to create a tape path. "You know, like 'Tomorrow Never Knows?'" recalls Emerick of his famous experiment for The Beatles' 1966 *Revolver* album.

The biggest headache with live recording was separation. "Since there was no click track, we wanted to keep everyone as close as possible so they could have eye contact, like they would if they were playing in a jazz club," says Breed. "We achieved it with a lot of glass-panel screening and a ton of pack-

to get, which they get by layering different drums. With this, the guy would hit the bass drum and you heard the air that followed."

For overheads, Emerick used Cole 4038 ribbon mics for the more electric tracks, switching to AKG 414s for the lighter jazz songs. "The 414 is better at grabbing the texture at that lower level, though 4038s pick up an excellent drum sound with a high-end boost," he says.

A particular challenge to the team was capturing the great number of percussion



Geoff Emerick isolated Nellie McKay's piano with blankets while tracking at Clinton Recording (N.Y.).

ing blankets on Nellie's piano." Notes Emerick, "With the live vocals, we needed to get enough separation to avoid any ghost voice on the piano mics"—a hallmark of many a pre-Emerick Beatle recording—"to allow for any later vocal fixes."

Instruments were miked, for the most part, with tube (or "valve," as the two English engineers call them) mics. "We always had the concern that these things might start fading out or get low hums," says Breed, "so that was something we paid quite a lot of attention to."

Underneath all of the packing blankets over the piano were a pair of AKG C 12 mics, while the upright bass was handled by a Neumann U47 placed near the F-hole. For drums, Breed—shifting from rock mode to jazz mode—tried a Shure SM7 on the kick drum before switching to an AKG D-112. "I like the real low bass response of the SM7, but it really wasn't needed for the drum kit that we had," Breed says. "It's normally really great at picking up all those little passing drum notes you get in jazz—the air moving rather than the sound." But the D-112 did the trick. "On some of these tracks, you can hear every different tone coming off of it. It's like the bass drum that every rap artist tries

instruments that the formally trained McKay plays on the album. "I really do have an affinity for the mallet instruments," she says, "so I was glad to be able to play them on this record." Emerick notes that on tracks such as "Baby Watch Your Back," McKay exhibited her true virtuosity. "We miked her doing a vibe solo in stereo and double-tracked it. When you hear her play that solo at the speed she's playing—twice—it's quite unbelievable," he says. "And the vibes are kind of difficult to record. They have a lot of harmonics, so there's a lot of electrical meter value but they don't sound very loud, so you have to craft the track around it."

Also difficult was the glockenspiel, which appears throughout the album. "With the range on that instrument, it can play havoc with the tape," explains Breed. "You have to be very, very careful with miking and with the level you put it onto the tape. It can spill over to adjacent tracks, and if you don't record it right, it can cause everything to sort of wobble because of the high pitch."

But perhaps the most important "instrument" that was miked was McKay herself, whose sultry voice easily places the listener in a smoky nightclub at two in the morning

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surrounded by empty martini glasses. "It was interesting, because this was her first time in a professional recording studio," explains Emerick. "Being so young, she didn't yet have a professional mic technique. Pops were a bit of a problem, but we managed to get rid of those in the end."

For miking McKay, Emerick went with different microphones and compression, depending on the track. "To start with, we set up a U47, obviously a U67, a U87 and an M49. I ended up recording most of her vocals on a 49, because the other mics tended to make her voice sound very telephone-y because of that little lift at about 2k. The 49 gave it a bit more warmth." For compression, Emerick started with a Teletronix LA-2A before switching to another old favorite, a UREI 1176. "I like to over-compress," he says. "I tried to under-compress when I first started with these songs, but then realized that the dynamics within them were so big that I needed better control rather than just taking off the peaks."

While some songs feature McKay at her best Billie Holiday, such as "I Wanna Get Married," which she describes as "one big experiment in breath control," others, such as "Sari" and "Work Song," contain incredibly long lyric lines sung in more of a rap style. "Most of those she would get down in complete takes," recalls Emerick, though the occasional fix was still required, thanks to nimble punch-ins by Breed. "I had some very tight punch-ins, and I was going in and out for words," Breed says. "I'd much rather fix it in the moment rather than wait and set up another track for just one word. I find that if I go back and punch immediately, feeling the artist's breath and what they're doing, I can nail it. I find it very exciting; Geoff finds it suicidal!"

The source of most of the spectacularly creative vocal overdubs and harmonies was McKay herself. "We'd be doing a harmony and suddenly another harmony would come into her mind," says Emerick. "So it was quite spontaneous. Unbelievable, really." McKay's arranging skills are particularly notable, considering she normally plays live without any accompaniment. "I'd done a few vocal jazz charts in college and did a big band chart in high school," she explains. "I do everything on piano. You just sing it or you play it, and that's how you avoid interfering chords."

Notes Breed, "Nellie's approach to building backing vocals is much like the way Rickie Lee Jones did it back in the 1980s. She'd start on the third and then work her way out from there. It would start kind of strange, but then as she'd put other notes

around it and build it up, you suddenly end up with this wall of great vocals. And Nellie is spot-on."

That building-up process eventually led to, on some songs, running 72 tracks on three machines when work shifted to Capitol Records at the end of August, continuing through September into early October. "It was always intended to mix at Capitol," says Emerick, who had been working in the facility's Studio B with another band, The Syrups. "It's always my first choice. Analog, to them, is no problem. And the maintenance backup is so good. You want three 24s? No problem."

Both overdubbing and mixing took place in Studio B. "They're really quite complex tracks," notes Emerick, particularly those spanning three machines. "Even though they had a simple jazz backing, blending all those harmonies was quite a challenge. I typically spent one-and-a-half to two days per track." Emerick took particular care with the vocals, especially with the diction of the sometimes complicated lyric lines. "Her lyrics are everything, so I was very careful to make sure not a word got lost." For his West Coast work, Emerick was assisted by Capitol's Steve Genewick and Bill Smith, who worked off of notes prepared by Breed from the New York sessions.

Once mixing was completed, Emerick brought the finished recording to his favorite mastering engineer, Greg Calbi, at Sterling Sound. "He was the only man who could polish this off and put a final stamp on it," he says, adding, "I'm sure this is a mastering session he will never forget," a smile no doubt hiding some colorful story.

Though the album spans two discs, its running time is only about 60 minutes. So why a double-album? "It's not a double-album; it's a single album," Emerick insists. "Nellie wanted to do all 18 songs and the record company wouldn't accept 18 tracks. So we suggested splitting it onto two discs." The design harkens to Emerick's vinyl days. "You'd listen to side 1, and you'd have a respite between sides, maybe have a cup of tea, and then you'd listen to side 2. With CDs, you ram all this information in one play, leaving the listener to randomly think, 'Oh, I'll stop here,' which might not be the right place you'd want them to stop. To me, this makes a lot more sense," he explains, noting that McKay was equally behind the idea, "fighting tooth and nail for it," to the point of absorbing the cost out of her own pocket.

Having a double-sided album was not out of line with McKay's persona and music. Says Breed, "Some of her music might take some getting used to, but the only reason it

takes getting used to is because it's different. And that's a good thing."

Of her work with Emerick, McKay concludes, "I have a feeling every job is hard for Geoff. He commits himself to it and he's a worrier. He really believes in it, and he really respects the person who's written the work. If being an artist and working as a musician is akin to having a drug problem, he's a great enabler."

MIX
ONLINE
EXTRAS

BEN HARPER & THE BLIND BOYS

FROM PAGE 145

this, track-wise," Hoyson says. "I didn't want to drag two machines [in there]; just locking up two analog machines would have been ridiculous and going to a 48-track machine was our only other option. That wasn't something I wanted to do." Hoyson knows that some would shy away from the digital format for a project like this one "because it seems to go counter to their desired end result, but I think with that console and old microphones and old outboard gear and an older approach, the album still sounds natural and organic and warm."

At the end of the first set of studio dates—there were two—Harper looked around and realized that he was close to completing five songs. "In three days, I'm staring at the better part of a record, and if that's not a sign post, I don't know what is," he recalls. "So we just went from there."

Working with the Blind Boys turned out to be the fulfillment of a career goal for Harper, who has always wanted to make full rock, folk, blues, gospel and funk records. "Because on each of my albums, I've had to put away complete songs in each vein or a couple of really good ideas that are five minutes of focus away from being done. This is the moment and the opportunity. I've never used this phrase, but my God, it's the opportunity of a lifetime to be able to have that material that I've felt this passionately about and to bring it to life at the highest level."

For this gospel collection, he returned to songs that have been in his repertoire for the past seven years, including the title track "There Will Be a Light," "Well Well Well," "Church on Time" and "Take My Hand." Harper and the Blind Boys also covered Jeff Buckley's "Satisfied Mind" and offer an a cappella version of the traditional spiritual, "Mother Pray."

The Blind Boys, who have won the Grammy Award for Best Traditional Soul Gospel Album three times in a row now, will

only sing on spiritually based songs. "We sing gospel songs, so they have to have a gospel message before we can even think about recording it," reports Blind Boy Carter. "These songs give a message that we can accept."

"These are all religious songs," echoes Fountain. "There ain't no hanky panky in 'em. If there were, then we wouldn't be singing. We know Ben sings rock 'n' roll, but he wanted to cut a gospel album, so we took him at his word."

For Harper, working with these gospel greats was "extremely intimidating because of the legend and because of my heightened level of reverence for the men and the music they've created," he says. "They've led me by the hand and I've done the same for them, but you know, when it comes to mu-

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him at his word.

—Clarence Fountain

sic, man, they see clearer than most people I've worked with. They know what they want to sound like and how they want their vocals to sound and move."

To record the trio of guitarists—Harper, Ford and Ward—Hoyson used a combination of Neumann U67s, Royer 121 ribbon mics and Shure SM57s. "I tried to figure out what mic was working best for whatever sound we were going for and then just find the right balance. I kind of used the microphones to EQ with because, obviously, the 57 is going to be a little dirtier and a little more distorted, the 67 is going to have better clarity throughout top to bottom, and then the Royer is going to be a little friendlier, not so much high end; because it's a ribbon mic, it's going to be a little rounder." Harper's guitar went from the mics into an LA-3A compressor and then into a Pultec EQP-1A. To capture Harper's slide guitar playing, Hoyson went DI, though it's not his favorite mode of recording. "I don't neces-

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sarily like the sound of a DI, but sometimes tucked in with the microphones, you get a little more body and clarity. So I use it as my clean signal, but I wouldn't want to rely on it—it's just an added thing."

Once recording was completed, Hoyson turned to the challenge of mixing the 11 songs. First, he took the tracks home and automated vocal rides within Pro Tools. "I went through and balanced the Blind Boys and if there was anything glaring, like a bad headphone leak or if they bumped something, I cleaned it out," he explains. "One thing that drives me crazy with analog is rewinding the tape 10 seconds four times in a row to where you finally grab the fader at the perfect moment to get one word. That's the most useful thing for me personally in Pro Tools: to go in and do more detailed automation.

"On two of the songs—'Where Could I Go?' and 'Well Well Well'—we used my rough mixes for the album," Hoyson continues. "On 'Well Well Well,' Ben is playing a Resonator [a Dobro-like guitar] and it's the most organic song on the album. It's just him playing guitar with the Blind Boys singing, a kick drum and some percussion. So it's pretty stripped-down and old school-sounding. The rough mix just had this vibe that I couldn't beat and when I tried to perfect the balances of the background vocals and make it all nice, it became so boring. So maybe when you listen to the mix, all the Blind Boys' parts aren't balanced perfectly and it's a little sloppy from a perfection standpoint, [but] it just has this great feeling to it."

During the mix dates, Hoyson kept things relatively simple, using an EMT 250 as one of his primary reverbs, but also employing Capitol's Les Paul-designed live chambers.

Not surprisingly, Harper would show up as the mixes neared completion, but Hoyson admits he was caught off-guard by the appearance of the entire band at Capitol Studios. "It would be me and Ben and the whole band finishing the mix together to a large degree," he recalls. "To most engineers, that would scare the hell out of them. Usually you're in there with the producer or with the main artist not getting that much input. But they were great. They weren't concerned about their instruments; they were just concerned with the blend. They had fantastic input and great ears. They really helped the process."

For their part, the Blind Boys could not have been more delighted. As Fountain notes, "Working with Ben was just as sweet as honey in a rock and I think this will bring us another Grammy. Yes, I'm pretty sure of it." ■



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Cool Spins, FROM PAGE 148

my favorite), Petrucciani combines bold vision as a player with a tremendously sympathetic approach to ensemble work. If you're unfamiliar with his genius, this is a fine starting point.

Produced by Francis Dreyfus. No other recording information provided. —Blair Jackson

Los Angeles Guitar Quartet: LAGQ's Guitar Heroes (Telarc)

The famously eclectic LAGQ has occasionally been compared to the Kronos Quartet because they long ago shattered the boundaries of so-called "classical" music to incorporate influ-

ences from folk, rock and various other, more "serious" modern idioms. On this fine release, these four wizards of the nylon-stringed acoustic guitar—John Dearman, William Kengiser, Scott Tennant and Andrew York—tackle compositions from and inspired by some of their heroes, including such diverse artists as ECM icon Ralph Towner, Jimi Hendrix, John McLaughlin, Django Reinhardt, Frank Zappa, Chet Atkins and Michael Hedges. That's a lot of stylistic ground to cover and, indeed, the music moves from delicate lyricism to dissonant noise, with lots of shading in between, but it's all executed with incredible dexterity and an obviously



deep understanding of every genre. It's sometimes heady stuff, but also full of passion and grace. Typical of most Telarc releases, the sound is magnificent. The album is also available as a multichannel SACD.

Producer: Robert Woods. Recording, mixing and mastering engineer: Robert Friedrich. Studio: O'Henry (L.A.). —Blair Jackson

Keane: Hopes and Fears (Interscope)

It would be easy to dismiss Keane as merely another Coldplay/Travis imitator, as they share the same sort of attention to soaring, emotive vocals and ethereal melodies as their more established Brit-pop brethren. But that would be a disservice to this promising young trio from a small Sussex village in England, who purposely forgot to add a guitar and instead relied on Tim Rice-Oxley's piano, keyboards and random sampled effects, Richard Hughes' spartan drum kit and Tom Chaplin's compelling voice. The single



"Somewhere Only We Know," followed by "This Is the Last Time" and "Bend and Break," bounce with upbeat, well-crafted melodies and an abundance of pop hooks, sounding lush despite limited instrumentation. From there, the disc gets more interesting. Chaplin aches on "We Might As Well Be Strangers" and belts out a Radiohead-like falsetto on the effects-laden ballad, "She Has No Time." But the group really comes into their own at the disc's end with "Sunshine" and "Untitled 1." Definitely worth picking up; just make sure to listen all the way through.

Producer: Andy Green, James Sanger, Keane. Engineers: Green, Mark "Spike" Stent. Assistant engineers: David Treahern, Rob Haggatt. No studios listed. Mastering: Ted Jensen/Sterling Sound. —Heather Johnson ■

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L.A. GRAPEVINE

by Maureen Droney

Larrabee North was buzzing over the new Nikka Costa project, so I stopped in for a visit with mixer Manny Marroquin to see what the excitement was all about. Marroquin, who's known for his work with Alicia Keys, Kanye West, Santana and Usher, among others, and who's worked steadily at North for some years now, played me some cuts from Costa's upcoming Virgin album, *can'tneverdidnothin*.

PHOTO: MARY REE/DRONEY



Mixer Manny Marroquin (left) and producer Justin Stanley worked at Larrabee's Studio 2 for Nikka Costa's latest release, *can'tneverdidnothin*, due out October 5.

The daughter of arranger/producer Don Costa, Nikka Costa is—intimidatingly—also the goddaughter of Frank Sinatra. It's her own singular style, however, that's drawn critical raves and Platinum sales in Europe and Australia on her previous projects. For *can'tneverdidnothin*, she's assembled a hot team: Aussie producer (also her husband) Justin Stanley (The Vines), Marroquin and management by über-manager Irving Azoff and Randy Jackson (the first-call session and touring bass player-turned-A&R man/*American Idol* judge).

On the evening I visited, there was more

than the usual abundant selection of gear stacked in Larrabee's Studio A. "When I get a chance to work on a project that's as much fun as this with some room for experimentation," says Marroquin a little sheepishly, "I start bringing in all the toys.

"It's kind of rare these days," he continues, "because it seems like most people want to stick with the same formulas. It's, 'We've got 12 hours, can you make it happen?' Well, of course. But the bottom line is, how much attention to detail do you want?

That's why this project was so refreshing. The songs are great. If we'd mixed them in a day, they'd still be great. But to try to capture something unique for each one, where the sonics match up with the emotion that was intended when the songs were created, takes a little time. It's about making the mixes an extension of the song rather than making the songs fit a mix formula."

The album was recorded at Cello Studios, Sunset Sound Factory, and at Costa and Stanley's home studio. "I love Cello and Sound Factory," says Stanley. "They're real-

—CONTINUED ON PAGE 164

NASHVILLE SKYLINE

by Rick Clark

Nashville's recording community has seen its fair share of drama in the past few years as the music industry adjusted to the emerging business models. Many would agree one of the "main acts" in this continuing soap opera is titled, "What Will Happen to Emerald Recording?"

For more than 20 years, Emerald has reigned as a leading recording studio on Music Row, having seen many ups and downs, but more importantly, lots and lots of great music. Emerald's seven Music Row-based recording and mixing studios (and five divisions spanning five buildings) have been the scene for countless critically acclaimed and hugely successful projects. Newer superstars such as Faith Hill, Tim McGraw and Kenny Chesney flock to Emerald and Masterfonics, while legendary country artists George Strait, Wynonna and George Jones have long called Emerald their recording home. Pop artists Sheryl Crow, Josh Groban and Alicia Keys are among the artists outside Nashville's normal circle who have recently chosen to use Emerald when they come to town.

But in recent years, as rumors of the company's financial strain swirled around town, many wondered if the company had a future to match its illustrious past. Now, Nashville has been buzzing with the story that Weston Entertainment, the San Antonio-based company that purchased the Sound Kitchen a year ago, would increase its market share with the purchase of Emerald. Emerald COO Andrew Kautz confirmed that the company was in negotiations with Weston for a long period of time, but in the 11th hour, they chose not to move forward.

"I think it just wasn't a good fit for them at the time," Kautz says. "Weston is a very large company, and it became evident that they have many irons in the fire and perhaps now was not the right time for them to add a company as complex and diverse as Emerald to their holdings.

"I will admit it was a shock when the Weston deal did not go through. All the indicators were that we were moving forward; however, I always know that a deal

NEW YORK METRO

by David Weiss

is not done until it is signed. At this point, I am even more dedicated to finding a party that understands and appreciates the incredible value and history that is here."

It is no secret that Emerald successfully emerged from Chapter 11 back in 2002. The problem was that it was a dollar-for-dollar plan, as is necessary for the shareholders to keep their equity. "The company had been leveraged to this point beyond its asset values, and it became evident that though we were able to cash-flow the plan for over a year, that without an equity infusion or truly reorganizing the debt, we were only bidding our time," Kautz explains.

"Then, in 2003, factors beyond their control dictated that management, in an effort to assist a transition of ownership and to preserve the value of the entity as a going concern, once again put Emerald into Chapter 11 to reorganize once and for all. Ironically, Emerald has experienced some of its strongest months in years, and we are more capable now than we have ever been. Reorganization makes you really look at yourself through a microscope and gives you freedom to make needed adjustments. I have worked diligently to isolate our staff

—CONTINUED ON PAGE 167

Sometimes, understanding the music business is only half the story. In the fight for survival in New York City, which is still overserved when it comes to the current demand for music facilities, knowledge of best practices from other industries can be just as important as having the best live room or producer's desk.

For the founders of Blue Ribbon Sound, success in New York City's cut-throat restaurant industry has been a portal to the city's cut-throat recording studio sector. Studio/restaurant co-owners Bruce Bromberg, Eric Bromberg and Sefton Stallard attended France's prestigious Le Cordon Bleu cooking school and then went on to open Blue Ribbon in 1992, a New York City culinary institution famous for its relaxed vibe, late hours and daringly pleasing menu items like beef marrow with oxtail marmalade.

As their reputation took off and led to five more restaurants in Manhattan and Brooklyn, the Brombergs never lost track of their deep musical roots. "In the beginning of Blue Ribbon, we were so slow late at night that we'd set up in the prep room and our band would jam," Bruce Bromberg recalls with a laugh. "Then the manager would run down and tell us we had customers!"

The Brombergs and their cohorts kept jamming and recording, and as their culinary empire grew, they realized in early 2004 that the time was finally right to create a serious studio in which everyone could feel comfortable. Built into two solid floors below a late 19th-century building in the historic financial district, Blue Ribbon Sound boasts a sizable



PHOTO: JAMES CANTWELL

Table for one band, please: Blue Ribbon Sound's live room

live room ideal for big drums, Pro Tools|HD3 with a Digital Performer front end, reasonable rates and the great taste that is equated with all things Blue Ribbon.

"We decided that we had an amazing opportunity with the space to create a perfect recording environment," says Bromberg. "It's not a big business concept where it's got to be making money on every project. It's an environment where artists and musicians can go, be comfortable and do the best job they can. At the same time, like our restaurants, we didn't want to have that total upper-echelon manner where it has to be expensive and you have to behave a certain way. The Blue Ribbon concept is about being casual and having fun."

Overseen by studio co-owner engineer Roderick Kohn, Blue Ribbon Sound is a basement and sub-basement hewn into an unusually open-feeling bi-level structure that capitalizes on its old fieldstone construction. "There's some really cool tonal situations in that space," Bromberg notes. "We have a huge live room with 18x30-foot dimensions. Drums are supercool in that room now: It's pretty much like [Led Zeppelin's] 'When the Levee Breaks' if you want it to be—like you're in some castle in the hills of England."

According to Bromberg, there are some definite parallels between the music business and the competitive Manhattan restaurant scene that he knows so well. "The stu-

—CONTINUED ON PAGE 170

New country artist Gretchen Wilson (seated) and Mercury recording artist Terri Clark pose in Emerald's Studio A during a radio remote broadcast.

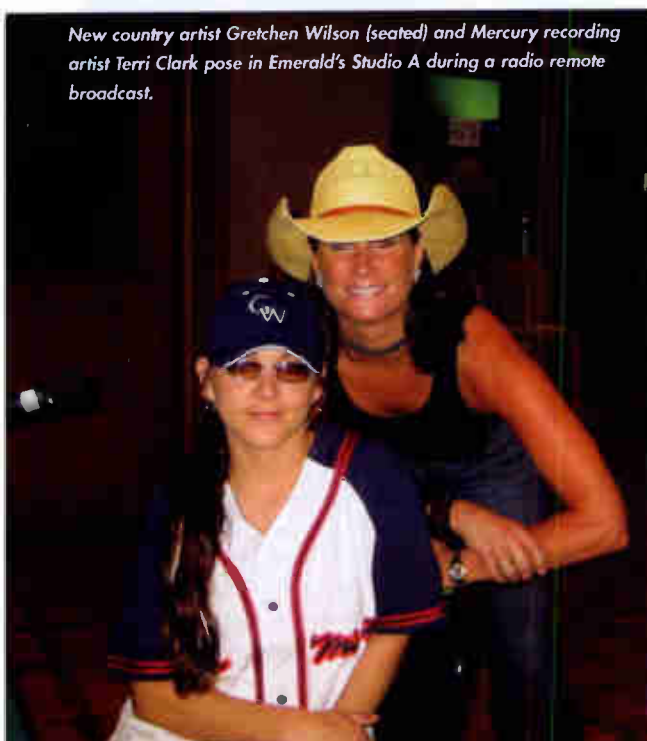


PHOTO: JAWHE ALUSTIN

A NEW BAY AREA STUDIO? WHATEVER

Childhood friends Tom Augusta (l) and Kevin Braga recently opened Whatever Studios, a recording/rehearsal facility on Kelly Hill in Hayward, Calif. Equipment includes Pro Tools MIX|24; Allen & Heath GS3V mixer; Event Electronics, NHT Pro and Renkus Heinz monitors (with sub and floor wedges for live rehearsal); MIDI network with Korg and Roland synths; Mesa Boogie, Ampeg and Gallien Krueger bass and guitar amps; and an assortment of mics. In between working with outside clients, the duo is recording their self-titled album, *Weird*.

"We've always liked new and unusual music and have always wanted our own studio," says Augusta. Sure, whatever. For details on their official launch event, visit www.whateverstudios.com.



INDIE BUZZ

SI*SE: OUT OF THE BEDROOM, INTO MANHATTAN CENTER



Pictured from left: Cliff Cristofaro, Bonzai and lead singer Carol C.

New York City-based Si*Sé chose **Manhattan Center Productions** as the recording home for their next album, with Jim "Bonzai" Caruso (Diana King, Willa Ford, Nas) as engineer. The group recently jumped from a life of bedroom recordings to opening for Talking Heads frontman David Byrne. "When you're

used to a relaxed, creative atmosphere, the idea of moving into a professional studio can be intimidating," says Si*Sé composer Cliff Cristofaro. "We didn't know what to expect. But all the people here are wonderful; it's more like a family than a stuffy recording facility."

AL SCHMITT MIXES TONY ADAMO CD



Pictured at Capitol Studios (l to r): Jerry Stucker, Ron McMaster, Al Schmitt and Tony Adamo.

Jazz artist Tony Adamo and producer/guitarist Jerry Stucker visited **Capitol Studios'** (Los Angeles) Studio C to mix Adamo's forthcoming jazz CD with multi-TEC Award-winner Al Schmitt. Steve Genewick assisted. The collection of jazz standards and pop re-arrange-

ments were tracked by Justin Lieberman at Different Fur in San Francisco and mastered by Ron McMaster at Capitol.

RAPHAEL SAADIQ HEADS TO FUTURE DISC



Pictured from left in Studio 1: Raphael Saadiq, engineer James Tankslee, Joi and engineers Gerry Brown and Kris Solem

R&B vocalist/producer Raphael Saadiq—the former Tony! Toni! Toné! member who racked up five Grammy nominations for his neo-soul album, *Instant Vintage*—stopped by Future Disc (Hollywood) to master his album, *All Hits at the House of Blues*, and new solo albums for Joi and Truth Hurts, all for his label Pookie Records. Kris Solem, who also mastered *Instant Vintage*, engineered the projects.

TRACK SHEET

BEHIND THE GLASS

RUSH "FEEDS BACK" AT EAST IRIS



Pictured from left: Rush guitarist Alex Lifeson, Song Park, drummer Neil Peart, David Leonard and frontman Geddy Lee

East Iris Studios (Nashville) welcomed prog-rock legends Rush, who mixed their upcoming release, *Feedback*, on the SSL 9000 J in Studio A with producer/engineer David Leonard and assistant Sang Park. The album marks the group's 30th anniversary.

STUDIO X DISCOVERS FORGOTTEN REALMS



Pictured from left: Stormfront's audio director Andrew Boyd, composer Robb Mills (seated) and Larry Kenton, who conducted the sessions and contributed to the project's orchestration

Stormfront Studios came to Studio X in Seattle to record orchestral sessions for Atari's upcoming video game, *Forgotten Realms: Demon Stone*. The soundtrack features an original, fully adaptive soundtrack composed by Stormfront's Robb Mills and performed by the Northwest Sinfonia. Ross and Audrey deRoche of deRoche Music provided music coordination services, while Reed Ruddy engineered. The game is set to ship this fall for PlayStation 2, which will be followed by an Xbox version.

NORTHEAST

Sound on Sound (NYC) found Vanessa Williams tracking with producer Rob Mathes and engineer Mark Mendelbaum; Lenny Kravitz remixing with producer Just Blaze and engineer Ken Lewis; Brandy recording vocals with producer Geroid Roberson and engineer Daniel Boom; and Korn mixing with producer Lil Jon and engineer Brian Stanley in their A and B rooms...36 Chambers Studios (NYC), part of the Wu-Tang Clan enterprises, is now open to outside projects, according to house engineer Terrance "TP" Pender. They offer Amek 9098 and SSL 9000 J consoles, Studer 24-track, Pro Tools and numerous vintage mics. Recent projects include KRS-One and the *Kill Bill* soundtracks, among others. Info: www.wutangcorp.com/36chambersstudio...After a brief hiatus, Oubway Studios (NYC) resumes audio production for *Live at VH1.com* (Original Media, VH1/MTV Networks); the latest installment, featuring PJ Harvey and *Story of the Year*, was engineered by Jason Marcucci. Marcucci also engineered tracks for *Queen Eye's* Jai Rodriguez's upcoming release with producer Chad Richardson, and composer Evan Lurie teamed with studio owner/engineer Mike Crehore to work on music for the Nick Jr. TV show, *The Backyardigans*...Legendary Ronnie Spector stopped by LoHo Studios (NYC) to record with producer/engineers Roey Shamir and Angela Piva.

SOUTHEAST

East Iris (Nashville) filled its A room with mix sessions from country singer Chad Austin with producer/engineer Kevin Beamish and former a-ha vocalist Magne F, who teamed with engineer Bobby Shin...Saliva finished mixing their third Island/Def Jam record at 747 Studios (Memphis). Paul Ebersold produced and Skidd Mills mixed...Producer Kevin Wales and engineer Alvin Speights mixed new tracks at ZAC Recording (Atlanta) for Bad Boy recording artist B-5...Bowling for Soup (Jive Records) returned to Ruby Red Productions (Atlanta) to record their sophomore CD, *A Hangover You Don't Deserve*, with studio owner/producer Butch Walker and engineer/co-producer Russ T Cobb. Walker also celebrates the release of his Epic debut, *Letters*, out August 24, and his studio's upgrade to a modified Neve VR60 with Flying Faders...British band The Music traveled to the recently remodeled Southern Tracks (Atlanta) to record their new album, *Welcome to the North*, produced and mixed by Brendan O'Brien. O'Brien later mixed Counting Crows' "Accidentally in Love" for the *Shrek 2* soundtrack...Camper Van Beethoven was at Sound of Music Studios (Richmond, VA) to record *New Roman Times* with engineers John Morand, Brian Hoffa and Alan Weatherhead. Morand and partner David Lowery worked with Indecision, RANA and D'Angelo, while SOM producer/engineer Weatherhead aligned with Hotel Lights, which features Ben Folds Five drummer Darren Jesse.

NORTHWEST

Outpost Studios (San Francisco) hosted ADR sessions for director David Marfield's *Deepwater*, sound mixing for Zealot Pictures' *24 Hours on Craigslist* and the short *Highway to Jane*, both engineered by Dave Nelson. Nelson al-



Drummer Craig Krampf locked out Sound Stage Studio's (Nashville) Backstage room to produce local band Laws Rushing. Seated (L-R): engineer Jesse Benfield, Craig Krampf, producer Jason "Moon" Wilkins and assistant engineer Mike Rhods. Standing: Dwayne Rushing, Shone Crocker, Laws Rushing and Mike Bair

so co-produced and mixed a Lou Reed tribute album with Angel Corpus Christi...Flying Heart Records' Jan Celt mastered Chris Newman's new CD, *Tarp Town Years*, at Nettleingham Audio (Vancouver, WA). Tracking sessions include Carl Wirrkala, The Martindales and Shane Wilson, and regional acts The Lonesomes and Sandi Soyle.

SOUTHWEST

Texas group Laughing Stock visited Razor's Edge Sound (Austin, TX) to track their upcoming album for TFC Records with engineer/mixer Kevin Hamilton.

SOUTHERN CALIFORNIA

ONA Mastering (Studio City) president/chief engineer Dave Donnelly reports mastering sessions for the *Shrek 2* soundtrack (Dreamworks/Geffen), *Soul Asylum's* *Live* album (Sony/Legacy), *Hurricane Party* and *Tesla* (Sanctuary), among others...Sunset Sound's (Hollywood) Studio 1 hosted Beach Boy Brian Wilson, who tracked his long-awaited self-produced *SMILE* release with engineer Mark Linett. Jewel recorded new tracks with producer Mike Pela and engineer Todd Burke. Rocker Billy Idol tracked a new album in Studio 2 with producer Keith Forsey and engineer Clif Norrell, and polar-opposite Steven Curtis Chapman tracked his forthcoming release with producer Brown Bannister and engineer Trina Shoemaker. Studio 3 welcomed Lisa Marie Presley, who recorded her new album with producer Eric Ross and engineer Howard Willing. Also in 3: comedian/recording artist Chris Rock tracking new material with producer Prince Paul and engineer Scott Harding. ■



Houston-based pop/rock trio Sky Blue 72 tracked and mixed three songs at SugarHill Studios (Houston) with producer Robbie Parrish and senior staff engineer Steve Christensen. Look for their full-length CD this fall. Pictured from left: Intern Heba Kadry, Christensen, drummer/vocalist Jessica Zwebach and Parrish

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ly creative environments. There's always gear in the hallways, instruments lying around and, especially at Cello, the doors to the other studios are generally open. People like Jim Scott, George Drakoulias or Jon Brion are working down the hall from you, and there's a feeling that people are open to sharing instruments and ideas. There's privacy if you want it, too. But sometimes a player on another session walks by your studio, pops his head in for a listen and ends up laying down a great track for you. Jon Brion did that for us. That's something you'll never get in a home studio."



Costa and Stanley fleshed out the ideas at home to the point where, Stanley says, "We had to get some musicians in a room together to bash it out." Stanley admits that he and Costa "have a thing for drummers." Among those bashing it out were L.A. stalwart Jim Keltner, Prince cohort John Blackwell, Ahmir uestlove, Brian Reitzell and Abe Laborial Jr. Tracks, in the main, were recorded to 2-inch analog tape at 30 ips using Dolby SR. Marroquin mixed to 1-inch Quantegy GP9 analog at 15 ips plus 3, as well as to Pro Tools 24 bit/192 kHz and 24 bit/96 kHz. Classic analog equipment played a large role, from Neve and API consoles for recording to Motown, Pultec, Quad 8, Fairchild, Gates and Tube-Tech gear on the mix. Says Marroquin, "Our overall goal was to accentuate and exaggerate the emotions of the songs with the sounds."

It was the first really hot day of summer. Temperatures had breached 100, and when I pulled up to the downtown building that houses Bombshelter Studios (www.bombshelterstudios.com), I found owner Eric Kretz out in front carefully watering some thirsty new plants. In spite of its recent gentrification, downtown remains a mystery to many Angelenos. But Kretz, a drummer and founding member of Stone Temple Pilots, knows

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his way around, having lived for more than 10 years in an industrial loft not far from his new studio.

Kretz has logged a lot of hours in a lot of studios, forming opinions about what makes a studio a good one along the way. He's also realistic about the current—and probable future—state of the studio business. "Home studios are amazing," he comments, "because they're convenient, flexible and always available. But when you bring a band in for weeks at a time, it just doesn't work. With STP, I worked in so many great studios around the country. I learned which ones were the most creative for us and what things lead to a great recording experience."

Carved out of what was previously a fancy soap factory, Bombshelter boasts 100-year-old sandblasted brick walls, 16-foot-high ceilings and lots of space: think half-court basketball in the lounge. The recording area can hold a 44-piece orchestra; there are also three large iso rooms. The control room is big, too. Its centerpiece is a 48-input SSL G+ refurbished by Professional Audio Design; also part of the setup is an 8-channel vintage Neve sidecar. Says PAD's Dave Malekpour, "It was an exciting project because I got involved early on when it was just cement floors and open space. We've been reconditioning consoles since 1997, and I have to say that Eric's console is a particularly nice one. It has 44 channels of E242 EQ, the 'black EQ' that's favored for rock, as well as four channels of G292 EQ, and it has all the latest upgrades and G+ grounding mods. It's way above its original spec."

Kretz himself did the facility design and then worked with Brad Keeler of Progressive Designs to realize it. The end result is stylish but warm and comfortable, managing to evoke an art gallery vibe without the intimidation factor inherent to most galleries. The control room ceiling is unique: A skylight allows natural light and metal squares suspended perpendicularly from the ceiling to act as sound diffusers and design elements, a means, Kretz says, "to help it sound great while also playing with the open architecture."

"I've worked in some control rooms where the sound didn't translate to your car or your home system," he explains. "I know how important it is that the control room sounds right. I also wanted it to be large. It's not good to have six or seven people in a control room breathing down each other's necks. [Laughs] Musicians tend to have tremendous egos, so the more space the better."

"But also, STP recorded two records in houses and we really liked the results. That taught me that you didn't have to work in a traditional studio. For Bombshelter, I wanted to duplicate some of that living room vibe that really helps to relieve the stress of recording."

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Not surprisingly, a drum kit or two is usually set up for recording. The studio is also home to a large collection of guitars and amps, along with a piano and a Hammond B3. "When musicians see a space this big, they tend to ask if they can store their gear here," says Kretz with a laugh. "My answer is, 'Can we use it?'"

The control room houses a loaded Pro Tools|HD2 rig along with a respectable array of outboard, including dbx 160s, UREI blackface 1176s, Empirical Labs Distressors and a FATS0, as well as Demeter, Summit, Pultec, Alan Smart and Tube-Tech pieces. "It's pretty much everything you need," Kretz observes. "You can always have more, but then, that's what the mics are for. Because in the end, it's all about the performances."

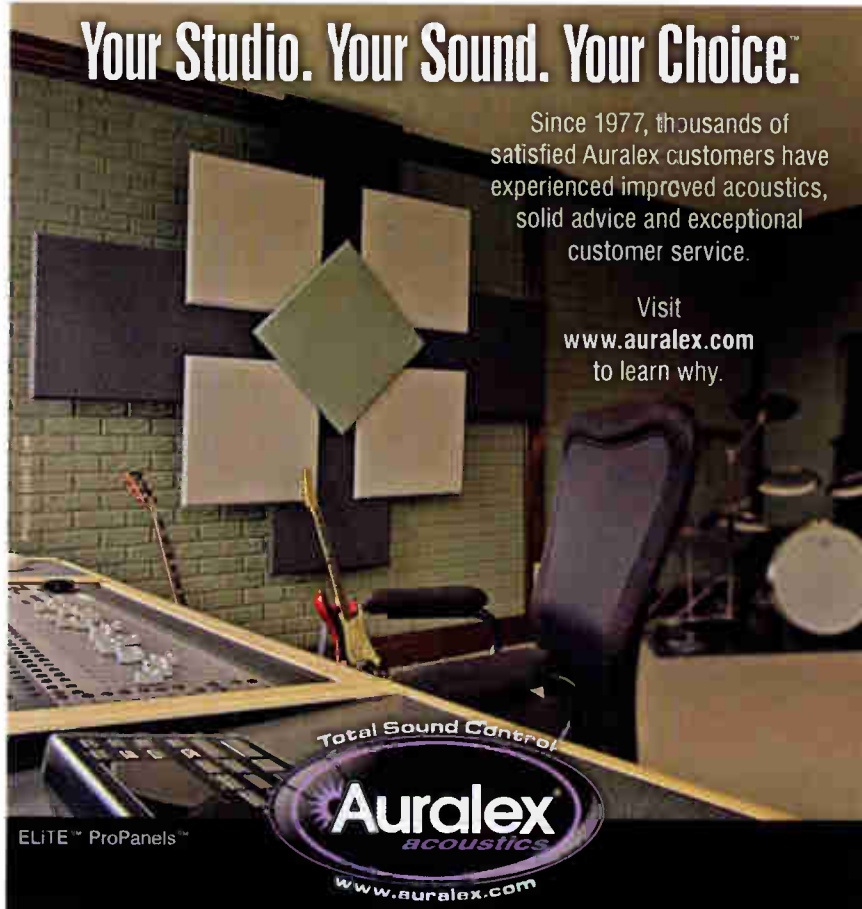
The inaugural session on Bombshelter's new console was mixing for Fu Manchu with producer/engineer Brian Dobbs. Upcoming are projects that Kretz is producing, including the San Francisco Bay Area's Spiral Arms, which he describes as "straight-ahead rock" and British-style folk rockers 2 Cent Penny. "My goal as a producer is to capture the thrill of committing to a performance," Kretz says. "I worked with [producer/engineer] Brendan O'Brien a lot: He taught me that it's a much more exciting way to record than to tweak over and over until you lose sight of what you were going for in the first place."

Kretz sees Bombshelter as somewhere between a private and a commercial studio. "Up until now, it was private," he relates. "I

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From STP to studio owner: Eric Kretz at his Bombshelter Studios in downtown L.A.

had a Sony DMX-R100 console and it was great for writing and bringing friends in to play. I'd like to keep that feeling even though we've upgraded. I don't want it to be a traditional commercial studio. I never envisioned this as a vehicle to make money from. That's hard, or impossible, to do today. And I don't want to lose sight of what a studio is all about: music and creativity. It would be great to have three or four resident producers who are friends who can do their projects here. What's important to me is to be known as a place where bands can have a great experience and make great records." ■

Got L.A. stories? E-mail MaureenDronney@aol.com.

NASHVILLE SKYLINE FROM PAGE 161

from the day-to-day issues of reorganization, trying to allow them the ability to do what they do better than anyone in Nashville. It also doesn't hurt that we have and continually cater to some of the best clients any facility could hope for."

Kautz confides that although Weston passed, the word spread fast and he has been inundated with prospective buyers. "Whoever purchases us is undoubtedly going to get an incredible value at the proposed \$2.2 million mark, but what I am most concerned with is finding a buyer that is a good fit with the business we have built over the years. We have one of the most loyal client bases ownership could ask for, a dedicated and unrivaled staff, we have remained solidly booked even through hard times and, most important, we have diversified Emerald's operations using multiple profit centers, which is essential to success in this day."

In addition to the studios, which all boast SSL consoles, the company offers a thriving broadcast division and includes the Masterfonics mastering facility and a partnership with Michael Davis called Digital Audio Post @ Emerald.

Qualified buyers interested in the purchase of Emerald should contact Kautz at 866/437-4801 or drew@emeraldentertainment.com.

September traditionally marks the beginning of another school year, but in Leiper's Fork, this summer was the time for another kind of school, one that kids actually looked forward to: Kids on Stage summer camp. This annual event takes place at Hillsboro Elementary Middle School and is part of the school's year-round curriculum dedicated to the arts.

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with professionals in the music industry and learn how to write songs, improve their playing skills and form bands in many different genres, as well as study engineering, filmmaking and videography. Preston, along with the selfless and hard-working Gene Cotton, managed to wrangle sponsorships and loads of gear and instruments from manufacturers including Mackie, Gibson, Elixir Guitar Strings, Eastman Instruments, Holland Amps and others. The Middle Tennessee Electric Cooperative also kicked in as a corporate sponsor.

This year's summer program—attended by nearly 300 students—was the biggest ever. The program's instructors are all career professionals involved in various aspects of the art and music business. The camp is not-

PHOTO: RICK CLARK



Rhythm guitarist Matt Kluting (background) and lead axeman Brandon Bennett of Kids on Stage band Novacain bang their heads

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ed for its celebrity guest appearances: Luminaries who have stopped by include Naomi and Wynonna Judd, the Dixie Chicks, Michael McDonald, Deana Carter, Faith Hill, John Haitt, John Anderson, Tim McGraw, Trey Bruce, Robin Hood, Kirk Whalum, Randy Goodrum, producer/videographer Sam Taylor and others.

While I'm certainly not in that league of notoriety, I've been asked to pitch in for the past couple of years to provide instruction. I usually take on a handful of kids and help them form a band and pick music, and arrange and perform it at the climactic camp concert in the school's auditorium (which is outfitted with generous amounts of record-

ing and P.A. gear courtesy of Mackie and a very nice Bag End speaker system).

Like all of the kids in this camp, my guys—who adopted the band name Novocain to reflect their metal tastes—had to apply and demonstrate some proficiency on an instrument to enter. The real value of this camp was showing them how taking responsibility for their talent and contributing to the team effort really can lead to making music that matters.

I would highly recommend that pros in the Nashville area call Cotton, the academy director for Kids on Stage, to offer their talents to this worthwhile undertaking. You won't be sorry.

For further information, contact the Kids on Stage office at Hillsboro Elementary Middle School, 615/599-8591 x4938, or academy director Gene Cotton at 615/794-5712.

On a closing note, I recently learned that Nicole Cochran, one of the Nashville recording community's most tireless advocates, was stricken with MS. As many know, it is a heartbreakingly cruel, debilitating disease. Cochran is a real trooper and, in spite of some hard days, she is still on the phones and e-mailing, running her publicity company, Nic of Time Communications.

When we discussed her situation, Cochran noted that, "Due to doctor's orders, I am going to have to cut down on my stress and work load. Unfortunately, I can't go mach speed like I have since I opened Nic of Time in 1996. Because of that, I have had to decline SPARS' invitation to become the executive director. Press had already gone out that I accepted. They are currently searching for another executive director and interviewing candidates." Interested parties should contact SPARS president Jeff Greenberg at The Village in Los Angeles at vil-lagerec@aol.com or SPARS@SPARS.com.

"I am now going to focus my energies and business on what I do best: PR for the audio community," she continues. "Sometimes life throws you your very own road block that forces you to stop and evaluate how fast you have been living. I am actually looking forward to bringing the business down to a more manageable size that allows me to just take on clients I am passionate about."

While it is important to stress that Cochran's MS is "functional" (as her doctor calls it), we hope you'll join us in offering our support and care. "This community—NAPRS, AES, all the studios—have really rallied around me," she says. "It has made a very difficult situation bearable. I feel so blessed." ■

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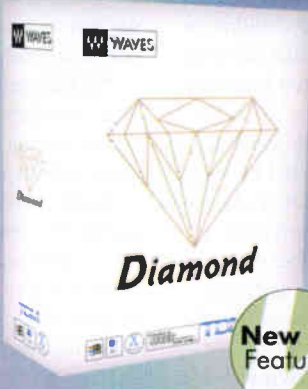
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dio industry right now reminds me of 1992 when we opened our first restaurant," he recalls. "There were all these incredibly expensive, high-powered French restaurants, very fancy and severe. Then there was this downscaling and people got sick of three-hour meals. Their businesses weren't paying for everything anymore, so people were looking for a different feeling.

One of the keys to managing the transition to the new facility was Holtzman's considerable real estate and construction acumen, acquired from his many years as a New York City tenement owner. "If you're going to build a studio, you should have some knowledge of how to build a studio," Holtzman notes in his entertainingly salty manner. "I built two of the rooms in my first studio myself, and I learned a lot about what

little scribble strip for each channel so you can save your setup: When you walk back in the studio and hit the mix page, everything comes back in a second."

Equipped with a flat-screen monitor that floats above the console on an Ergotron swing arm, a wireless keyboard and a built-in AC-cooled rear cabinet that holds the Pro Tools|HD3 Mac, the control room was constructed with DAWs in the forefront. "I wanted to build a studio that would be designed from the ground up with new technologies in mind," Cathcart says. "There are a lot of rooms that weren't designed when computers and Pro Tools attained the level of capability they have now. I would always go to rooms where those things would be off to the side, and you had to go back and forth between the console and workstation. In this space, you can be at the center, in the sweet spot, while you're editing."

Cathcart's digital leanings and lightning-fast abilities on Pro Tools are complemented by Holtzman's unabashedly old-school analog tastes, which result in the presence of classic gear like a pair of Ampex 351 mic pre's from the late 1950s. "It used to be a quarter-inch tape transport, so they're set up to handle the bias of a tape deck," explains Holtzman. "You find these, clean them up and they have their own active preamp in it. They're very silky, fat and great for vocals, so we run room mics at line-level right off of them. A lot of this old stuff really augments Pro Tools."

The creative thinking extends to the 1,000-square-foot live room, which features no fewer than five iso booths, plus an "air-lock" booth and the talents of engineers Marc Urselli-Schaerer and Stephen Joseph. "There's a lot of great mixing rooms with just a vocal booth—they can't accommodate a drum kit or a band," Cathcart says. "The isolation we can get on seven people is really kind of remarkable."

At EastSide Sound, the pressure is on to make great music, but thanks to the best practices and the cushion they've picked up from an equally intense industry—real estate—that doesn't translate into unhealthy pressure that demands big, immediate profits. Fortunately, the lessons that Holtzman has learned are simple to translate. "Own your real estate, own the shell," he urges. "So many studios were forced out because the landlord wanted more money. But the key to survival in the recording business is that you can faithfully reproduce what people are doing, do it fast and not carry on like what you're doing is brain surgery." ■

Send your Metro news to david@dwords.com.



PHOTO: DAVID WEISS

Pictured from left: EastSide Sound's Lou Holtzman, Marc Urselli-Schaerer and Fran Cathcart

"Twelve years later, that's a little more similar to the recording studio situation," he continues. "Studios are going through a hard time, and everyone said, 'You're nuts. There couldn't be a worse time to open a studio.' Our point is that there couldn't be a better time to open a studio that we want to open. People aren't interested in spending a lot in a studio. We know a ton of musicians in this city who are all looking to record, and we're more interested in doing the projects than ringing the tab. It's like at the restaurant: We're all interested in the experience and we have zero benefit from someone walking out the door unhappy. I think that needs to be brought back into the recording industry."

At EastSide Sound (www.eastside-sound.com), co-owners Lou Holtzman and Fran Cathcart know about running a business or two. Originally opened by Holtzman in 1972, the facility was a pioneer in the now-too-hip neighborhood, servicing downtown musicians at a time when everyone operating below 32nd Street was thought to be in need of a serious headcheck. But bookings stayed consistent, gradually growing during the next three decades to the point that Holtzman decided a move to a larger, 2,000-square-foot purpose-built space at 150 Forsyth St. in 2003 was warranted.

to do and what not to do. You need to find people to build it for you who know what you're saying so they can't walk all over you and think, 'This is a money pit.' The rents are going crazy all over New York City, so we invested in other buildings and real estate to augment what we're doing."

"In this current climate, you have to keep your overhead low, especially when it comes to rent so you don't have to worry every month and break your back," adds Cathcart. "Lou's real estate ventures gave us access to space and great construction crews, and those are the things that allowed us—even on a grand scale like this—to still keep it reasonable so we can weather this storm that we're all in now."

The EastSide Sound control room—which has hosted clients ranging from Mariah Carey to Aaron Carter and jazz saxophonist Vincent Herring—is a first-class storm shelter designed by Frank Comentale (Hit Factory, Platinum Sound) with Augspurger monitoring and centered on a fascinating Harrison Series 10B 96-input console. "This is a hybrid board: digital surface, analog electronics," says Cathcart. "It has a high level of automation, like Pro-Control, but this is analog and audio is passing through the console. You can sweep the EQs, aux the compressors and it even has a

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THE FAST LANE

—FROM PAGE 26, IS IT REAL?

is that a large, multigigabyte instrument can have all its character intact. This is, of course, preferred. That's the whole point. So not only should it be technically perfect, ideally it should be an exceptional one, one that people are talking about. And this is what some of these monster virtual instruments are: supersweet axes that sound like we *thought* ours did until we compared them.

Okay. So we have a perfect instrument. Now it has to be recorded. This requires every bit as much skill as laying down a live take on a tune, albeit a significantly different and uniquely painful procedure. Some poor guy has to hammer out every note the instrument is capable of playing, with exactly the same energy and technique throughout its entire range. Let's say SF, Seriously Fortissimo. Then he has to do it all again...a shade lighter. Then again, and again. And then dinner. And then again, and again. One piano I will be covering has 16 layers! That means that all 88 keys were recorded 16 times each at 16 different velocities. What a gig. Oh yeah, there are those pesky pedals as well.

And for guitars and electric and acoustic basses, there can be hammer-ons, bends, slides, lift-offs, fret noise, neck or fret buzz, high and low spot buzzes, and so much more. Someone pretty good has to do all this—and walk the line between too expressive for you to use and too constant for you to *want* to use it. Sad when they fail, spooky when they get it right.

Then there is the engineer, his mic and placement decisions, and his compressor, preamp, EQ and other decisions and skills.

And what was it recorded on? Analog tape, digital tape, Logic, Pro Tools? This decision has a huge and sometimes devastating effect on the final product. And there's 16- or 24-bit, stereo or 5.1, and on and on.

Now we come to the editing—the hand trimming, the velocity crossfade construction, level matching and all the other things you never really think about unless you have done it.

I'm tired just *writing* about this stuff. I'm so glad that it's not me out there doing it.

But wait—there's more. Though much of this material is sold as sample libraries, the recent trend of including dedicated playback engines is wonderful, as they can be optimized for each specific instrument and their libraries can come up perfectly intact with every layer in their proper position and all crossfade parameters perfected.

These things pop open with perfectly usable sounds but offer a plethora of (usually destructive) modifiers that make it possible

for you to call a voice your own. And a lot of people do.

So. When you consider how many links there are in the chain, you realize that virtual instruments are an idea that sounds good on paper but are profoundly unlikely to sound good. And so it is with great shock, pleasure and a somewhat renewed faith in mankind that I report that a lot of them do the improbable. They sound good. And better yet, some sound great.

Keep in mind that it is the nature of the beast to compress expression and character to a common denominator so that the user's expression is not swamped. It is therefore up to the player to learn the proper techniques required to coerce life and the illusion of spontaneity from these virtual instruments. If you are not willing to learn how to play each to its full potential, my advice is not to bother. But if you are, you can fool most of the people most of the time, all of the people some of the time, and with a few of these things, anybody who has had a beer for the rest of the night. Not to mention the temptation to MIDI your way into an unplayable superlick that will make it impossible for you to ever set foot onstage for fear of demonstrating, Milli Vanilli style, your inability to play live what you claim to have played in the studio. Hell, by then you've already mastered some other technology to cover that little problem though, right?

And so, as the standards of the listening audience continue to fall while the quality of fake—no, “unreal”—real virtual instruments increases, the question is obvious: When will the curves cross? When will we actually be able to make hit songs without dealing with the annoying complexities and idiosyncrasies of actual musical instruments? Actually, last month.

All bets are now off. Reality is in the mind of the beholder. And if I be holdin' four or five choice virtual instruments, I just might be able to build a reality that those who be buying might behold as real.

If you fake it, they will come. And buy. It's either disturbingly cool or disturbingly horrible. Maybe both.

In closing, if all this offends those of you who still love real instruments and the time-honored skill of capturing their nuances 16 bits at a time, Tina Turner had the answer a lifetime ago: What's love got to do with it?

Next month: I name names and play a very expensive Bösendorfer that has *vibrato*. All in the name of science. ■

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—FROM PAGE 30, OUT OF THE GARDEN

upstate New York road in hopes of being picked up by some joyful Canadian concertgoers on their way home, I took a commuter train into New York City and got on a Trailways bus to Montréal. When I got there at long last, I found myself in for another disappointment. In the several months since we'd seen each other, my purported girlfriend had been seeing another guy, a local, and she had decided that she couldn't handle more than one relationship at a time. So I was being dumped.

Unfortunately, my plane ticket home couldn't be changed without paying a \$25 fee (which, to put it in perspective, was about 50 percent of the price of the youth-fare ticket itself) and I literally didn't have the money. So I hung around for five days in a foreign country, in a suburban house with a family who really didn't want me there with no means of escape. And, being a cultured family, the only pop record they had in the whole house was the debut album of the dolorous bard of Canada, Leonard Cohen. So I listened to "So Long, Marianne" and "That's No Way to Say Goodbye" a lot.

In the weeks that followed the Woodstock festival, I didn't tell too many of my friends the story, because I was a bit embarrassed that I had chickened out and split from what was supposed to be the defining event of my generation. People I knew who had stuck it out regaled me with tales of what an incredible time they had, and perhaps they were telling the truth, but I could tell, even in their enthusiasm, that this would have been an experience I really wasn't ready for.

When the movie came out a year later, I finally got to see some of the performances I had missed and they were, without exception, incredible. I saw it on a starlit night at a drive-in in rural New Hampshire from the comfort of the back seat of a Plymouth Fury convertible with a brand-new girlfriend, plenty of popcorn and a lighted, fairly clean men's room just a few yards away. To my way of thinking, it was definitely a much more enjoyable way to experience the event.

I've driven up Route 17 many times since August 1969 and passed the signs for the turnoff to White Lake. Though I still don't regret my decision to leave, I can't help but wonder, "What if?" What if I had been a looser kid, more adventurous, less concerned about mundane things like food, sleep and hygiene?

I didn't go back to Montréal again until just last year when I had a gig there. As the plane approached, I thought I could see my old girlfriend's old house. I Google'd her

and found her living in Western Canada. I sent her a note and she was delighted to hear from me. She'd married the guy she had dumped me for, had two children with him and then got a divorce after 30 years. It took awhile, but I've developed a tolerance for Leonard Cohen, and when a song by him comes on the radio, I no longer instantly change the station.

My friend Roger went back to college and then to medical school, and we lost touch with each other. Bert Sommer died in 1990. The *Woodstock* movie made \$50 million in its first release, and two of the guys who had put the thing together retired very young and very rich. My original poster (which places the event in Wallkill, N.Y.) is framed on my office wall, along with my \$6-a-day advance tickets, never collected. I'm told they're worth a lot of money.

As for the performers at the Woodstock festival, I never did get to see Janis Joplin or Jimi Hendrix, and it wasn't until just a couple of years ago, after half the band was dead, that I got to see The Who live. Those seats cost me \$100 each. But in the weeks and years to follow Woodstock, I got to see Jefferson Airplane, Richie Havens, the Grateful Dead, Santana, Arlo Guthrie, The Band, Joan Baez, Sha-Na-Na, Joe Cocker, John Sebastian and the Incredible String Band. They were all great, and I didn't need to sit in the mud and the rain for three days to have the experience. Even though I didn't make it through all of the actual event, I still think of myself as part of the Woodstock generation.

A final coda: At a high school reunion about five years ago, I ran into Roger's younger sister, Susan (also not her real name), who was in my class. Roger was a successful doctor in New York City, she told me, and has a good life. And then she added, "But he's still angry at you." I was flabbergasted. "Why?" I asked. Did he think I was the one who forced him to leave the Woodstock festival and miss the event of a lifetime?

"Oh no," Susan said with a laugh. "That wasn't the problem. He didn't want to stay there either. He's pissed off because you made him sleep in the front seat of the car, which wasn't nearly as comfortable as the back seat."

Roger, if you're reading this, you know who you are (and what your real name is), and I want you to know I'm really sorry. I had no idea that you wanted the back seat. But I'm not sorry we shared a little bit of history together. Despite what Robin Williams says, we were there and we remember. ■

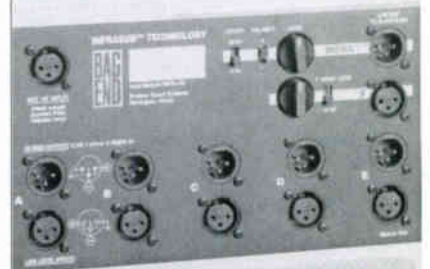
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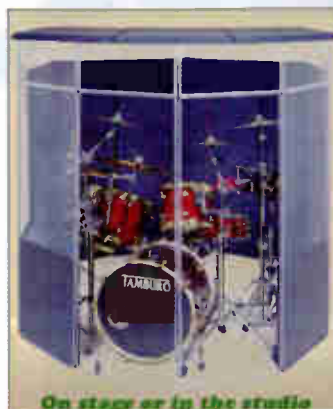
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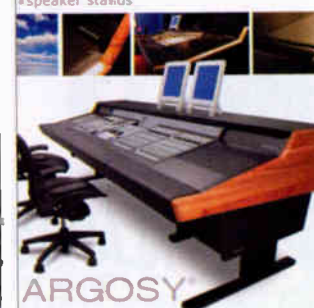
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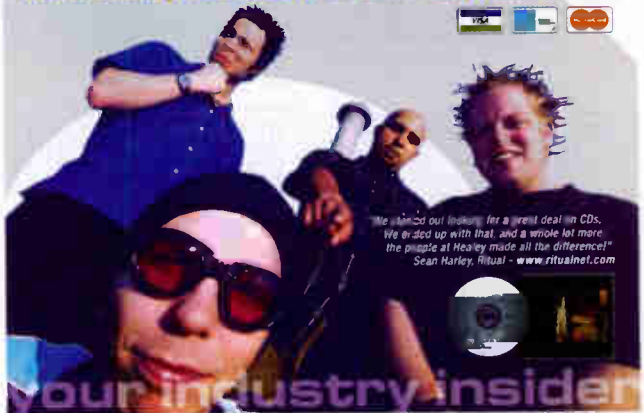
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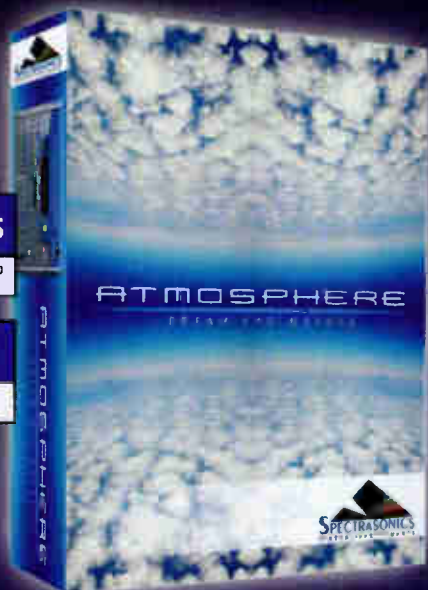
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Yamaha PM1D Digital Console

Teaching a New Board New Tricks

The Yamaha PM1D is the most flexible, powerful and reliable large-format digital console for live production available today. Having said that, I'm sure a line is already forming to dispute that claim, but as the head audio engineer at the Cerritos Center (Cerritos, Calif.), as well as working as an independent mixer, I've been using the PM1D since its prototype days and have never experienced even a hiccup from the console. Also, the Center offers six different seating and stage configurations, ranging from a 1,800-seat arena theater to a 900-seat recital hall setting for plays, concerts and dance performance, so flexibility in the sound system is essential and the PM1D fills the bill.

I/Os: EVERYTHING IN ITS PLACE

About half of my time is spent setting up and patching the board for visiting mixers, so if they've never mixed on a PM1D before, I quickly get them up to speed. Our original console was a PM4000, so we have a custom microphone splitter that has its direct side permanently terminated at the front-of-house mix position. As the existing analog snaking was in-place, I decided to locate the engine, six A18 mic/line input frames, an AO8 line output frame, two power supplies and a single-rackspace amp for near-fields at FOH. To hold all of the parts, we built a custom four-bay (nine spaces in each) rack. It's a perfect fit and a very good alternative to "remoting" the racks, but it's nice that the PM1D allows such options.

THE AUTO-ASSISTANT ENGINEER

I like starting my day having all my gain settings set to 12:00 noon and all the phantom power switches on, so I programmed a scene with this preset. While I'm doing a continuity check of the splitter, I'm not wasting time moving knobs and pushing buttons. When the check is over, I just recall my last scene and I'm back to where I left off.

TEMPLATES FOR ALL

You can never have too many templates. The console comes with a handful of templates, but I found them a bit too general so I customized six of them. Within these



templates, I have programmed several settings to make things quicker at the start of a normal day. When I turn the console on and recall a template scene, the entire console snaps to a starting point. I have the whole board pre-patched and labeled for the start of a general day. Examples of some of the preset programming I have in my templates include graphic EQ patching and naming, reverb patches and settings, and compressor threshold, ratio on all channels—the list goes on, and they're all no more than a fingertip away.

KEEPING EQ IN-LINE

The PM1D has 24 channels of 31-band graphic equalization. The EQs can be patched to any output and/or any input. To keep myself from becoming confused and to speed things up when I need to get to them quickly, I assign user keys 7 and 8 to display GEQ tabs 2 and 3, respectively, on the center screen. There are three tabs in the software under the console's GEQ button. The first tab is the full view of the selected EQ with a spectrum analyzer, and tabs 2 and 3 are indexes of all the EQs in groups of 12.

I use the first 12 for my system outputs. One through 8 are dedicated for the house feeds. Numbers 1 through 6 are patched to matrixes 1 through 6 and are laid out as follows: 1, left flow; 2, right flow; 3, center cluster; 4, front of stage; 5, delay; and 6 to the side box fills. EQ number 8 is assigned for the subs, which I run from an aux bus, and 9 through 12 are on open auxes that show up on the patchbay. This

way, if we are doing something small and mixing monitors from FOH, then these sends are already patched and ready to go.

GRAPHICS ON INPUTS?

EQs 13 through 24 are left unassigned for patching to input channels. Yes—input channels! I love the smooth sound of these EQs and having the spectrum analyzer function available for viewing while equalizing a specific instrument or vocal is very helpful. Yamaha's engineers came up with a brilliant idea for tactile control for the graphic EQs: Pressing and holding the Shift key and then pressing any one of the first three Mix Select buttons in the DCA section will bring the selected graphic EQ up on these faders. There are 12 faders, so the engineers broke them down into three bandwidths: low (20 Hz to 250 kHz), mid (200 Hz to 2.5 kHz) and high (1.6k to 20k Hz).

DON'T FORGET THE SOFTWARE!

Another advantage of the PM1D is the ability to connect a computer to the system and remote control of all the console's functions. Using Yamaha's PM1D Manager software, you can access all of the console's parameters and simultaneously make changes to a mix while someone else is mixing on the control surface. I have a laptop connected to the system at all times and I have now grown accustomed to making most of my changes there. ■

Jack Hayback is a live sound engineer based in Southern California.

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