MIX®

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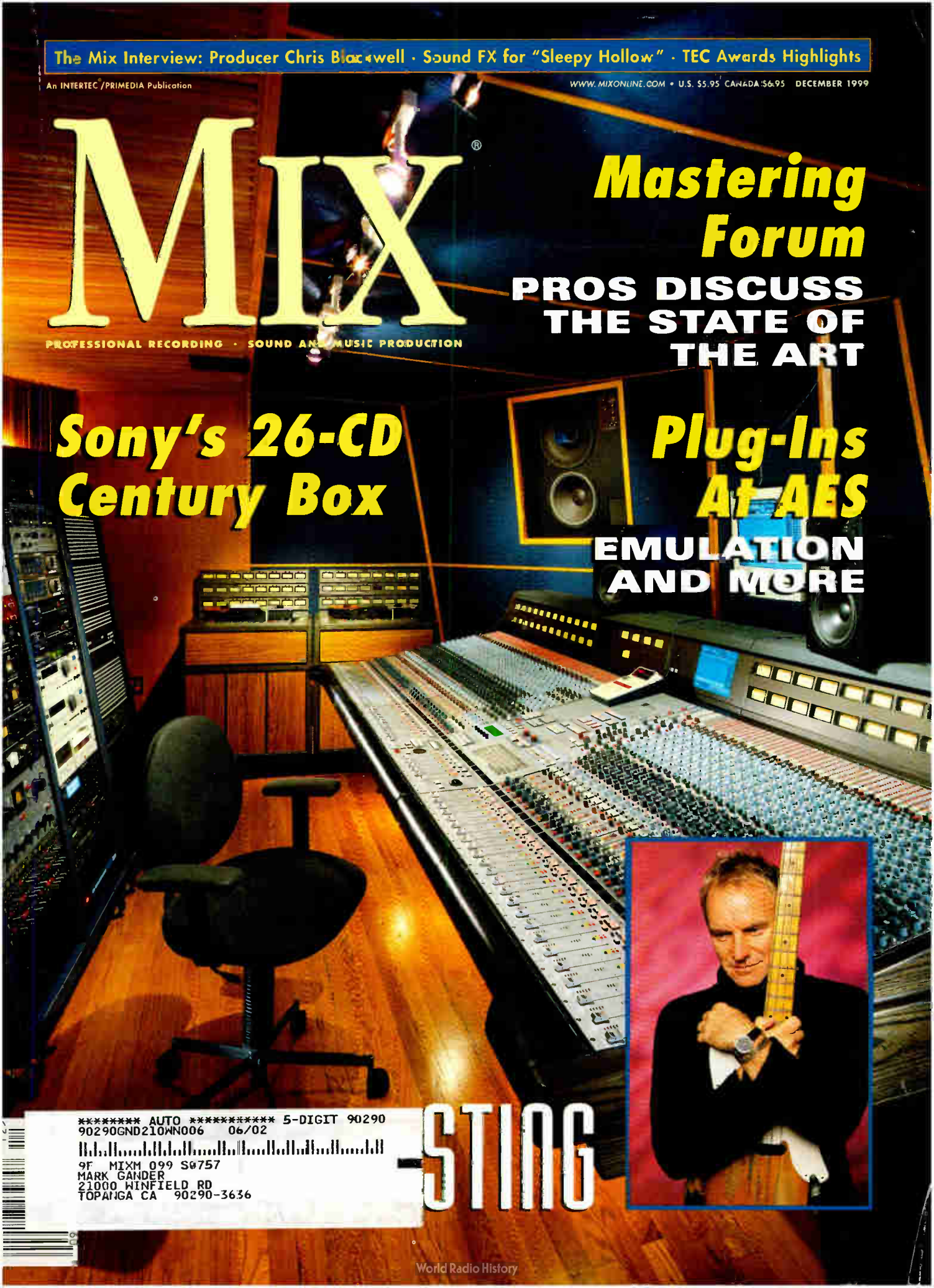## Mastering Forum
PROS DISCUSS THE STATE OF THE ART

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The new AKG C12VR is an engineering anomaly.

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C12 VR

1375

ROCKET SCIENCE

Who knows what a C12VR will be worth in the year *2010*?

MIX ®

PROFESSIONAL RECORDING · SOUND AND MUSIC PRODUCTION

AUDIO

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SOUND FOR PICTURE

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DEPARTMENTS

On the Cover: This year, Big Blue Meenie Recording Studios moved into the former Quantum Studios in Jersey City, N.J., and made their centerpiece an Amek 9098i. **Photo:** Michael Partenio. **Inset Photo:** Steve Jennings.

QUANTUM

24/48 Bit

FROM THE EDITOR

THE UN-FORMAT

Since the advent of cylinders and phonograph discs more than a century ago, consumers have learned to live with the concept of format wars: two incompatible media vying for the hearts and wallets of the public. As 78-rpm discs eclipsed cylinders, the format wars subsided—at least from a hardware standpoint. In fact, for a considerable period (early '50s to mid-'80s), most home systems had multi-speed turntables capable of playing 33s, 45s and 78s, with the main glitch being an occasional search for a misplaced large-hole 45 adapter.

The 1960s brought consumer tape releases—¼-inch reel-to-reel, followed by cassettes and 8-tracks, and the format wars heated up again. In 1981, the compact disc—offering reasonable fidelity, long playing times and suitability for home, automobile or portable applications—marked the beginning of the end for vinyl.

Discounting a few less-successful consumer digital forays—i.e., PCM-F1, DAT, DCC and MiniDisc—CDs and analog cassettes have dominated the market for nearly two decades, with new formats, such as DVD-Audio and SACD on the horizon. But formats will come and go, with each new breakthrough promising the "ultimate in sound reproduction." (We've certainly heard THAT one before!) Of course, a new format means we will all need to go out and buy another copy of *Dark Side of the Moon*—again.

However, the "un-format" offers an alternative. Rather than buy a piece of plastic (vinyl/tape/disc/etc.) encoded with a performance, what if we instead purchased a data file of the performance and could then simply transfer it to a device that WE selected for playback? On a basic level, this equates to one of the many hardware players for MP3 files, but the un-format concept goes much deeper. For example, after paying for and loading a data file into a PC, a translation utility could create a 24-bit/96kHz 5.1 version for parlor listening, a dynamics-compressed mix (stereo or surround) for high ambience-level car listening or a lo-fi/long-play version for the kid's portable player. And via direct transfers from a network or Internet hookup, all of these could be played without the need for a physical format—just as MP3 files today can play on a PC or Mac—or stored to the removable media of your choice.

Now, if cars today can download road maps and navigation data, could a quick music transfer from your home music collection to your dashboard be far away? Or how about music streaming live from your home computer (or Internet) directly to your car stereo? Will the "Autonet" be part of your new millennial experience?

Given humanity's love for tangible possessions, could the un-format's concept of buying data—rather than plastic—succeed? Well, liner note-less MP3 downloads continue at a record pace (granted, they are free), without graphics. Yet at the same time, the Net can also provide unlimited fan info, photos, lyrics, streaming video clips and up-to-the-minute news that far outstrips the capacity of CD booklets and album covers.

Can we accept a format-free world? Judging from our relatively rapid evolution to a cashless society based on direct deposits, debit and credit cards, ATMs and online banking, where we transfer funds without blinking an eye, I'd say anything is possible.

And...have a nice millennium!

George Petersen

George Petersen

World Radio History

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Introducing GP9, Grand Master™ Platinum. The ultimate in analog audio mastering media from the global master of sound – Quantegy.

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It took Quantegy 40 years to produce a tape this good. It'll take you about 40 seconds to realize it was worth the wait.

QUANTEGY
Professional Media

1999 Nominee

Big Blue Meenie
RECORDING STUDIOS

Hundreds of hardcore, punk and metal bands have fueled Big Blue Meenie Recording Studios since its inception a decade ago in the basement of co-owner Tim Gilles' Hackensack, N.J., house. Who knew that the product of all that blood, sweat and beer would move into the former Quantum Studios in Jersey City, a studio built on, as Gilles puts it, "Madonna money"?

Gilles and his partners—his wife, Julie, Tom Aldi and Joe Mahoney—simply knew a good deal when they saw it last year. "[Jazz guitarist, songwriter and early Madonna producer] Reggie Lucas, the guy who built it, made it a labor of love," Gilles says. "He spent a lot of time and energy putting it to-

Big Blue Meenie partners (from L) Joe Mahoney, Julie Gilles, Tom Aldi and Tim Gilles hang out in Studio A with their Amek 9098i.

gether. It had great iso control rooms, great spaces. It was in a state of extreme dilapidation when we got here—[Lucas] quit in the middle of '94. But the place has a huge history."

Housed in an old chandelier factory next to Washington Park, the 9,000-square-foot studio has been a part of the half-Little Italy, half-Little Latin America neighborhood (about 14 blocks from both the Lincoln and Holland tunnels) since the mid-'80s. Some of the R&B, rap and dance Gold and Platinum records recorded at the space are still in Julie Gilles' office. Those include discs by INXS, Pet Shop Boys, Jodeci, Guy and Queen Latifah, as well as a slew by groups such as Helmet and Rage Against the Machine, which were mixed there by Andy Wallace.

But since Blue Meenie consolidated its three facilities and officially opened at the new locale in July with the installation of its biggest desk, an Amek 9098i, quite a different sound has been emanating from studio's three control rooms. Agnostic Front recently put the finishing touches on their new Epitaph release, *Riot, Riot Upstart*, with Rancid guitarist Lars Frederiksen producing and Gilles engineering. S.O.D. (Stormtroopers of

Death) recorded two new songs for the upcoming re-release of its Platinum record, *Speak English or Die*, with house engineer Dan Iannazzelli and mixer Vincent Wojno. And Anthrax worked with Iannazzelli on a cover of The Temptations' "Ball of Confusion" for a compilation.

"Reggie ran a sound hotel, a studio for hire," says Gilles. "Now we do the majority of work, myself and the staff [which includes engineers Iannazzelli, Jason Kanter and Mike Ward and producers Sal Villanueva, Billy Milano (of S.O.D.) and Roger Miret (of Agnostic Front)]. The vast majority is for good-sized indie labels like Epitaph, Century Media and Roadrunner. The whole concept is that we'd be able to provide the same quality and services of a much, much bigger, expensive Manhattan studio for folks that are making mid-sized-budget records."

Gilles started the business with about $2,000 worth of gear, as a 4-track project studio for his rock 'n' roll band. "We always say this is the world's biggest project studio. This is a project studio run amok," he says with a laugh. "I've been able to build the business up by doing an enormous volume of records for small record labels."

Now the studio is worth about $2 million, Gilles says, and includes his own mastering outfit, Surgical Sound, on the building's second floor. Big Blue Meenie's recorders include two Sony/MCI JH-24H 24-tracks, an AS Zeta III with remote, a Fostex RD-8, Ampex ATR-102 2-track and 350 tube 2-track, and Panasonic SV-3800 DATs. UREI 813, Genelec 1031A and Yamaha NS-10 monitors can be found in Studio A. The Pro Tools 4.0 system is loaded with plug-ins.

An extensive selection of outboard gear includes Amek/Neve 9098 CLs; UREI 1176LN peak limiters, LA-2As, LA-3As and 175B; Distressor EL8s; a JOEMEEK compressor; Pultec's EQP-1A and EQH-2 EQs; and API 312 mic pre's. The studio's mic locker includes vintage AKGs, Beyers, Neumanns, Sennheisers and Shures. The studios house an Amek/Neve Mozart RN and an Amek/Langley Big, and a new room will feature an Amek/Langley Hendrix.

"I started thinking about what it was I did and how I did things, that we've always been left of center," Gilles says. "We try to start the trend, not follow the trend, and we're a niche-market studio so I have the luxury of working on technology that I want. I started to investigate the 9098i, and I thought it was superior in terms of the way it was laid out and the amount of automation and the way it had many more moving faders. Once I had a chance to hear it and work on the desk, it was all over except the shouting.

"None of my clients give a damn about 96/24-bit. They don't care about AES buzz words. They care about one thing: They want the record to just sound right. We don't even mention the 'd' word around here," says Gilles, laughing. "I have digital gear around here, but everything gets done on analog and 2-inch. We're old-school analog guys. And a huge amount of staying in the business is keeping the studio operational, and we suffer zero downtime."   *—Kimberly Chun*

Capricorn. Great clients
Great business

CURRENT

MusicBiz 2005 keynote speaker John Perry Barlow

MB5 CONFERENCE TACKLES THE FUTURE OF THE MUSIC BUSINESS

A diverse group of industry insiders came together to discuss and debate the impact of the Internet and other hot-button topics in music recording at the MusicBiz 2005 Conference. The conference took place October 15-17 at the Ex'pression Center for New Media in Emeryville, Calif., and drew more than 300 producers, label reps, musicians and Internet entrepreneurs, along with assorted artist managers, music and IP attorneys and journalists.

"The end of the music industry is in sight," said free-speech advocate and former Grateful Dead lyricist John Perry Barlow in the opening keynote speech. He predicted the transformation of the music business from "the property model to the relationship model," where value will derive from the artist/audience relationship rather than from products.

"Polarization is deep in the music industry," consultant Jim Griffin said in his own keynote. Griffin described a split between dominant record labels that want to preserve their economic control of music distribution and "free music advocates" who look to digitization and the Internet to cut out the middleman. In another keynote, hip hop star and download advocate Chuck D predicted "a balancing out of distribution—not an eradication of the middleman."

Also having their say at MB5 were EMI senior VP Jay Samitt, Beatnik.com's Thomas Dolby Robertson and multi-Platinum record producers Jerry Harrison, David Pack and Arne Frager. MB-5 attendees participated in panels, exchanged views at "town hall" gatherings, witnessed new technology demos, and learned how to upload and download music tracks.

Liquid Audio "liquified" live performances by a variety of artists. Other attending companies—such as Studer North America, Tascam, Beatnik, CDDB, NXT and sonicNet—showcased products and services.

Event organizers will soon announce dates for next year's conference. Audio tapes of the panels at MB5 may be purchased by contacting Audio Archives at 800/747-8069 or by e-mailing audioarc@flash.net.

LIBERTY MEDIA BUYS 4MC

Liberty Media Group, a unit of AT&T based out of Englewood, Colo., purchased post-production company Four Media Co. of Burbank, Calif., in a stock swap valued at $25 million, *Variety* reported on November 2. Last month, we reported that Liberty had purchased Todd-AO and Soundelux Entertainment Group. With these purchases, Liberty has become the world's largest provider of post-production services, with some-

where in the neighborhood of 40 re-recording stages, not to mention hundreds of editing suites.

Four Media has grown in recent years with the acquisitions of subsidiaries Video Symphony, Digital Sound & Picture, Digital Magic and Pacific Ocean Post. Terms of the deal with Liberty are expected to close in the first quarter of the new year.

BUZZ KNUDSON TO BE HONORED AT C.A.S. BANQUET

Re-recording mixer Buzz (Robert) Knudson will receive the Cinema Audio Society Career Achievement Award at the annual C.A.S. Awards Banquet on March 4. He has been nominated for an Academy Award 11 times and has won three—for *Cabaret* (1972), *The Exorcist* (1973) and *E.T. the Extra-Terrestrial* (1983).

Knudson entered the motion picture industry in 1952 at RCA after playing minor league baseball for eight years. In 1982, he joined Todd-AO, where he currently serves as a consultant and vice-chairman.

The 36th annual C.A.S. Awards Banquet will be held in the Grand Ballroom of the Universal Sheraton Hotel. In addition to honoring Knudson, the C.A.S. will bestow its awards for Outstanding Achievement in Sound Mixing

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STUDIOPRO2000 IN NEW YORK CITY

Mix has announced that StudioPro2000, its third annual business and technology conference for audio professionals, will be held June 12-13, 2000, at the New York Hilton & Towers. The conference, hosted by the editors of *Mix*, will feature more than 75 of the industry's most prominent technologists and production professionals, exploring topics such as designing for digital, DTV and Internet audio.

Following up on the success of StudioPro99, held last June in Los Angeles, StudioPro2000 will focus on issues of concern to operators of both large and small facilities, as well as to producers, engineers and post-production professionals. World-renowned figures in music production and film and television sound will be on hand for a special luncheon forum each day.

In addition to panel discussions, StudioPro2000 will present a special workshop track for groups of 25 to 50 people, who will have the opportunity to learn about production techniques and specialized types of audio gear.

To receive additional information and registration materials, call Rob Irwin at 510/653-3307, fax 510/653-5142 or e-mail Robert_Irwin@intertec.com. ∎

This Mic Is Anything But Flat...

The Neumann M 147 Tube

For years, vintage Neumann tube mics, such as the venerable U 47, have been high-priced, highly prized commodities. Why, when advances have created mics with near-perfect, virtually transparent reproduction, have producers and engineers travelled to the ends of the earth in search of these vintage relics? Because of the way they <u>sound</u> (especially the way the sound sits in the mix).

Enter the M 147 Tube.

Using the same capsule as the classic U 47 and its smaller cousin the U 47 FET, the M 147 Tube microphone brings a warmth, presence and detail to vocals that is simply unattainable from any other mic being produced today, regardless of how much it looks like a Neumann. The fact is, there is really only one way to get that classic sound you seek. Fortunately, it's priced well within your reach.

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Neumann – The Choice of Those Who Can Hear The Difference

What The Professionals Are Saying About The Neumann M 147 Tube:

"So far, I'm thrilled to pieces with the Neumann M 147 Tube. I don't think there's any instrument that I wouldn't try them on. Whatever instrument I used them for, I was very impressed with the sound. I wish I had about five or six of them!"
- **Al Schmitt,**
as quoted in EQ,
March 1999

"I would recommend the M 147 highly for rock, rap, pop, jazz or blues vocals; drum room and/or kick drum miking; all tube and solid-state instrument amplifiers; nylon string guitar; and low-volume or indistinct sound sources that need some extra presence, and for any type of digital recording. In short, I like the M 147 a lot -- so much so that I bought one."
- **Myles Boisen,**
Electronic Musician,
August 1999

"The particular kind of presence it adds is really unique and desirable, and it's really not available from any other mic or easily obtainable with an equalizer. Typically, condenser mics that have a forward character are really just brittle and edgy, and the M 147 is completely different from that."
- **Monte McGuire,**
Recording,
July 1999

"I asked the singer on my session which mic she preferred and, when presented with a finite budget, her pick (and mine) was the M 147. Classic Neumann sound, tube electronics, the U 47 legacy, and a price that won't savage your bank account. Gotta love it!"
- **Rick Chinn,**
Audio Media,
February 1999

"The M 147 proves again that however close the imitators get, there is no substitute for the genuine article. This is the real McCoy and although it cannot be called cheap, its simple approach means that it is far more accessible than a valve Neumann would normally be expected to be. Another classic in the making."
- **Dave Foister,**
Studio Sound,
February 1999

"It's my opinion that the tone of the Neumann would not require much EQing during mixdown; a decided advantage. Its high end would sit nicely in a mix, and its round but controlled low end would not have to be cut to provide room for other instruments."
- **Mitch Gallagher,**
Keyboard Magazine,
June 1999

PRESET 0.1 LARGE HALL

"Cappella di San Gennaro" by Giacinto Gigante, Museo Nazionale di Capodimonte, Naples, Italy

HEADROOM   INPUT   PCM 91   DIGITAL REVERBERATOR

0dB   Halls: Orchestral
6   P0 0.0   Deep Blue
12
18
24   0   10
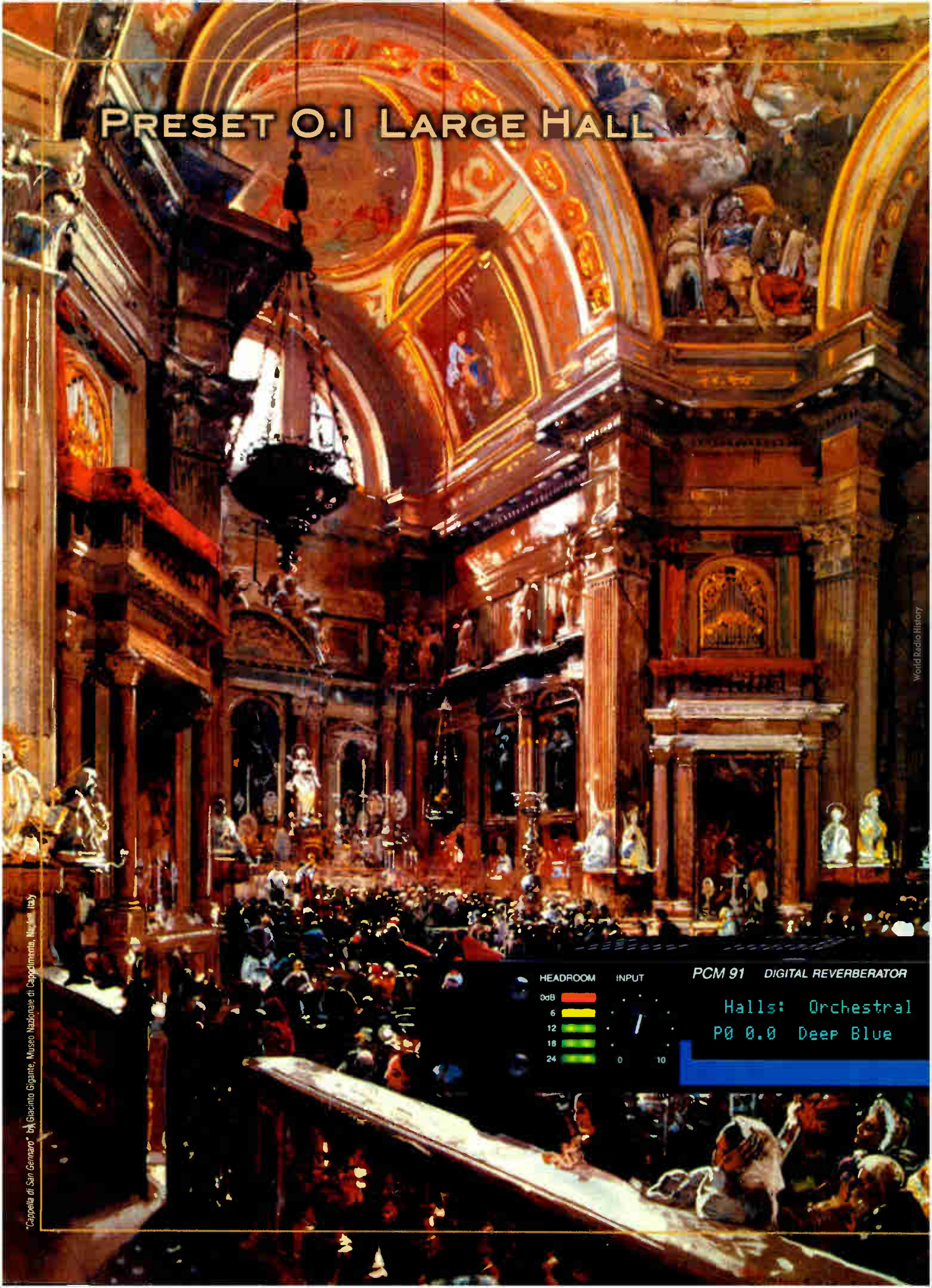
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Decades of research are embodied in our PCM algorithms and in our carefully crafted presets for real-world applications. A unique dual-DSP platform enables the PCM 81 to combine reverb with powerful, flexible effects and the PCM 91 to offer the highest quality reverberation available — making these processors an essential combination, whether you're working live or in a post-production environment.

With 24-bit internal processing, a true-stereo signal path, balanced analog I/O, full AES/EBU and S/PDIF digital I/O, the ability to combine analog and digital inputs, extensive modulation capabilities and hundreds of installed presets, the PCM 81 offers more effects – and more control over them – than any processor in its class.

Each effect has an uncompromised stereo reverb with several voices of additional effects. A full complement of Pitch Shifters provides doubling, quadruple-tracking, chorus and pitch correction, and a unique set of spatial effects can be placed virtually anywhere between your loudspeakers – or beyond them. You can even locate effects dynamically, creating different spaces that change along with the music.

The PCM 91 contains Lexicon's highest quality reverbs with a vast array of presets optimized for virtually any application and a wealth of programming capabilities for the sound designer. With full AES/ EBU and S/PDIF I/O and tools for ambience, post-processing, compression/ expansion, modulation and patching included with each algorithm, the PCM 91 gives you both power and versatility.

In addition to classic reverb effects like plates, halls, chambers and rooms, the PCM 91 includes superb dual and cascade-configured stereo reverbs and dynamic spatialization effects for 2-channel or surround applications.

As easy to operate as they are a joy to hear, the PCM 81 and PCM 91 have become classics in their own time – setting the standard for professional digital effects and reverberation. Experience the creative control and superlative sound of the PCM 81 and PCM 91 at your authorized Lexicon dealer and put our experience to work for you.

SPATIAL EFFECTS WITH CLASSIC LEXICON SOUND

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Heard In All The Right Places

H A Harman International Company

INDUSTRY NOTES

Focusrite Audio Engineering Ltd. (High Wycombe Bucks, UK) appointed Digidesign, a division of Avid Technology, as exclusive distributor of the Focusrite product line in North America. Digidesign will distribute Focusrite hardware and software products for the United States, Canada and the Bahamas. Terms of the agreement will take effect January 1...Northridge, CA-based JBL Professional announced the appointment of Ken M. Blecher as director, contracting market development. Blecher is a graduate of the College for Recording Arts in San Francisco and previously headed up his own consulting and contracting business...Industry veteran Anthony Grimani introduced his new consulting firm, Performance Media Industries Ltd. (PMI), specializing in multichannel audio/video technology. The offices of PMI are located in Marin County, north of San Francisco...Symetrix, Inc. (Lynnwood, WA) announced the appointment of Chris Crump as national sales manager, broadcast. Crump formerly held positions with Euphonix and Spectral and spent many years in radio as a producer, production director and jock...Two Leitch Technology Corporation (Toronto, ONT) employees were elevated to Fellow in the Society for Motion Picture and Television Engineers (SMPTE). Thomas M. Jordan, senior VP of strategic relations, and Michel Poulin, standards compliance manager, received the honors...Sound Physics Labs (Glenview, IL), the parent company of ServoDrive Inc., announced that Jack Alexander, the former North American technical representative for Martin Audio, accepted the position of worldwide sales manager. A longtime pro audio guru, Alexander founded Chicago Sound, and is currently running the live sound program at Columbia College, Chicago...San Mateo, CA-based Beatnik Inc., a leader in interactive audio technologies and content for the Web, announced the signing of a definitive agreement to merge with Mixman Technologies Inc., a provider of PC- and Mac-based consumer music creation products...Nelson Sound of Burbank, CA, a sound contracting, rental and live event supplier, recently added Patti Gunnell to its sales/service/engineering team. Gunnell previously worked for Guitar Center...RDL (Radio Design Labs) of Carpinteria, CA, announced the appointment of Sindi Schubert as the company's new international sales manager. Schubert's background includes an international sales manager position during her 18-year tenure with Atlas/Soundolier. The company also appointed John Gatts to the position of national sales manager...Dave Olivier was brought on board as sales and marketing manager for North America at Dreamhire (a division of Zomba Recording Corporation). He will be based at the NYC office...BGW Systems (Hawthorne, CA) announced the appointments of Joe DeMeo as sales manager of its rack accessories division, and Fred Mah as rack accessories design engineer. DeMeo will also continue in his position as audio sales manager...SoundTube Entertainment announced that the firm C.L. Pugh is its new Ohio sales rep, and that Reid Kimball was appointed purchasing and inventory manger. The company now offers 48-hour turnaround on speaker placement engineering and power requirements when a contractor provides floor plans or project parameters...Svetlana Electron Devices (Huntsville, AL) announced the appointment of PM Components Ltd. of the UK as its full-service distributor serving all of Europe...Swithcraft Inc. (Chicago) announced it has completed the acquisition of Conxall Corporation, a manufacturer of custom cable assemblies and connectors. Switchcraft also recently added Bi-Tronics Inc. to its roster of distributors. ∎

for Feature Films and Television. For information and tickets, contact Laura Long at 818/752-8624 or lslong@earthlink.net.

TEC AWARDS GRANT WINNER

The Mix Foundation for Excellence in Audio has named Victoria Meyer the recipient of the 1999 TEC Awards Scholarship Grant. Meyer is a master's degree candidate at McGill University in Montreal and studies sound recording.

Applications for 2000 will be available in January. For more information, send your name and address to: MFEA, 1547 Palos Verdes Mall No. 294, Walnut Creek, CA 94596; or e-mail Karen Dunn at KarenTEC@aol.com. No phone calls please.

AES HANDS OUT STUDENT AWARDS, GRANTS

The AES handed out awards in the Student Recording Competition at the 107th AES convention. Marie Ebbing of Ball State University (Muncie, Ind.) won in the Classical category, and received two Audio-Technica mics, RPG Room Optimizer software and a roll of Quantegy mastering tape. Avery Geitz of McGill University, Montreal, won in the Jazz/Pop category, receiving two Sennheiser mics, along with the software and tape. The recording was judged by a panel of Grammy Award-winning engineers and producers.

The Audio Engineering Society Educational Foundation announced the recipients of its educational grants for the 1999-2000 academic year. Winners were selected on the basis of demonstrated past interest, achievements in audio, and faculty recommendations.

Nine students received awards this year: Clay Benning, North Carolina School of Arts; Jasmin Frenette, University of Miami; Avery Gietz, McGill University; Alexander Iliev, University of Miami; Cynthia Kerr, University of Cincinnati; Jason Le Bouef, Stanford University; Geoff Martin, McGill University; Russell Mason, University of Surrey; and Victoria Meyer, McGill University.

Additional information and application forms are available from the AES Educational Foundation, 60 E. 42nd St., New York, NY 10165. ∎

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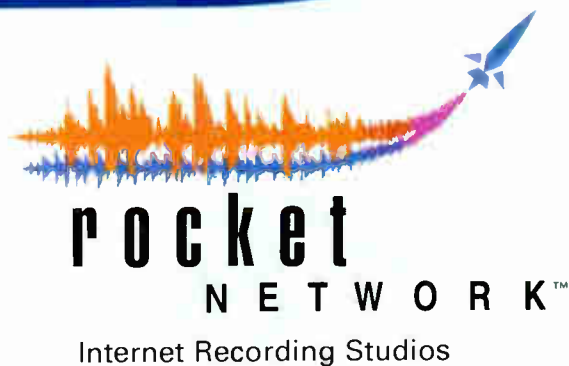
Precise control, global reach, and stellar creative possiblities—Rocket Network can take your work to a whole new level.

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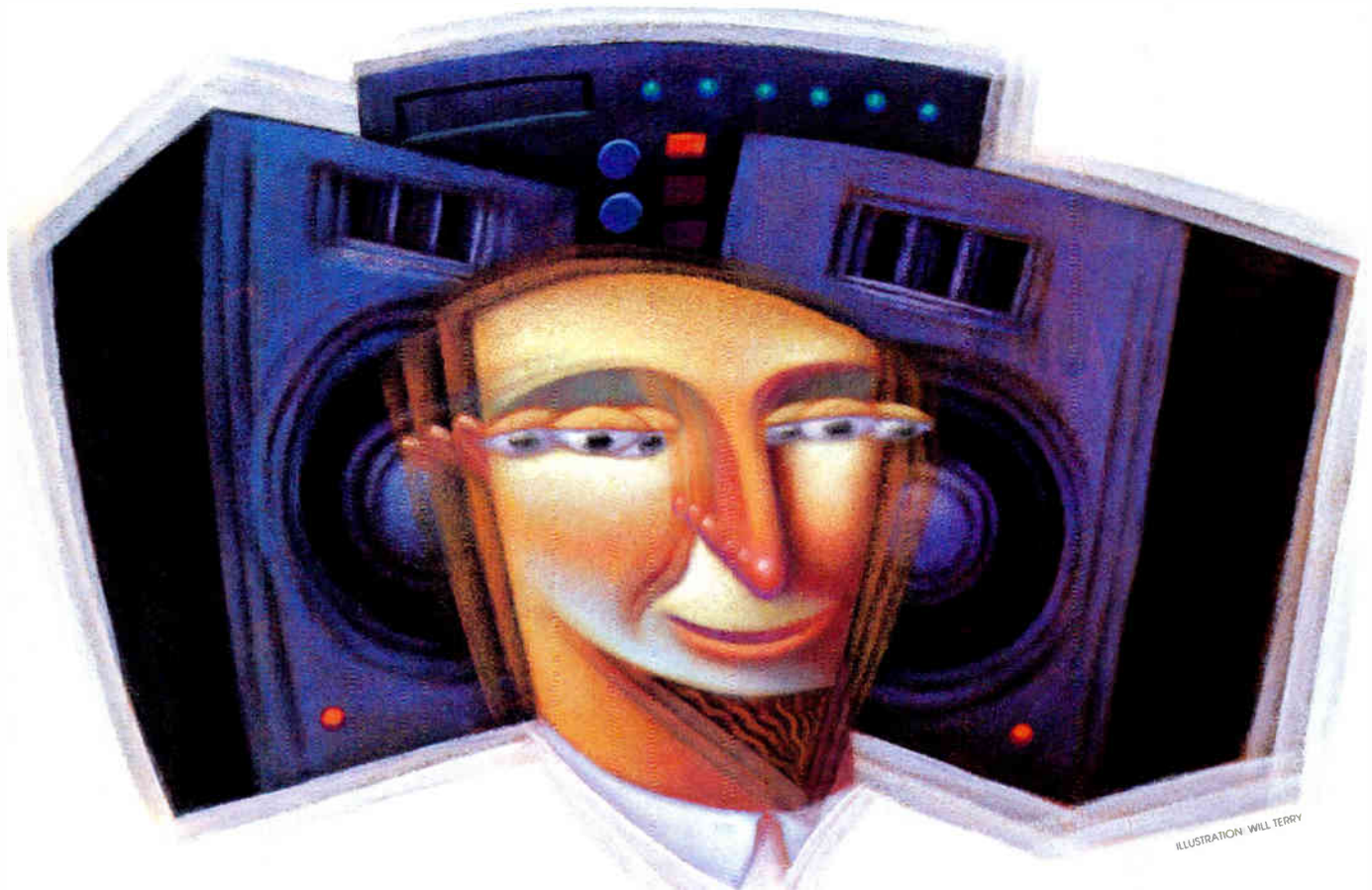## www.rocketnetwork.com

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N E T W O R K™
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"WHAT I LIKE ABOUT YOU"…SORTA

ILLUSTRATION: WILL TERRY

One of my brother's wives just had a baby, and he called to invite me to the hospital. No, I don't live in Utah. My brother doesn't have three wives. I have three brothers, and one of them currently has a wife. Several weeks later, I finally made it to his barge (he lives on a 9,000-square-foot, three-story steel barge in Baltimore's inner harbor, with his 1902 Dutch flat-bottom sailing barge next door). His wife's mother was there with baby maintenance. Now we aren't exactly the world's closest family (I don't even have the same last name), and I had never met the new grandmother before, much less talked to her, so this was a cold introduction. When I was introduced to her, she said, "Oh, *you're* the Stephen St.Croix that my son talks about. He's in the recording industry or something, and he says he only buys one of those magazines, and that he only reads your column, then throws it away. He says you're real famous and that you are always beating up on the industry."

Damn! That really got to me. I don't necessarily want to be known as the one who is always beating up on the industry, and I certainly don't want to be known for that by people so far outside our world that they even don't know what "mix" means, so…

I thought that I would close the century (and the millennium for that matter) with some of the things that I like about our line of work, and perhaps a few random, free-associated observations.

OH, BABY, THAT'S WHAT I LIKE

• I like Chantilly lace, but you just don't see a lot of that stuff around these days, except at select biker bars and, of course, the Roxbury on Sunset.

• I like 20 Hz. Actually, I friggin' *love* 20 Hz. While I have admitted in previous columns that I built my first studio because I liked all the lights, I chose to build a recording studio instead of, oh, a nuclear power plant, because even though both would have lots of lights, one had 20 Hz, and the other had, of course, 60. Well, you *can* get a nuke plant to do a good, solid, ground-shaking 20 Hz, but only once.

Yup. I like 20 Hz, but like Chantilly lace, you just don't see a

No Barriers.

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REINVENTING MULTITRACK
TASCAM

TASCAM.
A Whole World of Recording™

I CAME, I SAW, IRCAM

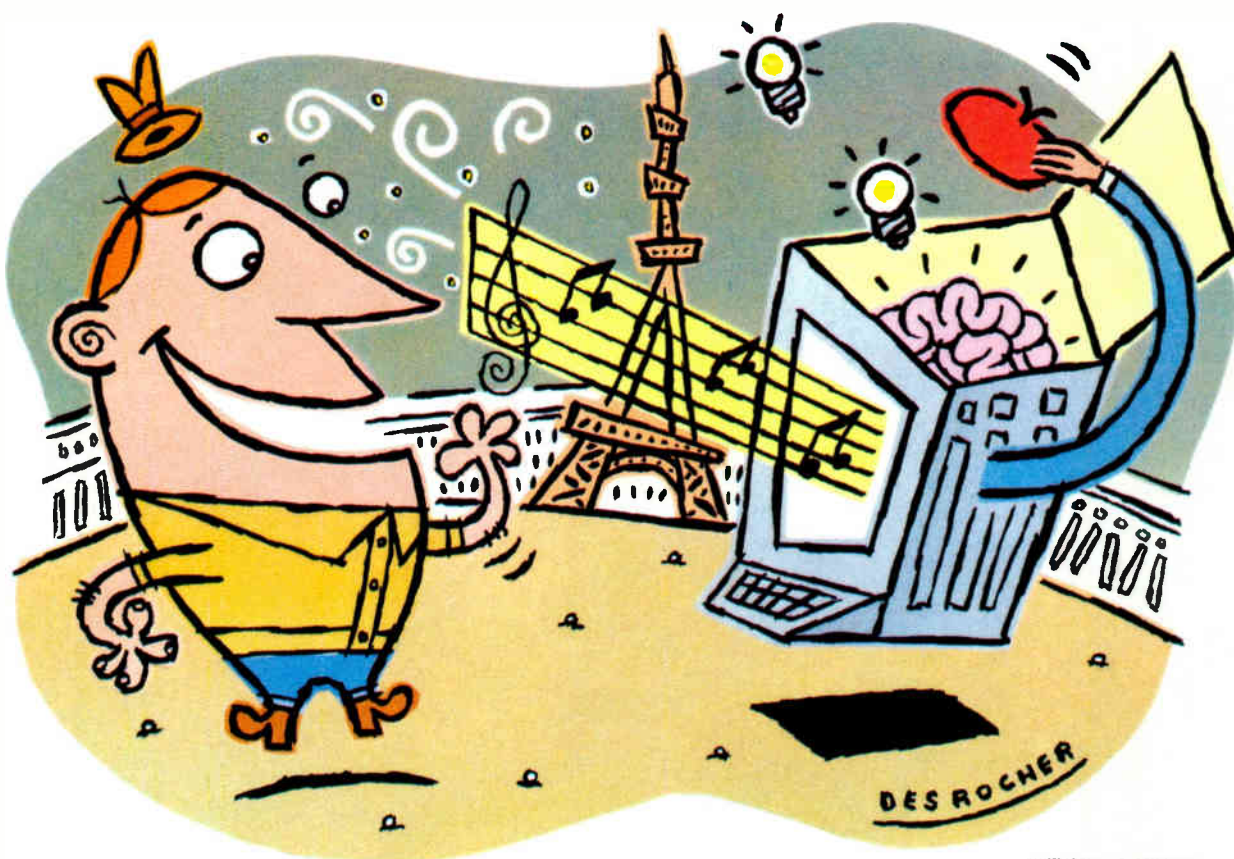## A VISIT TO FRANCE'S PREMIER MUSIC TECHNOLOGY THINK TANK

ILLUSTRATION: JACK DESROCHER

Keeping on last month's topic of travel, the great thing about getting out of your own country for a while is that you realize there are billions of people all over the world who live their lives and do their work quite differently from the way you're used to, and, astonishingly enough, they are completely happy this way.

In France, for example, the *citoyens* are perfectly okay about the terrible mail service. A package sent to the U.S. costs three times as much and takes six times as long as the same package mailed from the U.S. As one (American) wag put it to me, "If God had wanted us to use the French post office, he wouldn't have given us Federal Express."

They also seem to be copacetic about not having any such thing as unlimited local telephone ser-

vice. Every time you make a call, the meter is running. So for me to maintain the Mix Online Web site from France for three weeks, even though I was dialing a local number, cost something like $60 in phone bills—not counting the ISP charge. They deal complacently with stores being closed for two hours or so in the middle of the day (not to mention the entire month of August), and they don't seem to mind, or even know, that the Academie Français has never figured out how to translate the phrase "customer service" into their language. (Although the fellow at the computer store in Perpignan who lent me a modem when mine blew out did seem to be familiar with the concept.)

On the other hand, they are pas-

BY PAUL D. LEHRMAN

sionate about supporting their cultural, educational and scientific institutions—something we seem to have lost interest in here in the United States, except when it comes to building new highways and football stadiums. Among the many things they give lots of money or attention to are their language (which, despite my difficulties with it, I still find beautiful and expressive), their museums and historic buildings, their educational system, and a unique and thriving research center in the heart of Paris, the Institut de Récherche et Coordination Acoustique/Music, better known by its acronym, IRCAM.

Unlike American research centers, IRCAM isn't based at a university, although it does have some high-level academic affiliations. It doesn't get gobs of money from corporate sponsors who then get

dibs on anything that comes out, although it does make deals with private corporations, and is not at all averse to making money. There are other public research institutes in other countries that do similar work—STEIM, in Holland, for one—but none are as well-funded or as well-organized. IRCAM is indeed unique, something you could only find in France, where socialism intersects with capitalism, and fascination with the future intersects with pride in the past.

IRCAM was founded in the 1970s by the French government to promote research in music technology. From the beginning, it emphasized science and art equally. Its founding director was Pierre Boulez, arguably the most influential French composer of the second half of the 20th century. At the time, he also was the music director of the New York Philharmonic, where he was known for his cold personal style, amazing musical ear and killer interpretation of Stravinsky's "Rite of Spring." (I met Boulez, and his ears, during my conservatory days when he came to my school to conduct some master classes. We were reading through a Stravinsky piece for large wind ensemble, in which I was playing contrabassoon—the big wood and chrome thing hiding behind the oboes that looks like a plumber's bad acid trip. The first note was an impossibly complex chord, at the bottom of which was my low C—30.8 [more or less] Hz. He stopped the group, pointed at me and said, "Pull out your tuning slide one quarter inch.")

It would be hard to imagine a figure farther away from the pop world than Boulez, who was known for his extremely complicated, difficult music. Not surprisingly, the work that came out of IRCAM during Boulez's reign was very high-level stuff, aimed at composers working with the most advanced tools, in the most rarefied of artistic worlds. Few composers were lucky enough to gain access to the center's resources; an invitation to work at IRCAM was among the highest honors a computer musician could receive. But the work wasn't exactly aimed at a large audience. I recall visiting there 15 years ago for an International Computer Music Conference, and after sitting through endless concerts of dense, intricate music, I arrived at what I modestly christened the Lehrman principle of computer composition: Any sound, no matter how beautifully and elaborately constructed, will become boring if you repeat it often enough.

Many of the developments at IRCAM, however, eventually filtered down to more popular genres. The institute was at the forefront of the digital audio workstation concept with the 4X, a mini-computer-based synthesizing and processing machine. They researched and built machines for doing physical modeling of sound long before Yamaha and Korg made the technique a household word: It was at IRCAM that Barry Vercoe of MIT and Miller Puckette invented the first computer system that could follow a human performer, and they developed Max, a semi-graph-

> **The institute was at the forefront of the digital audio workstation concept with the 4X, a mini-computer-based synthesizing and processing machine.**

ical computer language for manipulating musical events in real time that is now marketed by Opcode Systems, and is hands down the most popular computer music programming system ever developed.

But the world of music technology research changed in the 1980s, and it became very difficult for IRCAM to maintain its leadership role. Work being done at private companies began to outpace what was going on at places like IRCAM. The availability of powerful desktop computers meant that even small (at the time) companies like Digidesign, Steinberg, Antares (née Jupiter Systems), Arboretum Systems and IVL Technologies—just to name a few—could be at the cutting edge, developing practical DSP tools for musicians. Meanwhile, musical instrument companies like Yamaha, Korg and Kurzweil made retail products whose capabilities would have delighted even the most technologically advanced composers a decade before. So IRCAM reinvented itself.

Since my French itinerary this past summer had me in Paris for a few days, I decided to give the place another visit. The first indication that this was a "new" IRCAM came when I called to set up an appointment and I was put on

hold—the music they were playing was delightful. It was a kind of floaty, breathy, circular piece for vibraphone and electronics, which lent itself perfectly to a music-on-hold loop, and actually had me looking forward to the next iteration. I found out later it was by Edward Campion, an IRCAM composer.

The second indication was that IRCAM is now, literally, above ground. Its original facility was built entirely underneath a plaza next to the hideous Georges Pompidou Center. It was a formidable space, but it seemed cramped right from the beginning, and natural light was nonexistent; it felt more like a rabbit warren than a space for creative human beings. In 1990, the new eight-story Piano tower (named not after the musical instrument, but its designer, Renzo Piano) was completed, and in 1996, two four-story buildings next door, one an old school and the other a former municipal bathhouse, were taken over and refurbished. Today the underground space is empty, undergoing serious renovations, while all the work goes on in decidedly more pleasant, if still somewhat cramped, quarters (at least, until they finish the renovations and move some of the labs back downstairs).

In 1992, Boulez stepped down from his directorship and was replaced by Laurent Bayle. The new leadership and the new buildings allowed IRCAM to take off in some important new directions, all of which are designed to make the center's mission more relevant to the world outside. And this mission has been very successful.

One new area is education: IRCAM hosts some 60 students per year at various levels. About 20, chosen from among 400 or more applicants, take a "short course" in computer music, primarily so they can get their skills up to the point where they can do more advanced work on their own. Some of these students are French, but most come from other European countries or the U.S. The remaining students are working toward Ph.D.s in a program that IRCAM has set up with a number of different French universities and academic centers. Some are scientists, doing research in acoustics, sound processing and computer applications, while others are historians or in other areas of the humanities, working in musicology or analysis.

In 1993, IRCAM created its first marketing department, overseen by Vincent

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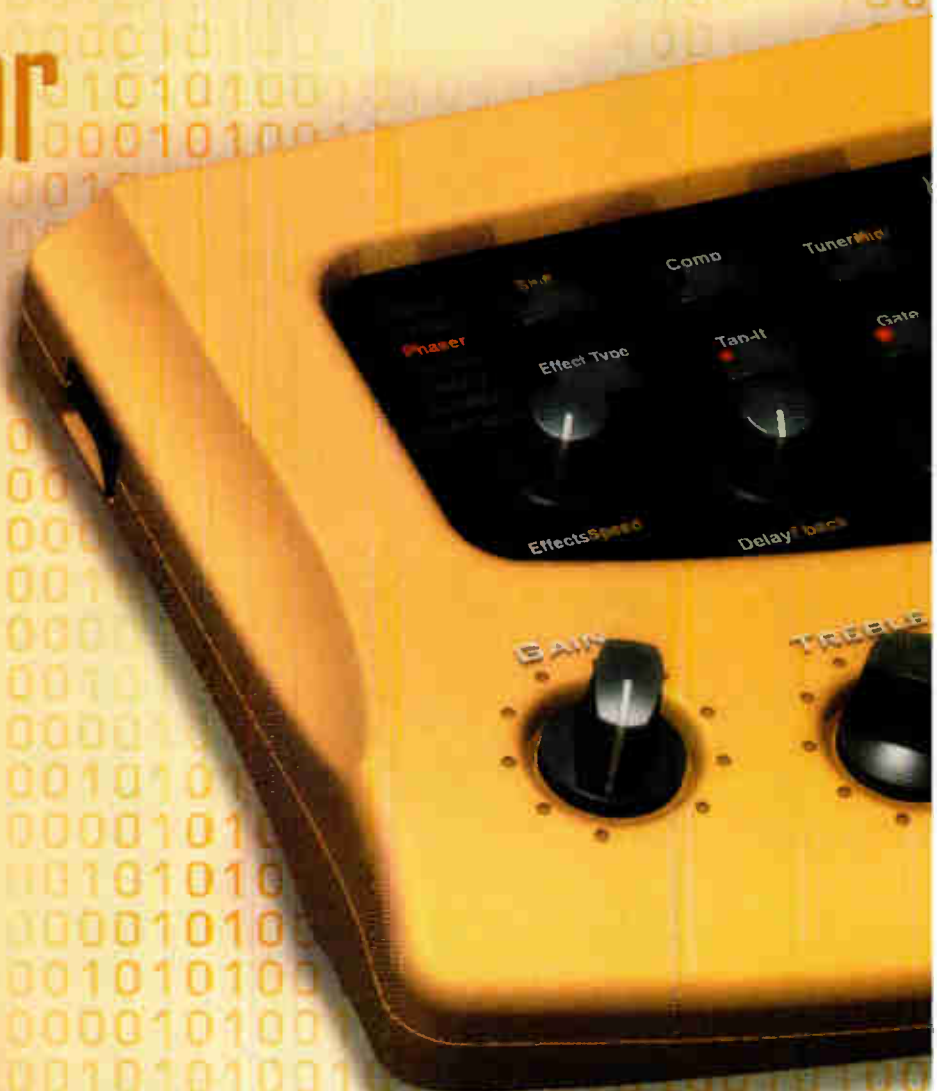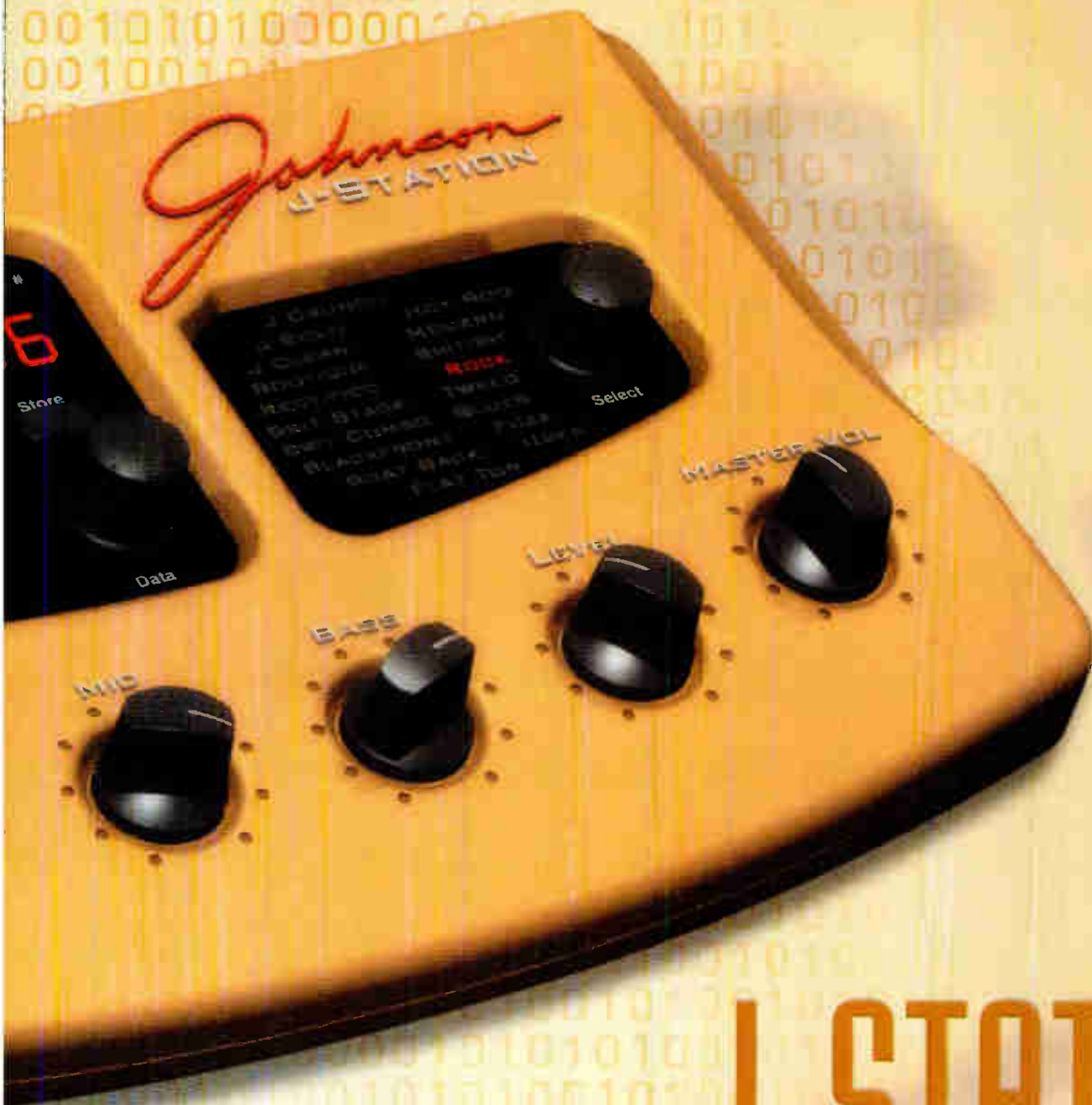
CHRIS BLACKWELL
FROM LP TO DVD, STILL LIVING THE ISLAND LIFE

As a "glamour profession," the recording industry is full of people whose names and faces are familiar to the general public. Yet for the last half-century the course of the recording industry has been greatly influenced, if not entirely guided, by a handful of businesspeople and entrepreneurs whose names and faces rarely appear in the media. Some, like John Hammond, Clive Davis and Mo Ostin, directed the growth of existing record labels, while others, such as Ahmet Ertegun, Jac Holzman and David Geffen, started their own. Among this elite group must also be numbered Chris Blackwell, who not only founded and managed a record company that has been producing hit records over four decades, but has also branched out successfully into film production, hotel management and recording studio ownership.

Born in London in 1937, Blackwell spent his childhood in Jamaica, where his mother's family had been successful in the rum, sugar, coconut and cattle trades. Sent back to England at age 10 to
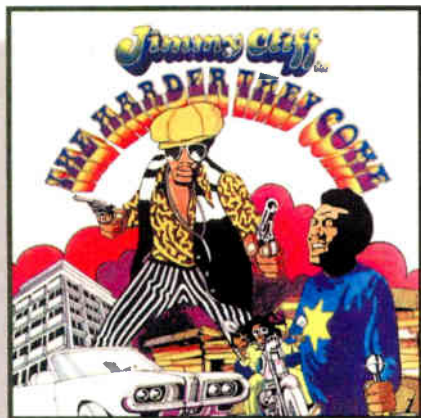
finish his education, Blackwell returned to Jamaica in 1955 and held a variety of jobs, including selling real estate, renting motor scooters and acting as aide-de-camp to the Governor of Jamaica. However, when he heard an ensemble led by

blind pianist Lance Hayward at the Half Moon Hotel in Montego Bay, Blackwell decided to record them and, borrowing the name from Alec Waugh's novel, *Island in the Sun*, founded Island Records.

In 1960, Island Records opened an office in Kingston, Jamaica, and a series of local hit singles soon followed. The growing Jamaican immigrant population in England also bought Island's discs and, finding that he was selling more records in England than in Jamaica, Blackwell moved Island's headquarters to London in 1962. A succession of minor hits followed, mainly ska records from the seminal Jamaican producers of the time, including Duke Reid, Leslie Kong and Clement "Sir Coxsone" Dodd, and within a few years Blackwell had produced or licensed several hundred singles for Island and its various subsidiary labels in Jamaica and Britain. In 1964, Blackwell produced "My Boy Lollipop" by a 15-year-old Jamaican girl named Millie, and it became the worldwide hit that launched Island's

BY DAN DALEY

global fortunes, selling more than 7 million copies. (Aware of his independent label's limitations, Blackwell licensed the record to Fontana Records to ensure wider exposure and distribution.)

Accompanying Millie to a TV show in Birmingham, England, Blackwell discovered a local R&B quartet that included the 15-year-old Steve Winwood. Blackwell signed them immediately, and licensed the renamed Spencer Davis Group's records through Fontana to get the mainstream pop exposure then still beyond the scope of Island. After modest success with covers of blues and R&B tunes, Blackwell introduced the group to Jamaican singer/songwriter Wilfred "Jackie" Edwards, whose "Keep on Running," provided SDG's first Number One record in the UK. The Spencer Davis Group subsequently had two international hits with "Gimme Some Lovin'" and "I'm a Man" and, when the group broke up, Island was now ready to handle Winwood's new group—Traffic.

Throughout the '70s, Island Records introduced the world to scores of critically acclaimed artists,

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World Radio History

and the UK and U.S. album charts were continuously re-stocked with records from Island and its licensees (U.S. distribution was typically licensed to other companies). In addition to Traffic and Winwood, Island formed the launching pad for the recording careers of Free, Cat Stevens, Spooky Tooth, Robert Palmer and Mott the Hoople, and also distributed Chrysalis and E.G. Records (Jethro Tull, Procol Harum, King Crimson, Emerson, Lake & Palmer, Roxy Music, Bryan Ferry, Eno, etc.). The winning streak continued into the '80s and '90s, and artists whose significant releases appear on the Island label include Grace Jones, Ultravox, U2, Tom Waits, The Orb and Pulp.

But perhaps Blackwell's most lasting influence on modern popular music resulted from his Jamaican roots and familiarity with the Caribbean musical heritage. Starting with The Wailers' innovative *Catch a Fire* album (which featured a Zippo lighter-shaped album cover), Island Records introduced the world at large to Bob Marley and reggae music. Artists such as Toots and the Maytals, Burning Spear, Third World and Black Uhuru not only added a multicultural component to pop music but also had lasting influence on Island Records labelmates and recording artists worldwide. Blackwell was also the first major label executive to expose African musicians, including King Sunny Ade, to a wider audience.

Although he downplays his personal involvement in production and engineering, Blackwell was a hands-on executive for a significant number of Island's records. But if his role as a producer in the studio is not easily defined, his influence on final product is clear. Early in the 1970s, Blackwell foresaw that the LP would replace singles as the primary format. Even as he gave Island's artists unprecedented creative freedom to develop their music, Blackwell also encouraged innovative graphics and album cover design. The company both upended traditional notions of packaging and spearheaded a new sense of style in cover design, as a glance through any coffee-table compilation of album cover art will confirm.

Island and Blackwell also have a long history in film and film sound. Blackwell backed his first film project in 1971, *The Harder They Come*, starring singer Jimmy Cliff. In 1981, he produced *Countryman*, which broke all Jamaican box office records. In 1983, Blackwell

Robbie Shakespeare, left, and Sly Dunbar put the squeeze on Chris Blackwell.

formed Island Alive, the film production and distribution company responsible for *Kiss of the Spiderwoman*, which won a Best Actor Oscar for William Hurt, and *The Trip to Bountiful*, for which Geraldine Page earned a Best Actress Oscar. Island films *Mona Lisa* and *Dark Eyes* also garnered Best Actor nominations for Bob Hoskins and Marcello Mastroianni, respectively. Other Island-produced films in the 1980s were *A Night in the Life of Jimmy Reardon* (starring River Phoenix), *Choose Me* and *Return Engagement* (featuring Timothy Leary and G. Gordon Liddy).

In 1989, Island was bought by Netherlands-based conglomerate PolyGram, although Blackwell stayed on to supervise the Island companies. Separately, in the early '90s, Blackwell created Island Outpost, a hotels and resorts company, and debuted in November 1991 the renowned Marlin Hotel in Miami's South Beach (which also houses one of Blackwell's two remaining studio ventures). Blackwell's vision of opening unique hotels and resorts in exquisite locations has since expanded to include six Island Outpost hotels in South Beach and six resorts in the Caribbean.

Blackwell continued his interest in the music business, and during his stewardship of Island under PolyGram, the label continued to develop hit artists, including Ireland's The Cranberries. And in 1995, Blackwell formed Island Black Music, a music division created to sign and promote R&B, soul, gospel and hip hop. Signings have included new acts such as Dru Hill, and Island Black Music has revived the career of the legendary

Isley Brothers, whose label debut sold more than a million copies.

In November 1997, Blackwell parted ways with PolyGram's Island Entertainment Group and also left PolyGram's management board (two years later, PolyGram itself was sold to Seagram's scion Edgar Bronfman Jr.). In 1998, Blackwell started Islandlife, a new umbrella company that united Island Outpost with a new entertainment venture, Palm Pictures. With Palm Pictures, Blackwell returned to his roots in the entertainment world, releasing innovative music and films theatrically and on DVD, CD-ROM, CD and home video. He has also created a Web site, Islandlife.com, to link all of the Islandlife companies. Islandlife is the parent company for other Blackwell ventures as well, including Manga Entertainment Inc., a company designed to market and release music and visual material on the new DVD format and cutting-edge Japanese and international animation films.

At 62, it's fair to say that Chris Blackwell seems to be just getting started. He certainly didn't lose any momentum for this interview—it was staged over a cell phone on five separate occasions in at least as many cities.

You were already making records in Jamaica, but was meeting Miles Davis in New York in 1959 an epiphany for you?

I met Miles through Sid Shore, a songwriter. He wrote "Evil Spelled Backwards Is Live" and other great songs recorded by Eartha Kitt, Lena Horne and other jazz artists. I met [Miles] at Birdland, and it was a high point to

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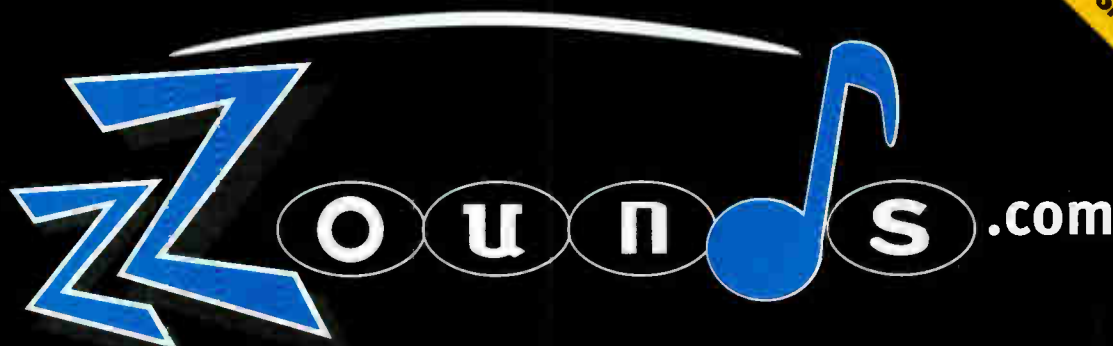
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me at that time. I was meeting a hero of mine. It was an incredible experience. I met the whole band. Sid and I were the only white guys backstage. At the time it was odd for a white kid to be hanging around blacks. But it was something I was comfortable with, coming from Kingston. I guess that's what differentiated me, and Miles took a liking to me and let me hang around. It was like going to the best college or university you could possibly go to for what I had already decided I was going to do with my life, which was music.

What attracted you about Miles Davis?
He was a complete rebel. Everyone else would come onstage and chat with the audience and be very show biz. But Miles just played. He never talked to the audience.

I loved jazz, and I loved music. But I was not into pop music. I was a kid—almost, anyway—and when a kid likes something he gets enthusiastic about it. That's how I was about music. It was a way to get your ideas across. I was into every part of it. I was always very much into album sleeves and reading them.

How did you learn about producing and engineering records?
I learned by sitting with different people and watching and listening. In Jamaica at that time, there were very

simple [recording] facilities. We made records in a radio station in Kingston. It was a primitive facility—primitive in terms of the equipment, not in terms of the building or the acoustics. But that's where we made Lance Hayward at the Half Moon.

What was available to you in Kingston at the time?
There was JBC—the Jamaica Broadcast-

Chris Blackwell, far left, accompanied U2 to Detroit's The Ritz Club on their first U.S. tour. Bono, center, Adam Clayton, behind, the Edge, second from right, and Larry Mullen, far right, are surrounded by friends and promoters.

ing Company studios—and Federal Studios. The engineer there for that first record was Ken Khouri, who was the first person to have a pressing plant in Jamaica and who also repped Columbia and RCA in Kingston. There really was no music center in Kingston at the time, except for calypso music, which was for the tourists. When I left there in 1962, the stuff on the charts—there was Mario Lanza and Billy Vaughn, incredibly middle-of-the-road stuff.

The record that gave you your first hit was "My Boy Lollipop" by the Jamaican singer you discovered, Millie. Where was that recorded, and where did that striking reverb come from that sounded so good on the radio?
We made that record in 1964, and it was released in November of that year. We recorded it at Olympic Studios in London, when it was at the Carlton Street address. It was recorded by a staff engineer there. I was interested in engineering. I found that if you could learn how to get the sounds, you could get them quicker. That's why I always wanted to work with the best engineers—to get at the things that are in your head more quickly. Back then, an engineer was an engineer, and a producer—usually an A&R person—was the producer. As a producer, you wanted to try this or that sound, and you told the engineer, and he moved a knob. It was frustrating. The producer brought in the artists and the song, but it was the engineer's responsibility to get the sound. It was a time of making records when you hoped no one dropped anything in the last ten seconds of the take. I never really considered myself an engineer, but I did have an ability to get a good sound and to mix.

On that record, the reverb came

from a sort of cupboard in the back of the studio that we used as a live chamber. It was a mono record, and we fed the sound in, adding a bit more of the reverb on Millie's voice. The record worked well for radio, but partly because it was a minute and 51 seconds. That was important for people at radio who were putting playlists together. Also, Millie's voice was irresistible—for a certain length of time, anyway. So a short record worked well for her.

You found the Spencer Davis Group—with their B-3 player and vocalist Steve Winwood—at a show you accompanied Millie to in Birmingham. What was your involvement with their records?
I produced some of their records—all of them except "I'm a Man" and what became the hit version of "Gimme Some Lovin'." Jimmy Miller had added some backing vocals and remixed it, and that was what was the hit. My involvement in the actual production varied from time to time. The B-3 sound came from Winwood himself. My production was trying to catch the essence of their energy onstage. We set them up as an ensemble in the studio—Olympic again—and just baffled them off a bit. There were no real overdubs except for the occasional solo. I never did things like pick microphones or place them. We weren't breaking any rules at that time when it came to making records; they were quite straightforward. But there was a new generation of engineers coming up then, people like Glyn Johns and his brother and Eddie Kramer. They started as straight engineers, but they learned to listen differently.

You figured out that the album was rapidly replacing singles as the primary vehicle in the 1970s, and Island also paid meticulous attention to design, transforming the traditional notions of
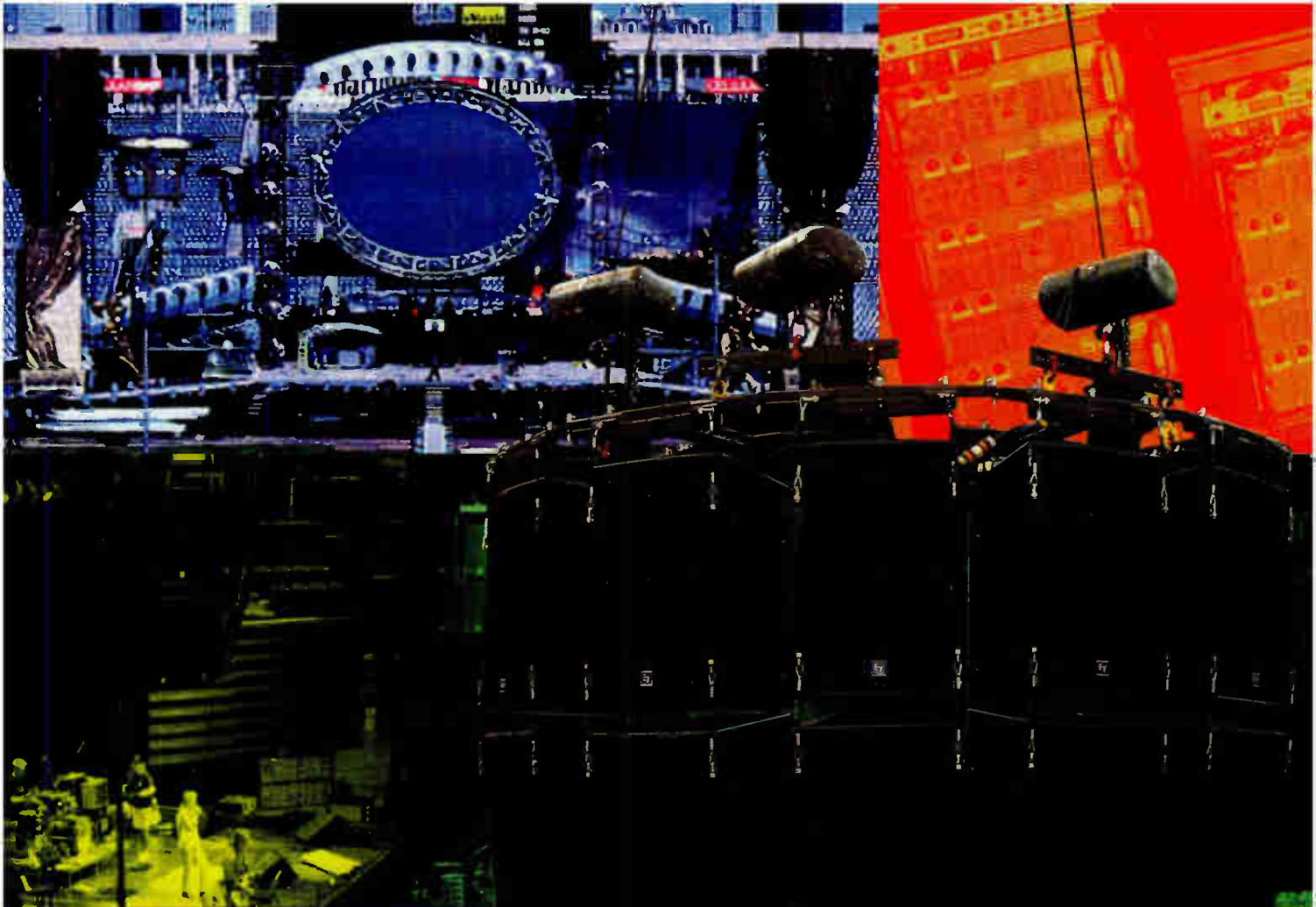
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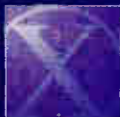
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packaging and style. You were starting to sign artists based on the depth of their artistic vision rather than their capacity to generate single hits.

My vision was always albums. I love a hit as much as anyone, but I really like records of artists, because that to me is what you hear in jazz records. The album was the difference between one song and a career. What I looked for was deep-rooted talent. The ability to be intuitive. Not because the lyrics or attitude was great, but lots of little things that can be exciting about artists or projects. But it also had to be something I really liked. A producer should start off by producing what they really like, because the chances are better with that than with anything else.

Did you remain as hands-on as a producer as you had been earlier? Or were you being pulled away from it by the business?

Some years I've been very much in studio and others not at all. It's gone in waves. From the time we started Island Studios on Basing Street, I remember I was in the studio a good amount, between 1968 and 1977. Island Studios

was near Portobello Road; it's now SARM West. It was quite an amazing studio: It did *Who's Next*, Led Zeppelin and Jimi Hendrix. I produced Free

Grace Jones had an incredibly powerful presence. In the studio, I put up a 5-by-5 blowup of her with crew cut sitting with her arms crossed in black and white. I said to her, "We need to make a record that sounds like *that*."

there, although we did them at a lot of studios, like Trident Studios off Wardour Street [in Soho]. Jimmy Miller did the first two Traffic albums, and I pro-

duced *John Barleycorn* and *The Low Spark of High Heeled Boys.*

We used the studio to work out ideas, which is why I liked having my own studio. I could work with the band and make comments as it was happening. There were still very few overdubs for those records. Maybe Steve Winwood overdubbed his parts or the solos on a separate track. I had creative input into the record-making process, but I would say that I was more of a channeler. I was not the *auteur* type of producer. I felt my role was to help someone reach their goal. When I felt close to understanding what they were trying to achieve, that's when we were successful in the studio.

The period you describe was the germination period for a lot of rock's classic producers. Did you feel a part of that?

I didn't interact with other producers. We were generating our own group of producers and engineers, guys like Miller and Steve Lillywhite, who started as engineers for us and then whom we made producers. Guy Stevens was a journalist, a DJ who I hired to head A&R for Island's R&B label, Sue Records—he produced Mott the Hoople. He created Procol Harum.
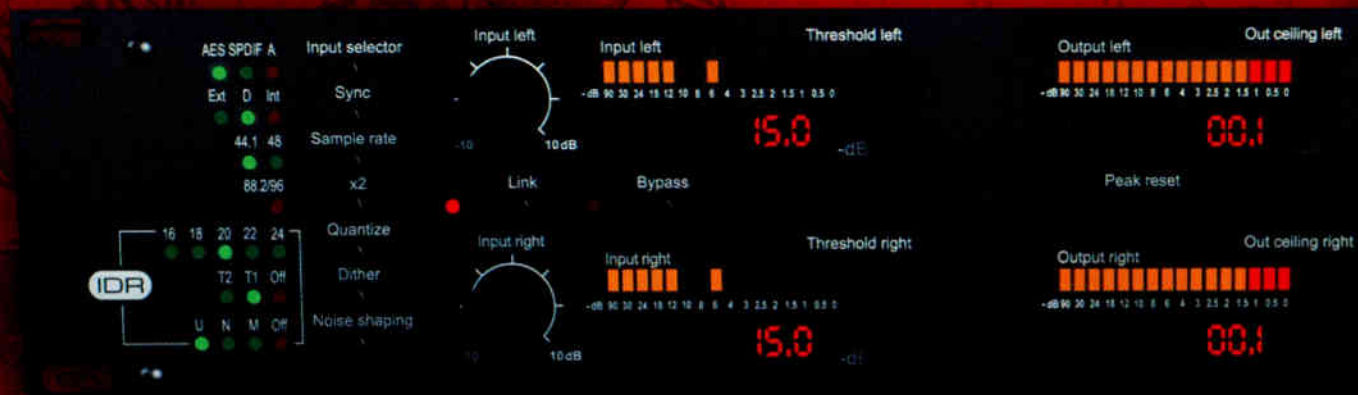
A lot of great producers made records for Island. What were you looking for in producers?

Someone who really brought out the most out of a project, who made the best record for the artist. I wanted to think long-term as well as short-term. Even if there was a song that might have been hot, I didn't want to damage the long-term credibility of the artist.

There were some artists that have the heat, but do a fast burn, though. Frankie Goes to Hollywood falls into that category. Trevor Horn made a great record that first record. He made a great second one, too. But it was the first one that got the attention. Frankie had a great voice and a great attitude, things I look for in the long-term. This one turned out to be an exception to the sorts of artists and projects I associated myself with. But I can get excited about an individual project vs. a long-term development thing. You need projects of that sort—big though not necessarily long-term—to give the record company credibility, to make it easier for your sales and marketing people to do their work projecting the label. There has to be some instant gratification involved. This is the record business. [Short, dry laugh.]

You've had a long history in film. You kept Island on the cutting edge in terms of album graphics; Island was a strong early supporter of music videos— Robert Palmer's "Addicted To Love" helped drive MTV in its early years. Did you think in terms of visuals when you considered or worked with an artist in the studio?

Absolutely. Grace Jones had an incredibly powerful presence. She worked with [visual and staging designer] Jean Paul Goude, who was a graphics and production genius. For her first record, I had an idea of the sound I wanted: a kind of harsh sound that was heavy with Jamaican rhythm and then her on top of that, rather stridently. The picture, the image, was important. In the studio, I put up a 5-by-5 blowup of the album cover, pasted to the studio wall, before we started recording—her with her crew cut sitting with her arms crossed in black and white. Very powerful image. I said to her, "We need to make a record that sounds like *that.*"

You decided upon the album cover and image before you recorded the first note of music?

Yes. I work from a very visual point of view.

What was it about U2 that made you sign them? A number of other major record labels had already passed on the band.

I didn't instigate the signing of U2. Rob Partridge, head of publicity, gets credit for that. I went to see them in London in July 1980, and I loved them. I loved the band's name—names are important to me. They had already found Steve Lillywhite as their producer. I wasn't really involved in their career except to the extent that I gave an edict to give them maximum support.

You stuck with artists like Winwood and Robert Palmer, who didn't have

career hits until a few years later in the '80s. As a producer or executive producer, how did you guide their creative careers in the interim? Do you ever really stop acting as a producer?

You never really stop, even when you're not in the studio with them. In the case of Winwood, he is a musical genius, very gifted. But it was a shaky course after Traffic. He made some uncertain records, to say the least. So I was supportive. How could you not be with such a talent? The problem, as I saw it, was that it was hard to get him to meet and see new people, to create a stimulus creatively and do new things. It was when he met [lyricist] Will Jennings and hooked up with him that a real match was made. Will wrote lyrics that Steve could relate to.

Robert [Palmer] and I became really close friends. Robert was unique in that he was so interested in other types of music and was not afraid to cover it. A lot of people since The Beatles felt that they should only do their own songs. On his records, he would do five or six outside songs as well as three or four of his own.

Palmer's last record was heavily Caribbean-influenced, even years after working directly with you. Did your own Caribbean roots affect artists deeply?

The whole dynamic of coming from Jamaica had at least a tiny influence to most of the artists. They were exposed to music they otherwise would not have been.

In the early '70s, you went back to your Caribbean roots and brought out Bob Marley & the Wailers and, in doing so, brought reggae into the pop music mainstream. How did you change the sound to make it palatable to pop while still keeping its fundamental integrity? How did you adapt reggae's organicness to an increasingly high-tech recording world?

It really happened by coincidence. Jimmy Cliff left Island, and I was quite disappointed. The movie (*The Harder They Come*) had just come out, and I thought we could break him globally. A week later, Bob Marley walked into my office, and my feeling was that we could take the same character as Jimmy and bring him to life through Bob. Bob was the real thing. I encouraged Bob to make an album, not a single. [According to a VH-1 biography on Peter Tosh, Blackwell "challenged"

FX MEISTER

Master

01 : Default   Preset   Add   Remove

INPUT

SparkExpand...   SparkReverb

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(4/1) Spar

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DIRECT I/O

Start   Status   Active

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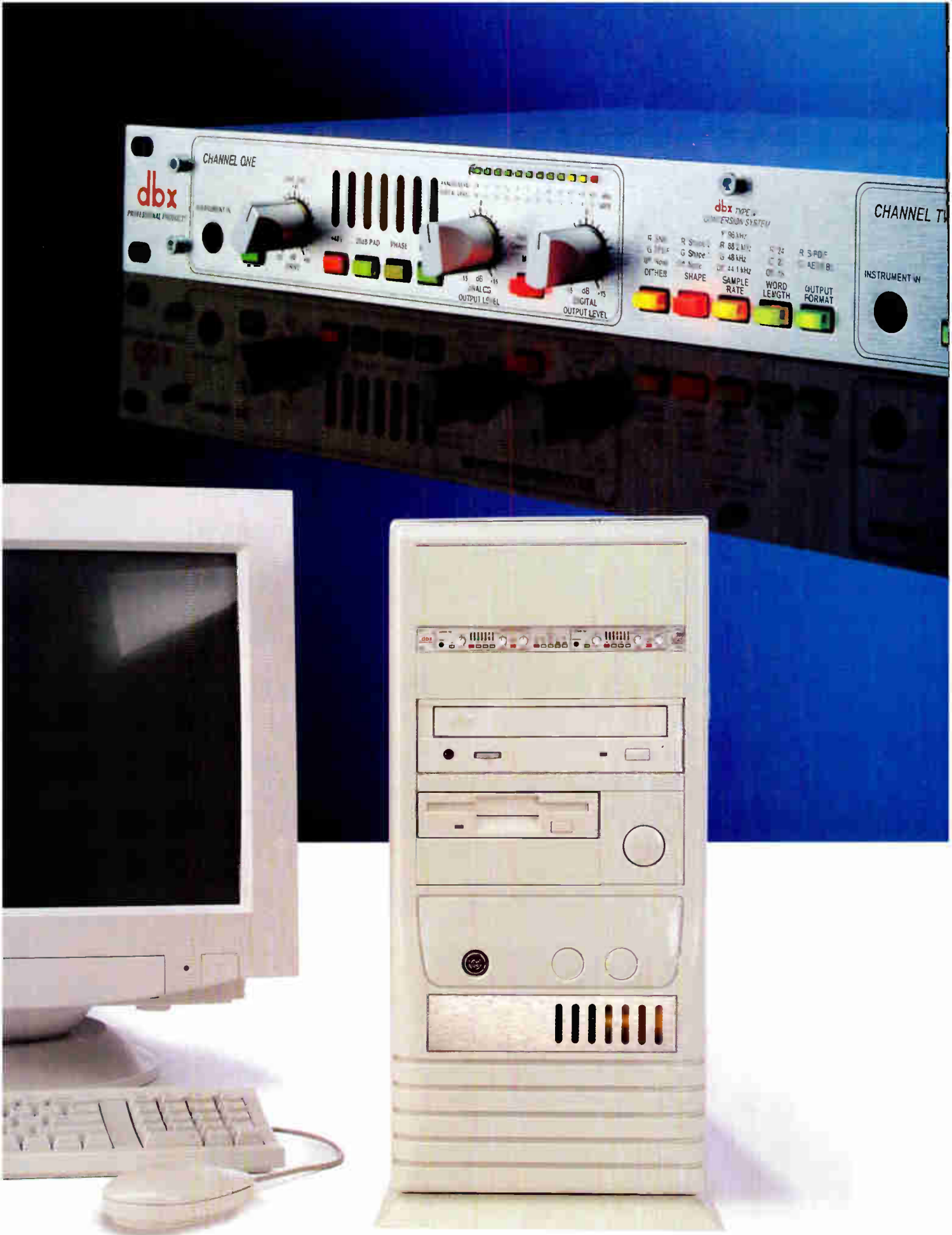
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TEC AWARDS

ALL PHOTOS ON STAGE:
GEORGE KANATOUS
ALL POSED PHOTOS:
ALAN PERLMAN

Sting, one of the music industry's most popular and creative talents, was presented with the coveted Les Paul Award, and Tom Dowd, who engineered countless hits over five decades of recording, was inducted into the TEC Awards Hall of Fame at the 15th Annual Technical Excellence & Creativity Awards, held September 25 at the Marriott Marquis in New York City.

Les Paul and Henry Juszkiewicz, president of Gibson Musical Instruments, presented Sting with a custom Gibson Les Paul guitar, following a tribute by engineer/producer George Massenburg. Later, producer, songwriter and Atlantic Records co-founder Ahmet Ertegun provided a moving Hall of Fame presentation to Tom Dowd, his close friend and the man responsible for engineering most of the groundbreaking hits for Atlantic in the '50s and '60s. One of the giants of modern recording, Dowd worked with such artists as Aretha Franklin, Ray Charles, Eric Clapton, Rod Stewart and the Allman Brothers.

TEC Awards were also presented in 27 categories, covering Institutional, Creative and Technical Achievement. The ever-popular Father Guido Sarducci hosted the evening's event. Presenters included engineers Chuck Ainlay, Jimmy Douglass and Frank Filipetti, producers Phil Ramone and Tony Visconti, songwriter Julie Gold, and bass players David Santos and T.M. Stevens.

The House Ear Institute's Sound Partners campaign and Hearing Education and Awareness for Rockers (H.E.A.R) will once again receive 50% of the evening's proceeds to continue their efforts in hearing conservation. The remaining funds will be divided between the AES Educational Foundation, the SPARS student assistance program, various scholarship programs throughout the United States and the winner of the TEC Awards Scholarship Grant (see "Current" on page 12 for details).

◄ The wacky group from Digidesign whooped it up backstage after winning the Workstation Technology Award for Pro Tools I 24 MIX.

▲ Chris Martirano of Kurzweil shows off the TEC Award in Musical Instrument Technology for the Audio Elite System.

▲ (L-R) TEC Award winner Ed Cherney, Georgetown Mastering's Denny Purcell, and presenters Chuck Ainlay and Frank Filipetti.

▲ The Warner Music Group showed up in force to honor Tom Dowd. Pictured, L to R: Phil Ramone, Joel Dorn, Ahmet Ertegun, Tom Dowd, Al Schmitt, Dano Dowd, Francine Wacshal and Arif Mardin.

▲ (L-R) TC Electronic founder Kim Rishoj, engineer Al Schmitt, and TC's Ed Simeone and Morten Lave enjoy an unprecedented three awards—for Mic Preamplifier Technology (Gold Channel), Signal Processing Hardware (M3000) and Signal Processing Software (TC Works MasterX).

▲ (L-R) Producer George Massenburg, TEC Awards Executive Director Karen Dunn, Les Paul Award recipient Sting, Les Paul and Mix Foundation President Hillel Resner.

(L-R) Mix magazine Publisher Jeff Turner with Les Paul.

▲ Kooster McAllister holds his TEC Awards for Remote/Broadcast Recording Engineer and Remote Recording Facility.

▲ Atlantic Records' Ahmet Ertegun (L) and Arif Mardin with Hall of Fame inductee Tom Dowd.

▶ Tom Dowd discusses the importance of hearing preservation during his acceptance of the Hall of Fame Award.

▶ JBL's David Kimm, left, and Michael MacDonald celebrate winning the Studio Monitor Award for the JBL LSR-28P.

◀ SSL marketing director John Andrews accepts the TEC Award for Large Format Console for the SSL Axiom-MT, as SSL U.S. President Rick Plushner looks on.

◀ Producer Tony Visconti and songwriter Julie Gold presented awards in the technical categories.

▼ (L-R) Gibson President Henry Juszkiewicz, Sting, Les Paul and Mix Books publisher Mike Lawson.

Master of Ceremonies Father Guido Sarducci entertains the sold-out crowd.

▲ Mark Johnson accepts the TEC Award for Sound Reinforcement Loudspeaker Technology for the Meyer Sound PSW-6 Cardioid Subwoofer.
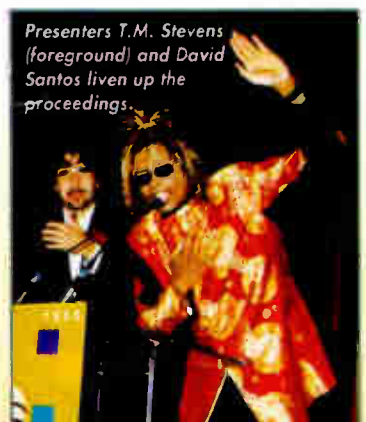
Presenters T.M. Stevens (foreground) and David Santos liven up the proceedings.

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Sound Reinforcement Company
Showco, Dallas, TX

Mastering Facility
Gateway Mastering, Portland, ME

Audio Post-Production Facility
Todd-AO Studios, Hollywood, CA

Remote Recording Facility
Record Plant Remote, Ringwood, NJ

Recording Studio
Right Track Recording, New York City

OUTSTANDING CREATIVE ACHIEVEMENT

Audio Post-Production Engineer
Gary Rydstrom

Remote/Broadcast Recording Engineer
Kooster McAllister

Sound Reinforcement Engineer
Dave Kob

Mastering Engineer
Ted Jensen

Record Producer
Glen Ballard

Recording Engineer
Ed Cherney

▲ (L-R) Lexicon's Wayne Morris, Mix magazine's
Michele Kanatous and Robbie Clyne.

Phil Ramone, Les Paul and Al Schmitt ▶

OUTSTANDING TECHNICAL ACHIEVEMENT

Ancillary Equipment
Apogee PSX-100

Amplifier Technology
Bryston 9B-ST Pro

Mic Preamplifier Technology
TC Electronic Gold Channel

Computer Software/Peripherals
Sonic Foundry ACID

Microphone Technology
Neumann M147

Sound Reinforcement Loudspeaker Technology
Meyer PSW-6 Cardioid Subwoofer

Studio Monitor Technology
JBL LSR-28P

Musical Instrument Technology
Kurzweil AES (Audio Elite System)

Signal Processing Technology/Hardware
TC Electronic M3000

Signal Processing Technology/Software
TC Works MasterX

Recording Devices/Storage Technology
Otari RADAR II

Workstation Technology
Digidesign Pro Tools|24 MIX

Sound Reinforcement Console Technology
Harrison Live Performance Console (LPC)

Small-Format Console Technology
Mackie Digital 8-Bus

Large-Format Console Technology
Solid State Logic Axiom-MT

LES PAUL AWARD
Sting

HALL OF FAME
Tom Dowd

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Illustration: Tom Curry

As we close out the '90s, it's instructive to think back on all the changes we've seen over the course of the decade. In 1989, digital audio workstations were around, but pathetically anemic by today's standards. Home studios were mostly "semi-pro," and the project studio phenomenon was still in its infancy. Recordable CDs were found only in the lab, and the only format accepted by CD plants was the Sony PCM-1630. And high-quality digital audio processing tools were both rare and expensive.

In the last ten years, DAWs have taken major strides in quality, power and affordability, with a steady stream of "plug-ins" continually expanding their capabilities. Project studios are everywhere, and their output is all over the charts. The price of digital audio processing has fallen dramatically, in part because manufacturers have expanded their markets by pushing the "do-it-yourself" approach to making albums. And many CD plants are now unenthusiastic (at a minimum) about accepting PCM-1630s, preferring instead CD-Rs that may be "burned" on computer-hosted drives selling for well under $500.

Mastering Forum

TWEAKING: DO NOT TRY THIS AT HOME, YET

by Philip De Lancie

The upheavals these changes have brought to the studio business have been thoroughly documented, but what about their impact on the field of mastering? Are the same technological and business trends that fueled project studios likely to pose a threat to established professional mastering houses? If you don't need a lacquer-cutting lathe or a PCM-1630 to make a master, why do you need mastering at all? And even if you do go to a mastering house, why not do a lot of the "finalizing" yourself with one of the many affordable digital processing tools now being marketed for mastering applications?

Mastering Forum

To help us sort through these questions, we turn to four engineers: two recording and two mastering. Charles Dye is producer/mixer at Tocha Productions in Miami; his recent credits include Ricky Martin, Sammy Hagar and Jon Bon Jovi. Jim Gardiner is owner and engineer at Pajama Recording Studios in Oakland, California, and has worked with artists including Tony! Toni! Tone!, Thomas Dolby, Angela Bofill and Vanessa Williams. Scott Hull's 15 years of mastering include recent projects with Garbage, Ani DiFranco, and Steely Dan; Hull recently became chief mastering engineer at Classic Sound in New York City after many years at Masterdisk. And Steve Hall is V.P./chief engineer at Hollywood's Future Disc Systems, where he masters albums by artists such as Madonna, Fleetwood Mac, Green Day and Alanis Morissette.

What does mastering in a professional mastering house bring to a music project that can't be done in a project studio or a traditional recording studio?
Charles Dye: For me, it's the fresh perspective of someone that spends their entire day hearing all the soon-to-be latest hits. It gives me confidence to have someone like that making sure that my work will compete with the rest of the music on the radio. The other factor is hearing your own record in a fresh listening environment, one that may be tuned much more accurately than where you mixed it. Often you will hear something you hadn't heard before.

Jim Gardiner: The mixing engineer has a certain idea of how the project should be shaped, so he is cutting the diamond. But then you take it to premastering to make the diamond sparkle before it goes into that jewel box. You want a place that has a track record, where the person who is doing the premastering has tons of experience. It takes years of patience and practice to learn where all the frequencies are for all the different instruments.

Mastering is also the time to go through all the things that need to be checked—phase, imaging, pops and noises—that you may have missed. You need a good monitoring environment that's set up for doing that. If your room isn't right, and you can't hear accurately what you've got while you are master-

ing, it's impossible to tell what it's going to sound like out in the world. And the whole purpose is to have mixes that will sound good on everybody's system.

Steve Hall: One of the important things a professional mastering house has to offer is expertise. A mastering engineer has spent numerous hours learning how to treat various types of music so your project can compete in the market it will be addressing. And they hear all kinds of music, so they have a good understanding of how your material stacks up in the real world. They also know when to tweak things and when to leave things alone, which is probably the hardest part of the job. Another reason is objectivity. You may have been

> **THE MIXING ENGINEER HAS A CERTAIN IDEA OF HOW THE PROJECT SHOULD BE SHAPED, SO HE IS CUTTING THE DIAMOND. BUT THEN YOU TAKE IT TO PREMASTERING TO MAKE THE DIAMOND SPARKLE BEFORE IT GOES INTO THAT JEWEL BOX.**
> **—JIM GARDINER**

in the studio for the last six months, but they will be hearing your mix for the first time, with fresh and trained ears.

When it comes to the creation of the "master," the greatest advantage is that the mastering engineer will know what the best format is, and which format the various manufacturing plants can handle without transferring your master numerous times on the way to the glass master. Some of these transfers can add up to some pretty ugly sonic results on your manufactured CD.

Scott Hull: A professional mastering engineer has a long history of mastering music projects, and brings that experience to every project. And he or she knows the listening environment intimately, so your recording can be compared to all the other recordings mastered there to determine what's needed. A recording isn't "mastered" when it's been edited, or when the level and high end are maxed out. A well-mastered project sounds like a complete statement, greater than the sum of the parts.

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In general, what's the appropriate point in production at which the role of the recording/mixing facility should end, and the mastering house should begin? At what point is further work in the studio counterproductive, and what are some of the consequences that can arise when attempts are made to "master" the material before it gets to the mastering house?

Dye: It's obvious that too much stereo-bus compression and EQ can limit the mastering engineer's options. But I don't particularly believe that stereo-bus compression, EQ and limiting are evil. If you have a specific sound that you hear in your head, and stereo-bus processing will help you capture that, then do it. The stereo mix bus processing on "Livin' La Vida Loca" was quite integral to its sound.

Gardiner: I get tapes from people that want me to listen to their work, and the compression and limiting have taken away the natural air or breathing of the music. They just crunch the hell out of

everything, and print it that way to their master, so you can't really take it out later. When I am going to be handing something off to mastering, I like to be conservative with what I do on my side. As long as the general mix sounds great, I'll leave a window for the mastering en-

> **A RECORDING ISN'T "MASTERED" WHEN IT'S BEEN EDITED, OR WHEN THE LEVEL AND HIGH END ARE MAXED OUT. A WELL-MASTERED PROJECT SOUNDS LIKE A COMPLETE STATEMENT, GREATER THAN THE SUM OF THE PARTS.**
>
> —*SCOTT HULL*

gineer to do the final polish.

Also, if people are using the equipment in a recording or project studio, it's not going to be the same as the top-end stuff they have in a mastering

house. Quality comes at a price, and people should be aware that inexpensive boxes can create certain colors in the sound. There's a whole lot of push from manufacturers to sell premastering tools for $500 to run on a PC, but you can't assume that just because someone can buy this stuff they have tremendous skills in mastering.

Hall: The point when the mix studio is finished and mastering starts can be difficult to determine. Projects can vary greatly in the type of finish work required. Some projects require an entire day spent on crossfades, sequencing, cutting various mixes together, or maybe even flying in parts. Others come in completely assembled with tracks properly spaced and faded. That usually makes my job much easier.

One of the most frustrating problems in the mastering room is when someone tries to master a project before going to mastering. If you are going to take this approach, be very sure that you don't overdo or abuse the process you are using, because it's very hard, if not impossible, to reverse. If you are using a particular product for a certain type of sound or effect, and you like the way it sounds, then by all

World Radio History

Mastering Forum

means go for it. But if you're going to compress the crap out of it, don't ask me to fix it!

Hull: The mastering process can begin well in advance of the mastering session, at any point that the engineer or producer wants a little advice. I can help clients decide the best way to proceed, and to avoid things that can adversely affect their project. This relationship helps the producer optimize his time in the recording studio and in the mastering studio.

There are at least two reasons why it is never a good idea to premaster in the recording studio. First, any copy or processing of the original material will degrade the music, and most of the time these changes in sound quality will show up in the mastering room, meaning that the project has to be redone from the original tapes anyway. Second, the equalizers and compressors that mastering engineers choose are designed for a very different purpose than tracking and mixing gear. You may have the right idea that your recording needs attention around the bass or lead vocal, but the tools we have, with our experience, will do a better job of it, and do less collateral damage to the rest of the recording. There's nothing wrong with optimizing your work to submit it to the label so that it will not seem too low in level compared to other CDs, but it should be labeled as "not for production."

What should the producers of limited-budget projects be doing—and not doing—in preparation for mastering to ensure that they use their mastering time most efficiently, so that they can afford a professional mastering job?

Dye: They should definitely have their master assembled before going into mastering. Then they should put their assembled, unmastered album on CD-R and listen to it for a week on every system they can find, taking notes about the relative levels of the songs, the lev-

> NOW THERE IS EQUIPMENT
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> NOT HAPPENING ALREADY.
> —CHARLES DYE

els of the intros compared to the previous song, the sound of the vocals from song to song, and, of course, the top and low end from song to song.

Gardiner: Depending on the client, I try to give the mastering house a master that is already sequenced. You can save time and money in mastering by trimming all beginnings and doing all the fades. You should also create a track list with the times. And it is very helpful to choose a core track that you can point out to the mastering engineer as an example of what you think all your tracks should sound like. Another thing that's important is that during mixing you

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digital live

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Mastering Forum

should make sure that you don't lose everything when you turn it down. The tracks should have sufficient definition that you can still hear everything when you listen soft.

Hall: I have a few tips for getting the most out of your mastering buck. Start by showing up on time, because the clock is running. Try to make sure that someone remembered to bring or send the tapes, preferably the day before the session, and make sure we have the tones—that tune at the head of the reel that has only a few really long notes. If you're going to show up with 25 boxes of masters, try to have some idea of which is the real mix; if we have to listen to five different mixes on each song, the day will be shot and so will your budget. Make sure the tapes are clearly marked. Have your tunes edited if you can, make sure you're finished mixing, and you don't need to fly in a guitar part or two. If you want to save more time and money, have your master assembled on a single format, and make

sure your songs are faded properly and spaced the way you want.

Hull: One thing that can be very expensive and time-consuming in the

> **THE NEXT FEW YEARS WILL BE VERY CHALLENGING FOR MASTERING PROFESSIONALS. THE MASTERING WE WILL BE DOING IS GOING TO BECOME A MUCH MORE COMPLICATED AND TIME-CONSUMING PROCESS. IN THE FUTURE WE MAY BE MASTERING FOR CD, CASSETTE, VINYL, DVD IN HIGH RESOLUTION, MP3 AND SURROUND.**
> **—STEVE HALL**

mastering studio is making decisions. I highly recommend that the producer and the band sit down at a DAW and

edit the choice takes together before they get to mastering. You can try many different sequences and different mixes and edits. Make as many of these decisions as possible before the mastering session. A complete typed-out listing of what takes are to be used for each song is very helpful.

The edited copy that you make will be used as a reference for the final sequence and EQ, but not as the master, so bring all of the original master tapes to the session. It's actually just as fast to let an experienced mastering engineer work from the originals as it is to pre-assemble and or premaster, because it happens a lot that the mastering EQ or compression convinces the client to pick a different mix.

Label your master tapes as if they are the most important thing to you. And check the IDs on your DAT tapes. It's a huge waste of time to go searching for missing ID numbers.

What's the appropriate response to a producer who says there is not enough money in the budget to master at a professional mastering house? Is there a need and/or a way for traditional mastering houses to make their services more accessible for limited-budget projects?

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Mastering Forum

Dye: One radical approach to addressing costs is what has happened in the recording engineering community in the last ten years. As producers began building home studios, they brought recording engineers in to record their projects for them. That movement was gear-driven, and now there is equipment available that gives mastering tools to project studios. There will be no stopping this movement, and the only thing to do will be to adapt to it. Soon, established mastering engineers will be going into project studios to freelance, if it's not happening already.

Gardiner: There are places in any budget that you can find to take short-cuts, but the best place not to shortcut is in taking it to a really qualified premastering place. You are competing against every major artist in the universe, so anything that is mediocre just won't work. Besides having your music be hipper than whatever else is out there, you need to sound as good or better than everyone else to get through. And that can cost money.

Hall: At most professional mastering houses you will find a collection of the finest custom consoles and signal processing devices available, and most mastering rooms invest frequently in new DAWs, new converters with higher sample rates, newer digital equalizers and compressors, increased hard disk storage, and networking. Many of us are pushing the curve to implement surround mastering and DVD authoring. So I wouldn't plan on rates coming down much in the near future.

Some labels want to save a buck and have their artists master in their own studios. If you're spending a hundred grand on a project to record and mix—and making a couple of videos at $50,000 each—and you can't muster another two or three grand for mastering, what's wrong with this picture? We're talking about putting the finishing touches on an album. This is the last chance you have to perfect everything you spent the last year of your life working on 12 hours a day. If you are going to make this project the best it can be, why would you want to omit this stage? I guess if you don't think you need professional mastering for your project, the project must not be that important to you.

Hull: The question is: Are you trying to get the project done for the least expense, or are you trying to get the most musical effect out of it? New clients often come to my mastering session saying they are very happy with the way their project sounds. But after listening to it with just the right EQ or compression, they are often surprised that it can sound that much better. So if you say there isn't enough money, maybe you don't know what you're missing, or you've been going to the wrong mastering engineer in the past.

One way to bring a truly limited-budget project to a professional mastering studio is by using one of the studio's "up-and-coming" engineers. Most mastering studios I know have engineers that have years and years of experience and are trying very hard to break into the very competitive mastering world.

Do you believe that every music project intended for commercial release should pass through a mastering house on its way to the CD plant, or are there some situations or kinds of projects for which the mastering step is not always necessary?

Dye: I think mastering is an essential process, but as I said earlier, I don't believe the traditional business model for it will survive.

Gardiner: If you are doing a demo, and you just want to play it for your friends, that's cool. But if it's something that you put your life and love into, mastering could be the thing that makes the difference in the whole thing. All the great producers who have their own home studios and CD burners, and who use the best recording engineers on their projects, they still all go through professional mastering when it comes down to the final master.

Hall: I believe that every project can be improved or enhanced, at least to a certain extent. There may be times when some audiophile projects can bypass mastering, but why wouldn't you want the best possible transfer through the cleanest chain available with the best possible dithering?

Hull: A few very high-profile projects I have worked on needed little or no EQ. But the producer felt it necessary to check with me just to be sure, because you can't know if mastering is "necessary" until the mastering engineer and producer listen to the recording together and discuss the goals of the project. So the process of making that determination should always be a part of your production schedule and budget.

How do you expect the role of the tra-

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Mastering Forum

ditional mastering house to evolve over the next few years in response to the extension of the project studio approach into the field of mastering? And what types of new services might mastering facilities be offering to further differentiate themselves from people with a DAW in their spare bedroom?

Dye: Following the pattern of recording studios in response to similar pressures, there will be some fallout in the mid-level mastering houses. But many of them will adapt to a new approach based upon their clients' desire to own their own mastering equipment, and the mastering facilities and engineers will come up with a solution that will allow them to survive. The top-end houses will continue on, because the major labels see a lot of value in having that last person in the chain with a New York, L.A. or Nashville facility that they can go to from their offices to hear the final album. It gives them the control and the confidence that they need to have with their projects.

Gardiner: Depending on where you are located, mastering places are just now getting dialed into the surround thing. That's a big issue, and the mastering places really need to get more involved, because there are so many questions right now in areas such as phase. It could be a great business for premastering.

Hall: The next few years will be very challenging for mastering professionals. You will always find the mastering studios leading the way in sonic excellence in our industry, and I believe that this will remain so as long as people need a source for true quality. But the mastering we will be doing is going to become a much more complicated and time-consuming process. In the future we may be mastering for CD, cassette, vinyl, DVD in high resolution, MP3 and surround. This constant evolution of technology will be a stumbling block for project studios because of the diverse mastering formats that will need to be addressed. It could be a bit overwhelming for the recording or project studio to create this variety of masters for a record label.

For DVD projects, I believe that the mastering house needs to be the authoring facility as well. The mastered audio will be already be on their hard drive, and they will be working with the artist and/or producer to create the finished product.

So we have installed a complete audio-video mastering suite with video encoding, authoring and graphics production for DVD. We are also currently upgrading for surround mastering, but this is a slow process. The tools that meet our standards are not yet fully developed, so we are working with several manufacturers on high-density mastering products.

Hull: Mastering engineers will evolve into the newest technologies in response to the demand from our clients. It seems obvious that the person who finishes your music project should also author it and prepare it for the manufacturing step. No one else has so much experience in taking tapes from the recording studio to the home listener. To me, there is no good reason not to include the mastering process in all music projects. New technologies like MP3, DVD, DTS, Dolby Digital, DVD-Audio and SACD all use music formats that need a mastering engineer's perspective. ■

Philip De Lancie is Mix*'s new technologies editor.*

World Radio History

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PLUG-INS AT AES

The Antares AMM-1 Microphone Modeler plug-in emulates new and vintage microphones.

EVERYTHING OLD IS NEW AGAIN

Arboretum's Realizer offers DSP for optimizing Internet audio.

Analog Emulation, New Platforms

BY SARAH JONES ✱ Last month, we presented some of the hot product hits from September's Audio Engineering Society Convention in New York. But with so many plug-in developments, we decided to give them their own feature. The plug-in market is continuing to flourish, and we noticed some trends at AES.

Emulation is going strong. We're seeing more and more modeling of vintage mics and classic effects, and, increasingly, hardware manufacturers are developing software-based versions of their gear. (Will virtual rolling racks be next?) There was also big news on the platform front. Digidesign's new Real Time AudioSuite (RTAS) plug-in platform brings real-time, host-based mixing and processing to entry-level users. And a growing number of developers are announcing plug-ins for Soundscape, SADiE, MOTU's MAS and Sonic Solutions HDSP platforms. Meanwhile, many current plug-ins were introducing expanded platform support, particularly VST and Di-
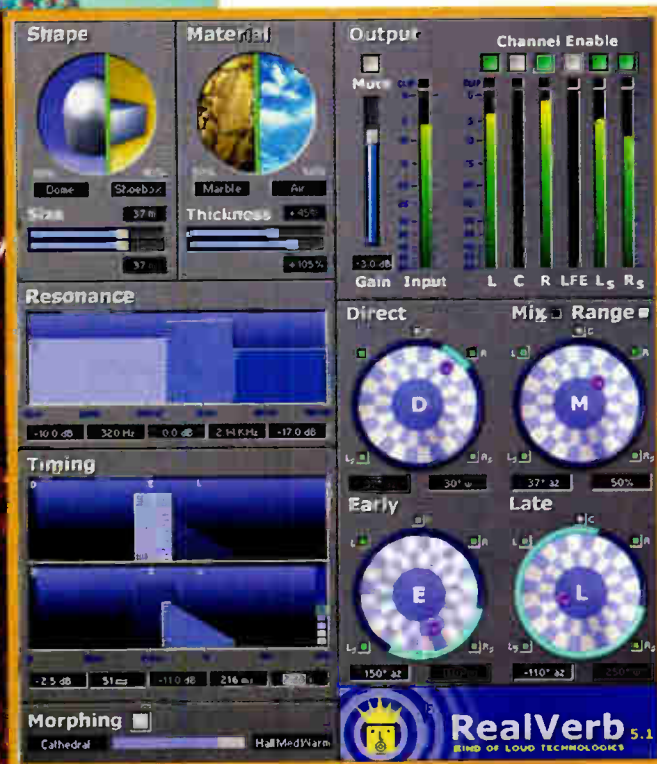
Kind of Loud's multichannel RealVerb 5.1 can morph between room shapes and textures.

SPL's Virtual Transient Designer for CreamWare's PULSAR/SCOPE systems.

PLUG-INS AT AES

rectX. We also saw quite a few MP3 and surround authoring tools. So if you couldn't make it to this year's AES, here are the latest in plug-ins, direct from the show floor.

Access Music GmbH (www.access-music.de) and Digidesign have announced co-development of the Access Virus TDM plug-in for Pro Tools|24 MIX-based systems that is virtually identical in

Cycling '74's Pluggo is one of the newest MAS plug-ins.

sound and core functionality to the Virus family of hardware synthesizers, which model classic analog synth textures, as well as create new sounds. A number of Virus synth plug-ins can operate at the same time on the system, allowing multiple 16-voice multi-timbral synthesizers to be created (up to five on a basic Pro Tools|24 MIXplus system for a total of 80 Virus voices). The $795 plug-in will be available early next year.

Antares Audio Technologies (www.antarestech.com) debuted its new AMM-1 Microphone Modeler TDM plug-in. The plug-in uses Antares' Spectral Shaping Tool™ (SST) technology to emulate a variety of microphones, vintage and new; the user enters the microphone he is using and selects the mic he would like it to sound like. The AMM-1 references the stored models of both the source and target mics and processes the input to create the sound of the desired mic. This process can be done be-

TL Audio's EQ-1 is now available as a plug-in for VST and Direct X.

fore or after recording. Built-in effects such as saturation are included. The AMM-1 will soon be available for Pro Tools and MAS platforms.

Arboretum (www.arboretum.com) announced a version of Hyperprism for Soundscape systems, including Soundscape's new R.Ed platform. The initial release includes the Bass Maximizer, Tube/Tape Saturation, Sonic Decimator (bit depth and sample rate reduction), Quasi Stereo (mono-to-stereo), Filter, Ring Modulator, Flanger and Phaser modules; retail is $299. Arboretum also released its Realizer MP3 player/encoder plug-ins for DirectX and VST. Price: $74.95. Arboretum's new Realizer Pro plug-in, adapted from Hyperprism and building on the original Realizer, is a multistage digital signal processor for authoring and archiving Internet audio, and works with most file formats. DSP features include bass maximizer, parametric EQs, harmonic exciter and more. Realizer Pro is $149 and supports DirectX and VST.

Bomb Factory (www.bombfactory.com) plug-ins for Pro Tools were a big hit at the show and are designed, in great detail, to look, behave and sound like "real" equipment, right down to "worn-in" control surfaces. Emulations include a Moogerfooger lowpass filter and ring modulator, developed in conjunction with Bob Moog. A Classic Compressors™ line offers versions of the popular UREI LA-2A and 1176. A SansAmp PSA-1 guitar amp emulator has manual "knobs" for creating your own sounds and 49 presets for Marshall, Mesa/Boogie, Hiwatt, Fender, Ampeg and other amps. Voce Spin provides a variety of Leslie speaker sounds, and its 15 classic recording setups offer different cabinets, varying micro-

phone placements and even a "Memphis" sound with the lower drum's slow motor unplugged! Voce's Chorus/Vibrato re-creates the B-3's mechanical scanner vibrato, with three settings of Chorus and three of Vibrato on one knob.

Cakewalk's (www.cakewalk.com) Pro Audio 9 release includes a Style Enhancer MIDI FX plug-in, which uses performance modeling to give MIDI recordings a "human" feel; and the Session Drummer MIDI FX plug-in, which provides drum patterns for a broad selection of styles, including multiple variations of jazz, country, alternative, hip hop, Latin, dance, R&B and more. Within each style, a range of drum patterns is provided—as intros, fills, main patterns and endings.

Sonic restoration specialists **Cedar Audio**(www.cedar-audio.com) announced Declick 96 (96 kHz), hosted by **SADiE** (www.sadie.com) 24•96 and Artemis workstations (Declick 96's offering both auto and manual declick modes). Also new from Cedar is the Dethump package for SADiE, which removes low-frequency bumps of up to 50,000 samples in length. Cedar is also now shipping Declick for Soundscape systems.

Much of the big plug-in news at the show centered around **Digidesign** (www.digidesign.com): AES marked the introduction of the company's Real Time AudioSuite (RTAS) plug-in format for Pro Tools LE. Digidesign's new host-based software version of Pro Tools offers real-time, host-based mixing and effects processing. (A CPU activity meter displays available power.) As many as five RTAS plug-ins may be used as inserts on a track, and processing parameters can be changed over time. Plug-ins may

also be controlled from supported MIDI hardware control surfaces.

As Digidesign supports session interchange between the TDM-based Pro Tools 5.0 and Pro Tools LE 5.0, RTAS plug-ins have interfaces that are identical to their TDM counterparts. Digi 001 and Digi ToolBox XP systems include RTAS versions of many DigiRack plug-ins; RTAS plug-ins from Waves, Metric
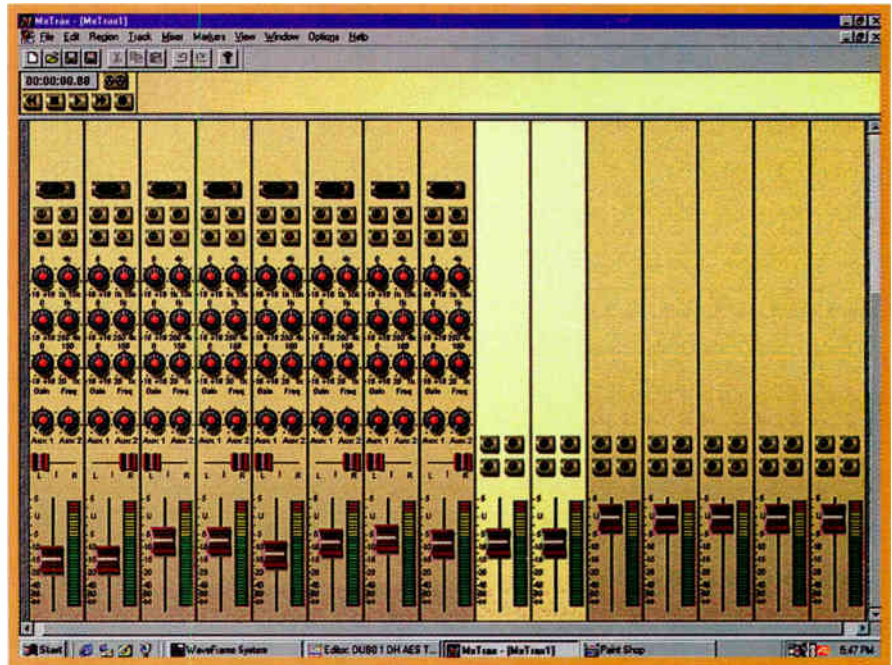
WaveFrame Version 6.5 offers an open plug-in architecture and powerful mixing options.

Halo, Wave Mechanics, DUY, GRM Tools, Bomb Factory and Arboretum are on the way.

Digidesign has also developed a new plug-in: Enhancing sampling/synthesis capabilities within Pro Tools, the Direct-Connect™ TDM plug-in allows up to 32 audio channel outputs from any host-based application (such as software-based synthesizers or samplers) to be independently routed, recorded, processed and mixed within the TDM environment. DirectConnect is a DigiRack plug-in and will be bundled with every new Pro Tools system. Many developers, including Bitheadz, Koblo, PropellerHeads and Native Instruments, have announced DirectConnect-compatible versions of their host-based synths and samplers. An RTAS version of DirectConnect will be released in early 2000 for Mac systems, with Windows 98 support to follow. One

Waves' C4 plug-in is a multiband parametric processor.

more note: Digidesign is now distributing Lexicon's Lexiverb plug-in.

In **Emagic** (www.emagic.de) news, Logic Audio Gold/Platinum 4.0.4 offers extended support for the Yamaha DSP Factory: It is now possible to use native internal plug-ins, DirectX plug-ins (Windows) or VST plug-ins (Mac) together with the effects of the DS2416 card. The native plug-ins can be used on any audio track before the effects of the DS2416 card.

Kind of Loud (www.kindofloud.com) was showing RealVerb 5.1, a multichannel plug-in for Pro Tools that uses auralization technology to model physical spaces. Users can morph between room shapes and textures, and can map reverberation spatially for surround mixing by placing direct path, early reflections and late field reverberation in the sound field. RealVerb 5.1 is initally available in a TDM version; others are planned. (A stereo version is also nearing release.) Other new Kind of Loud plug-ins: Tweetie ($495) is a monitoring and
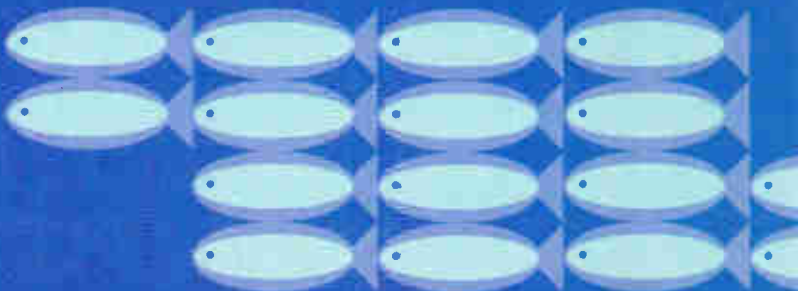
Two of Bomb Factory's plug-ins

calibration plug-in for surround-sound production that features system calibration with trim control, adjustable delays on each channel and overall reference level control (including a 20dB dim button). Tweetie also provides intelligent downmixing from 5.1 to stereo. The Woofie plug-in ($495) provides bass redirection to accommodate a variety of potential playback speaker arrangements. Woofie also offers subwoofer signal previewing before the encode/decode process.

Interesting developments in console land: **Mackie**'s (www.mackie.com) "Version Three" D8B operating system features support for third-party plug-ins and the new Mackie UFX digital signal processing card. At the heart of D8B's open architecture, the UFX, combined with V.3.0 software, allows insertion of plug-in effects into common console signal paths. Each UFX card can run up to four independent software plug-ins simultaneously, so the D8B's four processing slots can total 16 plug-in effects at once.

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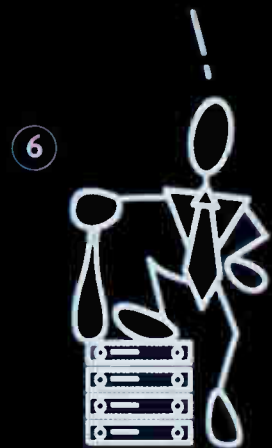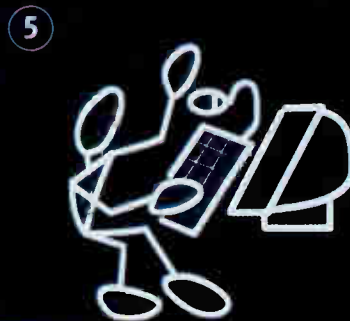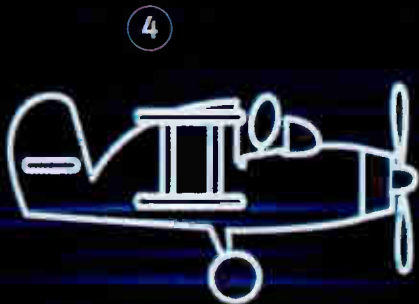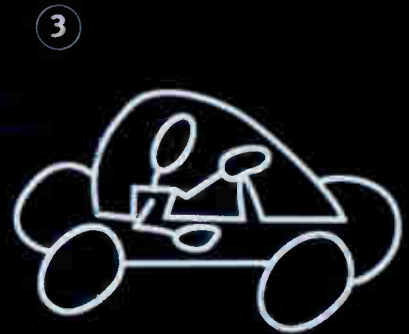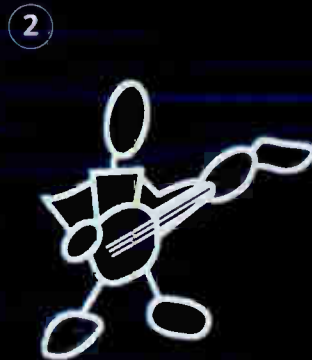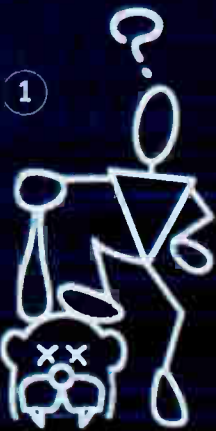
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PLUG-INS AT AES

A variety of third-party plug-ins were announced along with the V.3.0 release: TC Electronic had three D8B effects packages, TC2000 and TC FX effects bundles and a TC Reverb package that comes free with each UFX card. The Massenburg DesignWorks mastering EQ, which had debuted for the Sony Oxford, is now available for the D8B. Drawmer had the first of two dynamics packages, and Anatares showed AutoTune pitch correction software, for the D8B.

McDSP (www.mcdsp.com) introduced the CompressorBank ($495) plug-in for Pro Tools (AudioSuite and TDM). CompressorBank has regular controls such as Output (makeup gain), Threshold, Compression (Ratio), Attack and Release, plus Knee and Bite controls that allow articulation of the compression characteristics. Also included: multiple peak detection circuit types, chain support, sidechain or in-line pre-filtering, and a static/dynamic EQ.

Mark of the Unicorn (www.motu.com) showed a new version of Digital Performer that offers plug-in automation. Also: Cycling '74 (maker of Pluggo), TC Works and Antares have ported plug-ins to the MOTU Audio System (MAS) platform, which is used by Digital Performer and AudioDesk.

Serato (www.serato.com) unveiled Pitch 'n Time, an AudioSuite plug-in for Pro Tools that uses a new algorithm for time stretching and pitch shifting single tracks or mixed stereo program material. Pitch 'n Time can move audio ±12 semitones and simultaneously time stretch from 50% to 200%, and users can preview and tweak parameters in real time.

Sonic Foundry news: ACID PRO now includes Sonic Foundry's XFX 1 DirectX audio plug-in pack. XFX 1 plug-ins include Reverb, Time Compress/Expand, Multi-Tap Delay, Chorus, Pitch Shift and Simple Delay/Echo.

The list of developers in **Sonic Solutions'** (www.sonic.com) HDSP Partners group continues to grow, with the addition of Audio Ease and Prosoniq. Sonic's HDSP Partners are working with the company to develop plug-in technology for high-density audio and surround

sound. Sonic's HDSP Partners include db Technologies, George Massenburg Labs, Lucid Technology, Media Morphics/Toolex, Metric Halo Labs, Pacific Microsonics, POW-r Consortium, Meridian Audio, Prosoniq, Mytek Inc., Weiss Engineering Ltd. and Z Systems Audio Engineering.

SPL's (www.spl-electronics.com) Transient Designer effects processing is coming to **CreamWare**'s (www.cream ware.com) Pulsar/SCOPE platform. SPL and CreamWare have co-developed a software model of the Transient Designer, which uses SPL's Differential Envelope Techology (DET) for threshold-independent dynamic processing, allowing direct control of attack and sustain of audio signals. Two versions are currently available for the Pulsar card: An Attacker module ($69) increases the attack of percussive signals; and the Transient Designer module ($249) offers increase and decrease of attack and sustain. Both allow simultaneous processing of four audio channels.

Steinberg North America (www.steinberg.net) debuted WaveLab 3.0, which supports the VST 2.0 architecture. Steinberg is also releasing Apogee's MasterTools mastering software with UV22 word-length reduction for TDM. Under a licensing agreement, Steinberg has been developing the product on the Pro Tools platform, releasing a version for Pro Tools|24 MIX and bringing MasterTools UV22 over to VST, WaveLab™ and DirectX. The Apogee MasterTools UV22 plug-in is available for TDM at a price of $799. Steinberg also announced a new TL Audio plug-in; see the TL Audio news below.

Summit (www.summitaudio.com) demoed a plug-in that gives onscreen control of up to 32 of its Rupert Neve-designed MPE200 mic preamp/equalizer units via Pro Tools.

Synchro Arts' (www.synchroarts. co.uk) VocALign software is now available on the PC platform and works with SADiE, Digigram X-Track and Soundscape systems, and with native PC audio editors that can cut and paste audio to and from the Windows clipboard. In other Synchro Arts news, TITAN V.2.0.2 now supports Pro Tools 4.x and 3.x versions.

Syntrillium Software (www.syntrillium.com) has a new MP3 plug-in for Cool Edit Pro that allows import and export of MP3 files within the applica-

tion, using a process based on the Fraunhofer MP3 codec. The plug-in supports bit rates from 20 to 320 kbps. The price is $29.

TC Works (www.tcelectronic.com) introduced the Voice Tools plug-in bundle ($699) for Pro Tools|24 MIX, offering two processing plug-ins. TC

TC Works announced plug-ins for MOTU and Mackie.

Intonator is a pitch-correction application that works in real time, with a range of ±400 cents. Users can select from scale presets or create custom scales, and an adaptive lowcut filter removes low-frequency rumble and noise without making the vocals "thin sounding," by adjusting its frequency according to material. TC Voice Strip includes a variety of DSP tools for vocal processing, including a compressor, de-esser, VoiceEQ, lowcut filter and gate; the plug-in uses TC's SoftSat technology to emulate the sound of analog gear. TC also announces Version 1.5 of the Spark digital audio editor. A major feature is the ability to use the Spark master section as either a VST or MAS plug-in, which will give MAS users access to all VST plug-ins.

TL Audio (www.tlaudio.co.uk) announced a plug-in version of its TL EQ-1

equalizer, for Steinberg VST (Mac and PC) and DirectX systems. The software, modeled after the vintage tube unit, offers a choice of four switched frequencies, and combines gentle slopes and broad curves to give a more "musical" sound. EQ-1 features a graphical display for easy control of the frequency response; parameters are automatable.

With the release of the new 6.5 software from **WaveFrame Inc.** (www. waveframe.com), the WaveFrame digital audio workstation now adds support for the WaveFrame 7.0 DSP engine as a mixer add-on with plug-ins from Waves, Wave Mechanics, Q-Sound, Antares, Aphex and VocALign.

Waves (www.waves.com) announced the release of the C4 Multiband Parametric Processor for Pro Tools|24 MIX. The C4 uses Waves' Renaissance Compressor technology (including the ARC, Electro and Opto bands), with 4-band dynamic EQ. Features include transparent crossover design with global adjustable Q, true parametric control (including independent threshold, range, gain, attack, release and bandwidth) per band, and a flexible design allows compression, expansion or EQ independent of the functions of the other bands' output. Resolution is 48 bit, dithered to a 24-bit output. The C4 is the first in a new Master Series of high-end plug-ins from Waves. The price is $595. ■

Sarah Jones is a technical editor for Mix.

Soundtrack

They say in the entertainment business that you're only as good as your last hit. But poised as we are at the end of the century, there is a natural impulse to look back and perhaps try to immortalize the past for posterity. If you're in the record business, there's the added incentive of knowing that CD reissues in general—and the "box set" phenomenon in particular—have proven that there's a considerable market for artists whose last hits were decades ago. Working at the intersection of these cultural and commercial motivations, Sony Music's Legacy Recordings label set out to create a monument to the recorded music of the modern era. The result is a new 26-CD box set called *Sony Music 100 Years: Soundtrack for a Century.*

BY PHILIP DE LANCIE

ALL ILLUSTRATIONS BY CHARLIE POWELL

For A Century

SPANNING RECORDED MUSIC'S LEGACY

Legacy's executive producers for the set were Steve Berkowitz and Jeff Jones. Berkowitz, Legacy's VP of A&R, points out that despite the "100 Years" refer-

ence in the title, 2000 will actually mark the 113th year of continuous operation for Columbia Records, the label at the core of what is now Sony Music. "The hundredth-anniversary box set should have been in 1987," Berkowitz says, "but the company didn't do it. So we felt this would be an appropriate time to build a monument to the artists, the music and the history of this company. We also wanted to create a document that would be an overview of the century of musical recordings of North America."

Beyond the documentary aspect of the set, however, Berkowitz says Legacy wanted to make "products for

the celebration of the millennium, and to make music available for all the retrospectives that are going on. We wanted to make these recordings available to all the people who are interested in looking back, or in discovering." Based of these goals, Berkowitz says he and Jones knew they would be creating "an incredibly large release." The set, which reached stores in September, comes with a 310-page hard-

bound book and sells for $329.

"We know that many people's budgets won't allow them to buy such a set," Berkowitz continues, "and that many people will only be interested in certain types of music." The solution was to organize the discs in the set according to musical categories, and to make volumes based on those categories available for individual sale. The categories are: Jazz, Country, Broadway, Movie Music, Classical, Pop (three volumes), Folk,

Gospel & Blues, Rock, R&B and International. Except for the four-CD classical volume ($36), each volume is a two-CD set selling for $24. The volumes each include their own 64-page booklet.

Releasing both the entire set and the individual volumes makes the project "both a documentary and a set of great commercial compilations," Berkowitz says, "Hopefully we provided a very wide overview of the century, but then also a very specific overview of the history of different musical genres and artists throughout the century. In so doing, we also display the history of the business, the recording technology, and the evolution and destruction of trends."

PICKING THE TRACKS

The first challenge in producing the box was choosing from the vast body of material available in the archives of

CBS/Sony Music labels such as Columbia, Epic, OKeh, Vocalion, ARC (American Recording Company) and Brunswick. Aside from the general requirement that the music be noteworthy within its genre, Berkowitz says some specific criteria were used to guide the selection process: "Except for the International volume, the set covers North American music whose original release was worked—marketed, promoted at radio and sold to retail—by the CBS/Sony Music labels. In some cases, that meant we tried to license music, such as Chicago or Elvis Costel-

lo, that was on Columbia when it was first released, but that we no longer own or distribute."

An A&R committee of 17—some from within the Sony family of labels and others brought in from the outside for their knowledge of the music and its role in recorded history—was primarily responsible for the selection process. Berkowitz and Jones chose individual producers who played an important role in choosing material for the various volumes, and executives at each label also weighed in. The preferences of many of the artists or their estates were also considered. After a lot of back and forth between all the concerned parties, a final list was developed containing 542 tracks. "It was a very tough decision," Berkowitz says.

Once the list was available and source material located, the work of transferring and mastering the material was handled at Sony Music Studios in New York City. Because of the size of the project, the work involved a number of the facility's engineers. According to mastering engineer Mark Wilder, "Each engineer mastered a vol-

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ume or two from the set, so the same engineer would master material originating from disc transfers all the way up to recordings made in the 1990s."

TRACKS WITHOUT TAPES
For music before the middle of the century (when tape recording began in the United States), there are no original master tapes. "The pre-tape material came primarily from shellac, lacquer and metal parts sources," says Darcy

Proper, another Sony mastering engineer. "For the pre-1930s material, one of the most difficult aspects of the project was locating sources for the desired songs. Many of the original parts are no longer available from the Columbia vaults. Many of the tracks from this period were transferred from shellacs owned by private individuals, and it took some serious research to find them."

Neither Proper nor Wilder were di-

100 Favorites From Sony's Soundtrack for a Century

Five hundred forty-two tracks are a daunting number for even the most hardened audiophile to tackle. So a few *Mix* staffers assembled a selection of pop, rock, folk, country, jazz and Broadway favorites from the 26 CDs in *Sony Music 100 Years: Soundtrack for a Century*— ready for programming into your CD changer.

We Choose the Songs So You Don't Have To

Blair Jackson
"Mack the Knife"—Louis Armstrong
"Take Five"—Dave Brubeck Quartet
"Camelot"—Richard Burton (from *Camelot*)
"Hickory Wind"—The Byrds
"Minnie the Moocher's Wedding Day"—Cab Calloway
"London Calling"—The Clash
"So What"—Miles Davis Sextet
"Like a Rolling Stone"—Bob Dylan
"Subterranean Homesick Blues"—Bob Dylan
"Sexual Healing"—Marvin Gaye
"Comin' in on a Wing and Prayer"—Golden Gate Quartet
"Round Midnight"—Dexter Gordon
"Pancho and Lefty"—Merle Haggard and Willie Nelson
"Don't Let Go"—Roy Hamilton
"Hernando's Hideaway"—Carol Haney & Ensemble (from *The Pajama Game*)
"God Bless the Child"—Billie Holiday
"Frankie"—Mississippi John Hurt
"Cross Road Blues"—Robert Johnson
"Me & Bobby McGee"—Janis Joplin
"Omaha"—Moby Grape

"Back Stabbers"—The O'Jays
"Some Enchanted Evening"—Ezio Pinza (from *South Pacific*)
"America"—Chita Rivera & Girls (from *West Side Story*)
"El Paso"—Marty Robbins
"These Days"—Tom Rush
"The Sounds of Silence"—Simon and Garfunkel
"The Birth of the Blues"—Frank Sinatra
"The Flat Foot Floogie"—Slim & Slam
"Everyday People"—Sly & the Family Stone
"Careless Love Blues"—Bessie Smith
"Born to Run"—Bruce Springsteen
"The Fields Have Turned Brown"—The Stanley Brothers
"Birdland"—Weather Report
"New San Antonio Rose"—Bob Wills and His Texas Playboys

Chris Michie
"Ruby Baby"—Dion
"The Battle Of New Orleans"—Johnny Horton
"I Put A Spell On You"—Screamin' Jay Hawkins
"March From The River Kwai & Colonel Bogey"—Mitch Miller, His Orchestra and Chorus (from *The Bridge On The River Kwai*)
"Big Bad John"—Jimmy Dean
"Sunshine Superman"—Donovan
"San Francisco (Be Sure To Wear Some Flowers In Your Hair)"—Scott McKenzie
"Mr. Tambourine Man"—The Byrds
"Itchycoo Park"—Small Faces
"To Sir, With Love"—Lulu (from *To Sir*

With Love)
"Stand By Your Man"
—Tammy Wynette
"I Ain't Superstitious"—Jeff Beck
"Albatross"—Fleetwood Mac
"For Your Love"—The Yardbirds
"Turn, Turn, Turn (To Everything There Is A Season)"—The Byrds
"I Got A Line On You"—Spirit
"Going Up To The Country, Paint My Mailbox Blue"—Taj Mahal
"Knockin' On Heaven's Door"—Bob Dylan (from *Pat Garrett & Billy The Kid*)
"I Can Help"—Billy Swan
"I Want To Take You Higher"
—Sly & the Family Stone
"Frankenstein"
—The Edgar Winter Group
"I Can See Clearly Now"—Johnny Nash
"Kiss And Say Goodbye"
—The Manhattans
"Don't Stop 'Til You Get Enough"
—Michael Jackson
"Pump It Up"—Elvis Costello
"Lowdown"—Boz Scaggs
"Lady Marmalade"—LaBelle
"Rockit"—Herbie Hancock
"Smooth Operator"—Sade
"Wishing Well"—Terence Trent D'Arby
"Streets of Philadelphia"—Bruce Springsteen (from *Philadelphia*)
"Ascension (Don't Ever Wonder)"
—Maxwell

Kimberly Chun
"Dream On"—Aerosmith
"(Don't Fear) The Reaper"
—Blue Oyster Cult

"More Than a Feeling"—Boston
"Can the Circle Be Unbroken"—The Carter Family
"Ring of Fire"—Johnny Cash
"Time Has Come Today"—The Chambers Brothers
"Surrender"—Cheap Trick
"Suzanne"—Leonard Cohen
"Shining Star"—Earth, Wind & Fire
"Always Late (With Your Kisses)"—Lefty Frizzell
"Barracuda"—Heart
"Boogie Nights"—Heatwave
"Doo Wop (That Thing)"—Lauryn Hill
"Carrie-Anne"—The Hollies
"Raw Power"—Iggy & the Stooges
"It's Your Thing"—The Isley Brothers
"He Stopped Loving Her Today"—George Jones
"Got to Be Real"—Cheryl Lynn
"Chances Are"—Johnny Mathis
"Straight, No Chaser"—Thelonious Monk Quartet
"All the Young Dudes"—Mott the Hoople
"Wonderwall"—Oasis
"Love Train"—The O'Jays
"Me and Mrs. Jones"—Billy Paul
"Crazy Arms"—Ray Price
"Pretty in Pink"—The Psychedelic Furs
"Bring the Noise"—Public Enemy
"Behind Closed Doors"—Charlie Rich
"Lovin' You"—Minnie Riperton
"Hot Fun in the Summertime"—Sly & the Family Stone
"Blue Velvet"—Bobby Vinton
"Play That Funky Music"
—Wild Cherry
"Moon River"—Andy Williams
"Time of the Season"—The Zombies

rectly involved in transfers from the pre-tape sources, but Proper says that the discs were typically transferred "from a specialized turntable, through a high-end A/D converter, to either DAT or directly to a digital audio workstation, in most cases a Sonic Solutions Sonic Studio. The mastering engineer would then process the material, using EQ, compression and noise removal, according to their judgment and that of the producer."

One factor influencing the extent to which a given selection was processed for noise removal, Proper says, was the type of material preceding and following that selection. The use of noise mitigation technology was not across-the-board. "A lot of the choices about restoration were made jointly with each producer," Wilder explains. "Some producers have very opinionated views on Sonic NoNoise and CEDAR, and how to utilize each. One of the more popular ways of processing was to do a CEDAR pass using multiple processes, and then during the editing phase to use processes in the Sonic System to tidy up."

As for the tape recordings, the formats involved offer a history of the evolution of tape technology since the 1950s. "From 1950-1956, we have ¼-

Pop Music
The Early Years 1890-1950

inch mono masters," Wilder says. "In 1955-56, we start to see binaural moving into stereo. Starting in 1956, we occasionally have 3-tracks, which become commonplace by 1958. About 1965-66, we see 4-tracks used by some of the more adventurous Columbia engineers. 1968 brought in the use of 8-track."

One might think that the older the

tape, the worse its condition, but that doesn't necessarily turn out to be the case. "Almost all of our tapes up to the early '60s are in great shape," Wilder says. "The only ailments they would have are poor winds and brittleness. In the early '60s, we start to see shedding problems, especially inner bands [closest to the hub], then it gets better until the '70s, when we see massive shedding, which hardly eases up until the '90s."

One factor that made the process easier in many cases was the availability of song versions that had already been mastered for inclusion on other CDs. "If material was previously mastered, in general, we would honor that mastering and insert it into the set," Wilder says. "On occasion, early CD masterings of material would be considered and sometimes redone. Also, there were instances where mastered material would be altered slightly to help it fit within the set."

In every case, a listening session proved the final factor in deciding what would be used as the source. "It

BRIAN MALOUF

SHARING THE SECRETS OF HIS CROSSOVER SUCCESS

There's a real art to making successful transitions, whether in a career or in a life. Brian Malouf has managed to gracefully make more transitions than most: from musician to busy live sound man, R&B hit mixer, successful alt-rock producer/engineer and talent scout. These days he combines what he's learned from all these roles into his job as Senior V.P. of A&R at RCA Records, where he supervises recording projects and does hands-on producing and mixing for artists such as Lit, Danielle Brisebois, Eve 6, the Verve Pipe and Hum.

Malouf's credits range wide. He was a recording engineer on Michael Jackson's *Bad*, mixed Extreme's monster ballad "More Than Words" from their multi-Platinum *Pornograffitti*, and mixed singles for Madonna, Expose, Roxette, Slaughter, Gin Blossoms, Pearl Jam, Ugly Kid Joe and Bon Jovi, among many, many others. His more recent work includes mixing and co-production on Everclear's breakthrough *Sparkle and Fade* and mixing for Kid Rock, Tonic and Lit's *A Place in the Sun*.

A thoughtful fellow with a realistic point of view and a penchant for detail, Malouf seems to take nothing lightly. This is not to say that he doesn't laugh or have a sense of humor—he definitely does. But his serious demeanor makes it obvious that his natural inclination is to think before acting.

Malouf is a bicoastal hybrid. He's originally from Los Angeles and is now based in New York City; on any given day you're likely to find him behind a console in either city.

How did you get your start in L.A.?

I was a musician—a drummer. In high school I also experimented with other instruments; I played trombone and euphonium and upright bass. I learned a lot of instruments because I wanted to be an arranger as well as a musician. But in college I went back to playing the drums.

You knew early on that you were interested in musical arrangements.

Yes, I wrote for the big band in high school and got into learning band instruments. But doing that actually ill-prepared me for college; when I applied to Cal State Northridge, I was rejected. I'd applied as a percussionist, going back to what I thought I knew, but I didn't really know it very well at all. Getting rejected was a real turning point for me. I spent the summer after that studying, re-took my juries and got into the school. By the time I finished at Cal State Northridge, I was the principal percussionist in the symphony orchestra, which was the principal chair of the department.

Meaning you played tympani and band percussion?

Just tympani. That's what you work

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BY MAUREEN DRONEY

toward as a percussionist. Every section has a principal player, the first chair, and the first chair in the percussion section is tympani.

So by the time you graduated you were first chair.

Right. And entertaining the notion [laughs wryly] of being a legit symphonic percussionist. I was almost good enough to do it, but I eventually got tired of counting rests. In my fifth year, I left school and went back to playing drum set in bands.

I was always the guy in the band who did the P.A., and liked that sort of thing. So when I quit playing, five or six years later, I went full force into sound engineering. I did live sound at the Bla Bla Cafe and for a couple of Top 40 bands who could afford to rent a P.A. from me.

You had your own system?

Actually, I had three. I rented some equipment back from the band I'd just left, I bought some on my own, and I built three systems. I was making good money, and I kept very busy. During the day, I also apprenticed with Dave Jerden at El Dorado Studios. He's the guy who taught me studio engineering. I apprenticed with Dave for about a year, during the time he was working with Brian Eno and Bill Laswell and Material.

I left around '81 and went to Can-Am Recorders. The place was for sale; Larry [Cummins] was very disenchanted with the business and was ready to call it quits. Then I showed up one day, with all this energy and all these ideas for how to rework the room, and we set about doing that. We tore the whole studio apart and rebuilt it. I was the chief engineer, the assistant engineer, the gofer—I was everything and so was Larry. We built up quite a nice little clientele. Michael Jackson walked in one

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day with his brothers, which was a pivotal thing for me, because that's how I started working with Michael. He came to me on one of their sessions and said, "Hey Brian, I want to come back tonight and do my own stuff. Can you do it with me?" And that was the beginning of working with him for a year and a half on the demos that were the beginning of the *Bad* album.

It was pretty heady stuff, very exciting, and it led to lots of other things. I remained at Can-Am for ten years, until in '91 when I started doing more work at other places.

Working with Michael started you off on a career in R&B and pop. But, unlike many other engineers, you've been able to transition into rock; you didn't stay pigeonholed as just an R&B engineer.

Actually, I was severely pigeonholed, and it was R&B and pop for a long time. One of the things that helped me break out of that was a group called Slaughter—that was really the first rock thing I did. They called me because they'd heard my R&B stuff and they wanted a big fat bottom end on their record. I mixed seven or eight songs from that record, and the songs that I mixed were the singles that broke that band. And then I did the "Even Flow" mix for Pearl Jam that helped get them rolling, then Everclear and Lit. I've managed to get in on the ground floor with a lot of rock acts. Now it seems like that's all people call me for, so [laughs] I'm pigeonholed again.

How did working for a record company come about?

I told my manager, Steve Moir, that it was something I was interested in. At that time I'd been in studios day and night for 13 years, and I thought, "Maybe it's time for me to do something different; maybe a more social existence would be preferable for the quality of life."

But now you spend 13 hours a day in the office and the studio, right?

No, I'm in clubs seeing bands at night,

and in the office or the studio during the day, but it's not the claustrophobic, total studio environment where that's your hive from 11 a.m. to 11 p.m. That got old for me.

Whereas many people end up in a job by chance, you've made very conscious decisions about your life and career.

Yes. Well, the breaks happened, but one of the things I've always believed in is that opportunity knocks for all of us. Maybe not regularly, but often enough to take advantage of if you're prepared. It started in college, when I wasn't prepared to take that first jury. I decided that was the last time I'd be caught with my pants down. So from the moment I got into college until today, I've been prepared for whatever was the next thing that was going to happen. If the Philadelphia Philharmonic had called me on any Saturday, any time after my second year of college, to come and audition for them on Monday, I would have been ready to do it. That meant I had to practice every day, and maybe that phone call never came, or maybe I wouldn't have taken [the job] once it did, but I was prepared. That's what I mean by being ready when opportunity knocks.

I also made conscious decisions, sometimes, to take a step back in pay, like when I went from being a live sound engineer to being a studio engineer. I sacrificed a lot of income to go back and become an apprentice in the studio, because I decided that the real future for me was doing studio engineering.

I made a similar kind of reduction when I came to work for RCA. Maybe not that drastic, but it was significant, because I looked at it as an opportunity to do more with my life creatively.

At the time, I'd been an assembly line of mixing, just like the guys today who are doing it. Every day is a new tape, and it's somebody else's vision, somebody else's baby that they've brought up from the cradle. You're handed it for a day or a week, and then

BRIAN MALOUF: SELECTED CREDITS

PRODUCER OR CO-PRODUCER

The Verve Pipe: "Her Ornament" on *Great Expectations* soundtrack (Atlantic, 1998)

Lisa Loeb: "All Day" on *Rugrats: The Movie* soundtrack (Interscope, 1998)

Everclear: *Sparkle and Fade* (Capitol, 1995)

Ce Ce Peniston: *Finally* (A&M, 1991)

Jean-Luc Ponty: *Storytelling* (Columbia, 1989)

SINGLE MIX OR REMIX ENGINEER

Tonic: "You Wanted More" (Universal, 1999)

Kid Rock: "Bawitdaba" (Atlantic, 1998)

Eve 6: "Inside Out," "Leech" and "Tongue Tied" (RCA, 1998)

Harvey Danger: "Flagpole Sitta" (London, 1998)

Pearl Jam: "Even Flow" (Epic, 1994)

Lisa Loeb and Nine Stories: "Stay" (Chrysalis, 1994)

Celine Dion: "Next Plane Out" (Sony Music Canada, 1993)

Gin Blossoms: "Until I Fall Away" (A&M, 1992)

Slaughter: "Fly to the Angels" and "Up All Night" (Chrysalis, 1992)

Seal: "Crazy" 7-inch extended version (Sire/Warner Bros., 1991)

Roxette: "Joyride" (EMI, 1991)

Gang of Four: "Satellite" CD single (Polydor, 1991)

Extreme: "More Than Words" (A&M, 1990)

ALBUM MIX ENGINEER

Danielle Brisebois: *Portable Life* (RCA, 1999)

Lit: *A Place in the Sun* (RCA, 1999)

Exposé: *Exposé* (Arista, 1992)

Amy Grant: *Heart in Motion* (A&M, 1991)

Madonna: *I'm Breathless: Music From and Inspired by the Film* Dick Tracy (Sire/Warner Bros., 1990)

Jody Watley: *Larger Than Life* (MCA, 1989)

Ofra Haza: *Desert Wind* (Sire/Warner Bros., 1989)

Kenny Loggins: *Back to Avalon* (Columbia, 1988)

Michael Jackson: *Bad* (Epic, 1987)

Manhattan Transfer: *Vocalese* and *Live '86* (Columbia, 1985 and 1986)

it's gone out of your life. And that's great—there's nothing wrong with that. It's a really good living, and it's really fun to mix. I loved every minute of it, and I'm very lucky to still be able to do it. But after a while I thought, "God, I'd really like to do it with my own group and work on music that I'm completely accountable for."

So to prepare to get the job I have now, I went out to the clubs and to the publishers and to the other sources—managers and attorneys—and I began doing my own A&R, either when I wasn't in the studio or at night after a session was done. Because I wanted to go back in the studio and have fun. Like the first time I took a band into El Dorado because Dave said I could, to get my chops down on a weekend—I took a band in and had the time of my life. I hadn't done that for so long. So that's what I did; I looked for acts to produce. That's when I found 1000 Mona Lisas and Everclear and took them into the studio. By the time the job was offered to me, I'd been doing it for a year already.

You recorded demos with Everclear,

Brian Malouf at RCA Records in New York City

and you mixed their hit album Sparkle and Fade. *How did you originally hook up with them?*

That was a result of a meeting with a publisher named Andy Olyphant whom Steve Moir said I ought to get to know. Andy, who now is in A&R at Almo Sounds, was an up-and-comer. We sat down and played each other a bunch of

stuff, and neither of us was particularly turned on by anything the other guy played, although we were being polite and getting along well. As I stood up to leave he said, "I've got one more thing to play for you. I'm trying to sign this but my boss doesn't like it. What do you think?" It was Everclear, and I flipped out. I thought it was the most vital music

I'd heard all day—actually, in years.

They had no record deal at the time?
No. Andy wanted to publish them, and his boss didn't get it. And I said, "I know why he doesn't get it—it's a little too rough around the edges. I'll take them into the studio and make some demos that might sound a little different to him." So we did. And it was the classic story: They came, they slept at my house, we worked in a little studio out in Westlake Village and came up with some demos that got them the publishing deal. That was right about the time I was going to take the job at RCA and actually had a meeting with Art [Alexakis] for him to come to RCA. But he'd already been excellently seduced by Gary Gersh and was on his way to signing at Capitol.

On to your productions, then. It's always interesting how people choose to balance guitars vs. drums and vocals. Your records have different placements rather than a consistent style; how do you decide what gets featured?
I always desire to feature the vocal; that's always my starting point. I try to get it as loud as possible without taking away power from the track. So that's my focus, and if the placement sounds different from song to song it's really the presence of the vocal that counts. Some of it is real loudness, and some of it is apparent loudness. And getting apparent loudness on the vocal has, I think, a lot to do with the arrangement that's underneath it. If a song is arranged in a great way, everything sounds loud. So actually [laughs] the key to being a great engineer is working with a great arranger.

If the vocal sounds back or forward when you compare one mix of mine to another, it's safe to say that the arrangement of that song forced me to put the vocal where it is. But, always know with me, the vocal was as loud as I thought it could go without ruining the track. And what I listen for is timbre.

What I do in terms of levels and so forth all has to do with the timbre of the individual voice and how it relates to the other elements in the track. Generally, I try to have the bass and vocals be the counterpoint to each other. I try to make the apparent level of each be equal, and everything else hopefully falls in around that. I look at those two elements of the track as the central melodic components.

Not to make an '80s-type fetish of it, but you get some really cool snare sounds,
like on Lit's A Place in the Sun. *Your snares punctuate but don't dominate, feel good but don't overpower.*
Yeah, I listened to that record the other day and thought, "Oh good!" Some [snares] are more compressed than others. Some of them I really laid it on, just to get the snare to sound unique, like a couple of the tracks that have horns.

What compressors do you use for that?
I do the same things everybody else probably does; like a lot of guys I usually mult off the snare. Then I use the SSL board compressors, and I also use the Distressor—that can do quite a lot.

> **You can get a lot of great snare drum from leakage into the overheads and the tom mics. If you look for the snare sound in a lot of different places, you generally can find what you're looking for. Which is why I don't use samples any more—I think they take away from the performance.**

That's about it. I think I used a JOE-MEEK compressor on snare a couple of times on the Lit record.

More info, please.
Well, compression oftentimes does equal punch and impact on drums. But, like with most other things, I really don't overdo it. Instead I do a lot of mild compression—multistage compression, with each one set to mild gain reduction.

Typically, the dry snare channel will get a touch of either the SSL compressor or the Distressor—not too wacky—and a bit of the SSL gate as well.

I do run all of the drums, in almost every rock mix that I do, through a separate stereo compressor. Sometimes I use JOEMEEK, or there's a stereo dbx setup that I like, or maybe the Focusrite Red 3, or that stereo Neve [33609] two-

rack unit—some sort of stereo compressor that all the drums go through.

On the [SSL] 9000 there are four stereo buses that are selectable from several sources: the large fader, the small fader, and the odd and even effects sends. I'll send from the large fader directly to bus A, so the exact levels, post-fader, that I've got up on the console, are sent to that stereo limiter, and the small faders are freed up to be other sends.

There's a little compression there, there's a little on the original track, and then I'll often route the snare to a separate audio channel where I get kind of crazy with it—distort it, or ridiculously compress it. One of the things you can do for a lot of punch is set a compressor to a very fast attack so it actually clips off the first part of the sound. The very early envelope gets hit really hard, and that combined with the open channel can add up to something pretty cool.

Another thing is, you can get a lot of great snare drum from leakage into the overheads and the tom mics. If you look for the snare sound in a lot of different places, you generally can find what you're looking for. Which is why I don't use samples any more—I think they take away from the performance. Sometimes the drum sound on tape isn't what you would like to have, but you just keep working with it until you get it as likable as you can, and you go with it.

You're often mixing songs you didn't record. When you put up a mix, what do you do first?
I put everything up. I put all the faders in a straight line, somewhere in the middle of the fader range—between minus 5 and minus 10—and just listen. I sort of look at it as a big jumble, then with each pass I do little things. I usually don't start soloing individual instruments for a good two hours. In the meantime I'm looking at the big picture. I'll do some obvious panning moves, then the pans change with every pass, the levels change with every pass, and the EQs start to change, although EQ is the thing I try to do last. I try to work for the longest time that I can with level, ambience and panning, before I start pressing dynamics or EQ buttons. It varies. On some things, obviously, I press in an EQ or a compressor or gate right away, but generally I try to take as much time with the naked track as I can stand. [Laughs.] I make the music make me do things. I don't start out doing things from the get-go.

My favorite mixes are when I look at the board and see 12 or 20 buttons

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When the New York Media Group made the decision to radically redesign a number of their rooms, Neil Karsh (VP Audio Engineering) had the daunting task of specifying the digital consoles for eight suites in three of their major facilities. Eventually he, along with his mixers, placed their confidence in Soundtracs. The first of the seven DPC-II digital console installations was at 'SuperDupe' followed by 'East Side' and finally the prestigious new 'Lower East Side'. Commenting on the decision, Neil had this to say "When we first looked at the Soundtracs DPC-II we were really floored. In it we saw new technology that offered as much - maybe more - at a more competitive price than any other product out there". He added, "When you buy a big ticket item you are buying the people who make the product as much as the piece of equipment itself. We went with the new kids on the block in respect of high end digital consoles, a decision which could have gone either way." "A year later, we are extremely pleased with the outcome."

POST PRODUCTION

MUSIC RECORDING

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Do you mix a specific way for radio?
No. I really just mix for the speakers that I'm listening to. What I listen to does indeed affect how it sounds on the radio, though. I'll often find myself mixing for an hour or so in mono on the little speaker on the Studer ½-track machine. That, I think, helps make it sound good on radio. And you're not so influenced by the panning you've done. Oftentimes I'll find that when I come back to the stereo near-fields after I've been on the Studer speaker, things that I've panned way out to the side sound really loud. I don't change that, and that gives my mixes a nice, big stereo feel.

Do you move the Studer closer to you?
No. [Laughs.] It stays wherever it is in the room.

What other speakers do you use?
Ninety percent of the time I'm on Yamaha NS-10 studios.

How do you balance lots of guitars and still keep the midrange under control?

I mostly use the older stuff for equalizing and compressing of guitars: LA-2As, LA-4s, 1176s. On acoustic guitars I love the old RCA [BA6A] compressors.

Guitars are so compressed anyway—there's nothing more compressed than a distorted guitar right out of the speakers—so you don't really need that much. Instead, I do a lot with subtractive EQ and panning.

I've never considered myself a connoisseur of great guitar sounds. I don't own 20 guitars, and I haven't played with every vintage amp. These days, if I'm not happy with the guitar sound, I tend to put it through a device called the Pod [a Line 6 device]. It's a very convincing digital device that manages to reproduce a lot of really great amp sounds. It has a couple of rotary dials—one that selects the model, described like "Pod Crunch" or "High Gain Brit Tweed"—all these different names. The manual tells you what model amp they're actually talking about, but on the front are all these generic names, and you just twist the dial till you get a sound you like. I use it on bass as well. *You use it right out of the patchbay? You don't have to do any level matching?*

The Pod does all the gain changes necessary. You can plug a guitar straight into it as well.

Naturally, the cleaner the guitar sounds going into the Pod the more influence I can have on the amp sounds coming out—I'm not always able to effect exactly the sound I want. But between EQ, panning, compression, and spatial things like chorus and flanging, I can pretty much get what I want. However, I've never considered myself a true expert on making guitar sounds from scratch; I generally rely on the player.

When I'm recording a guitar, I really just try to get the full range from the speakers that are being played through. I set up a couple of mics and try to get one to capture all the low mids, and one to capture all the highs. I blend those, and there you go. I never record a guitar with any EQ and never with any compression. Unless, of course, it's totally clean, and then I can do whatever I want. [Laughs.] It's open season on the guitar if it's a clean sound.

Your vocal sounds tend to be dry and present with a lot of impact, but they avoid that danger zone of knife-edged brightness. What do you do to create that necessary presence?

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I find that dry vocals cut through without much manipulation. When it's really dry, you naturally have a very direct-sounding instrument. In a rock band most everything else you're putting up has either gone through another transducer before it hits your microphone, or the mic is at a greater distance from the source (i.e., a room mic on a drum). Even the close mics on a drum set can't be as close as when the vocalist's lips touch the windscreen. So a dry vocal will naturally cut through pretty easily without much else going on.

I think I pretty much do the same thing as most people. One of the great things about being an A&R guy is that I get to watch the other guys mix. I've actually picked up on a lot of tricks and techniques that way, like from Tommy and Chris Lord-Alge. But, of course, nobody can make a mix sound like them. You could copy down every one of Tom's settings, from front to back, and try to do it yourself, and it won't sound anything like him. It's the same with anybody else—it just doesn't work the same.

But, that said, I do pretty much the same as most people. But what I don't do is much of the really super-compression that mixers like TLA will do, putting it through one or more devices and really sucking it in. Although I experiment, I generally find my way with the SSL compressor or an outboard device like an 1176. Or I use a dbx 160X a lot with the overeasy switch for peak limiting vocals—I think that compressor design is still pretty tough to beat.

Sometimes super-compression *is* the answer. I admit I've cranked an 1176 to where the gain reduction meter is pinned to left, but that's the exception rather than the rule.

You're an SSL 9000 man.
I am. Since I first worked on one, about four years ago, I haven't worked on another console.

What are some of the differences between recording in New York and L.A.?
One of the first things an engineer notices is that there's a lot less in-house outboard gear in New York. A really well-equipped studio in New York won't compare to an average well-equipped studio in L.A. The second thing you'll notice is the rate. In New York it's much higher than you'd ex-

pect, and it's not always negotiable.

There are far fewer studios per capita in Manhattan; the competition in L.A. is quite a lot higher, and therefore, I think, the studios are all in all better run. That's no slight to the studios I work at here, because they're all very well-run, but there aren't as many to choose from as in L.A.

Obviously you have a love for emotional rock and an appreciation for clever lyrics. What else are you looking for in a band?
You always look for a songwriter who writes melodies that you can remember—that combined with the lyrics become hooks. Then I always prefer to sign a band with a killer drummer. And also, I like to see two stars on stage, I like to have Mick *and* Keith, John *and* Paul, Axl *and* Slash. A lot of my favorite rock bands have two stars in them—it's great to have at least two focal points.

I like fresh chord progressions—I love it when I get surprised by a change, and I love innovative rhythm tracks.

Your job is not an easy one. It's pretty rare to find all that.
[Laughs.] Well, actually any two of those things will do! ∎

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OLD HOUSE RECORDING STUDIO

Not many prospective studio owners can imagine a 145-year-old farmhouse transformed into a recording facility. But, in the Bible Belt town of Gastonia, N.C., where David Black has built Old House Recording Studio, such revelations are not uncommon.

Five years ago, Black, who had played in bands since he was a teenager, walked into the structure on the 400-acre farm, and it hit him. "I came up one day and was looking around here, and I saw it," he says. "I had a vision of it."

Twenty-five minutes outside of Charlotte, the year-old studio sits on the family homestead of Black's wife, Janet. Her father farms the land, and the family harvested a great batch of Silver Queen corn this summer, Black says. Cucumbers, tomatoes and watermelons grow nearby. "We're just Southern folks," Black declares matter-of-factly.

His own home is next door to the studio, "So I can commute," he chuckles, "by foot." Black made that commute steadily for nearly three years during construction. At his day job, he built TV stations and P.A.s for an engineering firm, and during the evening and on the weekends he worked on the studio.

Although the exterior of the farmhouse was renovated by Black's in-laws, the entire interior needed to be gutted, so Black enlisted partner Scott Applegate of nearby Clover, S.C. Applegate, who works as a computer engineer, recalls that the very nature of the building posed a problem: "Nothing was square or center as far as spacing. There were two huge fireplaces that needed to be taken down because the family wanted to save the brick. It took a good six to nine months to even get the building to a condition that we

could actually work on."

After getting the building down to a shell, Black and Applegate did most of the work themselves—except for some of the Sheetrock finishing and painting, the plumbing and the installation of a specially engineered climate control system. Black did the framing and put in floating oak floors.

Old House owner David Black (center) with Trybe

He also double-insulated the walls, wired the studio and did most of the interior finish work. It seemed a long time coming. "After the second year of being up here working, I'd get frustrated with it, and so for my birthday, my wife did a little picture book—the beginning and where we're at right now, and I could see the progress. It really motivated me."

Black and Applegate eventually built three isolation booths, a large main room, a sizable control room and an adjoining lounge, all separated by glass walls and windows. Now, Black says, "Most people look at this and say, 'Man, I can't believe this!'—that we did all this work and pretty much went at it blindly, just taking all the information we had read in books and magazines and applying it. Believe it or not, the rooms turned out to be pretty good. I didn't have to do a whole lot of treatment for acoustics."

BY KIMBERLY CHUN

The studio's equipment includes a Soundcraft Ghost 32-channel console with Drax Optifile fader and mute automation, which he only uses for mixdown. Instead Black relies on Neve 1272, API 312, 550b and 560 and Amek 9098 DMA preamps and records straight to 24 tracks of ADAT-XT 20 with a BRC. Monitors include Genelec 1030As and Yamaha NS-10Ms. Black has also acquired vintage AKG, EV and Neumann mics.

He also built a few pieces of equipment, including a clone of the Teletronix LA-2A and an Altec 556A preamp. "You can get these drawings and stuff off the Internet, and reading some reviews [in *Mix*], I was able to buy the transformers I needed from Bower Transformers in California," he says. "I also talked a long time with Anthony DeMaria."

Black has only been working in the studio full-time since last January. Word of mouth has led to demo work for local bands and recordings for gospel/contemporary Christian artists. Black has done most of his mastering at Charlotte's Reflection Studio, where local heroes such as Hootie and the Blowfish have recorded. Gastonia native and singer/songwriter Sammy Johns, who scored a hit in the '70s with "Chevy Van," was in to record his latest CD. And Gastonia metal band Trybe (formerly War Mouth) won a contract with Platinum Records after another local, Fred Durst of Limp Bizkit, heard the demo they tracked at Old House.

Trybe blew back into the studio—in the wake of Hurricane Floyd—to record their complete album. As for the storm, Black says, "We battened down the hatches, and we got the horses in and put them away." ■
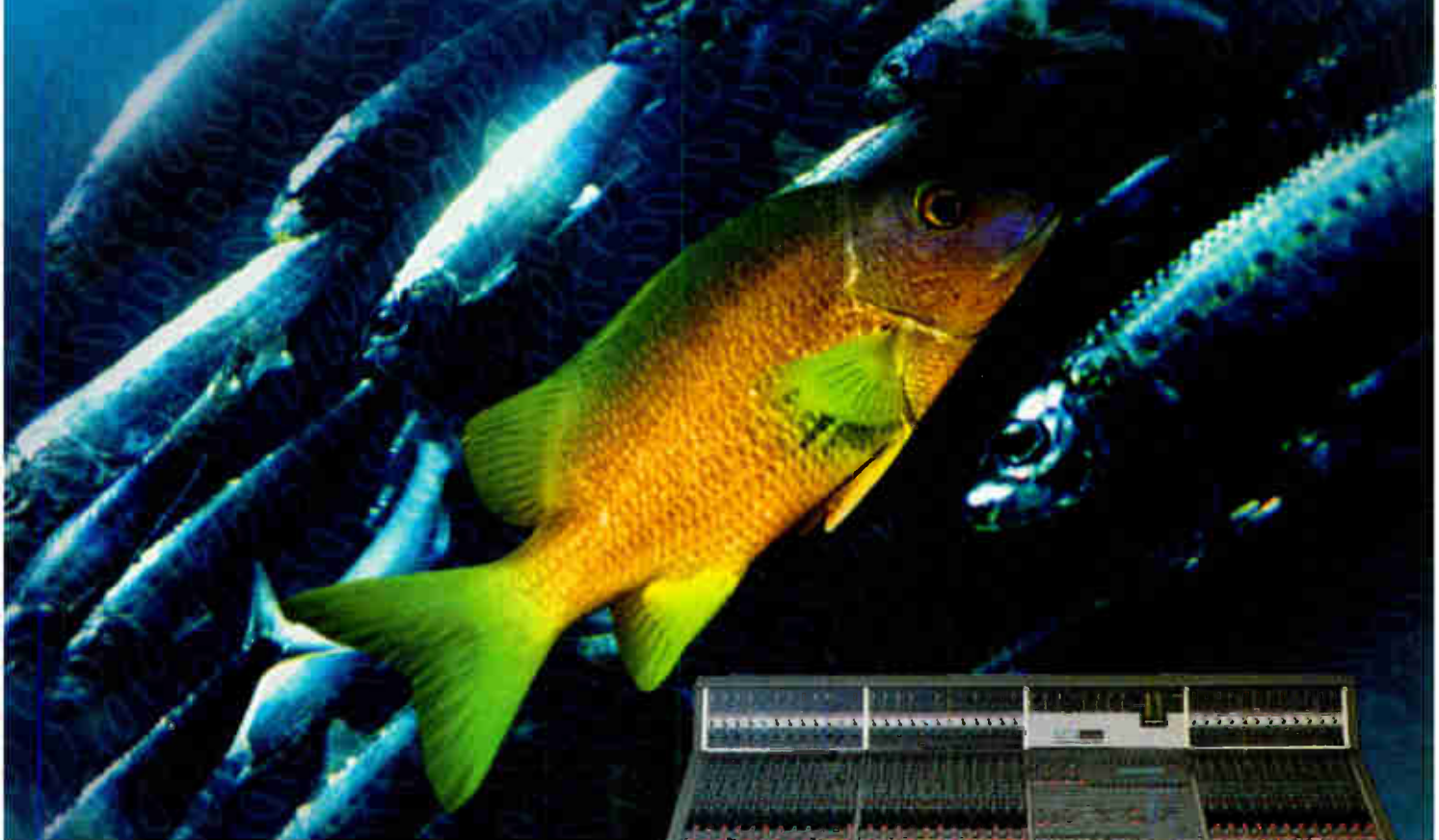
GETTING ELEMENTAL
WITH ERIC AMBEL

PHOTO: C S GRAY

Eric "Roscoe" Ambel is regarded by many fans of Americana and roots-influenced rock music to be one of the most inspirational and sensitive producers working. Albums he's made with the Bottle Rockets, Blood Oranges, Blue Mountain, The Backsliders, Whiskeytown, Nils Lofgren, Mojo Nixon, Syd Straw, The Yayhoos and others, do a good job of capturing the heart of the music, without sanding out any of the reckless sparks. Ambel fundamentally trusts the essential chemistry of what constitutes each ensemble, and it shows in his work.

With a rockin' background that includes a stint as a guitarist in Joan Jett's band, as well as a leadership role in the Del Lords, Ambel knows a few things about what makes a good rock band tick. At the time of this interview, Ambel was in Nashville with his engineer Tim Hatfield, picking up a console for 33 & ⅓ Recording, his home-base studio in Brooklyn, New York City. He was also getting ready to begin work on a side solo project called Gringoman.

What drew you into producing?
I got hooked by music very early

on. My dad always listened to a lot of Sousa marches at home. As a real little kid, my Dad took me to a parade in our hometown of Batavia, Illinois. While I was standing on the sidewalk, I heard the whole band coming down the hill, playing the song. As they walked by me, I got to hear each individual instrument, almost like soloing on a tape machine, and as they left and got further away, it all became the whole song again. I swear it was an epiphany or understanding that happened to me right then. It related immediately to the piano, like each instrument being a different finger. I have always loved music a lot, and that was my first really big hook.

That epiphany just gave me the "view." And when I started playing with rock bands, it was great to know a bunch of this stuff. Even in the awkward years, like in the punk rock era, when it wasn't very cool to have chops, it helped to have the backbone.

Producing, at its simplest level, could be as Lou Whitney explained it: "Find somebody who has done this before, and have them help

BY RICK CLARK

you do it." [Laughs.] So when I was seeing these local bands in this after-hours bar in New York City called No Se No, I just realized, "I've done this before, and I know I could help these guys do this." That is when I started doing a bunch of 45s for this truck-driving label out of Brooklyn called Diesel Only. They did mostly truck-driving songs. That was during the '80s, during the Del Lords period.

That was your breakthrough production?
The Nils Lofgren *Crooked Line* album on Rykodisc was a very exciting breakthrough for me. Nils is one of the best musicians I have ever encountered. He can play anything and is capable of executing any idea that we wanted to try.
Which of your productions are you proudest of?
This new Bottle Rockets *Brand New Year* record was quite a process to get done. I have so much respect for them as a band and hanging with me, and hanging with themselves. They have a real inner strength as a band. They have really stuck with me as a producer.

Mary Lee's Corvette, *True Lovers of Adventure*, has a lot of ensemble elegance. [Ambel also played guitar in this band with Freedy Johnston.] And the Blue Mountain record is another one I like. I think Blue Mountain are a really great band, and I had a great time working with them. I think the *Dog Days* record stands up really well. I would love to work with them again.

Blood Oranges are a great band. To me, they were like a roots-rock Fleetwood Mac, and I think that Fleetwood Mac is a good band. My first solo record, *Roscoe's Gang*, is another one I really enjoy. I still like it when I hear it blasting out of the jukebox at the Lakeside Lounge.
Speaking of your latest Bottle Rockets production, they are very good

at digging deep into a groove and not overplaying.

One of my favorite sounds is that turned-up, but taking-it-easy kind of sound. On the Bottle Rockets record, their free-association song called "Sometimes Found" has that. They're an electric band, but everybody is playing the "Sweet Spot" thing, and they aren't kicking the shit out of it.

Brian Henneman [the lead singer] is singing on that Manley Reference Cardioid Microphone. When we did the recording at 33 & ⅓ in Brooklyn, we had that Manley microphone running into a V76, into an 1176, to grab the peaks, and then the Manley ELOP to compress that.

When we were making this Bottle Rockets record, those guys had just discovered Shania Twain. When we made this record, we never sat around and listened to The Band's second album, or [the Stones'] *Exile on Main Street*, or Little Feat's second record, *Sailin' Shoes*. We never listened to our "comfort" records. We were listening to Shania.

Those guys were also watching all the videos. They would cut to Shania in the studio, and there she is singing on that Manley Cardioid Reference Microphone. It was just so inspirational for Brian to know that he was singing through the same mic as Shania. I'm not kidding at all. I'm glad I bought that mic. It is a great-sounding mic, and my wife sounded great on it, too. [Laughs.]
Who are your most influential producers?
I would have to say the guys that I have learned the most from and like the sound of their stuff are Brendan O'Brien, Jim Dickinson and Lou Whitney.

As a Midwestern guy, I like my steak medium rare, cooked on a Weber grill, with a little bit of salt and ground pepper on it. I don't want any sauce on my steak. I like records that are elemental like that. In that sense, the Brendan records to me are pretty unadorned like that.

The Replacements record that Dickinson did stands alone, to me, as the great Replacements album. I like the peaks and valleys of albums, and that one has got them. It is the right combination of many elements at the same time.
It's pretty obvious that you gravitate towards rock that is unfiltered in its emotional immediacy and unpretentious in presentation. Is there a defining experience that comes to mind, that helped crystallize your tastes?
It was the summer of 1976, and I had just come home to Chicago for the summer

from the University of Wyoming, where I played trumpet all the way through college in marching band and taught skiing for the University. This was right when punk rock started.

I was working as a waiter, and I won these tickets from this great radio station in Chicago called WXRT, to see these two bands I had never heard of—The Ramones and The Dictators. [Laughs.] It was at the Ivanhoe Theater, and both bands were really impressive.

During The Ramones, there was a woman sitting two seats away from me masturbating. I got up and starting walking around the theater, and I saw other women doing this in public. I counted seven.

Eric Ambel (seated) and engineer Tim Hatfield

At the time, being a young guy in bands playing guitar, the cool thing was Jeff Beck's *Blow by Blow* and the whole quasi-jazz thing.
And you were into that?
I wasn't exactly into that, but it seemed that you "had to" be into that.

But when I saw these two bands playing this real rock 'n' roll that was so primal that it could get a woman to masturbate in public, I signed up right then and there. The Ramones' jackhammer attack and what I saw was the most rock 'n' roll thing I had ever seen.

I found out years later, when I was touring with Joan Jett, that there was actually this group of girls who called themselves the Candle Club, who went around and did this sort of thing.

Before I saw The Ramones, I had never seen a band that played their own music in a place that wouldn't hold a football team. So this was a whole different world and that pretty much opened up the whole thing for me.

So I went back to school in Laramie, Wyoming, and started the punk rock band called the Dirty Dogs. We became The Accelerators when we moved to L.A. We literally showed up in Hollywood on Halloween night and ditched our car on Hollywood Boulevard and jumped into the whole thing. That was 1978.

We were in L.A., when it really was the heyday with X and The Germs. I was at the first Go-Go's gig ever. We had a practice space in The Masque, which was this rehearsal space underneath the Pussycat theater over on Hollywood Boulevard. That was like the center of the real punk rock thing in L.A.

By 1979, our band had broken up, and I was already playing with some other people, this guy, Rik L. Rik and this other guy named Top Jimmy, who was this great rockin' blues dude. Top Jimmy & the Rhythm Pigs.
Around this time, you hooked up with Joan Jett.
There was an ad in the paper that said, "Joan Jett is looking for three good men." So I answered the ad. I had one time smoked a Sherman with her and Darby Crash [of The Germs] outside a club. [Laughs.] One hundred and forty guys went for this audition, and I went first. After about forty guys, they called me back and said that I was in the band. So I started Joan Jett & the Blackhearts with Joan. I was in her band from 1979 through 1981. I was involved in the recording of the *I Love Rock 'n' Roll* record, and then we parted ways.

I have got to say that I have the utmost respect for Joan Jett. The whole time I ever played with her, her rock 'n' roll clock was unbudgeable. I think that people still have only heard the tip of the iceberg of her talent.

When I was the guitar player, I was like the band leader, and eight years after I was out of the band, they were still recording covers that I taught the band. We did a great version of "Rebel Rebel."
And "Crimson and Clover."
On "Crimson And Clover," I had already been with her in the studio a couple of times. The producer and her manager, Kenny Laguna, would never let me overdub or fix anything. I really wanted to do something cool on the solo. When it got to the solo, I literally kind of jerked-off on the neck, sliding my hands up and down the neck, so it would obviously need to be fixed. Like, "This is where the guitar solo goes."

At the time, the record company was Boardwalk Records. Neil Bogart, the guy who once had Casablanca Records, was the head of Boardwalk. He loved

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the whole thing, so they just mixed the record with that jerking off on there, and it became this big hit record, with this jerk-off guitar solo!

So what did that teach you about producing?

I don't know. [Laughs.] Back then, there were two producers: Kenny Laguna was really kind of this business guy, and he had been the keyboard player in a later version of Tommy James & the Shondells [who originally recorded "Crimson and Clover"]. But this other little guy, Ritchie Cordell, was the guy who actually wrote "I Think We're Alone Now" and "Mony Mony" for Tommy James. He was like the "real" guy.

So, with the Tommy James alumni working behind her, Joan Jett's bubblegum punk was arrived at honestly.

Yeah. It was perfect.

"I Love Rock 'n' Roll" is one of all-time classic rock anthems.

That song was the theme of a British TV show that didn't last very long. Steve Jones and Paul Cook of the Sex Pistols found that song for her. Those guys made the first recording of it as a 45 that came out in Holland on Ariola Holland. After they brought it to Joan, we went out and played "I Love Rock 'n' Roll" for two years before we recorded it. The wild part of it was, every night and everywhere we went, that song "won" every time.

Every big rock producer of the day came to Joan and Kenny and tried to get the record. They wanted to produce that record.

That song was so unstoppable that, to a degree, it didn't exactly take a rocket scientist to make a hit out of it.

That's what Kenny knew. Joan's thing has always been what I would call elemental. It's just the elements. It isn't any of the alloys. So all Kenny had to do was just get out of the way and let it happen, and that's what he did.

I've been in music stores, where I could hear all the way across the room some guy starting to play that riff. It's just one of those songs.

So after Joan Jett, when did the Del Lords come along?

Joan had brought me to New York, and I realized I could get done in a day what took a week to do in Los Angeles. So I was digging New York, and I found the Del Lords, who weren't the Del Lords yet. But they were practicing, and I heard about them, and by the next day, I was in the band. The first song we played was "Folsom Prison Blues,"

and we took it from there.

So that was a departure from what you were playing in LA.

Yes, but to me, it really wasn't that much of a departure, because it was elemental rock 'n' roll guitar music. We were listening to Johnny Cash and The Stooges and found the common ground in both of them.

We had four albums and a live record. Now there is a CD called *Get Tough* that is out currently on Restless, which is a "best of the Del Lords." It has some pretty cool stuff, but I will say that it was during the "Dark Years" of guitar recording.

How do you mean that?

Our whole tenure as a band was in the '80s, when people were infatuated with the advent of digital reverb and MIDI. We would go to studios where guys hadn't put a mic on an amplifier for a while. All they were doing was MIDI and transferring stuff from synthesizers onto 2-inch tape. The only thing harder than recording an electric guitar at that time was recording a clean electric guitar.

So are those Del Lords records listenable for you now?

It is kind of hard for me. Over and over, people have come up to me and said how great digital is and "digital will do everything." Well if it can go into my '80s records and extract the horrible digital reverb that was put all over them, then I'm ready to sign up. [Laughs.]

It gets to be one of those things, like when you were in high school and some guy from an insurance company comes in and says things like, "Statistically, in your lifetime, you will have spent 23 months sitting on a toilet." Well how much of my life has been wasted by some guy twiddling with some digital reverb? Too much. I pretty much regard reverb as a coward's tool.

Why is that?

It's like, if you tell a really good joke and follow it up by saying, "I was just kidding." It sort of pulls your punches. There is a place for reverb, like on a Celine Dion vocal, so you can soften the horrible blow that your system has to endure. Of course, a little spring reverb out of a Fender amp is always acceptable. [Laughs.]

That said, we did our stuff with some really good guys, like Neil Geraldo and Lou Whitney, but we were all driven by the times. As I look back, we were in some really good studios, too.

Making those records really made me want to get into production, because I just see the flaws in every one of our recording experiences. I don't

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think the real Del Lords' "thing" ever really made it to record.

When you're in pre-production these days, do you have recording gear set up, just in case the band is shooting off sparks in the early practice sessions?

No. Most of my pre-production comes from getting a boom box tape of one guy on an acoustic guitar singing and playing all the songs. Then I give a tape copy to everybody in the band, and a copy to the manager and, if there is actually an A&R guy who knows a little about music and is interested in the band, I'd love to give him one, too. We spend some time with that tape, just listening to it, and then we would rehearse with the band.

The first time we play it in the rehearsal studio, and it sounds good and we're excited and we all know where we are going, we never play it again, until we get to the studio.

I don't usually have bands do whole-band demos, because sometimes the greatest guitar solo you ever heard of ends up on that demo, and then you spend a lot of time doing some serious demo chasing. It is something that we all have done.

You play on a number of records you produce.

Yeah. I don't always track with band, but some I do. With the Bottle Rockets, I have done that for quite some time. It just kind of helps with the arrangement situation.

> **I pretty much regard reverb as a coward's tool. It's like, if you tell a really good joke and follow it up by saying, "I was just kidding." It sort of pulls your punches.**

With two guitars, bass and drums in a band, you know there is at least one guitar dub going on in there, and it is more exciting to have it go down while you are tracking. So if Brian [Henneman] wants to play a solo live on the track, there is that rhythm guitar under his solo. I'll often play that part.

Most times, if I'm putting keyboards on something, I like to have the keyboard player there.
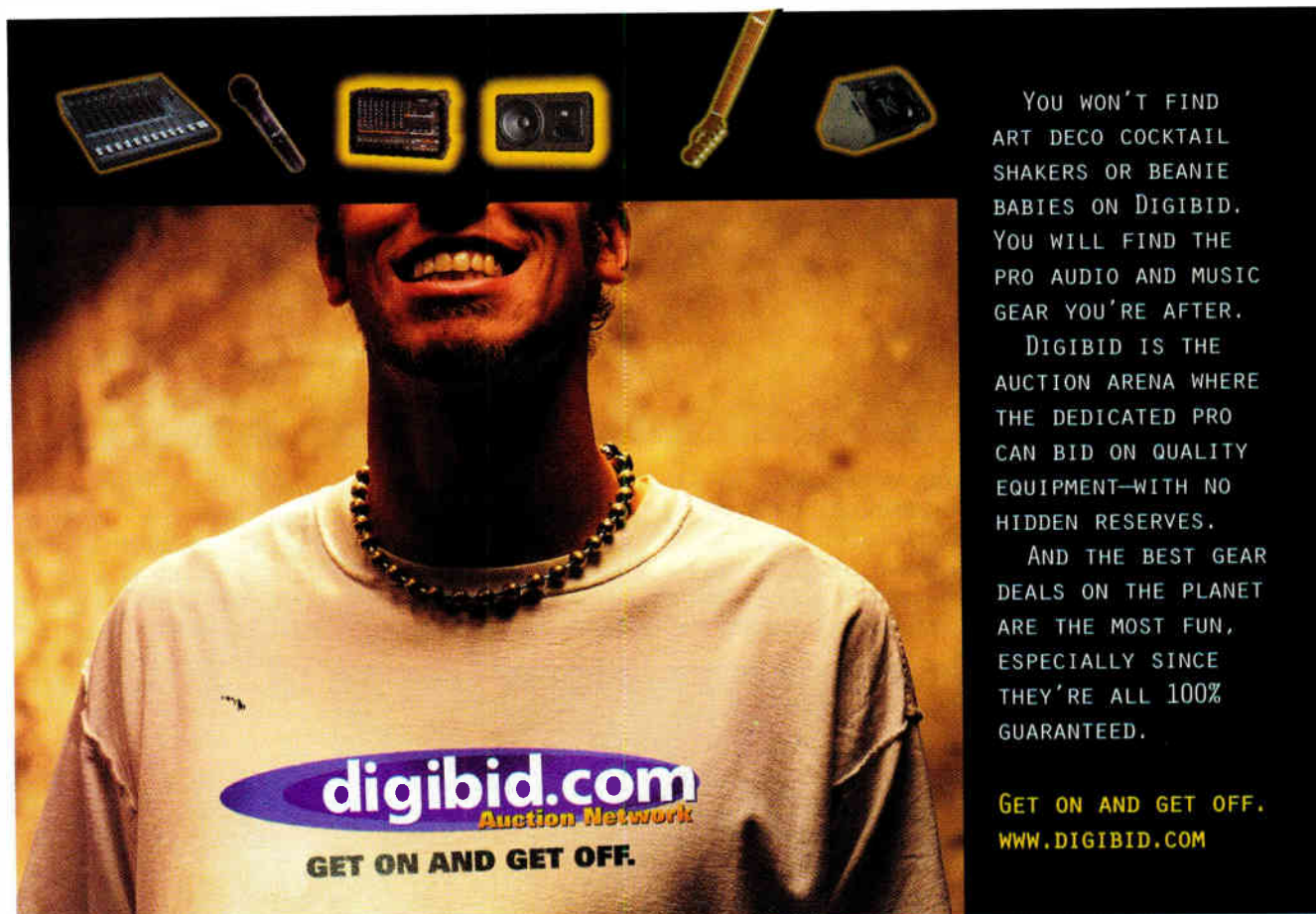
For The Backsliders' record, I couldn't imagine us overdubbing the organ later on "It Rained on Monday." Those guys are in a band, and they shouldn't be imagining some great organ thing. They should be hearing the whole thing. As a result, they are playing off of Joe Terry's organ.

If you have everybody playing, then it is really simple for everybody to make a decision. "Oh gee, let's have a listen." [Laughs.] It either works, or it doesn't. If it doesn't, then try another way. It's not like you have to wait for the keyboard player to show up two weeks later, to see if everybody imagined the keyboard player well enough to leave holes in the arrangement for him.

You see, I mostly work with bands. I have a lot of respect for bands and what it means to be a member of a band. And when you work with bands in the studio, you have everyone there at the same time. The band should always be welcome there. It isn't like, "We don't really need you there for the mix." If it's your band, then it is your studio. ∎

Rick Clark is a Nashville-based writer, producer and musician.

PREVIEW

TC ELECTRONIC M-ONE AND D-TWO ▶

TC Electronic's (Westlake Village, CA) M-One is a dual-engine effects processor offering an intuitive user interface and 24-bit A/D and D/A converters with 24-bit internal processing. It includes many of TC Electronic's popular delay, dynamics, pitch, chorus and tremolo algorithms, plus new, enhanced reverbs and 128 ROM presets and 128 user RAM presets. Based on TC's classic 2290 delay, the D-Two Multi-Tap Rhythm Delay offers up to 10 sec-

onds of delay and a rhythm tap feature. Its 128 user locations and 50 presets include Spatial, Ping Pong, Reverse, Dynamic Delay, Chorus and Filter functions. Both units feature ¼-inch analog I/O and S/PDIF digital I/O for an all-digital, 24-bit signal path supporting both 44.1kHz and 48kHz

rates. Both units are priced at $699.

Circle 338 on Product Info Card

HOT HOUSE NEAR-FIELDS

The PRM 165 Passive Reference Monitor from Hot House (Highland, NY) is a near-field design featuring a 6.5-inch long-excursion

woofer, hand-wired crossover and a low-distortion recessed 1-inch dome tweeter in a heavily braced 12.5x8.5x13-inch (HxWxD) rear-vented satin black cabinet. Frequency response is ±1 dB from 300 to 15k Hz (down -3dB at 58 Hz and 20.5 kHz). Price: $1,299/pair.

Circle 339 on P-oduct Info Card

HOT OFF THE SHELF

Martinsound's *The Secrets of Doing Surround Sound on Your Existing Console* is now available. To get your free copy, call 800/582-3555 or e-mail info@martinsound.com... New CD sound effects libraries from **The Hollywood Edge** include *Chase Scene Elements, Patricio Liebenson's "Explosions Signature" Series, Martial Arts and Human Impacts* (with "realistic bone-breaking punches" and "bloodcurdling yells") and *Busted Effects and Most Wanted,* a "gleefully gruesome collection" of strange effects. Call 323/603-3226 or visit www.soundelux.com...The **C Audio Pulse** 4 x 300W switched-mode amplifier has won THX approval. Call 615/360-0277 or visit www.c-audio.com...F7 **Sound and Vision** has released *Concept: FX2,* the company's second sound effects CD-ROM. Featuring

305 royalty-free sound effects in both AIFF and .WAV formats, the disc is Mac- and PC-compatible. Price is $69.95. Call 813/991-4117 or visit www.f7sound.com...**Music 2 Hues** has released four new production music and effects CDs: *Caribbean Dreams* and *Folkstyles* join the 20 existing CDs in the royalty-free music collection. *Winter Wonderland* features all the classic holiday tunes in arrangements for flute, guitar, saxophone and piano and is royalty free. The *X-Attack Series* CD is a 99-track collection of zaps, zings, zonks and more. Call 888/821-7515 or visit www.music2hues.com ...**TRF Production Music Libraries** debuts the *Stock Production Music Library,* with the first 13 stock CDs including Motivational, High Energy, Corporate, Sports/Action, Fashion, Dance, Children & Comedy, Science, Celtic (Irish), Sensual, Dramatic/Tension

and '70s Soundalikes. Stock CDs each offer more than 70 minutes of music, and all include 60-, 30-, 20- and 10-second versions. Call 800/899-MUSIC or visit www.trfmusic.com...Version 4.1 software for Tascam's **MMR-8** and **MMP-16** modular multitrack recorder/player systems adds support for playback of files from the Fairlight MFX digital workstation, dual SCSI operation and improved bi-phase and 9-pin serial performance. Call 323/726-0303 or visit www.tascam.com...EMTEC Pro Media will offer BASF **Formatted DTRS Master tape** for Tascam's DA-38, DA-88 and DA-98 recorders, as well as Sony's PCM-800. The formatted DTRS tape will be available in a 113-minute, 44.1kHz format in January 2000. Other lengths and 48kHz sampling rate products will follow. Call 888/295-5551 or visit www.emtec-usa.com...The Lexicon

MPX 1 Multi-Effects Processor has been reduced to $899. Lexicon also introduced a Surround Cart for the 480L Digital Effects System. Call 781/280-0300 or visit www.lexicon.com... **TOA Electronics** has reduced prices of the DACsys II line of DSP units. The DP-0202 is now reduced by 40%, the DP-0204 by 30%. And TOA's 1999 Product Guide and Specification Library on CD is now available. Call 800/733-7088 or visit www.toaelectronics.com for your free copy...Recent books from Howard W. Sams include *Basic Modulation Principles* by Irving M. Gottlieb and *Designing Power Amplifiers* by Stephen Kamichik. Call 800/428-SAMS or visit www.hwsams.com...Jensen **Tools'** expanded Master Sourcebook for 1999/2000, a 160-page color catalog, is available free. Call 800/426-1194 or visit www.jensen-tools.com. ∎

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New Software/Hardware for Audio Production

MXTRAX GOES NATIVE ▼

Minnetonka Audio Software (www.minnetonkaaudio.com) introduces a native version of its MxTrax multichannel recording and mixing software. MxTrax Native will run on Layla, MOTU 2408 and other Windows-compatible hardware that uses ASIO or .WAV drivers. MxTrax allows creating custom mixers by dragging mixer components from a toolkit and dropping them onto the virtual mixer interface. Mixer components include input and output faders, panners, solo/mute and DSP such as EQ, compression/expansion and more. Editing is nondestructive; features include instantaneous fades, crossfades, gain change and normalization. Mixer channels can be routed to disk tracks, external I/O and internal buses. All mixer controls can be automated, with an Automation Update mode for altering the automation of any channel component;

custom mixes can be recalled. MxTrax supports a variety of control surfaces (via MIDI), including Mackie HUI, CM Automation MotorMix and the Yamaha 01V and 02R. Retail: $399.
Circle 340 on Product Info Card

ETF ACOUSTICS MEASUREMENT VERSION 5

AcoustiSoft (www.etfacoustic.com) releases Version 5.0 of its ETF Audio & Acoustical Measurement Software, a Windows 95/98/2000-compatible program that measures loudspeaker and room acoustics parameters. Version 5.0's new features include a Maximum Length Sequence test signal, pseudo-real-time analysis, improved resolution in energy time curves, clearer identification of room measurements, phase and delay measurements, and fractional octave displays. In addition, 2-channel operation is now possible. The program comes

with the Device Designer, which helps users create their own bass traps and diffusors to solve acoustical prob-

lems. The program is $199.
Circle 341 on Product Info Card

AUDIO EASE PLUG-INS FOR MOTU ▲

The Rocket Science Bundle of real-time plug-ins for MOTU's Digital Performer and Audio Desk platforms from Audio Ease (www.audioease.com) includes Roger, a "multiple-gender vowel bank," which lets the user select from an onscreen Vowel Bar to apply human vowel filters to audio tracks. Additional controls select "family members" and adjust transition between vowels and "sharpness" of vowels. Follo is an energy-driven band booster that dynamically adjusts the peak of a resonating bandpass filter according to the level of incoming audio. Adjustable parameters control the bandwidth, sensitivity, release, resonator peak's frequency location and more. Orbit is a psychoacoustic flight path simulator that calculates the sound source's reflection off the walls of a virtual room, applying delay

and attenuation characteristics to both direct and reflected sounds. The Rocket Science Bundle is $199.
Circle 342 on Product Info card

TIMELINE VIEWNET AUDIO INTERFACE NETWORK

TimeLine Vista's (www.digaudio.com) ViewNet Audio Graphical Interface Network is a Java-based application offering a graphical project view screen, networked control of setup parameters and operations for Tascam's MMR-8 and MMP-16 modular multitracks. Multiple instances of the application can be networked to control more than 100 MM Series machines; the included ViewNet Administrator and Server packages provide levels of security and control, for use in large facilities. The package includes a 100Mbps Fast Ethernet network interface card and multiplatform (Windows, Macintosh or Unix) software. One $599 package is required for each machine.
Circle 343 on Product Info Card
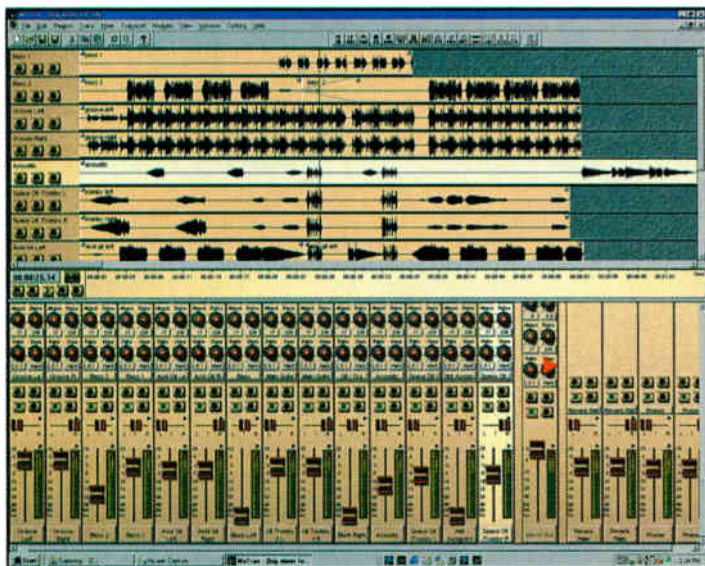
MERGING 24/96 8-CHANNEL CONVERTER

New from Merging Technologies (www.merging.com) is the Sphynx Modular High Resolution Audio Interface, an 8-channel, 24-bit/96kHz A/D and D/A converter. The two-rackspace converter can operate as a stand-alone unit, or it can be remotely controlled by Merging's Pyramix workstation. Features include a modular configuration for custom setup of any combination of analog or AES/EBU I/O, balanced XLR I/O, selectable monitoring of all eight inputs and outputs, choice of sync sources and internal 110/220V power supply.
Circle 344 on Product Info Card

WAVEFRAME SAMPLER OPTION

WaveFrame (www.waveframe.com) introduces a sampler engine for its current 408-Plus and upcoming WaveFrame 7.0 digital audio workstations. Co-developed with E-mu/Ensoniq and based on the Post Card—the pro version of the Audio Production Suite—the sampler offers 64 voices and can access up to 64 MB of the host computer's RAM. Samples are fully integrated with WaveFrame's Event Processor cue-sheet-based sequencer program, which manages sounds via a time-code spotting list and a spreadsheet-like interface. Sample management is via E-mu's Soundfont technology, and an application for converting WaveFrame 1000 samples is included. As part of the development agreement, WaveFrame will create a stand-alone

version of the Event Processor, to be bundled and sold by E-mu for other DAW applications.
Circle 345 on Product Info Card

MICROBOARDS CD RECORDING AND EDITING

StartREC 400 from Microboards (www.microboards. com) is a multidrive CD-R recorder/duplicator with audio editing features. The system is available in both desktop and rackmount configurations, and supports up to four 8x CD recorders. Editing functions let users combine, delete or move audio tracks, add or drop any index or sub-index, or

UPGRADES AND UPDATES

Ucik Inc., parent company of **SEK'D America**, announced a new division: **Swissonic America** (www.swissonic.com). Founded in 1999 by Music-Network, Swissonic manufactures digital audio products (AD 24 and DA 24) formerly sold under the name MusicNet. **SEK'D** also announced **TocToTape** ($999), a Windows NT-based utility program that backs up Red Book Audio master files created in Samplitude or Red Roaster to data tape drives…Berkley Systems (www.bias-inc.com) introduces **Peak 2.1** and **Deck 2.7**; both programs now offer ASIO support. In other BIAS news, Peak 2.1 is now available in a variety of configurations, including Peak 2.1-TDM Edition ($499), Peak le 2.1 ($99)—a light version—and a new lower-priced version of Peak, minus TDM support ($299)…**E-mu/Ensoniq** (www.emu.com) news: A development agreement with **Intelligent Devices** will allow for better integration of PARIS hardware with the user interface,

and ensure ongoing system development. Also, E-mu/Ensoniq is now shipping **EOS Link** software for controlling an Emulator 4 sampler from a Mac or PC, via SCSI. The software is bundled free with E4XT Ultra, E-Synth Ultra and E-6400 Ultra samplers, and can be pur-
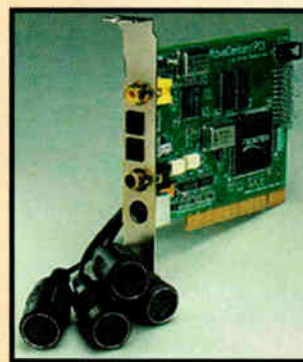
WaveCenter/PCI card

chased for the E5000 sampler or previous E4 models…**Frontier Design Group** (www.frontier-design.com) introduced **WaveCenter/PCI**, a PCI card with ADAT Lightpipe, S/PDIF and MIDI I/O; it comes bundled with Cool Edit Pro SE. Price is $389…**Apogee Electronics** (www.apogeedigital.com) developed an AD-8000 conversion system for Steinberg's Nuendo media production system. The AD-

create track fade-ins/outs. Analog line inputs include XLR balanced or RCA (with recording volume adjustment); digital audio can be input via S/PDIF (optical or co-ax) or AES/EBU ports. A 4GB hard disk is standard. Prices start at $3,195 for one reader and two 8x recorders.
Circle 346 on Product Info Card

8000 Nuendo Edition offers 24-bit A/D and D/A conversion, plus a variety of interfacing, format conversion and sync features. Speaking of Steinberg, the company's new **Mastering Edition** bundle of six plug-ins, for both PC and Mac, includes Loudness Maximizer, FreeFilter, Spectralizer, Compressor, SpectroGraph and PhaseScope. Price is $499… **Event Electronics** (www. event1.com) announced a partnership with DSP developer **Hyperactive Audio Systems**. The first products to be released under this agreement will offer large-scale 24-bit/96kHz multichannel recording, with real-time DSP, polyphonic sample playback, automation and more…**BarbaBatch 3.0** adds support for **Real Audio G2, MP3** and Quick-Time 4.0 (which includes QDesign's 2.0 codec); check out a demo at www.macsourcery.com …*Drone Archeology* (www.numericalsound .com) is an audio sampling CD containing 99 stereo drones in seven categories (Nature, Science, Drama, Industry, Voice, Bell and Drones), ranging from 32 to 64 seconds in length. Price is $99. ■

SPECTRAL DESIGN AUDIOCUBE³-II
MASTERING AND AUDIO RESTORATION WORKSTATION

Founded in 1994, Spectral Design has been quietly—or perhaps not so quietly—making a name for itself as one of the world's major developers of signal processing software. And even if the Spectral Design name doesn't immediately register with most members of the North American pro audio community, chances are that without realizing it, a sizeable percentage of audio engineers in this hemisphere have encountered Spectral Design products in one form or another.

The company is jointly owned by Houpert Digital Audio (HDA) and Steinberg (yes, the Cubase and VST people), and although this Bremen, Germany-based firm has a similar name to the American company Spectral Synthesis, there is no connection between the two. Spectral Design creates the digital signal-processing effect plug-ins for Steinberg's Cubase VST software, and

AudioCube³-II's editing interface is a custom version of Steinberg's WaveLab software. Features include clip-based editing, nondestructive crossfades and multichannel arrangements.

uses Steinberg's WaveLab for the AudioCube³-II's basic editing functions. Anyone who's used Sound Performance Lab's (SPL) acclaimed Red Series of hardware processors—such as Machine Head, Loud-

The 55-pound engine boasts dual 500 MHz Pentium III CPUs.

ness Maximizer or the Spectralizer—has also gotten a taste of the DSP that Spectral Design has to offer.

And now, after a year of European installations, Spectral Design's line of turnkey mastering workstations—AudioCube³-II, Quadriga and Surround-Cube—is finally available in the U.S. and Canada.

BUILT FOR SPEED

Now in its second generation, AudioCube³-II is a single-system solution combining professional audio processing with

BY GEORGE PETERSEN

leading-edge technology. At the core of the system is a beefy, 55-pound, five-rackspace enclosure containing two 500MHz Pentium III CPUs. The system is built and designed to provide optimal performance from the ground up. There are no dedicated audio cards, as found in other systems. Here the Spectral Design philosophy is simple: Essentially by the time DSP cards are developed and brought to market, they tend to be obsolete. And as non-card systems based on a single CPU can overwhelm the central processor, the alternative for fast, real-time audio processing turned out to be dual 128MB/500MHz Pentium IIIs running in tandem under native NT. Internal processing is 32/64-bit floating point with 24-bit/96kHz support. Retail is $25,950, including hardware, a waveform editor and a complement of signal processing plug-in instruments.

A 20-bit/96kHz D/A is provided for analog monitoring, but there is no analog I/O. (Probably a good move because anyone purchasing a system such as this very likely has favorite converters already picked out!) Digital I/O possibilities include AES/EBU, S/PDIF (co-ax and Toslink) and word clock; ADAT Lightpipe is optional. The system also includes a removeable 9GB hard drive, an 8x write/20x read CD-R, 40x CD-ROM, 100Mbit Ethernet card,

external UltraWide SCSI card, and a dual monitor card. Hardware options include a remote control kit and Exabyte 8mm tape streamer for DDP and backup.

AudioCube³-II is networkable (ATM, FDDI or Ethernet), so it could operate as a server or reside on the same server as other workstations, allowing fast transfers between, say, AudioCube³-II for cleaning up tracks and other DAWs (Mac or PC) doing simultaneous dialog editing. And as the system can directly load .WAV or AIFF files, there is no need for conversion when tracks are transferred to/from AudioCube³-II from either Mac- or PC-based DAWs.

The system uses WaveLab 3.0 as its waveform editor of choice, offering real-time processing; edit lists; multichannel arrangements; clip-based editing; non-destructive crossfades; normalization; timestretch; sample rate conversion; CD mastering; and PQ editing. However, the real "heart" of AudioCube³-II is its Master Section, a control screen where access to any of its tools is a mouse click away. But beyond a simple control screen, the Master Section allows selecting any six of its VPI (Virtual Precision Instrument) plug-ins in series and in any order desired, with a bypass button for each, followed by selectable dithering and master faders.

SOFTWARE, SOFTWARE, SOFTWARE...

System VPIs include DeNoiser, DeClicker, Loudness Maximizer, Spectralizer (digital enhancer), EQ1 (Parametric Equalizer) and ReSampler (sample rate converter). Other VPIs—available at $1,750 each—include DeScratcher, DeCrackler, DeClipper, DeBuZZ, DeMotorizer, Magneto (tape emulation), FreeFilter, RepairFilter, DoubleRate (44.1 to 88.2 and 48 to 96 kHz and vice-versa), AnalogEQ (multiband parametric EQ with up to 192kHz processing), FreeShaper (for creating custom noise shaping/dithering curves), Azimuth (tape azimuth error corrector) and De-Es (de-esser).

Clearly the aspect that sets AudioCube³-II apart from simply running these or similar plug-ins on an existing workstation is the absolute speed of the DSP, thanks to the native NT processing and the dual CPUs. Most of the VPIs run in real time, and interestingly, up to six of them can run automatically, making "intelligent" decisions about parameters, before you begin tweaking. For example, as the input material plays through the DeCrackler, the system searches downward, seeking a workable threshold where a majority of a record's surface noise is removed without destroying the character of the original recording. Once the program reaches that point, of course, the user is free to tweak at will. Using the DeNoiser, the input material is continually analyzing as it plays, offering dynamic—rather than static—processing. This provides as much as 20 dB of noise removal, without removing early reflections or room ambience, which can be construed as noise in other programs. Another nice touch in most of the restoration modules is an onscreen "audition" switch that switches the playback to let the user listen to that portion of the sound that's being removed, as a way of ensuring that processing isn't set too high or too low.

A key to the AudioCube³-II VPIs is that there are many applications available, focused on highly specific problems, and they are extremely easy to

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use—a user can become an expert on any of these VPIs in a matter of minutes. However, these are anything but lightweight or stripped-down applications. As in most cases, the simple interface hides a great deal of the complexity, while the power is still there.

On a VPI such as the RepairFilter—a dynamic notch filter with four notch filters, plus HP and LP filters—problem frequencies show up onscreen as straight "disturbance" lines on a spectrum display to pinpoint what you need to notch. Notches can be set automatically or manually (user choice), but what impressed me was the fact that the notch depth is program-dependent, depending on the amount of inherent masking present in the audio source material.

Designed for hum reduction, the DeBuZZ VPI shows a problem as fundamental as a peak and highlights all of its harmonics for removing AC hum or dimmer buzz. Intended specifically for eliminating camera and zoom motor noise picked up from on-camera mics on video tracks, the DeMotorizer takes a small section of drive and zoom motor sections, "learns" the sound of the noise, and applies as much as 90 dB of attenuation.

Another VPI that takes full advantage of continuously changing dynamic processing is Azimuth, which corrects for phase and time shifting cancellations that occur from a tape head that's out of azimuth. Here, the software automatically corrects the errors as the audio plays, with time correction as fine as ⅟₁₀₀-sample increments. With autotracking, Azimuth can follow a "floating azimuth" error, which would not be possible with a screwdriver on the tape machine, because the error changes over time.

FreeFilter is a third-octave graphic EQ with frequencies set at standard ISO points, but it is a linear phase design, and unlike a graphic EQ—which creates a series of boost "bumps"—it outputs smooth curves. A unique "learn" section calculates difference curves between two files and can superimpose the tonal spectrum from one file over another file. This is especially useful in cases such as compilation CDs, in which the goal is achieving continuity between files.

Perhaps one of the most useful VPIs is DeClipper, which can take a clipped waveform (up to 100 samples in length) and, after lowering the gain

Four of AudioCube²-II's VPI plug-ins (from top): Spectralizer, DeClipper, Azimuth, DeClicker.

of the overall file, can restore the missing peaks. The program automatically searches for the largest clips in a file, displays their duration and calculates how high (in dB) the peaks would have been. Depending on the file, the results are quite good—certainly miles ahead of a severely clipped playback—and just to prove it to the user, a level change is applied to both the original and processed files for easy A/B comparisons.

Beyond the wealth of available VPIs, other options for AudioCube³-II include CD-Inspector, a hardware/software system based around a Sony CDP-D500 CD player, providing a means for running an absolute check of recorded CD-Rs, for block error rate, burst error rate, non-correctible (E32) errors, non-valid samples and mutes. Test results can be saved and printed—even in CD booklet format—listing all verification, track data, indices, pre-gap, emphasis flags, ISRC codes and UPC/EAN coding. Another "must-have" option is DDP-Solution, a tool for transferring the final master—including all PQ data—to an Exabyte drive, and verifying the data after transfer.

WHAT'S NEXT

The whole point of any modular system is the capacity for expansion and growth. Based on the same AudioCube³-II hardware is the Quadriga system (also $25,950, or $5,450 as an upgrade to an existing AudioCube³-II system), a specialized version for analog-to-digital transfer of audio archives. Developed with the needs of European broadcasters in mind, Quadriga monitors incoming audio data streams, recognizes errors automatically and captures audio data stored in the EBU Broadcast Wave file Format (BWF) together with all related meta data and error reports.

Appealing to a large market hungry for multichannel mastering tools, Spectral Design has announced Surround-Cube ($44,450), which combines the ease of WaveLab editing with SurroundMaster software, expanding WaveLab to 8-channel editing capacity and real-time mastering for 5.1 DVD or 7.1 cinema sound, and allowing CD and DVD mastering in the same environment. SurroundCube is based around dual 650MHz Pentium III CPUs, with eight channels of ADAT Lightpipe I/O (24-bit compatible), and an 18GB hard drive. Other standard amenities include a SMPTE interface, the same VPI complement as AudioCube³-II, along with MultiComp, PitchBandit, Channel EQ, Dynamics (compressor/limiter/SoftClip/AutoLeveler) as well as 8-channel versions of EQ, Loudness Maximizer, Compression, Dither and Leveler.

Although pricey (since when was a first-class ticket ever considered cheap?), Spectral Design's $25,950 AudioCube³-II is a powerful system that takes the science of mastering to a new level, providing a professional tool set for mastering, archiving and restoration chores. And in an era when it's increasingly harder to separate the pros from the players, systems such as AudioCube³-II may be just the ticket.

Spectral Design, distributed in North America by Sascom Marketing, 34 Nelson St., Oakville, Ontario, Canada l6L 3H6; 905/469-8080; fax 905/469-1129; www.sascom.com or www.spectral-design.com. ■

Mix editor George Petersen lives with his wife and two musical dogs in a 100-year-old house on an island in the San Francisco Bay.

World Radio History

World Radio History

MEDIAFORM CD-3706P

CD DUPLICATOR/PRINTER SYSTEM

The full name of this product is the MediaFORM CD-3706P Autoloading Standalone Spindle-Based CD-ROM Copier and Printing Solution, which just about says it all. It is the latest in Media-FORM's 3700 Series of autoloading duplicators, all of which are designed to be easier to use than a photocopier. With its simple one-button user interface, the CD-3706P achieves this aim, though you'll have to press more than one button to access its more sophisticated functions. The duplicator is designed to be used with the optional Printer Docking Station as a complete system, but this review only covers the duplicator section.

The CD-3706P has six CD-R drives, or bays, and an internal hard disk drive. Optional Easi DAT and Easi Audio interfaces are available for direct recording from external digital and analog sources respectively. Almost all CD-ROM writing formats are supported, including PQ subcodes and ISRC information, and in keeping with the one-button directive, the CD-3706P automatically detects the master disc's format. Periodic updates via CD-ROM firmware and downloads from the MediaFORM Web site will be made available as new formats are developed. Duplication speed defaults to that of the disc drives (in this case 8x), but 4x, 2x and a 1x "archive speed" can be selected. Quality control is maintained using two Compare modes: The TOC Only mode compares the TOC of the duplicated disc to that of the sound image on the internal hard drive, verifying that the correct program has been duplicated. The Full Compare mode runs a bit-by-bit comparison of the recorded discs to the master, verifying that the duplication was fully successful.

HARDWARE

The MediaFORM CD-3706P measures 24x22x14-inches (HxWxD)

and looks something like a small display case, with large glass doors on the front. The six CD bays form a short tower in the rear right corner, and a robotic x arm assembly is located near the front of the cabinet. On either side of the picker arm there are two large spindles that hold blank and completed discs. The minimalist user interface—consisting of a numeric keypad, a small LCD and four buttons —is located on the front panel below the right door. Around back, there is a receptacle for the AC power cord, a voltage switch (115/220 VAC), the on/off switch and a fan. Various jacks for connecting and powering the optional printer are also located on the rear panel, as are a SCSI port and various other connectors, presumably used for connecting the CD-3706P to a computer and/or additional hard disks. The optional Easi DAT digital interface card was installed on our review unit, along with a breakout cable supplying AES/EBU (XLR) and S/PDIF (RCA and Toslink) input connectors.

MODES OF OPERATION

There are basically two duplication modes: Relay and Copy From Hard

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BY BARRY CLEVELAND

Disk. Relay mode is the simplest: You simply put a stack of blank CD-ROM discs onto the Input Spindle, with the master disc on top, and press the Start button. The master disc is loaded into the uppermost bay, its contents are copied onto the internal hard disk, then it's placed on the Accept Spindle. From that point on the CD-3706P loads blank CD-ROMs into the drives until either they are all duplicated, or it encounters another master disc. In the latter case it begins the procedure again, copying the contents of the second master disc into the hard disk (no matter which bay the master disc happens to be in), and duplicating however many blank discs are between it and the next master. Any number of duplicates can be made from any number of masters, without having to press any additional buttons, as long as the total is 200 or fewer.

The Copy From Hard Disk mode is pretty self-explanatory, though there are several duplication options available. Program files or "images" can be recorded directly into the hard disk in their complete form, or tracks from individual sources may be assembled together into a new program file. The CD-3706P comes equipped

with enough hard disk memory to hold four simultaneously stored image files, but can be expanded to hold six. Each image file is stored in a single partition on the hard disk, eliminating disk fragmentation problems.

Despite its apparent simplicity, the user interface accesses and controls a wide range of functions. The Compare, Start/Yes, Stop/No and Copy buttons are used for responding to various prompts on the LCD, and the numeric keys select programming options as well as enter numbers. Each number corresponds to a particular function, such as accessing the Copy, Simulate (to test but not record) and Verification modes; selecting the audio input source; and selecting copy speed. The numeric keypad can also be used to load and unload discs manually, which can be useful when troubleshooting problems. Lots of specific information are displayed on the LCD at various times, including revision number and date of current firmware, image number and size (in MB), creation date and time, codes/sub-codes, and last disc status ("Last Copy Good" or "Last Copy Bad"). There is even a provision for password protection.

A LITTLE PICK-ME-UP

I couldn't help being impressed by the CD-3706P's operation. Blank CD-ROMs, placed on the Input Spindle, are grabbed by the robotic picker arm and placed one by one in the CD-R drives. Once the duplication process is complete, the arm removes the CD-ROMs, places them on the Accept Spindle, and begins loading the next batch. If Full Compare mode is active, defective discs are rejected and placed away from the good copies on a small spindle in a special reject area. All of this takes place with amazing speed and precision.

I duplicated multiple copies in Relay mode, assembled a compilation disc from multiple source masters, and duplicated CDs from my DAT deck using the Toslink S/PDIF connector on the Easi DAT digital interface. In all cases the CD-3706P performed admirably, creating duplicates that sounded just like the originals, even at the 8X copying rate. I usually had to push more than one button, but not many more, and I cannot imagine how a duplicator with this sort of power and flexibility could possibly be any easier to operate.

That said, I did encounter a couple of problems when attempting to change the duplication speed. The manual explains how to access this feature, but doesn't tell you what to do once you're there. I pressed the 8 button and the display said "Write Speed: 2X, 4X, 8X?" No matter which buttons I pressed, no speed was selected, but the prompt "1X Archive Speed? Yes/No" appeared on the display. Pressing *either* "yes" or "no" put the CD-3706P into the 1X mode, and the display read "Max Arch Speed Selected." These problems are likely due to a software bug in the review unit, rather than being typical of all CD-3706Ps, and should be considered as such. Otherwise, this is a very user-friendly and remarkable machine. Rush right out and buy one! Retail price for the CD-3706P is $13,995; $19,500 for the entire system, including printer.

MediaFORM, 400 Eagleview Blvd., Exton, PA 19341; 610/458-9200; fax 610/458-9554; www.mediaform.com. ∎

Barry Cleveland is the editor of the Mix Master Directory *and the* Recording Industry Sourcebook, *and plays guitar in the improvisational quintet* Cloud Chamber.

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AVALON DESIGN VT-747sp
STEREO OPTO-COMPRESSOR/PROGRAM EQUALIZER

A clear case of "more than the sum of its parts," the VT-747sp from Avalon Design combines a tube-based, opto-stereo compressor, sidechain processor and discrete transistor program equalizer in a two-rack-space package. This stereo line-level processor is designed for stereo bus compression/EQ, signal conditioning of stereo keyboards, input or output processing for DAWs and analog stereo mastering. It's one of a few new pieces of equipment that exemplifies a current trend: clever signal routing and interconnections coupled with advanced control features making for new and more powerful analog signal manipulation.

The 747 looks similar to Avalon's VT-737sp mic/EQ preamp with its backlit push button switch-

for any engineer who knows compressors and equalizers. There is a single stereo tracking input level control accepting maximum levels of up to +36 dB. This is not a concentric control, so it is not possible to offset input levels for the left and right channels separately: You'll have to do that in front of the 747. There is a +10dB pushbutton that jumps the level up if you are working with -10dB levels from synths or semipro recording equipment or want to change the internal gain structure by "overloading the front end" with super-hot levels. Both the +10dB button and input control affect compression as you would expect.

The Threshold control adjusts the level when compression begins from -20dB to +20dB, and the Compression control sets ratios

gain reduction with a 20dB range and offers good resolution of the important first 5 dB of gain reduction. As this unit is stereo, the meter indicates a summed value of GR for left and right channels with no way to monitor the channels individually. This reminded me again that you cannot separately process two mono signals with the 747, as both channels' functions are inexorably linked. The Make-Up gain control adjusts the output of a discrete transistor variable gain Class A amplifier from 0 dB to +10 dB. When TSP (Twin Signal Path) mode is used, an additional single-triode tube buffer stage is inserted directly after the compressor before this make-up amp.

Furthermore, in TSP mode the discrete transistor Class A output amplifier after the main equalizer is

es, oval-shaped gain reduction VU meter and overbuilt mil-spec appearance. Pushing each switch reveals that all in/out switching and routing of each section is by any one of 22 sealed silver contact bypass relays. For example, if you have the compressor switch out, the signal does not flow through that stage. I like the "feel" of working this unit with its knurled metal knobs and positive detents on the Input, Output gain controls, 0dB center-position EQ faders and center detents on the Side-Chain Threshold controls.

Operation of the 747 is intuitive

from 1:1 to 20:1. A passive optical attenuator is used for gain reduction, introducing very little additional noise or artifacts to the sound. I like the small blue LED that flashes with small gain reductions that may go unnoticed on the meter. Attack times are adjustable from 1 ms to 200 ms while the Release control adjusts release times from 50 ms to seven seconds. These are slightly faster values than the compressor section of the VT-737sp unit.

The large VU meter reads only

BY BARRY RUDOLPH

swapped for a dual-triode tube line amp. Final output level is controlled by a single stereo tracking Output control with a range of -20 dB to +6 dB. Again, not a concentric control that you could individually set left and right output levels. I found final output levels closely matched switching between TSP and the default solid state path. The sonic difference between these two paths is subtle unless the unit is operated at maximum throughput levels, where near-distortion characteristics of these two classic paths become more noticeable. I did notice

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FIELD TEST

a little more grunge when compressing very hard and using the TSP mode. TSP is the smoother, rounder, warmer glowing path…all those tube words. Finally, a pair of high-resolution LED meters with 60 dB of range measure the output level.

Avalon refers to the VT-747sp's frequency-conscious sidechain section as Spectral-Opto-Compression. This part of the unit is an improvement over the simpler method used in the VT-737sp, where 2-band sections of the 4-band parametric EQ are re-routed to the sidechain path. In the 747, there are dedicated high-frequency and low-frequency parametric controls that adjust frequency-dependent compression. They are not part of the main equalizer. The high-frequency control covers from 600 to 10k Hz with a Q of 1.0, and the low-frequency control overlaps from 60 to 1k Hz with a Q of 0.7. Each of these controls has separate boost and cut ranging from -15 dB to +15 dB.

When you use Side-Chain, these boost/cut controls act as compressor threshold adjustments for the frequency selected on the HF and LF controls. By selecting 100 Hz and cut, the compressor will clamp more at frequencies at and around 100 Hz. By making the compressor more or less sensitive at certain frequencies, you can create unusual tone shapes and treatments, or fix real-world problems like excessive sibilance (de-essing) or resonant peaks encountered in live sound work. The Side-Chain Listen button monitors the sound of the sidechain signal and lets you precisely "tune" in the frequencies you want to dynamically change. In use, I found this another compelling reason to own this unit, as it was easy to stress certain bands by diminishing their level in the sidechain and reducing the need for overall compression.

This feature worked well on program sources when I wanted a compressed bottom end and an open and transparent high end. I think this unit would be an instant favorite with live sound mixers for use on the stereo front-of-house mix. The Spectral Compression was useful with a synth patch where the internal chorus rolling through resonance caused a giant level jump. I couldn't fix the chorus itself (I was mixing a client's tape that I didn't record), so by finding the center frequency of the resonance peak

while in Side-Chain Listen, I was able to squash just enough to level the peaks only.

The final section of the 747 is the 6-band stereo graphic program equalizer with a hard-wired EQ bypass switch. There is a switch that places this passive equalizer either before or after the compressor section, which I liked. As it is a graphical equalizer, you can see from across the control room which bands are being equalized—another nice touch. The six frequencies and performance of the equalizer are: ±24dB of 15Hz shelving; ±8dB at 125Hz peaking type; ±4dB at 500Hz peaking; ±4dB at 2kHz peaking; ±10dB at 5kHz shelving; and ±20dB at 32kHz shelving. The midrange equalizers have a Q of 0.1, while the high- and low-frequency shelves have a Q of 0.2—both very broad program EQs.

I liked the equalizer a lot for mastering work and in use across the stereo output of a low-cost digital mixer I have been using lately. The 32kHz band is a popular holdover frequency from the Avalon VT-737sp. Boosting 32 kHz and 15 Hz provided a wonderful sound for studio playback listening hype and live sound work. Boosting 32 kHz definitely affects all the way down to pedestrian frequencies around 10 kHz; likewise, changing 15 Hz affects most of the low frequencies, too. As much as I liked it, I could use two other in-band frequencies (20 to 20k) for most studio and mastering work. (How about a 16/32kHz and a 15/30Hz octave switch?) Strangely, none of the frequencies or the boost/cut values are silk-screened on the front panel. A good way to ensure job security for the engineer who is familiar with the 747, but maybe not endearing to the casual or first-time user. Again, since the 747 is a strictly stereo unit, there is no way to have different EQ curves for left and right channels.

The VT-747sp, priced at $2,495, is a "finishing" tool that updates the process of stereo mix compression with advanced control and superb sound. Its precise control over the interaction of dynamics and equalization provides endless sonic sculpting and polishing possibilities for the creative engineer.

Avalon Design, Box 5976, San Clemente, CA 92673; 949/492-2000; fax 949/492-4284; www.avalondesign.com. ■

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

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Keyboard Magazine, November '99 Issue

KURZWEIL
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SPECK ELECTRONICS XTRAMIXCXI

ULTRA-COMPACT 40x8x2 SYNTH/LINE MIXER

For the past 25 years, Speck Electronics has been providing high-quality mixers that address the needs of recording and touring professionals. Throughout the '70s and early '80s, at a time when most recording consoles were large, semi-custom models, Speck gained recognition for its 16-input, 8-bus "in-line" consoles. Since the mid-'80s, the company has focused on high-quality rackmount recording mixers. With its new XTRAMIX-cxi Ultra-Compact Synth/Line Mixer, Speck has created the only mixer of its type that combines a keyboard/line mixer with an 8-bus recording mixer, all contained in a 4U rackmount chassis.

With 76 inputs, XTRAMIX has an extraordinary capacity for accommodating a wide range of signals (-20 dB ~ +28 dB) from keyboards, samplers, playback equipment and signal processors. This 40x8x2 mixer provides 20 stereo line inputs, eight stereo effects returns and has facilities for 8-channel monitoring. The comprehensive Master section can even be expanded with yet another XTRAMIX by way of a dedicated port on the rear panel.

The XTRAMIX is divided into three primary sections—Input, Effects Send and Return, and the Master Section. On the front panel, each of the 20 stereo input channels has a stereo level control, pan control, buttons for assigning signals to the eight buses, eight effects sends and solo in place. Corresponding with each channel, the rear panel has stereo ¼-inch TRS balanced inputs, a high/low level select switch (which takes the place of a trim control) and an effects Stereo/Mono switch with a corresponding front panel LED.

The Effects section has facilities for as many as eight stereo effects devices. Each effects channel has a master send for its respective effects bus and an associated effects

So many inputs so little time: Speck Electronics XTRAMIXcxi synth/line mixer's front (top) and rear offer 76 inputs.

sum input. The return has a stereo effects return level, buttons for making subgroup assignments, a pan control, solo in place and a mono switch.

The Master section provides considerable flexibility for routing and managing input and effects return signals. This section of the XTRAMIX has eight discrete subgroup level controls with the ability to accommodate 8-track in-line monitoring, in addition to the stereo program, stereo monitor and headphone controls. The stereo cue and aux returns accept a variety of signals that can be mixed with the primary input signals to the monitor and headphone outputs. The Master section provides numerous ¼-inch input and output connectors to enable the XTRAMIX to integrate into a wide range of production environments.

BY ROGER MAYCOCK

APPLICATION ENVIRONMENTS

The XTRAMIX makes an excellent mixer for the keyboard player with a sizable rig. With its ability to handle 20 stereo pairs, this mixer is quite capable of accommodating the outputs from synths, samplers and sound modules. As with any true line mixer, the XTRAMIX has no on-board EQ. The DSP processing capabilities of today's electronic instruments are far more adept at making tonal adjustments than any but the most sophisticated equalization systems—functions that would significantly increase the price of this mixer if they had been included.

The XTRAMIX can also help alleviate a common problem in the recording studio—a primary console that is running out of inputs. The XTRAMIX provides a talkback section with an internal microphone, which is unusual for a line mixer. While it lacks provisions to direct signal to the studio (as is common on a recording console),

it has the ability to talk or slate to the program master outputs and the monitor outputs—depending on the status of the associated rear panel Monitor Configuration Switch.

With such a high input capacity, the XTRAMIX also makes a viable tool for high-input sound contractor installations. To gain additional inputs, each of the mixer's eight monitor positions may be switched to a mono or stereo input. The mixer ships with rack ears that can be attached easily, enabling the unit to be positioned just about anywhere.

It should be noted that the XTRAMIX uses an external regulated power supply. For a compact line mixer, this makes it that much easier to isolate audio lines from any possible noise interference induced by the proximity of the power supply. The power supply does not have an On/Off switch.

THROUGH THE PACES

With such a high number of rotary pots, push buttons, concentric knobs and LEDs in a relatively small surface area, describing the mixer's front panel as "busy" seems like an understatement.

When I first pulled the XTRAMIX from the box, I was astounded. I can honestly say I have never seen a greater concentration of buttons and knobs on any mixer of any size, anywhere. The same applies to the rear panel. With 76 inputs (not to mention the Program, Cue, Monitor and Effects sends), there are so many "holes" in this small box that you can't help but be impressed with the unit's design and construction.

The XTRAMIX is a rugged, well-built mixer. Every aspect of this unit has a solid, firm touch that inspires confidence. For this evaluation, I used the XTRAMIX as a keyboard submixer into my recording board. I also patched in a CD player so that I could listen to some of my favorite music and get a feel for how it sounded through the mixer.

After making my connections, I began by playing a CD so that I could check out the mixer's signal routing functions. Subgroup assignments are labeled in such a manner that one button displays 1-2/5-6 while the button beneath it displays 3-4/7-8. Directly beneath these switches resides another switch identified with a down arrow that functions as the Assign Changeover Switch. With the Assign Changeover

Switch depressed, the 1-2/5-6 assign switch routes signal to the 5-6 subgroups. With the Assign Changeover Switch in the up position, the 1-2/5-6 assign switch routes signal to the 1-2 subgroups. This signal routing method is easy to grasp and is used in similar fashion for assigning effects returns, as well as Bus/Line assignments in the Monitor section.

The mixer's ten-segment VU display meter consists of a series of tiny LEDs that indicate the relative levels of the stereo program and the eight subgroup outputs. The VU display is sensitive from –20 dB to +3 dB. By repeatedly pressing the VU meter select switch, you cycle through the readings of the eight subgroups and the stereo master. This arrangement makes it easy to view the various level settings quickly and easily.

Interestingly, the eight effects send masters are positioned on the mixer's rear panel. While this seriously limits access to the controls if the mixer is rack-mounted, it is a reasonable compromise given the "set it and forget it" nature of keyboard mixing or contractor installations. Assuming you are permanently assigning a few signal-processing de-

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vices to your setup, this isn't likely to be an issue.

For the keyboard player, the XTRA-MIX even provides a dedicated feed and level control for use with an external tuning device. This is a nice touch that even ties into the mixer's Solo functions—enabling you to isolate a particular instrument.

IN CONCLUSION

Throughout my work with the XTRA-MIX, I was genuinely impressed with its sound quality. This is a very clean, solidly constructed mixer that passes signal without any noticeable coloration—even when summing multiple input and effects return signals. The fact that the eight effects send masters are positioned on the mixer's rear panel shouldn't be an issue as long as your setup is of a semi-permanent nature.

As all its hardware is positioned in such a small area, reading the labeling of these controls can be difficult. Compounding the challenge is the fact that many rear panel functions are labeled vertically. My advice is to have a flashlight handy—even in well-lit rooms.

In contractor installations, the XTRAMIX makes an excellent choice as long as the mixer is going to be locked away, where the curious individual can be prevented from disturbing the setup. I say this because the XTRAMIX is not the most intuitive mixer to use. Its high concentration of narrowly positioned controls makes this unit a challenge until you get accustomed to its layout. While the manual is well-written and provides accurate information about the mixer's many functions, it assumes you have a thorough understanding of why you would want to use a particular feature. Notes of a tutorial nature would significantly add to the unit's user-friendliness.

At a direct price of $2,990, the XTRAMIXcxi is a feature-packed, well-made unit that elevates small analog mixers to an entirely new level. Yes, it's crowded and requires some ramp-up time, but it delivers a lot of capability and sounds terrific. In the end, that's what matters to most of us.

Speck Electronics, 341 E. Alvarado St., Fallbrook, CA 92028; 760/723-4281; www.speck.com. ∎

Roger Maycock, a technical consultant to Mix, *is a Los Angeles-based writer, engineer/producer, composer and Webmaster.*

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each time it tried to load a plug-in, in order to locate dongle authorization. Hitting Return a dozen times whenever I opened Pro Tools got old fast. There were also some serious DSP allocation problems associated with this version. Luckily, within a few months Waves had posted Version 2.6 on its Web site. This upgrade fixed the authorization bug along with most of the serious DSP glitches. I continued to encounter some DSP hiccups, but they weren't nearly as serious.

IT JUST FEELS RIGHT

Real time and energy went into making the graphical interfaces user friendly. Many of the processors are very feature-intensive, but the controls are easy to understand, the values are a breeze to manipulate, and there are plenty of indicators and meters for visual cues.

Each plug-in has a strip of buttons above its face that acts as a dedicated Waves menu bar with commands common to every plug-in, such as Undo, Reset, Load and Save. The Setup button allows flipping between two entirely different sets of parameters: You can toggle between Setup A or Setup B, and even copy the sets back and forth (e.g., paste Setup A to Setup B, and vice versa). This feature is excellent for auditioning changes—far more flexible than the common Compare function.

Many of the plug-ins are made up of several different modules, most of them accessible individually. This helps conserve DSP, allowing you to use only the processing power needed to get a job done. Copy-and-paste functions are available between like modules in the same plug-in family (e.g., between C1 discrete modules), so if you began with
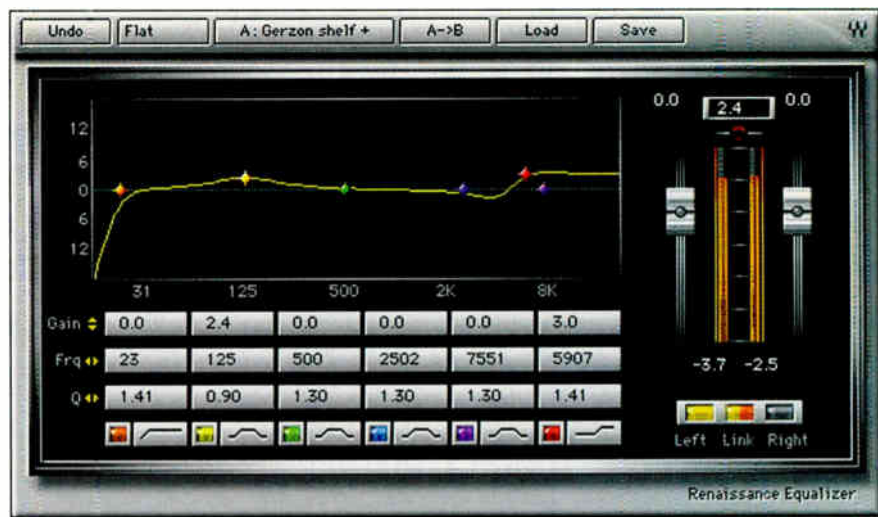
The Renaissance EQ's filter curves are modeled after vintage equalizers.

a 6-band EQ but ended up only using 2-bands, copy the active bands to a 2-band module and save DSP.

Increased Digital Resolution noise-shaped re-dithering, Waves' proprietary dithering process, is included in many of the modules. Unlike most dithering, IDR can be applied repeatedly. This allows it to act as a constant watchdog, preserving the integrity of the processed signal. With IDR, dithering is not just for mastering anymore, but can also be used on individual tracks to increase resolution and lower noise floor.

Every plug-in, in both multimodule and discrete states, has its own bunch of presets. Some presets are very specific (e.g., Male Ess, the DeEsser), while others are more broad in scope (e.g., 10-Band Master EQ, the Q10). Factory presets range from less than half a dozen to over 20, depending on the module. They all sound solid and provide an excellent starting point for most situations.

If you don't have a control surface to manipulate elements, you can still get around without too much difficulty by using a mouse and the 10-key pad. Every value can be changed from the 10-key pad, and EQ curves can be drawn with the mouse—just click and drag markers on the EQ graphs to change frequency and gain, and hold down Option to change Q. This is a great way to create EQ curves—very intuitive. Stereo plug-ins have link buttons allowing you to adjust left and right values simultaneously. And you can automate every feature worth automating.

PLUG IT IN, PLUG IT IN

Parametric EQ is handled by the Q10 and Renaissance EQ (REQ). Q10 comes in 1-, 2-, 3-, 4-, 6-, 8- and 10-band flavors. REQ appears as 2, 4 or 5 bands. Both have bell, low shelf, high shelf, lowpass and highpass filters. REQ has an additional lowcut filter. All bands have typical gain, frequency and Q parameters, and you can adjust input and output levels on the Q10. The REQ only has output control. The Q10 has a straight-ahead, unhyped sound, perfect for detailed frequency chiseling. REQ employs resonant shelves modeled after filters found in analog equalizers; it has a distinctly vintage quality and is excellent for capturing that old-school sound, as if the signal were run through an antique console (sans analog hiss).

Dynamics control is covered in several plug-ins, with the most comprehensive being the C1 compressor/gate. Modules include three independent processors: compressor/expander, gate/expander and band-reject filter/EQ. Each module has its own bypass feature, a must for monitoring the signal path. Along with the usual parameters

WAVES PLUG-IN DSP USAGE

Q10 ParaGraphic EQ	18%
L1 Ultramaximizer	19%
C1 Compressor/Gate	25%
TrueVerb	52% (1 instance per chip)
PAZ Psychoacoustic Analyzer	26%
PS22 StereoMaker & DLA	24%
AudioTrack	20%
Renaissance Compressor	26%
MaxxBass	20%
DeEsser	20%
Renaissance Equalizer	24%

Percentages are based on monophonic full plug-ins (all modules, maximum EQ bands, etc.) on a MIX farm card.

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Engineer/Producer Tony Shepperd

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(threshold, ratio, attack, release, hold, etc.), there's also sidechain (great for de-essing), keying (perfect for ducking), PDR (program dependent release) and a look-ahead function for faster response times. The C1 is great for everything from mastering to noise reduction, or just cleaning up a vocal track. The sound is clean and unfettered, like a high-quality solid-state machine.

AudioTrack looks like a relative of the C1. However, even though it has compression, gating and EQ, it's not nearly as complex, and it doesn't break down into component modules. There are no bells or whistles, only the essentials for basic dynamics control (attack, release, threshold, etc.). The 4-band EQ is almost identical to the Q10's (not all filters are available on every band). As a result, AudioTrack uses about 5% less DSP than C1, making more instances per chip possible (see sidebar on DSP use). The sound is similar to the C1, but missing the sheen provided by the extra parameters; there is no IDR option.

Designed to emulate the compressors of yore in both sound quality and functionality, the Renaissance Compressor is
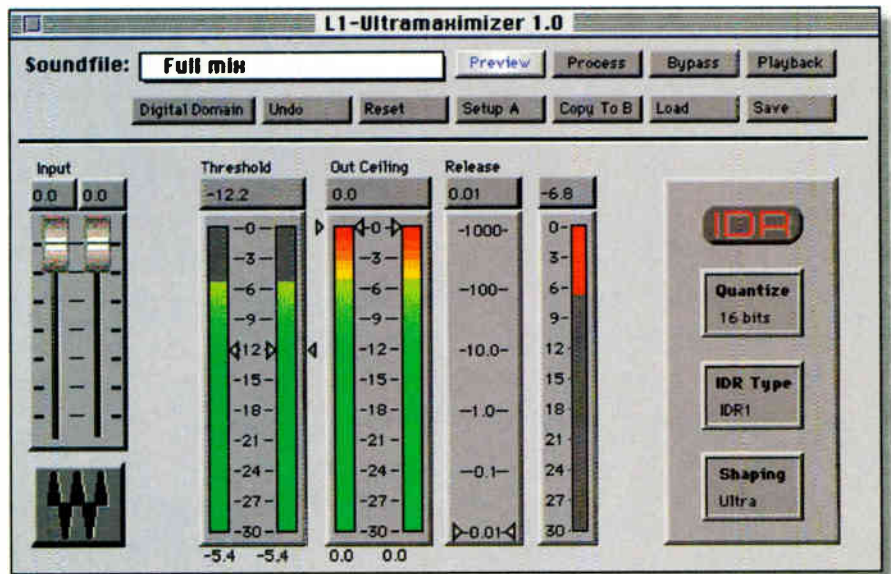
The L1 Ultramaximizer combines look-ahead peak limiting with requantization.

a breeze to use and sounds awesome. Attack, release, threshold, ratio and gain controls make up the front panel. The ratio meter is big and easy to read; buttons for tailoring the vintage sound are found beneath its menu bar. Compression can be set to either Electro, a fast release setting, or Opto, a slower setting

that mimics classic opto-coupled machines. Actual release times can be entered manually or set to automatic. A Warm setting adds low-frequency harmonics to the signal in response to deeper compression ratios, creating a fatter, richer sound. This is a killer plug-in; I'd use it on everything if I had the

horsepower, but it's very DSP-intensive.

For brick-wall limiting without sacrificing sound quality, check out the L1 Ultramaximizer. Because it has IDR and look-ahead peak limiting, it maximizes not only the signal's level but its resolution as well, making for clean, mush-free maximization. It can requantize to 24-, 20-, 16-, 12- and 8-bit output. Limiting controls include input level, threshold, ceiling and release. A large attenuation display provides gain reduction metering. Although this processor is meant primarily for mastering, it works wonders on solo instruments and vocal tracks, too. The limiter module is available with or without IDR.

Definitely one of my favorite plug-ins, the DeEsser does a great job on sibilance and is incredibly simple to operate. Frequency fully adjusts from 2 to 16 kHz. Compression can be either wideband or split with a sidechain that toggles between highpass or bandpass. A sidechain listen function is perfect for dialing in the trouble frequencies, Threshold lets you adjust when de-essing occurs, and large attenuation and output displays provide metering. The sound quality is sublime, wonderfully translucent. On more than one occasion, it helped save poorly recorded vocal tracks suffering from an over-emphasized high end.

The S1 stereo imager (AudioSuite only) is for simple stereo enhancement. It's not a 3-D imager like its TDM sibling, the PS22 Stereo Maker/DLA. S1 controls include Width (affects the width of the stereo input), Asymmetry (adjusts the relative balance of left and right sounds), Rotation (the static rotation of the actual stereo signal, not a moving B3 effect), Shuffling (increases the width of bass frequencies), and Frequency (the frequency cutoff for shuffling). PS22 is far more complex. Not only a stereo field enhancer, it turns mono tracks into convincing stereo signals. The PS22 has all of S1's parameters or permutations thereof. It has a lot more, too, giving you full control over stereo spread, 3-D space and very short stereo crossfeed delays (not echoes). Phase problems induced by the PS22 are extremely low, and it retains the source's original tonal quality. In short, this plug-in sounds incredible. I used it for everything from making a mono guitar track sound stereo to taking a mono recording of a grand piano and making it sound like mics were placed at the high and low ends of its sounding board. PS22 breaks into four different

mono-to-stereo modules.

MaxxBass can really pump the bass, adding harmonics to the original signal and fooling the ear into thinking there's more bass than there actually is. Operations are simple: Dial in the frequency below which harmonics are generated and mix them in with your source. An upward compressor, along with attack-and-release control, lets you really hone the harmonics' characteristics. It's perfect for creating huge synth bass tracks for remixes.

TrueVerb is very straight-ahead and doesn't have tons of eccentric parameters, but sounds wonderfully live and clean. You have control over room size, decay time, predelay and density. Early reflections can be manipulated and balanced between the reverb and the direct early reflections themselves. Reverb frequency response can be tailored with high-frequency shelving and early reflection absorption. But it's in controlling distance that this processor really shines. A Distance parameter lets you change the apparent distance between listener and source. For example, you can take an instrument and position it exactly five meters from the listener, with a realistic perspective. I had a blast using this on an acoustic guitar and vocal piece; it really put the recording in a believable space. You could also automate the Distance parameter to create movement in space—great for putting Foley tracks into a three-dimensional stage.

When you need to view signal accurately, the PAZ Psychoacoustic Analyzer handles the task. It's made up of three modules: an RTA, a Stereo Position Display (SPD) and Level Meters. Modules are available individually or grouped. The RTA is flexible and clear to read, with as many as 68 bands visible at once. SPD is a unique way to see the stereo energy in a mix. It's also handy for checking out-of-phase stereo signals, because you can see when phase cancellation happens via spikes in the anti-phase area of its screen. The Level Meters have separate left and right peak meters with a summed loudness meter between them. Again, big and easy to read. Unfortunately, metering is in 3dB increments—not very accurate. Some 1dB divisions near zero would have been nice and more useful for really detailed work.

FOR GOOD MEASURE

As if all the plug-ins weren't enough, the Bundle also includes three very useful applications. WaveConvert Pro lets you batch-process files. It's simple to

use and offers a wealth of options. There's sample rate (all standard rates, or make up your own), brightness (a preset filter covering everything from de-essing to RealAudio), noise reduction (from gates to a rumble filter), bit depth (8 or 16), a simple maximizer (ceiling, gain and normalize) and IDR. You can also add plug-ins (Waves only) to the list of batch processing possibilities. File types cover all the most popular formats (AIFF, .WAV, SDII, Raw, Quicktime and 'snd'). However, I was surprised there are no Internet file formats (e.g., RealAudio and MP3), especially since the filter presets do RealAudio. Previews of your files can be created before starting a batch. Overall, I was very impressed by this program.

TrackPack Pro is a must-have program for no-loss audio file compacting. It's great for compressing Pro Tools sessions over 1 GB into sizes that will fit on a CD-R. An entire Pro Tools session can be dragged and dropped onto the program to begin compression. It will run in the background and compresses to about 45% to 65% of the original size, depending on the file. Compressed files can be auditioned while expansion takes place.

MultiRack is designed for folks who want to use Waves plug-ins with older systems. I wish I'd heard about it before I unloaded my old computer. With an older Mac II or IIci and an antiquated DSP card (e.g., AudioMedia II), you can use the application to create a rack of outboard gear with Waves plug-ins. Boot MultiRack, insert the plug-ins into the virtual rack, and connect them to your console using the I/O of the DSP card. *Voila*, you've just turned your old computer into a powerful new processor. MultiRack will work in the background, drawing power from the DSP card, so you can still run sequencing in the foreground.

A FEW THINGS ASKEW

The serious bugs I encountered centered around DSP allocation. Pro Tools was unable to open a saved session that used a ton of plug-ins and taxed the DSP heavily. The session would run smoothly, I would assign plug-ins (Waves and other manufacturers') and work on my mix with no apparent problems. At evening's end, I would save the session and shut down. Everything seemed fine, but the next day, when trying to open the session, Pro Tools would freeze up while loading plug-ins. Without fail, the sticking point was a Waves piece.

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FIELD TEST

At first, I screamed in agony, "My mix, my beautiful mix!" Then I realized there was a way around the problem: Remove a few plug-ins from the DAE folder and open up DSP. Remembering that my reverbs were eating up an entire chip and that I had the settings saved (for that mix), I put MegaVerb in the trash, temporarily, and rebooted the computer. On reopening the session, everything played fine *sans* reverb. I saved a new version minus the reverb. Rescuing MegaVerb from the trash, I returned it to the DAE folder and rebooted (again). I opened the session and reinserted the reverb, saving this session with reverb and then quitting Pro Tools. To my elation, when I rebooted Pro Tools and opened the session with reverb, the DSP bug was purged; everything ran smoothly, no problems. What a relief.

This scenario happened several times, and even though there were minor differences in the way the bug manifested itself, the solution was always the same: Take plug-ins out of the plug-in folder (DAE or Waves) with the objective of clearing DSP space, then reload the plug-ins and force Pro Tools to re-allocate DSP. Sometimes, pulling out any old plug-in didn't do the job, and I had to unload and reload a specific Waves plug-in. The good news was that this tactic always seemed to work. The lesson in all this is that you should make a point to save some, or most, of your plug-ins' settings for each session. This may seem like a pain, but you'll be grateful if you have to yank something in order to open a session, because restoring the plug-in's state will be a breeze.

Other glitches were minor. Some Waves parameter names weren't reflected properly on HUI. This wasn't HUI's problem, just a software oversight on Waves' part—not a big deal. The parameters always showed up; they were just mislabeled. When I was confused about what parameter HUI had displayed, I just turned the knob and watched the associated parameter move on the computer screen.

Sometimes, when DSP neared maximum, HUI's transport controls stopped working when a Waves plug-in window was open. The transport controls returned to normal when I closed the Waves window. Again, just some kind of strange software anomaly, but not a big deal.

In AudioSuite, the plug-ins have a

peculiar habit of leaving a ghostly gray shadow on Pro Tools' Edit window after they're closed. Don't be alarmed, it's just a harmless graphics bug. Flipping back and forth between the Edit and Mix windows at least two times usually clears the shadow.

Finally, I hate to bring this up, but I must. The design of the Bundle's manual is truly annoying. It's well written and full of great information, but trying to flip quickly through its pages and sections is extremely aggravating. Composed of every individual plug-in manual and lumped into two overstuffed binders, with square rings (not round, square) mounted on the inside of the back cover (not the spine like normal binders), these manuals are user-hostile.

CAN'T LIVE WITHOUT

Waves plug-ins are known for their sound, and with good reason. I love this software, despite the DSP allocation bug. It's an instance where the sonic flavor Waves adds to the mix overshadow any problems. At this point, even with no updates, I would continue to use the software. However, Waves knows about the DSP glitch, and I have no doubt that it will be remedied shortly. Just over the course of this Field Test, a problem was greatly reduced from stopping Pro Tools in its tracks (V. 2.5.2) to being easily worked around (V. 2.6).

Though I didn't work with Waves as extensively in Logic Audio and Cubase VST, I can attest that the software does function with these applications. How bug-free operation actually is would require more extensive testing. However, while doing sound design, I used the plug-ins regularly with Peak and had no problems whatsoever.

Waves' Gold Bundle is an excellent value. With a list price of $2,300, it's a drop in the bucket compared to what all the actual, real-world hardware would cost. If you don't have the latest DSP cards and a G3, not to worry. MultiRack comes to the rescue, turning your outdated Mac and old DSP cards into a brand-new stack of outboard gear. Bottom line, Waves rocks. If you haven't heard (and seen) the software yet, do yourself a favor and check it out.

K.s. Waves Ltd., 23 Kalisher St., Tel-Aviv, 65165 Israel; 97-23-510-7667; fax 97-23-510-5881; www.waves.com. ∎

Erik Hawkins is a musician/producer working in Los Angeles County and the San Francisco Bay Area. You can visit his fledgling indie label online at www.muzicali.com.

In the Garden of Metal and Symphonies

Metallica Meets Orchestra at the Mix

By David John Farinella

*I*t's been a tough couple of years for Metallica fans. First they weather the hair-cutting controversy, fret over the acoustic leanings found on *Load* and *Reload*, and then they hear their favorite head-banging heroes are going to jam with the San Francisco Symphony.

Much to the chagrin of many, the lads pulled off a pair of critically acclaimed performances with the San Francisco Symphony (Grammy® winners in their own domain) in the middle of April. Knowing it was a unique evening, much care was taken to capture the performance both visually and aurally. Months

later, longtime Metallica producer Bob Rock and mixing engineer Randy Staub found themselves in Sausalito's The Plant Recording Studios with the responsibility of taking 96 tracks of music—48 from the band and 48 from the symphony—and making it work. The CD was due to be out November 23, with the multichannel DVD release some time around the end of the year.

According to Rock, there was a lot of hard work put into this album before they even walked into The Plant's 5.1 mixing room, known as The Garden. "Knowing what we were going to do with it, I definitely spared no expense and time in getting the best equipment and signal path to get this down on tape," explains Rock. "The isolation on stage is comparable to

that in a studio. I mean it is unbelievable how much isolation we had between band and orchestra."

The sonic isolation became important during the mixing because Rock wanted to take a completely new approach to working on this album. "We're definitely trying to get the orchestra up there in your face as in a pop mix rather than any kind of classical situation," he says. "We're treading new territory here, so I wanted to make sure we got as much isolation as possible."

The first step to get from here to there was dumping all of the orchestra tracks into a Pro Tools 24-bit system and synchronizing that with the band. They also took some time to clean up any obvious "clams or mistakes within the sections," says Rock. Digidesign's Pro Mix was used to clean up the or-

chestra's levels, and then it was brought into The Garden's SSL 8096 G+ Series console (which features Total Recall, Ultimation, the Surround Mix Module and 48 E Series EQ) via Apogee AD-8000 8-channel 24-bit converters in 16 subgroups. Any EQ or reverb used on the orchestra tracks were applied via a Focusrite plug-in within Pro Tools. Surround monitoring was provided by custom loudspeakers, which were created by Manny LaCarrubba. Rock and Staub also used Yamaha NS-10s for near-field monitoring.

Although the band was captured both on digital and analog tape, Rock preferred to clean up the tracks in Pro Tools and then dump into the analog SSL board. As Rock explains, there were a lot of folks who wondered out loud why he didn't just turn to a
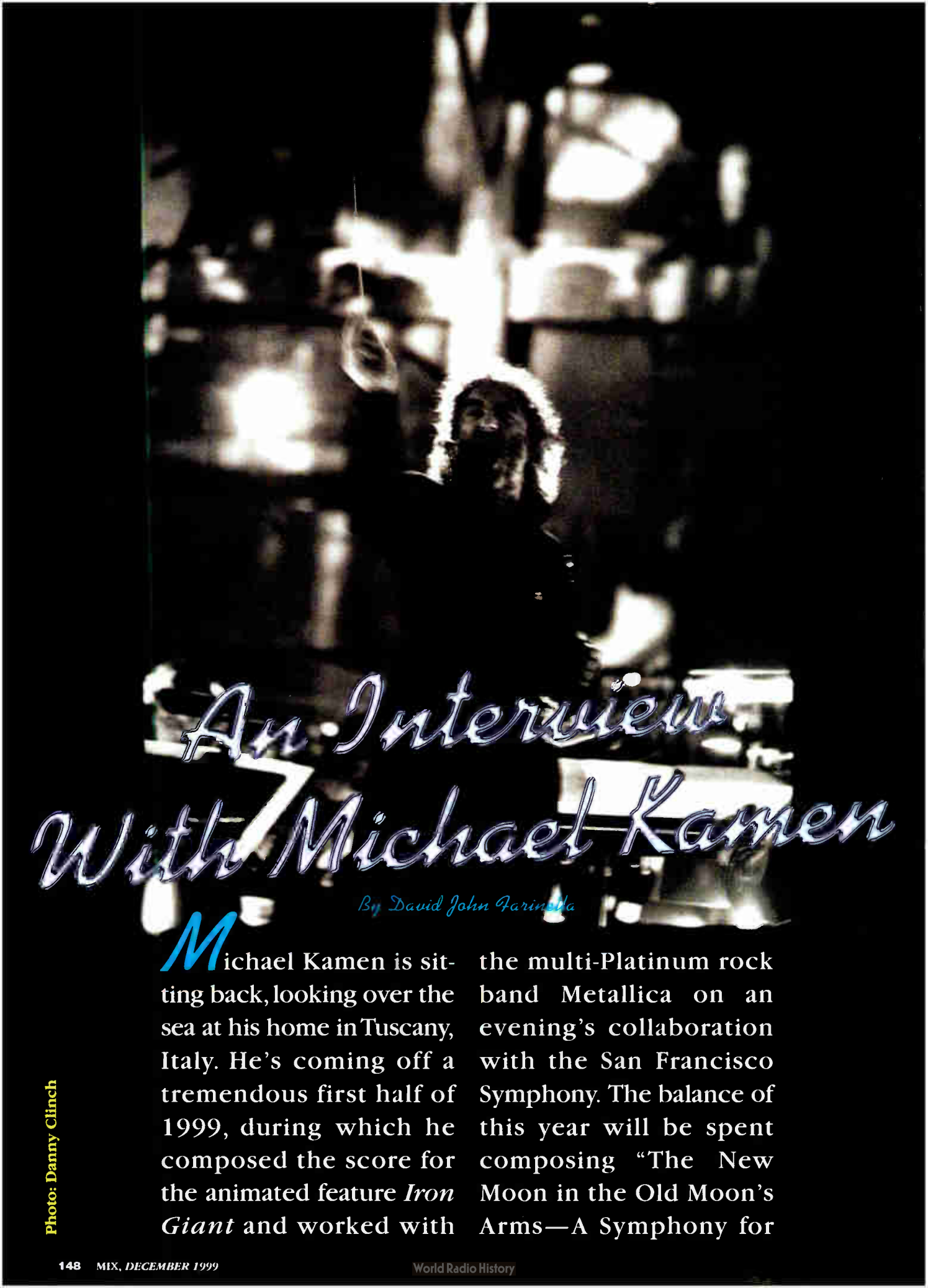
An Interview
With Michael Kamen

By David John Farinella

*M*ichael Kamen is sitting back, looking over the sea at his home in Tuscany, Italy. He's coming off a tremendous first half of 1999, during which he composed the score for the animated feature *Iron Giant* and worked with the multi-Platinum rock band Metallica on an evening's collaboration with the San Francisco Symphony. The balance of this year will be spent composing "The New Moon in the Old Moon's Arms—A Symphony for

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the Millennium," which was commissioned by Leonard Slatkin and the National Symphony Orchestra. The symphony will premiere at the Kennedy Center in Washington, D.C., on January 11, 2000.

While 1999 was a busy year for the composer/arranger, it was by no means his breakthrough year—his reputation is already well-established from his extensive film scoring work, which includes *Brazil, Mona Lisa,* all four films in the *Die Hard* and *Lethal Weapon* series, *Robin Hood: Prince of Thieves, What Dreams May Come* and *Mr. Holland's Opus,* among many others. He's also worked with a bevy of musicians ranging from Bryan Adams on the hit song "Everything I Do (I Do It For You)" to Eric Clapton, David Bowie and Bob Dylan.

With the Metallica collaboration, the "Symphony for the Millennium" and the Iron Giant *score, this seems a nice way for you to finish off the century.*
It's been very rewarding to be working on these three projects. I'm very happy that you mentioned them as a triptych, because they seem that way.
When it comes to working in these disparate arenas, what drives you?
The fact that they are not very different, that they are all the same. It's music, you know, which is what I sleep and breathe and dream. I never did distinguish between one kind or another kind—it's just the bits that I could remember and the bits I couldn't remember or wanted to remember, wished I could remember, which is what I'm into now, writing my symphony. That's the realization that has occurred to me in the barrage of work that has been Metallica, *Iron Giant* and the symphony. I've suddenly turned philosophical and said, "Oh, yeah, what it's all about is that I think they are the same thing." I think we're the same people, we're musicians and we express our feelings. Our emotions are different, but our way of expressing them musically isn't really.
Is there something specific—be it music, art or literature—that inspires you while studying how to bring out a character in a film?
I guess I have models that I do respect tremendously, but I don't think of consciously when I'm looking at something else. Musically, Bach is my god, I suppose. I cannot say that I invoke him when I'm doing most film scores, but the spirit of music is what I do, and I want to convey my enjoyment of it in

BEHIND THE SCENES
ONSTAGE WITH METALLICA AND THE S.F. SYMPHONY

On April 21 and 22, 1999, Bay Area heavy metal fans enjoyed the unprecedented treat of two concerts by local heroes Metallica, accompanied by the San Francisco Symphony Orchestra playing arrangements by Michael Kamen. Both shows were recorded for later TV broadcast and a DVD release, and recording facilities included the Westwood One and Effanel digital remote recording trucks, plus a supplementary truck containing analog multitracks for the band recordings.

Engineers Randy Staub and Biff Dawes recorded band and ambience inputs via the Westwood One truck's Euphonix console, with Bob Rock producing, while Steve McLaughlin used the Effanel truck's Neve Capricorn console to mix and record a total of 96 orchestra mics and DIs, while also providing various submixes for the Westwood One truck, plus FOH and onstage monitor mixers.

All electric instrument amplifiers were miked offstage and, for the first time, Metallica performed on a stage almost totally free of wedge monitors, relying instead on in-ear mixes. A few guitar wedges were deemed essential, and the drums were, of course, acoustic, so all orchestra members were provided with 30dB hearing protectors and single-muff headphones. According to Effanel remote engineer and Capricorn tech John Bates, the orchestra recordings from the first night's show were relatively clean and tuneful, despite the proximity to a large and loud acoustic rock drum kit, but Bates admitted that intonation was less than perfect, understandable under the circumstances.

Though recording to dual 48-track digital recorders necessitated a significant amount of premixing, the producers kept the option to mute string "clams" at a later date by separately recording string pairs to 24 tracks of multiple DA-88s. Thus, a flawed string track on the multitrack that contained a premix of five or more mics could be reconstituted from the DA-88s, less the offending player and his or her chair partner.

Except for some ambience mics and a Decca Tree setup, all of the microphones onstage were supplied by Audio-Technica and Greg Jackman, a British company. The Jackman mics, similar in size and appearance to miniature Countryman and Sennheiser models, include a small mounting bracket that attaches to the tail piece of a string instrument, and a flexible gooseneck-like extension that allows the capsule to be inserted through the F-hole into the instrument's internal cavity. This arrangement allows far more separation than is possible with traditional distance miking methods.

The layout of the orchestra on the stage of the Berkeley Community Theatre was more or less conventional, except that first violins were placed downstage on either side of the centrally located drumkit. Conductor/composer Michael Kamen faced the orchestra from a podium stage right of the drums, and multiple vocal microphone positions allowed singers James Hetfield, Kirk Hammett and Jason Newsted to "duet" with sections of the orchestra.

FOH and monitor systems were provided by Audiotek. V-DOSC columns were flown either side of the stage, supplemented by flown subwoofer stacks (limited space onstage prohibited ground stacking). The FOH console was a Midas XL4, monitors Yamaha PM4000.

Unusual in a live recording setup, there were no splitter systems in use. DI and microphone inputs were picked up at the stage via remote mic pre's and D/A converters and sent to the Westwood One and Effanel trucks over fiber-optic cables. Pre- and post-fader channel and bus signals were then returned to the stage for the FOH and monitor mixers, and various premixes were distributed to the video, lighting and comms systems. Footpedals at his podium position allowed Kamen to switch easily among three different communications/monitoring setups. Since Effanel's Neve Capricorn is equipped with only 80 mic pre's and D/A converters, inputs for channels 81-96 were run into Millennia mic pre's onstage and sent to the truck over analog links.
—*Chris Michie*

the different languages I speak. And they are different languages. I'm not trying to pretend that Metallica and *Iron Giant* and a symphony are one in the same. We're not beige, everybody has their own personality, but it makes a great combination.

You mention Bach—is there anyone else in particular that you turn to for inspiration while going from, say, an action score in Die Hard *to a romantic* Robin Hood *to a robotic* Iron Giant?
No, it's really between Bach and Brahms, I'm afraid [laughs], and it stays in that territory. I go to Stravinsky very willingly and fairly often, and I go to Mozart, but so do we all. I don't go to them to take, steal or borrow. I go to them to learn.

How about pop musicians?
I don't go there. [Laughs.] How about them? Aren't they great?

Nothing there for you to learn, though?
I learn every day. These are the people I work with all the time. I certainly learn from every encounter with a musician, and guys like Metallica who have honed their personalities and have spoken as a team for so many years in such a distinct, really scary way—great correspondents.

I remember sharing stages with wonderful people, and that's what life as a musician is about, the capacity to have that experience. If you're a married man, you shouldn't really be playing the field, but if you're a musician and you need contact with other musicians, you can do that. It's like making love. [Laughs.] Don't take that literally.

And they are also, like you, very passionate about what they do.
Oh, yeah, they believe in it totally. They know what they are about. This was very brave of them to take on an orchestra. I took it more seriously than maybe I had to; I don't know. To make an orchestra rise to the energy level and performance level of Metallica is asking for a lot of notes on paper.

Iron Giant *seems very retro and yet futuristic. How do you communicate that in the score?*
I think that films that seem retro seem that way only because they harken on the earlier methods of making films, which were to stimulate the imagination instead of sort of supply it in every corner with a trickle of information. They inspire the imagination. When you look at *Casablanca*, when you look at films of that ilk, they didn't think they were making a classic—there was no grandeur about it. They just did their job. It's about the work, it's about the work, it's about the work. When you see a film as beautiful as *Iron Giant*, the only possibility is to react in a very honest, musical way to the story. I love the film. I was working on the film, trying to write music, and found myself just drifting and watching it when I should have been writing.

Is there a difference between scoring for animated features like Iron Giant *and more traditional films like* Robin Hood?
Well, no. In a way, *Robin Hood* was more like a cartoon in many ways, and it needed wall-to-wall music. *Robin Hood* was two hours and 11 minutes of film, and there was two hours and three minutes of music, or some ridiculous figure like that. I loved making the music for it, and I was very happy to never take the horn out of my mouth, but it isn't necessary all the time for music to tell the story.

The rumor is that animated films require music wall-to-wall. I had never done an animated film and was very curious. They sent it to me with a

Michael Kamen

temp score, as they always do, and it was a daunting temp score. It had Bernard Herrmann in it, it had some great Jerry Goldsmith cues, and some well-known other music that they often cut into films when they're making them. It comes under the heading of "never show a fool unfinished work." If you have an unfinished film, show it with finished music, if you're showing it to the people who have to sell it. [Laughs.] In any case, in the process for this film it was possible to just pay attention to the film and not have to go wall-to-wall.

Given your catalog of work, I'm imagining you sitting around an incredible array of synthesizers with thousands upon thousands of sound modules. What is your setup?

No, I'm an oboe player. I've got an oboe, an English horn; I've got an oboe DM bore. I have a Kurzweil 2500, which generally serves as the master synthesizer. It's usually played on a Studio 900 or some Kurzweil keyboard. A piano, Digital Performer, a lot of Macintoshes, and I'm home. I'm in Italy right now with a rig that consists of a 2500, my PowerBook G3, a whole sh—load of music paper and a keyboard. Music is portable, finally.

Is there a specific Michael Kamen theme that comes from 1975, when you did your first score, to 1999? Is there a common thread through all of this?

[Laughs.] Well, Michael Kamen is the common thread, for the most obvious reason. My life goes through many changes, but I'd like to think that I can remain, as much as possible, the same human being and maybe grow a little, learn a bit. I would love to sound pontifical and in control, but I think that the truth is that I'm just open to whatever happens, and it's always seemed to happen beautifully. Of course, I nudge it in a direction or two from time to time. So, I'm not totally with-

out responsibility. But, it's about the work, it's about the work, it's about the work. You just do each one as if it's the only thing in the world and make as complete a statement as you can. In that sense, while the symphony is more difficult than a film score, it's the same thing. I'm trying to make a complete statement with the symphony, which rivals the complete statement of a film without the film, because that's what we do in the 20th century, and I think that's what we'll do in the 21st.

So, what is the symphony about?

I decided I better tell a story, and I may regret it, because I haven't finished a damn thing, and I've got a month or so. The story of the symphony goes back a thousand years, cause it's a millennium symphony. It tells the story of the Anasazi Indians, who lived in the canyons of the Southwest, and exactly a thousand years ago, they left. We don't know why, we don't know where they went, but it tells this story because they left millions of drawings of themselves and their lives and their beautiful pueblo homes, pottery and other traces of their civilization. I made the flute player Kokopeli the lead figure in this dance that takes you back a thousand years. He takes them out of the canyon, and the second and third movements are with them on the Earth. Finally he calls the spirits together, and they leave the planet.

It's basically saying that human beings will still be human beings a thousand years from now. We're still the same spirit, and we're driving for the same reason. The name is from an Iroquois name that describes the last phase of the crescent moon as it lightens up the darkened new moon to come. The Indians call it "The New Moon in the Old Moon's Arms," and that's the name of my symphony. It's a glimpse of the future in light of the past.

I'm looking forward to hearing it.

I'm looking forward to finishing it.

Can you foresee what the next 50 years of music is going to be like? Do you have inkling in your heart?

I just hope it's in C Major. [Laughs.] That's what I prefer. No predictions about music; it will continue to confound us, I'm sure. ∎

digital board like a Neve Capricorn to finish up the project. "To me, Metallica are still an analog band," he answers. "Ultimately the idea was to keep Metallica where they are, and that would be analog in terms of mixing."

Rather than being constrained with off performances, the production team opted to take a best-of approach to the songs on the final DVD release. "The approach was to leave the better performance on any given night as is," Rock says. "The only time there was any cut and paste was if there was an absolute 'oops.' Then we had to find it within the song or go to the other night. I think there was one timing thing that we had to do on the orchestra where we had to cut and paste the whole orchestra, which was interesting. So we basically flew in the whole orchestra, which was pretty funny. Technology is kind of silly now; it's way out of control."

As Rock is explaining that process, Metallica guitarist Kirk Hammett walks through the door. After taking a second to say hello, Rock continues his thought: "If you think about it, putting an orchestra in time...I mean, it would have been a nightmare to try to do this 15 years ago." Without missing a beat, Hammett offers, "It wouldn't be impossible; it would be stupid."

Once they had everything cleaned up and dumped into the SSL, Rock took a bit of time trying to figure out what should go where in the surround mix. (Not only are they doing an AC-3 and DTS mix of the entire project, they are also splitting out the band into a surround mix, as well as the orchestra. There will also be a stereo mix on the disc.) According to Staub, they first got both the band and orchestra mixes in shape in the stereo format and then began to work up a surround mix. As with some surround mixes, vocals will be in the center channel while the rest of the instrumentation will be spread. The sub will carry the bottom end of the kick drum and bass guitar, while the surround channels have been used for orchestra ambience. The crowd's applause and participation, which will be mixed in during the post-production process, will also be put in the surrounds.

"We're creating the 'hall' situation," reports Rock. "Because of the loudness of the P.A. and the loudness of Metallica in general, it's pretty hard to get into any depth of field in terms of the orchestra. To bring the best out of

Metallica vocalist/guitarist James Hetfield

Michael Kamen's arrangement, we're pushing the faders of all those instruments. The idea was to make Metallica as big and powerful as they are on record, add the orchestra and still retain the power, but have the orchestra also be powerful."

Because this is going to be a DVD and VHS release, Rock and crew sent video editor Wayne Isham completed mixes as they went along so he could finish that portion of the project. While they had a rough cut of the video up on the Sony 42-inch Plasma Hi-Resolution Monitor, Staub says they only referred to it during the surround mix. "We didn't pay attention that much when we did the stereo mix," he explains. "When I do the mix with the surround, I'll look at it more just to see how it fits with the picture. It's funny, as soon as you see the picture it sounds different."

Rock says he has enjoyed the sessions. He smiles easily while explaining the process and says, "I like the fact that James and Lars and the band are into being aggressive with [the orchestra] and not trying to take a traditional approach," he says. "They were like, 'Let's just treat it like any other instrument on a Metallica album. Let's really push the fader, and when it's not there, bring the fader back and bring up something else.' Which is kinda cool. I like that. I've always been one to try and fit too much into a mix. That's what I've done in a lot of cases, so I like that challenge." Hopefully Metallica fans will like the challenge as well. ∎

David John Farinella is a freelance writer based in the San Francisco Bay Area.

BY TOM KENNY

P O S T · S C R I P T

THE WORLD'S FUNNIEST FILM SOUND STORIES

by Larry Blake

No, this is not the name of a new, soon-to-be short-lived series on the Fox network.

My editor and I were trying to figure out what would be an appropriate end-of-the-century column, and initially thought that we should list the best sound jobs. While we may eventually do that, I thought it much more appropriate to gather up the stories that tickle my funny bone the most. Humor drives my career in film sound almost as much as my quest for doing good work. In fact, probably more because I *know* when something is funny, but you can never be sure if your work is really, really good.

What follows are not just funny real-life film sound stories, but memorable moments, which collectively form a part of my reason for being in this crazy profession.

"DON'T WORRY, MR. BEATTY"

It's given wisdom that the definitive gunshot from the golden days of Hollywood came from the barrel of the title character in *Shane*. But seeing the film and finding out that the gun "isn't *that* good" has resulted in the term "the Shane effect" being coined in the world of film sound for those instances where quality of a sound job grows disproportionately in one's memory.

Be that as it may, when Warren Beatty was producing and starring in *Bonnie and Clyde* in the mid-'60s, he intended to take film sound gunshots to the next level. He asked George Stevens, *Shane*'s director, for tips on how they had gotten their sound. The *Bonnie and Clyde* crew experimented and worked to make *their* gunshots the new standard, big and loud.

Cut to the film's first audience preview. The gunshots are not sounding right, and

Beatty heads up to the projection booth as the film is playing. He's greeted by a cheery projectionist who says, "Don't worry, Mr. Beatty, I've got it all under control. This is the worst mix I've heard since *Shane*." Which was why he was lowering the fader during all the gun battles.

Thus, the long-standing axiom in Hollywood: The projectionist has final cut.

THE ORIGIN OF TURD POLISHING

In the *New York Times Magazine* this past summer, there was an "oral history" of the late director Stanley Kubrick, compiled by director Peter Bogdanovich. In the article, Jerry Lewis recalled a conversation that he was having with Kubrick in the '60s, when he was editing a film in the same facility

where Kubrick was finishing *2001: A Space Odyssey*.

Kubrick wandered into Lewis' edit room late one night and asked if he could see what Lewis was working on. Lewis claims that at that moment, due to his low estimation of the film in front of him and his inability to make it any better, he coined the phrase, "You can't polish a turd."

Now, I know what many of you are thinking, and you're probably agreeing with me: "Naaah!" I'm not saying that Lewis is not speaking the truth, just that I think this phrase has been around forever. I welcome anyone writing me who can verify *first*-hand (no gerbil stories here, folks) that they heard that phrase before the late '60s.

Regardless of the outcome of this detective work, Kubrick's witty riposte to Lewis' quote was new to me: "You can if you freeze it."

THE SOUND OF THE CHEESE LOG

During a temp mix of *Star Trek IV: The Voyage Home*, supervising sound editor Mark Mangini and his sound designers had tried to come up with a good sound for the "probe," that outer-space reconnaissance device which the editors came to call the "cheese log."

During the first temp dub, all of their attempts did not quite sound right to director Leonard Nimoy. In exasperation, Mangini asked Nimoy to give him an idea of what he

SOUND FX FOR "SLEEPY HOLLOW"

HEADS WILL ROLL, HORSES WILL RUN

by Tom Kenny

A Tim Burton movie would seem on the surface to be a sound editor's playpen—stylized imagery, dark characters, evocative settings. Whether it's the scissor effect in *Edward Scissorhands* or the roar of the Batmobile, there are moments in each of his films that are ripe for sonic experimentation. The key word here is "moments," because Burton works hand in hand with composer Danny Elfman, and it's a given that music (albeit, much of it feeling like sound design) is going to be a driving force in his films. For the effects editors and mixers, then, it's a matter of picking the appropriate spots and cutting through.

"The sounds we're using so far aren't quite clichés, but they're easily identifiable,"

The Headless Horseman, silhouetted among the tombstones, provided one of the big challenges for the sound crew.

explains Skip Lievsay, supervising sound editor and effects re-recording mixer on *Sleepy Hollow*, Tim Burton's take on the Washington Irving classic. "Most of what we're doing is really in service of the music track, and Tim [Burton] and Chris [Lebenzon, film editor] have asked that we use kind of Gothic, old-fashioned sounds. I don't really know what that term means, but to me it brings up a Vincent Price, Hammer horror film in '50s, '60s Technicolor—big organ sound."

It also means, in some cases, picking CD library thunder rather than original recordings, or playing up the sword "swoosh," all for effect to service the hyper-realistic mood. Thunder and lightning play a prominent role in the soundtrack, as do horse sounds—demonic whinnies and thundering hoofs.

Lievsay has a rather extensive horse library, from work on *Wild Wild West* and *Ride With the Devil*, among other films. That was augmented with some original recordings from a breeding

farm near Los Angeles. "I think this concept actually goes way back to *Dragonslayer*," Lievsay explains, "where Dale Strumpell and Randy Thom went to a breeding farm and got the stallions all excited by taking a mare in heat and parading her around in front of them. They all go insane. We had some of those recordings, and then we sent Dale and Eric Potter out again and got some very good, maniacal stallion sounds. I think they work great, but Tim and

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IRWIN FISCH

by Gary Eskow

Growing up in Queens, N.Y., Irwin Fisch gave little thought

to a career in music. After high school, he earned a degree in journalism from Syracuse University before heading back to town, where he's spent his entire life. Little by little Fisch found himself drawn into the musical life

of Manhattan. "I played in bands through college," he says. "In the early '80s I toured with the folk artist Tom Rush, and Peter Allen. I kind of stumbled into arranging and writing as an outgrowth of the work I got as a player.

"I really took to the synth revolution when it hit and have kept a lot of the ancient keyboards I picked up when they were current," he continues. "Lots of these axes find their way onto many of my tracks to this day, including an old Voyetra 8, my Prophet 5 and a pair of Roland Super Jupiters. The onset of MIDI actually had a lot to do with my getting deeper into composing and arranging. Sequencing led to the

democratization of keyboard playing. Practically anyone could slow down the tempo and play his or her own keyboard parts, and work for session keyboardists like me dried up. I had to work, so I turned to the other areas of the business."

Fisch has cultivated a longtime relationship with jingle house Three Tree, whose principals include legendary New York jingle writer/singer Jake Holmes. "I've written jingles exclusively for them for the last decade or so, since they formed as 4/4," Fisch says. I make about half of my living doing jingle work. The other half of my income comes from film scoring, primarily for movie-of-the-week pro-

Chris are a little concerned that they're too maniacal."

Assembling the sound for *Sleepy Hollow* was truly a bi-coastal effort, with C5 of New York City heading it up on effects and dialog. On the West Coast, Richard Anderson and John Pospisil, of Weddington Productions in North Hollywood contributed special sound design for the climactic windmill scene. Paramount handled the Foley, including horses (hoofbeats, bridle and tack, and leather creaks), with Dan O'Connell of One Step Up in North Hollywood walking all of the Horseman's horse, as well as the Horseman himself.

"The movie calls for it to be this huge, monster horse, an otherworldly type of animal," O'Connell says. "The first thing we did was lay down the horse's feet and get him to sound massive. We really wanted this horse to sound threatening and very powerful. It's a real beautiful horse, and it looks powerful and thrusting. That's what we loved about it. Then we went back and laid down a rider-on-saddle track, giving the horse a movement—leather gear with the rider moving against the horse. On top of that we put bridle, and for that horse we did some horse breathing. Then for the rider we did his spurs and his cape, so if the horse is zooming by,

Johnny Depp, Ichabod Crane, at the infamous portal to the netherworld.

you also have the cape fluttering. It added an element that was really nice."

C5 editors Sean Garnhart and Lewis Goldstein next worked up the horse effects, and Lievsay made separate predubs for horses' voice, the Horseman's horse and all the other horses.

"I spent a lot of time beefing up those horse sounds by using reverbs and subs spread across all six channels to give a

heightened reality," Lievsay says. "I have to say, mixing on the [AMS Neve] DFC was great with that because I could automate my EQ moves and, of course, could automate the panning moves. I tried to make every sound follow into the surrounds whenever possible. When we're riding on the horse, I let the horse sounds play across all six speakers, so it feels like you're sitting in the saddle. That may read or not, I don't know, but it certainly has a physical impact."

The film is set in the foothills of the Catskills, around 1799, so horses and carriages are everywhere in the tracks. But walking out of the theater, audiences will more than likely remember the sounds of the decapitations.

"I don't think anyone can be fully prepared for the amount of decapitations we have in this movie," Lievsay says with a dry laugh. "That was the one place where we actually had too much material. The picture department had a whole array of sound effects, which I think they got in England, and that was put meticulously in the temp track. When we first started doing the temps, we had an editor in Los Angeles, Craig Berkey, prepare sword effects for the entire show. Then Dan O'Connell did a whole new set of Foley for the swords, great stuff. In the final we've been using a combination of the two—the sound effects and Dan's Foley."

"In my travels, I always look for [props]," says O'Connell, who knows a thing or two about sword sounds from his work on *13th Warrior*. "I think I was in Manhattan, and I saw this giant sword. All of a sudden you think, 'Hey,

SLEEPY HOLLOW SOUND CREW

AT C5 IN NEW YORK
Supervising Sound Editor: Skip Lievsay
Sound Effects Editors: Sean Garnhart, Lewis Goldstein, Paul Urmson
Assistant Sound Editors: Dave B. Flynch, Ruth Hernandez,
Chris Fielder, Bill Orrico
Dialog Editors: Fred Rosenberg, Todd Milner
ADR Editors: Lisa J. Levine, Marissa Littlefield

AT TODD-AO, NEW YORK
Re-Recording Mixers: Lee Dichter, Skip Lievsay, Frank Morrone,
Shawn Murphy, Bobby Fernandez

FOLEY RECORDED AT ONE STEP UP, NORTH HOLLYWOOD
DIGITAL FOLEY EDITING AT PARAMOUNT PICTURES, LOS ANGELES
Supervising Foley Editor: Thomas Small, M.P.S.E.
Foley Mixers: Randy K. Singer, Jim Ashwill
Foley Recordist: Linda Lew
Foley Editors: Michael Dressel, Scott Curtis, Matthew Harrison,
Tammy Fearing
Foley Artists: Sarah Monat, Robin Harlan, Dan O'Connell, John Cucci

ADR Mixers: Ted Swanscott, David Boulton, Bob Baron
Voice Casting: Brandon Donnison
Sound Editors: Craig Berkey, Richard Anderson, John Pospisil

this would be a great movie to use the real ring-y sword.' It had a real nice ring-off, and it added to the Horseman's character. The way it played all together, you get the low-end pounding of the horse, his cape flutter, then in the middle the cold-steel shwing—the full spectrum—and that way you get the depth.

"For us, Foley is a matter of getting all the right elements together so that it sounds scary and it sounds real and people buy it," he continues. "We go from the whoosh of the sword, leading up into the impact, then we do a slice sound, then a ring-off, which is real important because it gives you the full

> When we're riding on the horse, I let the horse sounds play across all six speakers, so it feels like you're sitting in the saddle. That may read or not, I don't know, but it certainly has a physical impact.
> —Skip Lievsay

spectrum, from the start of the decapitation to the end of the decapitation. We wanted everything real up-close, everything as it would sound for the person being decapitated. That's really important, the whoosh coming into the head—definitely hyper-realism."

Lievsay, who wore dual hats on this film, has been making the transition to re-recording mixer during the past few years while maintaining a foot in supervision. He and a lean crew at C5 began on the film in mid-June, working on the edit for about six weeks, followed by six weeks of mixing. The first five reels of effects and Foley were predubbed at C5's facility and dumped to Akai MOs, which seem to have become something of a universal exchange format in New York City. Concurrently, Lee Dichter worked up dialog predubs at Sound One in New York City. Lievsay and Frank Morrone then finished up Foley and effects predubs at Todd-AO on the DFC, and Dichter, Lievsay, Morrone, Shawn Murphy and Bobby Fernandez converged in early October for the final. The film underwent a number of edits during this process, ending up on version 17. Because of the way it was dubbed, changes were not a problem.

"I think we have three really big advances that we're enjoying on this mix," Lievsay explains. "Number one, we could dub all our units at an early version, knowing that other versions were coming, because the predubs were all to the Akai format, which is in itself an editor. We could easily take the magneto-optical, put it on an Akai editing workstation and do the conform, and in most cases, just by copying and crossfading, we could save the predub without having to fix it on the stage. That's certainly the case with all the backgrounds and all the sort of more linear sound effects.

"Another great benefit was, on the DFC, we could switch from final dubbing to predubbing in a matter of minutes," he continues. "Like today, we were finaling reel 4, and at 7 o'clock I said, 'Okay, you all can go now. We're going to go into predub mode and fix the problem. We could switch back to predub mode in five minutes and be ready, without having to re-bus and reconfigure and reassign everything. All you have to do is put the target in the recorder and go.

"The third and really kind of the most significant benefit is you could take a predub and make a clone of it, which is basically like an x-copy except that it's literally the same. Because the console is running digitally, we could dub from x-copy to a new predub without having to worry about losing a generation or having it fuzzing up because of sonic deterioration or any kind of distortion. That is such a major advance—it makes going back and doing fixes a breeze. Like tonight we wanted to fix up a thunder predub, and we wanted to take out some of what we didn't like and replace it with new. So we put the edited x-copy into a player, and together with new material from Sean's Pro Tools, we could update the predub in a flash. No running around, no transfer department, no nine guys on the film table conforming units. Our x-copy became the units, and whatever doesn't work we just patch up on the spot. Big change."

Sleepy Hollow, a Paramount Pictures release, was scheduled to open the week before Thanksgiving. ∎

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wanted, and the director/star made some "wub-wub-wub" sounds with his mouth. They put a microphone out on the stage, and Nimoy performed the sound directly

against picture to mag film.

This recording was "cheesed" only slightly by Mangini later on, and is largely the sound that is heard in the film to this day.

THE OBVIOUS NUMBER

In 1980, before money started pouring into Lucasfilm coffers from *Raiders of the Lost Ark* and Episodes V and VI of *Star Wars*, the 2,000 acres of Skywalker Ranch in Nicasio, Calif., were still largely undeveloped. (Notable residents of the ranch at that time included Princess Leia the cat, and Moose, the black Labrador who was banned from the ranch because he peed on some of Lucas' scripts.) What would eventually be the home of perhaps the most famous post-production sound facility in the world was initially the site of much sound effects recording by Bay Area film sound folks.

The lengthy post-production of *Apocalypse Now* had brought about the practice of recording, in the field, what would normally be thought of as destined for a Foley stage. For that epochal film many of the recordings were done up at director Francis Coppola's estate in Napa.

On this day in 1980, though, Doug Hemphill and George Budd were looking to get onto the ranch in search of muddy footsteps for the film *Dragonslayer*. The person who was supposed to meet them at the gate was late, and instead of leaving, they decided to take the obvious guess at the combination lock on the gate. Right after the lock popped open, their guide drove up, saying, "Obviously you've been given access to the combination."

Obviously this guy was not aware of the origin of the combination: the title of George Lucas' first feature film, *THX-1138*.

"WILL HE EVER GET IT RIGHT?"

In 1990, shooting was progressing well in Prague on *Kafka*, which I would later work on in post-production. Toward the end of shooting, a new second camera assistant (the person responsible for handling the slate) came onto the set with something of an attitude. The whole crew (including director Steven Soderbergh and star Jeremy Irons) conspired to deflate the guy.

They found out that he was new to timecode slates, and soon they had him reading out the numbers, down to the frame, when he closed the sticks, something that is, of course, impossible to do. Nonetheless he did his best. "Three-hoursfourminutestwentyfiveseconds

twelveframes," he would blurt out as the sticks closed. Soderbergh would cut the take immediately, and eventually Irons stormed out on the set exclaiming, "Will this man ever get it right?"
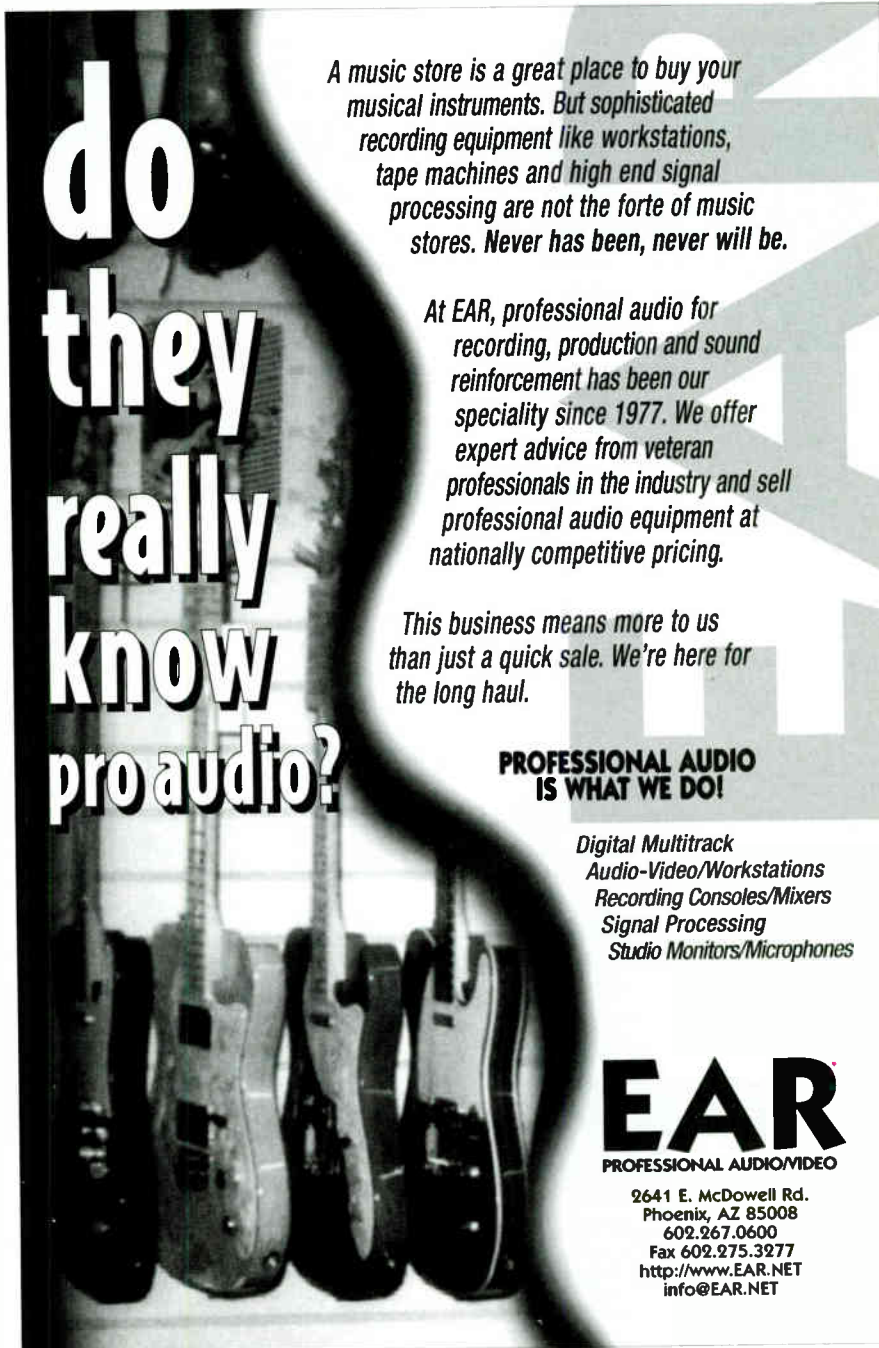
"I'M NOT AN INSURANCE COMPANY"

During the mix of the first CinemaScope film, *The Robe*, in 1953, re-recording mixer Murray Spivack was tweaking a complicated reel that had "every element you could think of...God's voice, thunder, lightning, wind, music, voices, rain." He was trying to figure out a creative way to weave the sounds in and

out of each other when the producer, Frank Ross, walked in and declared that it all sounded pretty good to him, and requested that they do a take. Spivack thought that it sounded horrible.

Ross agreed to give more time to it if Spivack could "guarantee" that the next take would be 25% better than the first. Murray replied: "Mr. Ross, I am not an insurance company. All that I guarantee is that some day you're going to die, as we all are."

Ross agreed to do another take, which he felt did indeed improve the reel by the magic 25%. Spivack thought, "Oh my God, you idiot. If it had been

only 23% better, what *would* we have done!"

THE INCREDIBLE BURNING MAN

The scene: the Foley stage at Ryder Sound in Hollywood. The task: to create a sound for the fire snaking along like a fuse when the whiskey is knocked over in the Nepal bar scene in *Raiders of the Lost Ark*. The crew: sound editors Richard Anderson, Steve Flick and Mark Mangini, along with Foley artist Joan Rowe and recordist Richard Rogers. The approach: manipulating Sterno and benzine in the sand pit to get cool fire phoofs.

Simple enough.

After five minutes of failed attempts, Anderson stood up to squirt a stream of benzine into the Sterno. With benzine now around the outside of the can in his hand, the flame traveled back up the can. Dropping the can, more benzine squirted out, and he then stepped on it, expelling even more liquid (and flames) up his pants leg. He started running to the water pit.

Anderson jumped in and jumped out of the *empty* water pit in one leap, and then headed for the screen, possibly to wrap himself in the fire-resistant duvetyn. Flick had the presence of mind to grab the fire extinguisher and blast Anderson's leg. Sound guy to the end, he said nothing, while there was much hysteria in the room.

All's well that ends well, especially when tape is rolling to record it. To really appreciate the humor in this story you have to hear it. How, you might ask? You'll have to log onto the *Mix* Web site (mixonline.com) and play it with Real Audio. It will be available from December 1 until January 30.

FILM SOUND ON FILM

The next group of stories are my favorite memories of how film sound has been portrayed by the industry itself.

My first memory was the God-awful Hollywood-set TV show *Bracken's World*. Even though I've only seen the episode in question one time, 30 years ago, I remember it like it was today. Kevin Grant, the producer at "Century Studios," was replacing dialog in a looping stage (probably still using real loops as opposed to the now-standard ADR). He was coddling a neurotic actor who was focusing too much on sync. Grant was trying to get them to focus on the performance, exclaiming, "These people are technical geniuses!"

I remember thinking, I wonder if I could do that! It would be 20 years

World Radio History

later, when I was finally doing that myself, that I realized that these people are indeed technical genuises. Not!

Albert Brooks is a part of my two favorite cinematic portrayals of film sound. In 1981 he directed and starred in the film *Modern Romance*, in which he played a film editor who was hellbent on using sound to pump up the energy on the cheesy science fiction film that he was cutting.

In one scene, during the film's mix, he was convinced that footsteps inside the spaceship needed more weight. (They were for George Kennedy, after all.) His search for the right footsteps leads him to ask the head mixer, who is a perfect caricature of a stereotypical Hollywood re-recording mixer, what the floor surface should sound like. "Looks like space floor to me," is the straight-faced reply. Then, in classic Hollywood fashion, the mixer (who is referred to as "Buzz") gets on the intercom and asks the guy in the machine room to put up the Hulk cartridge. As it turns out, the Hulk loop *also* contains Hulk screaming, and Brooks beseeches them to write that down on the label so the mistake wouldn't happen again!

In a final attempt to get it right, Brooks himself does Foley to picture on the mix stage, carrying a five-gallon water bottle for the elusive weight. After a heartfelt performance directly against picture, he asked Buzz and crew how the scene was now working. The answer, which has become a standard catchphrase on Hollywood dubbing stages: "You saved the movie."

A few years later in the film *I'll Do Anything*, Brooks did a thinly veiled impersonation of noted action producer Joel Silver. In the film he recalls how it was tough for him to get his mixers to make the explosions as loud as he wanted. They kept telling him that they had reached the limits of the medium, but he persisted and they "invented" a "filter" to finally satisfy his need for dBs.

Cut to a preview audience, and the sound that follows the flash of an explosion almost blows the audience out of their seats. Hair flying back, the whole bit. A painfully funny and all-too-true moment, considering that things have only gotten worse in the six years since this film was released.

Now, last, and certainly least, here is a story from my second career: Larry Blake, Enforcer of Good Projection Standards.

In 1981 I went to the Egyptian Theater in Hollywood to see Terry Gilliam's film *Time Bandits*. One can only sur-

mise that they had recently put in new amps and had made the fatal mistake of not listening to program before they packed up. The result was that the center and right speaker channels were reversed, something that you wouldn't detect if you were in the projection booth measuring frequency response and SPL with microphones out in the theater. (I couldn't let this column go by without giving one tip.)

After the film ended, having heard all of the dialog from the right side of the Egyptian's deeply curved screen, I told the assistant manager (or whatever the pimply kid was called that week) that they had a serious problem. He doubted that I was right, then asked me: "What are you, some kind of music freak?"

Now, 18 years later, I still don't have a comeback line.

Have I missed some great stories? Please send them to me at P.O. Box 24609, New Orleans, LA 70184; fax 504/ 488-5139; or e-mail swelltone@aol.com. ∎

Larry Blake is a sound editor/re-recording mixer who lives in New Orleans for reasons too numerous to mention, although one of them would have to be that people in NOLA value a sense of humor as much as they do oyster po-boys.

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jects." The two halves are not as different as they may once have been. According to Fisch, "The jingle business has changed. It was built on songs, but there's a feeling in the ad agencies that songs are somewhat passé. Scoring and sound design are more in fashion now, and have been for the better part of the '90s."

When we spoke, Fisch was deep into composing two hours of music for a four-hour CBS mini series. *Aftershock* is about the chaos following an earthquake that hits Manhattan. Fisch was composing at his workstation, and the final score will include extensive synth and sampler parts and a 35-piece orchestra, which he will record in Seattle. Collaborating with director Mikael Salomon, whose previous work includes directing *Hard Rain* and being the cinematographer on *Backdraft* and *Always*, has been an enjoyable experience for Fisch. "I flew out to L.A. and spotted the film with Mikael. He has an excellent sense of timing, and I'm sure the score will turn out well.

But working on movies-of-the-week and mini series is an exhausting process, with tons of music needing to be composed and recorded in a very short period of time."

Although he's comfortable arranging the scores he writes, Fisch sometimes finds that tight schedules require an outside arranger. He'll be working with Larry Hochman on *Aftershock* (which stars Tom Skerritt, Charles Dutton, Cicely Tyson, Lisa Nicole Carson and Erika Elaniak) and is looking forward to trying out a new way of communicating. "Normally I put my ideas down on score paper in the traditional fashion and hand them off to an orchestrator," Fisch says. "This will be the first time I've ever discarded paper entirely. Instead, I'll be sending Larry Performer files exclusively."

Once a gimmicky feature in MIDI sequencers, the notation pages in software like Mark of the Unicorn's Performer now incorporate algorithms sophisticated enough to provide realistic playback of a performance, especially when quantization is applied carefully. "Larry will be able to play back my performances and study the score within Performer, and we're pretty confident that he'll have everything he needs to work with," Fisch says.

Tascam DA-88s are the recording media of the moment for Fisch, who has a hard disk-based system that he hasn't quite debugged yet. "I recently bought a new blue-and-white Mac G3. It has an extremely powerful engine, with a clock speed of 450 MHz, and I was led to believe that running digital video and tracking digital audio using my MOTU 2408 system would be a painless thing to set up, but for me that's hardly been the case.

"I really don't want to disparage any one source—there may be some user error involved as well—but the Miromotion digital video card, which is made by Pinnacle Systems, has not worked with the new G3 at all. At least not yet," Fisch continues. "It crashes the computer, and when it does work it's very glitchy. The audio never seems to be in sync with the video. I've got equipment from four different companies. As I said, Pinnacle Systems makes the video card, MOTU manufactures the 2408, Adaptec makes a SCSI accelerator card that I was told I'd need, and Adobe makes the software that runs the digital picture.

"The promise of being able to run real-time digital audio and video is very appealing, but the headaches I've experienced trying to get it all running have

been nightmarish. Maybe a *Mix* reader has the magic solution to my problems! In the meantime, this is my life here, and I'm running on fumes composing this project, and so I've gone back to my DA-88s." Not a bad choice, considering that the Tascam platform is still the interfacing choice for many, if not most post-production facilities.

Fisch has a system for the DA-88s that works well. "I have three DA-88s here in my personal project studio, all wired up to my Mackie 32-input, 8-bus analog board," he explains. "I'll drop all my synth/sampler parts to tape and head out to Seattle to record overdubs on another 16 tracks of DA-88s. We'll replace all of my temp brass parts, but leave my string samples to be mixed in with some live playing."

When it comes to the financial aspects of his career, Fisch finds that the composer is left to make a project work largely on his or her own. "The business of composing for television movies is simple: The composer is given a flat fee and told to do with it what he or she will. You have to balance your desire to maximize profit on the project against the importance of investing in your career. This score calls for a 75-piece orchestra; it's a large and dramatic thriller score, in a Hollywood genre that people are used to hearing realized to perfection. However, if I hired 75 players and spent the time on a soundstage recording two hours of live music properly, the entire budget would be spent in production. Incorporating synths and samplers along with an orchestra the size we've contracted feels about right."

He hadn't finalized plans when we spoke, but Fisch intends to mix his score at Capitol Records in L.A. with engineer Rick Riccio. "He's a heavy-hitting TV mixer, whose credits include *The Simpsons*, and that's the kind of talent I want mixing this film," Fisch says.

Fisch says that balancing a career in the jingle and television-movie worlds works out nicely: "I like the fact that jingles are relatively less pressure to work on. Plus, you're generally working with other people, and the socialization factor is nice. Films are relentlessly taxing—16- to 18-hour days are the norm. However, this work is rewarding on a somewhat deeper level. There's also less committee approval required; you work with the director and that's it. As I said, going back and forth between the two is satisfying to me." ∎

Gary Eskow is Mix's *New York editor.*

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George Petersen Mix Magazine September 1999

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– Cliff Miller, President
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CTS Audio, Inc.

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Sound Image

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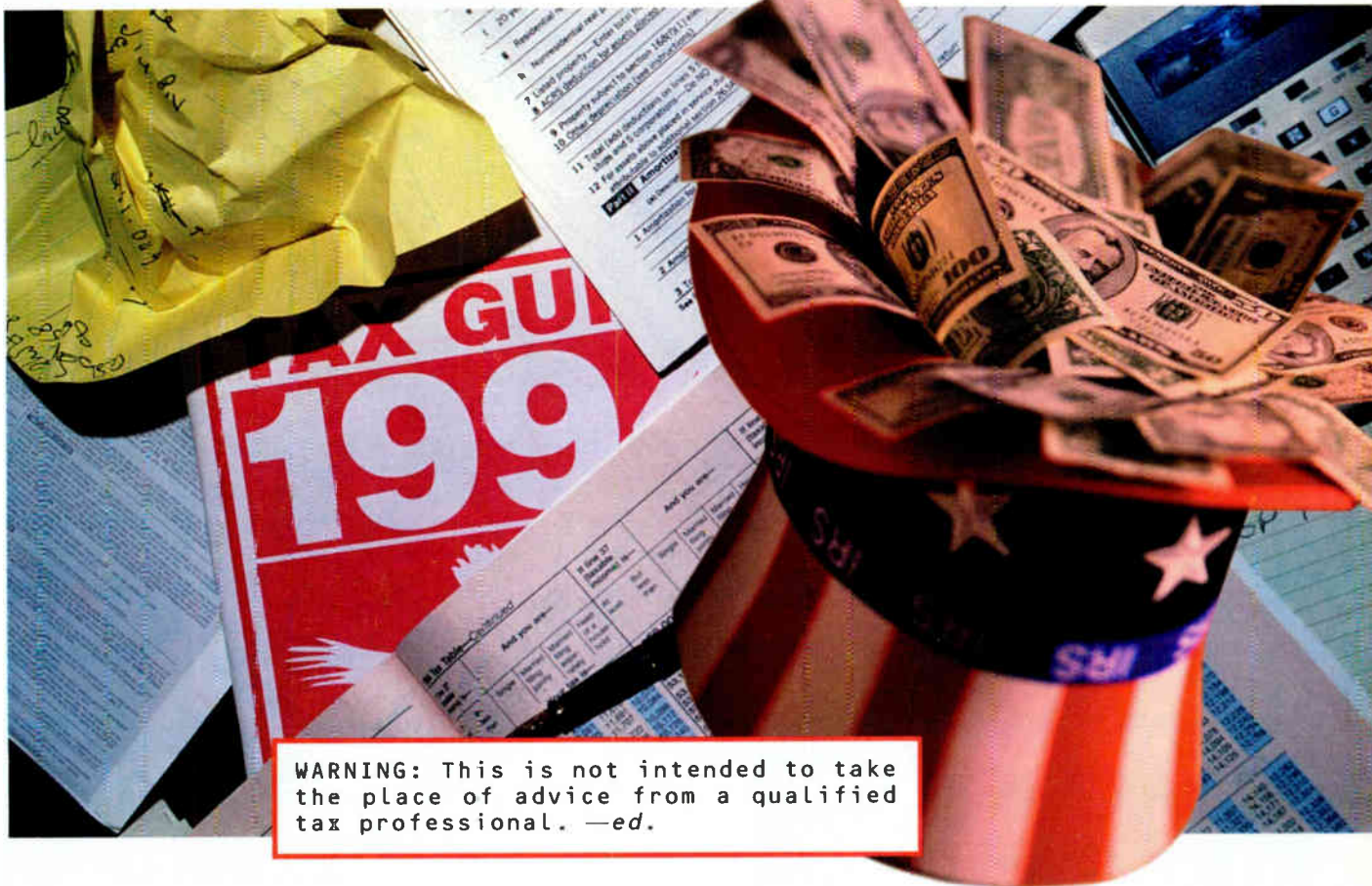
WARNING: This is not intended to take the place of advice from a qualified tax professional. —*ed.*

A few lucky road dogs are going to get a little something extra in a few months. Their money back. From the Government.

If you've been rolling your own tax return or using an H&R Block type of service, you may save enough to pay for several years of taxes just by re-filing the previous year's tax return with expert help. Tax accountants familiar with our profession may be able to save a significant amount over a self- or franchise-prepared return, while relieving some of the stress. They will know which deductions are allowable and which deductions are red flags that invite an IRS audit. If you are audited, they will hold your hand. Let's face it, tax laws change almost as often as The Artist Formerly Known As Prince's sound engineers. It takes expert help to play this game. Most will charge a few hundred bucks if you do your own homework, but can save you many times that in legitimate deductions. Let's find some of your money.

SELF-EMPLOYMENT

Businesses of all types increasingly use independent contractors to avoid payroll taxes and paperwork. An independent contractor who operates as a sole proprietorship receives a 1099 form at the end of the year instead of a wage earner's W-2. The 1099 does not list withholdings, because there are none, and an independent contractor must file quarterly estimated withholding taxes (or pay a fine). He or she must also pay their own Social Security and Medicare taxes.

An advantage to being paid as a contractor is that no money is withheld, but the independent contract worker eventually pays a higher overall tax, when the self-employ-

BY MARK FRINK

ment tax is factored in. Though the self-employed are entitled to more deductions than salaried employees, it's up to them to document and file for these tax benefits. Most of the deductible expenses of self-employment can be itemized under Schedule C and then deducted from gross earnings. Among the expenses that can be deducted are tools and equipment, overhead expense, transportation and even meals away from home. Let's look at what else can be deducted.

BUSINESS USE OF YOUR HOME

To deduct home office expenses, a part of your home must be used regularly and exclusively as the principal place of business or as the place where you normally meet and deal with clients. It may also be a separate structure. Gray areas

STING

ALL ACCESS

PHOTOS BY STEVE JENNINGS   TEXT BY CHRIS MICHIE

Before setting out on an 18-month world tour of arenas and larger facilities (the European leg starts in December), Sting kicked off a two-month mini-tour of smaller U.S. venues in late October. Opening with three shows in the San Francisco Bay Area, Sting introduced his latest band and songs from his new record, *Brand New Day*. The photos were taken at the Flint Center in Cupertino, and interviews were conducted during a post-soundcheck break outside Berkeley Community Theater.

Sting's preferred vocal mic is an AKG 535 condenser. FOH engineer Mike Keating runs the vocal signal into an ATI Pro6 Processor (a combined single-rackspace mic channel/EQ/compressor/gate), returning the signal to the Yamaha 4K as a line insert.

An important client for Clair Brothers Audio (Lititz, Pa.) since his days with the Police, Sting again requested Clair's Mike Keating for the FOH position. Keating brought the same Yamaha PM4000 that he had been using with Cher (see last month's "All Access") and the same effects rack. For vocal reverbs, Keating picked a Lexicon 480, plus a Lexicon PCM70 with version 2.0 software, which includes his favorite gated plate program. Keating assigns Lexicon PCM80 and PCM90 to general reverb duties and uses an Empirical Labs Distressor on acoustic guitar. Sting's bass gets a 2-channel Summit DCL-200 compressor, and a rack of dbx 903 compressors are assigned to the backing vocal and stereo keyboard premix channels.

Though audiences will appreciate the opportunity to see and hear Sting at close range, Keating is not particularly enamored of the smaller venues on the first leg of this tour. "I'd rather be in arenas, hanging 64 S4s," he says. "There's more work to do, but you have more room to set up in and better control of the sound. This band can get a bit loud in a small room like this," he adds, referring to the horseshoe-shaped Berkeley Community Theater. At BCT, Keating and system engineer C. J. Patterson stacked four Clair S4s on each side of the stage and flew two more S4s per side directly above. Hanging points were placed by independent rigger Bill Spoon, whose job description includes convincing venue management that at least some P.A. must be flown, despite the lack of established hang points. "Bill really goes the extra mile," says Keating. "I don't know what we'd do without him." Additional downfiring P2s were hung from the front truss for audience front fill.

Sting is known for spicing his shows with special guest appearances, and the current tour includes a guest vocal spot for Cheb Mami on "Desert Rose." Band members sing into AKG 535s, while the three female backing vocalists, the British group Scream, use Shure Beta 58s. Guitarist Dominic Miller, the only holdover from Sting's previous touring band, plays through a stereo pair of 2x12 cabinets, miked with a Shure 57 and a Sennheiser 409. Drummer Manu Katche is also a familiar face, having appeared on two of Sting's previous albums, Nothing Like The Sun and The Soul Cages, as well as on Brand New Day. Drum mics include a Shure Beta 52 on the kick, SM57 in top and bottom snare positions, SM98s on toms and AKG 460s on hi-hat and overhead.

A veteran of many Sting tours, independent monitor engineer Vish Wadi is using an ATI Paragon II Monitor, which offers 48 mic inputs plus eight pairs of stereo line inputs. Wadi's Paragon has been outfitted with a new master mute function (which will be offered as a retrofit for all consoles in the field), but in most respects the onstage monitor setup is unchanged from previous tours. "Sting likes to keep things the same, and this band isn't really suitable for in-ears," says Wadi. All 16 monitor mixes are directed to Clair Bros. 12AM wedges and sidefills.

Reprising their parts on the new album, Jason Robello (keyboards) and Kipper (keyboards and percussion) mix their instruments through Mackies and send only stereo premixes to FOH. "I have some limiter protection against any bizarre keyboard gain-staging," notes FOH engineer Keating.

Sting's bass rig is actually a pair of Clair Bros. ML18 subwoofers with a pair of 12AM monitor wedges, all driven by Carver amplifiers. DIs on both the bass and the Alembic preamp are by Countryman.

STING
BRAND NEW TOUR
1 9 9 9 2 0 0 0

ALL AREA ACCESS

—FROM PAGE 165, YEAR-END TAX TIPS

were cleared up by the Tax Relief Act of 1997, which spells out that a home office can be considered the principal place of business if substantial administrative and management activities are performed there. In general, the parts of a home used for both personal and business purposes are not deductible. Even if you meet the "exclusive and regular use" tests, you usually cannot take any deductions for the business use of your home unless you are self-employed.

Deductible expenses can include real estate taxes, mortgage interest, rent, utilities, insurance, depreciation, painting and repairs. The amount depends on the percentage of your home used for business. To figure this percentage, simply divide the number of square feet used exclusively for business by the total in the home. The business portion of each expense is figured by applying this percentage. Renters can deduct the business portion as an indirect expense. Home owners cannot deduct the fair rental value of the home office, but can claim depreciation.

Phone expenses are not part of your home office deduction, and are separately deductible; but if you maintain a home office, you can't deduct the basic monthly charge for the first line as a business expense. You can, however, deduct business-related charges, such as long-distance calls for business, or for call answering, call waiting and call forwarding services. You can also deduct an entire second phone line if it is used exclusively for business, and the cost of any additional business lines, such as dedicated fax or modem lines.

The business portion of a homeowner's insurance policy is also part of the home office deduction as an indirect expense, but additional coverage directly related to the home office is treated as a direct expense. You may, for example, carry special coverage for home office equipment. In fact, if you don't have special coverage, you should check your homeowner's policy. You might think your computer is covered, but some policies exclude business equipment.

A home security system for the entire home can give rise to two types of write-offs. First, the business portion of your monthly monitoring fees are indirect expenses. Second, the business portion of the cost of the system itself may be depreciated. This depreciation also

OTHER COMMONLY OVERLOOKED DEDUCTIONS

Audio and video tapes related to business skills

Business-related magazines and books

Education to improve business skills

Seminars and trade shows

Casualty and theft losses

Promotion and publicity

Commissions paid

Consultant fees

Business association dues

Office supplies

Online computer services related to business

Postage

Telephone calls away from the business

becomes part of your indirect expenses.

If the gross income from the business use of a home is less than the total business expenses (an operating loss), the deduction for certain expenses is limited. However, the nondeductible amount can be carried forward as part of next year's expenses. Be warned, though, that operating at a loss for even a year is an invitation to an IRS audit.

A canceled check, along with a bill, generally establishes the cost of a business item. However, the check alone does not prove a business expense without other evidence of its business purpose.

EXPENSE THAT VAN

For business use of your car, you can use a standard mileage allowance to figure your deduction instead of keeping a record of all your expenses. This 31.5 cents-per-mile (1999) allowance takes the place of a deduction for gasoline, oil, insurance, maintenance and repairs, vehicle registration fees and depreciation. Towing charges for the car are still separately deductible, and parking fees or tolls are also allowed in addition to the standard mileage allowance. Deductible parking fees include those incurred to visit clients and customers or while traveling away from home on business. Parking fees to park your car at home or at your place of work are nondeductible personal expenses, as are parking tickets and traffic fines, even if they were incurred in the course of business-related travel. At 31.5 cents per mile, 10,000 miles (100 miles round-trip

per week) gets a deduction of $3,150. This may be more than your van is worth.

The actual expense method allows deduction of all out-of-pocket costs for operating a car for business, plus an allowance for depreciation. A vehicle that is paid off and needs few repairs may offer more tax advantage on the mileage method, while it might be better using actual expenses with a newer vehicle. Changing to the standard mileage allowance in subsequent years is prohibited after using the actual expense method, but starting with the mileage method, you can always use the actual expense method in later years.

For individuals, interest on a car loan may or may not be deductible depending upon employment status. If you are an employee who uses a car for business, interest on a car loan is treated as nondeductible personal interest. However, if you are self-employed, the inter-

MARK YOUR CALENDAR

December 26 Boxing Day. Ship everything that you didn't dare send by UPS before Christmas.
December 30 Last day to back up your computer. Don't laugh—it's just a good idea.
December 31 Last day for most transactions that can affect your 1999 tax position. New equipment should be placed into service before the end of the year to be deductible. Use it on that New Year's Eve gig.
January 1 Write down the mileage of vehicles used for business. Update and close out vehicle logs from last year, and start new ones.
January 18 Last quarterly installment of 1999 estimated tax due.
February 15 W-2 and 1099 forms should have been received.
April 17 Last day to file 1999 income tax return, or request a four-month extension. Plus the first installment of your 2000 estimated tax is due, usually paid with filing. Also this is the last date to open and deposit funds into a 1999 IRA account. While there's no immediate tax benefit for the newer Roth IRA, it offers untaxed returns at age 60, while making exceptions for certain types of early withdrawal, like first-time home buyers after five years.
June 15 and September 15 Second and third installments of your estimated taxes are due.

est may be treated as business interest.

Regardless of the method chosen, certain record-keeping requirements apply. You must keep track of the number of miles you drive each year for business, as well as the total miles driven each year. You must also record the date of the business mileage, the designation of the business travel and the business reason for the car expense. You should keep a travel log in which you record the date, destination and purpose of each business trip, and the number of miles driven. Be sure to note the odometer reading on January 1 each year.

COMMUTING

The cost of commuting is generally a nondeductible personal expense. Bus or train fare and gas for your car, tolls and parking fees are all nondeductible, even if the commute is long or you work with a cell phone or computer on the way. But there are a few exceptions that make certain commuting expenses deductible. If you have a regular place of business, but work at temporary locations on a short-term or irregular basis, then you can deduct the cost of travel between them, particularly if you travel out of town. If you have a legitimate home office, then the cost of traveling from your home to do business is deductible.

SELF-EMPLOYED HEALTH INSURANCE DEDUCTION

As part of the new Health Insurance Portability and Accountability Act, the health insurance deduction for the self-employed was increased, and a 50% deduction is allowed next year, going to 100% by 2007. This may be the year to shop for health care if you're not covered. (At four bucks a pack, the money you save by quitting smoking will almost pay for your health insurance.)

MEALS AWAY FROM HOME

If the nature of a business trip requires an overnight stay, the cost of meals on the trip is deductible, but there is a 50% limit. This limit also applies to the "standard meal allowance" and is taken into account on tax forms. When deducting meal costs, the choice is to either keep track of all actual costs, or use the standard meal allowance set by the IRS. The dollar amount of the standard daily meal allowance is set by the government and is determined by where you stop to sleep or rest. In most of the United States, the amount is $30, and in cities designated as "High Cost," the daily

EnD-OF-THE-FISCAL-MILLENNIUM ACTION LIST

1. **Ask local acquaintances in your line of work who they use for a tax accountant.** Book an appointment early. Popular tax accountants may raise their rates after March 15.

2. **Start collecting receipts. Use either the filing cabinet or the shoe-box method.** Take last year's calendar, check stubs, invoices and credit card statements and build a journal of expenses. Reconstruction of business expenses is valid. Documentation needn't be perfect, but it has to be reasonable. The loss of a receipt does not mean the loss of a write-off. Every legitimate business expense should be deducted. If an audit occurs, the records of expenses will have to be reconstructed in the absence of a receipt. There is no question that IRS wants proof of everything claimed and they prefer receipts, but they also accept calendars and daily planners as documentation. The key is to keep as many records as possible to substantiate your claim.

Receipts of $75 or less are often not necessary, but you must have a journal that tracks these expenses. This log should detail what the expenditure

was for, the amount, when and where the purchase was made, and its business purpose. The reconstruction of business expenses, while not often allowed at typical tax-prep franchises, is nevertheless an allowable method of expense accounting.

3. **Review a list of all your business-related expenses with a professional tax accountant.**

4. **Prepare a list of year-end transactions—and don't wait until the last day.** Income and expenses can be shifted from one year into the next depending on how payables and receivables are handled. You might get paid in January for services in December, putting that income into next year.

Leasing allows the financing and amortization of all acquisition costs (including shipping, installation, extended warranty and sales tax) over the life of the lease, or the full tax benefit of a lease can be taken in the year the purchase is put into service. Now is an excellent time to lease capital equipment, lock in on a low, fixed rate and free up lines of credit for more pressing needs as they arise.

amount is higher (e.g., $34 for Mobile, $38 for Memphis, $42 for Manhattan and $46 for L.A. and San Francisco.). Remember, the deduction is legal, even if they fed you at the gig!

ESTIMATED TAXES

Self-employed individuals must estimate their income tax for the coming year and pay it in quarterly installments. Unlike live sound income, quarterly payments are equal over the four seasons. Each quarterly payment is about one-fourth of the previous year's tax, but a penalty is not usually assessed until you owe $1,000. The penalty is currently 9% APR on the amount that was underpaid. If you are owed money from last year's taxes, you may apply some or all of it toward next year's estimated payments, reducing the pressure to come up with those large lump sums.

AMEND A PRIOR TAX RETURN

If you made a mistake or neglected to claim expenses on a prior tax return, you may file an amended return and receive a refund. Tax returns can usually be amended up to three years from the original due date, but amending a tax return can produce unwelcome ramifi-

cations. As always, a qualified tax professional should be consulted. In my case, after the first filing, my accountant and I went back and found thousands of dollars that had been thrown away the previous year and rescued them via an amended return.

SINCE YOU ALREADY READ MIX

I'm probably preaching to the choir here, but perhaps you have a friend who needs to start the new millennium right, fiscally speaking. There are literally dozens of ways a tax accountant can help you save money. Moving expenses when changing jobs, the cost of looking for a new job, and college loan interest payments are just a few that are often overlooked. People in the sound business prefer experienced professional specialists, and the same should go for taxes. Beyond the stress that you can shed next April, the money spent getting professional help may be returned many times over in savings. But don't wait until April, when both you and the best tax people are all booked up. ∎

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

New Sound Reinforcement Products

SOUNDCRAFT SERIES TWO LIVE SOUND CONSOLE ▲

The new Series TWO live sound console from Soundcraft (Nashville, TN) is a compact board designed for smaller touring companies, theaters, churches and other fixed installations. Available in 24-, 32- and 40-input frame sizes (S6,395, $7,695 and $9,395 respectively), the Series TWO features an integral meter bridge that indicates input and output levels on LED bar graphs. Input channels offer switchable 48V phantom power, polarity reverse, switchable highpass filter, and Soundcraft's famed 4-band EQ with two sweepable mids. Eight mono aux sends are switchable pre/post in pairs, with EQ selectable pre/post, and there are eight group mix buses, plus an LCR master mix bus. Direct outs ease live recording, and there is an 11x2 matrix. All Series TWO models include two stereo line inputs and 2-track returns; the four stereo effects return channels offer full routing, aux sends, and "Tilt" EQ. Eight manual mute groups are supplemented by MIDI mute capability and 128 MIDI-controllable mute snapshots.

Circle 314 on Product Info Card

STAGE ACCOMPANY'S XL-BIN ►

Stage Accompany (Hoorn, the Netherlands) has introduced the XL-bin, the first of a new range of low-frequency enclosures. Designed around two 15-inch woofers, the XL-bin produces a maximum SPL of 140 dB at peak power handling capacity of 2,000W. The sensitivity of the XL-bin is 107 dB @ 1W/1 meter from 50 to 125 Hz, +/- 3 dB.

Circle 315 on Product Info Card

BSS OMNIDRIVE COMPACT PLUS ▼

The FDS-366 Omnidrive Compact Plus from BSS (Nashville, TN) is a single-space rackmount unit that offers three inputs and six outputs, and is designed for a range of loudspeaker management applications. A single FDS-366 can act as a crossover for two three-way or three two-way systems, or two FDS-366 units may be used to create a stereo six-way crossover. A mono sum of all three inputs can be used to create a mono sub output for an LCR system. Features include 24-bit processing and a 96kHz

sample rate, offering a dynamic range of 112 dB (unweighted), and the unit includes a stereo AES/EBU digital input. An Alignment Assistant function automates delay calculations, and a dynamic equalization function can reduce the effects of driver non-linearity. The FDS-366 is supplied with Soundbench V3 control software and may be controlled remotely via RS-485, RS-232 and MIDI protocols. Price is $3,699.

Circle 316 on Product Info Card

SENNHEISER EVOLUTION WIRELESS SYSTEMS

The Evolution wireless series of microphones, transmitters and receivers from Sennheiser (Old Lyme, CT) offers a cost-effective array of systems for musi-

cians and vocalists. Consisting of the 100, 300 and 500 Series, Evolution wireless systems provide a range of functions and price points. All Evolution wireless systems offer the choice of 1,283 separate frequencies, programmable in 25kHz increments. All systems are frequency agile, feature true diversity receivers, a new HDX™ compander system and alphanumeric displays to indicate frequency, sensitivity and RF signal strength. All transmitters are 9-volt battery-powered and are compatible with all receivers. Handheld units offer interchangeable mic heads. Additional features include up to 16 namable factory presets, peak hold metering, low-battery indicator, headphone monitoring, and a SOUND-CHECK mode for identifying best- and

worst-case stage positions. Prices start at less than $500 for the 100 Series, $800 for the 300 Series, and $1,000 for the top-of-the-line 500 Series, depending on system choices.

Circle 317 on Product Info Card

EAW'S DANCE CLUB SPEAKERS

EAW (Whitinsville, MA) has introduced the Avalon Series, a complete range of loudspeakers developed specifically for dance club sound applications. Named after the Boston club where the new system was developed and tested, the Avalon Series includes six full-range loudspeakers, two high-frequency arrays and a subwoofer. Incorporating horn and phase plug technologies originally developed for EAW's KF700 Series of concert loudspeakers, the Avalon Series also includes newly developed features such as a Tuned Dipolar Array (DPA) design that focuses low-frequency energy. Finished in black satin and sporting a silver-finish grille and metallic logo, Avalon Series speakers are provided with Neutrik Speakon connectors.

Circle 318 on Product Info Card

INTRODUCING THE FRX-640 AND FRX-940

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The New Electro-Voice FRX Series. Everything you'd want in a budget-sensitive, highly directional speaker system. **Compact, 500-Hz Control.** The FRX-640 and FRX-940 15-in., trapezoidal two-way systems measure just 31 in. high and 28 in. wide and feature our proven Duplex* coaxial drivers in a large-format vented horn-load for directivity control to 500 Hz. The small horn and 15-in. cone in the typical two-way system begins to spray sound all around below 1,500 Hz. FRX speakers direct much more vocal-range sound to the listener—minimizing reflections off walls and ceilings and increasing intelligibility.

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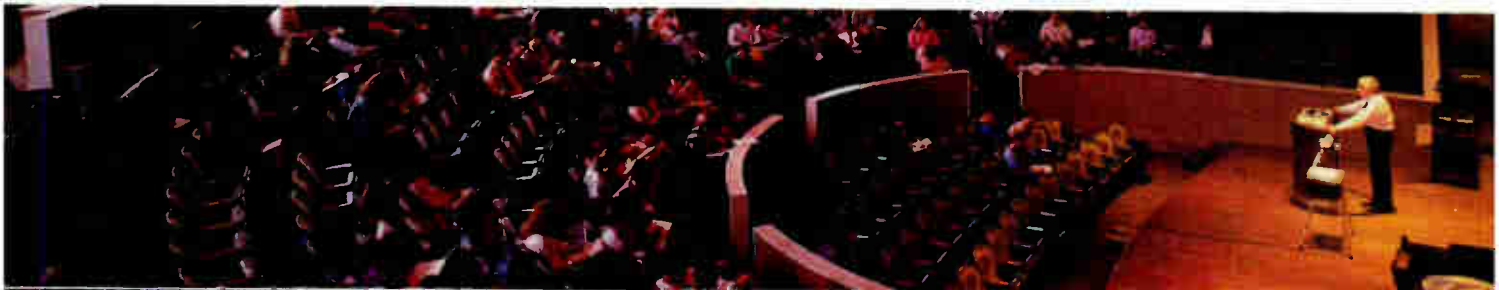
ELLIOT SCHEINER SINGS THE PRAISES OF 5.1

by Blair Jackson

In the last couple of years, veteran engineer Elliot Scheiner has become one of the recording world's most passionate and articulate advocates of 5.1 mixing. He is also responsible for some of the best music work done in the surround format—listen to his brilliant mixes of The Eagles' *Hell Freezes Over* and Fleetwood Mac's *The Dance* on DVD. His most recent 5.1 mixing project was Sting's *Brand New Day*, which was recorded primarily by Simon Osborne at Sting's villa in Tuscany and mixed (to stereo) at Mega in Paris on an SSL. Sheiner likes to do his 5.1 mixing at Presence

Studios in humble ol' Connecticut, which is "close to me, just 15 minutes away, and it's got a [Neve] VR in it, a digital machine, an analog machine, a Fairlight system—it couldn't be any more perfect," he says.

We talked to Scheiner recently about the Sting album and more generally about 5.1.

What are you learning as you go from project to project—from The Eagles to Fleetwood Mac to Sting?

The one major thing I've learned is the use of the center speaker—what to use it for and what not to use it for. My current thinking is to not use it for too much of anything. The first [5.1] mix I did was for The Eagles, and I didn't really understand what the center speaker was for; it seemed weird to have a center speaker. I didn't realize that it was primarily a film thing—it's basically a dialog track in film. So I was given somewhat erroneous information; I was told, "Use it for something you want to accent, something you want to bring to someone's attention." I should have known then and there that was a mistake. And actually, on one of the mixes, I put the lead vocal in the center speaker and nothing else. Fortunately, it's a great vocal, and anybody who wants to turn off every other speaker and just hear the voice, it's okay, but I wouldn't do that again.

Then there's the whole question of what you use the rear [speakers] for. When a lot of film mixers do scoring, they set up the room with ambient mics and all you hear coming out of the rear are the ambient mics. But I'm a big believer in using the rear speakers for more than that—we've got the speakers, let's use them. I think if the upcoming buyer of a DVD is going to spend some money, they want to hear more than just some reverbs out of the rear. They're paying a higher price for the piece, and I think they want to be blown away. I think they want to experience something new. So I tend to surround the listener with music. I take chances. I'll put strange things in the rear. I'll put a set of drums in the rear. It won't be the primary set, maybe, but I've put a second drum set in the rear. Or if there are loops, I'll shove those in the rear.

As stereo across the rear?

Most of the time. But yesterday I called this film mixer

CLINT BLACK
UNPLUGGED WITH A DIFFERENCE

by Robyn Flans

To Clint Black, challenge is the name of the game. "You gotta have some of that going or you're just going to go through the motions," he says with a laugh.

Six studio albums deep into a very successful career, Black has decided to work without a net. He's been very involved in all of his recording projects, but producer James Stroud was always there to bounce ideas off of and help make the decisions. *D'lectrified* represents Black's first true solo flight. The title of the album also signifies Black's assignment/concept: to make an unplugged album that sounds electric.

Why not just make an unplugged album that sounds unplugged? "That just didn't sound hard," Black says. "It sounded like something I could do in a week."

Black started by cutting at Capitol Studios with a small group, giving them direction to fill up the track. "If you have your rhythm section plus fiddle, dobro and horns, everybody will be staying out of everybody's way," Black says. "I wanted the rhythm section to play hard and fill up the track."

Engineer Julian King says that although nothing too unconventional occurred sonically, had they been recording a true acoustic album, the approach would have been different. "We went after aggressive textures from everything," King says. "Typically, when you think of an unplugged album, you think of an acoustic guitar, a vocal and maybe some mandolin—pretty soft textures. We went after pretty tough drum sounds, for instance, and we didn't use any samples or anything electronic. For a standard unplugged album, we would have nor-

PHOTO: TIMOTHY WHITE

DAVID HEWITT ON CAPTURING NATALIE MERCHANT LIVE

by Eric Rudolph

When Natalie Merchant decided to end her 13-month *Ophelia* tour with a week on Broadway at the Neil Simon Theater, it seemed a good opportunity to make a live recording. After all, the tour was a career peak for the appealing pop singer, and it showcased songs from her entire career, as well as some new treats. Befitting the prestigious venue, David

PHOTO: PEGGY SIROTA

Hewitt, whom Merchant's sound man George Cowan describes as "the Godfather of remote recording," was re-tained to track the dates. Hewitt is celebrating his 30th year in the audio business and has worked with hun-dreds of artists from every genre, as well as recording the Metropolitan Opera and just about every major televised awards program.

On a beautiful, cool early June evening, Hewitt's Pennsylvania-based Silver Studio was parked outside of the venerable Broadway house tracking one of Merchant's nightly soundchecks two hours before a mid-week show. Inside, Merchant and her band were working through a note-for-note recitation of David Bowie's "Space Oddity," as well as Merchant' own "Beloved Wife," to an empty and briskly air-conditioned house. Cowan looked over the board and compared notes with Hewitt over the intercom.

Cowan is well-suited to integrating the role of FOH

T. REX'S "BANG A GONG (GET IT ON)"

by Blair Jackson

Though many American rock fans are familiar with T. Rex's "Bang A Gong (Get It On)," which made it to Number Ten in the winter of 1972, relatively few know that in Britain in the early '70s, the popularity of T. Rex was often compared to that of The Beatles in their heyday—they had the sold-out stadiums, the screaming/panting girls and the long string of chart-topping hits. T. Rex leader Marc Bolan was a bonafide rock idol in Britain for several years, yet the band never quite caught on in the U.S. in a big way; perhaps there was something too innately British in the group's sound to really capture the hearts of Americans, and Bolan was a bit precious and strange for American tastes.

The performing career of Marc Bolan (born Mark Feld in 1947) dates back to the mid-'60s, when as a teenager he worked as a male model and also cut

Marc Bolan (L) sips cognac during a vocal session with Howard Kaylan (center) and Mark Volman, 1971.

three singles for three different labels, without much success. Bolan had a brief stint as a guitarist and singer in the psychedelic band John's Children, then in September 1967, formed a duo called Tyrannosaurus Rex, with percussionist Steve Peregrine Took. From the outset, the "group" was a vehicle for Bolan's slightly eccentric songwriting, which tended towards folkish fantasy stories, odd characters and cryptic word puzzles, all delivered in a wispy, breathy

style that seemed to perfectly match his looks—with his cascading curls, slight frame and boyishly handsome face. In early '68 the duo was discovered by Tony Visconti, a young arranger/musician/engineer from Brooklyn who'd moved to England during 1967 and hooked up doing work with producer Denny Cordell. Visconti helped the group land a deal with EMI's Regal Zonophone label and then took them into the studio to produce the first Tyrannosaurus Rex LP—the fancifully titled *My People Were Fair and Had Sky in Their Hair, But Now They're Content to Wear Stars on Their Brows*. This was the beginning of an association that would eventually produce ten studio albums.

Took departed in the fall of 1969 and was replaced by Mickey Finn, and by mid-1970, Bolan was playing more electric guitar and

had gone for a slightly harder sound. In the fall of 1970, other musicians were added to the lineup, the group's name was shortened to T. Rex (at Visconti's urging). In the studio, the partnership between Visconti and Bolan was maturing. The *T. Rex* album contained Bolan's first big hit, "Ride A White Swan," which contained certain elements that would become integral to the group's identity: ethereal backup vocals by former Turtles leaders (and occasional Frank Zappa bandmates) Flo & Eddie (Howard Kaylan and Mark Volman), inventive string arrangements by Visconti, and strong Bolan riffs. *T. Rex* was on the British charts for six months, while "Ride A White Swan" made it to Number Two. The follow-up, "Hot Love," recorded at the original Air Studios in London, topped the UK charts for seven weeks in early 1971. Both tunes cracked the lower regions of U.S. singles charts, priming the group for its conquest later that year.

According to Visconti, after the band cut "Hot Love" in January, they traveled to America for a short tour, and "I followed them there with the excuse to visit my parents in New York. When we met up in New York, Marc suggested we start recording the next album; this

Marc Bolan

was late April. We booked Media Sound Studios on 57th Street and recorded 'Jeepster' and possibly 'The Motivator' for the *Electric Warrior* album. Bob Margouleff was the engineer.

"Then the group flew to Los Angeles for a gig at the Whisky-a-Go-Go," Visconti continues. "We hooked up with Mark Volman and Howard Kaylan, and I remember us having a lovely jam up at Howard's house in Laurel Canyon. We made plans to book Wally Heider's studio to cut a few tracks, including 'Get It On.' [This was the original title of the song. It became known as "Bang A Gong" in America after a group called Chase had a huge hit with a song called "Get It On" the same year.] Marc was a prolific songwriter. He had a lined schoolbook chock-full of lyrics and chord symbols. He would open the book at the beginning of an album, and then when we had enough tracks recorded—say, about 17—he'd close the book. 'Get It On' was just one of about 50 or 60 he had in the book at the time. When I first heard it, only the day before we recorded it, it sounded like a hit to me. At Howard's house, we were singing it for hours and banging things for percussion. We were totally vibed to record it the next day. I can still remember driving in a van with the band to Wally Heider's through freeways and unbearable sunshine—we all had the complexions of maggots, coming directly from gray London.

"The session was like any other T. Rex session. We had an engineer called Rick [Pekkonen] who was a very nice

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guy. Flo & Eddie recommended him and the studio. The drums were quickly set up, and we got sounds immediately. I was impressed with the speed of American engineers at that time; it was a much slower process in England. The recording started sometime in the middle of the afternoon. We cut 'Get It On' and two other tracks in a few hours. The group already knew the songs, and we had rehearsed backing vocals with Mark and Howard the previous day at Howard's. By 10 p.m., we were cutting the backing vocals. Flo & Eddie were self-starters—they could harmonize the phone book! My job with them was mainly to have enough tracks for them and to make sure we covered all the harmonic possibilities before they left. But everything was always done fairly quickly on T. Rex albums, because Marc wanted to keep costs down, an old habit from the days when we hardly had a decent budget to record.

At the time, Heider's was equipped with a custom console, a 16-track recorder, and "they had all my favorite mics," Visconti recalls, "dynamics for the drums, but U87s for the toms; I used to insist on that. We recorded the drums over three tracks. In those days, it was such a dilemma—do we record the kick on a separate track and the rest of the kit in stereo? Or should we record the snare on a separate track and record the kick in with the stereo kit? Should we record the kick and snare on separate tracks? I tried everything for *Electric Warrior*. Since we needed tracks for backing vocals, strings, horns and percussion, the drum configuration was a very important decision. In the end, we went with keeping the kick separate with the snare and the rest of the kit in stereo on 'Get It On.'

"From memory I can say that the bass guitar was probably coming off just the amp stack to one track," Visconti continues. "Marc's live guitar was recorded to one track from a mic in front of his Marshall. This track was used and not replaced, so the live groove was preserved. He overdubbed a second guitar playing groove parts and the short solos. Mickey Finn's two conga mics were mixed to one track. There was an open vocal mic in the room during tracking. Marc sang on some takes but didn't on the master take. We used this vocal mic for the final mix as an ambience mic. We used about four or five tracks for Flo & Eddie, with Marc joining them. I always used a U87 on vocals and backing vocals."

After the Heider's sessions, the group

returned to England, and work on the song (and album) continued at Trident Studios, with Roy Thomas Baker engineering. Blue Weaver played grand piano on the track, and King Crimson's Ian McDonald is responsible for the honking sax line. "He played all the saxes, one baritone and two altos," Visconti says. "I kept the baritone separate but bounced the altos to one track. I bounced the backup vocals to two tracks, making an interesting stereo image."

Though Visconti usually plotted out his always-creative string arrangements well in advance of orchestral sessions, the simple-but-effective string part for

"Bang A Gong" was an afterthought: "We didn't intend to put strings on 'Get It On,' but when I was writing arrangements for 'Cosmic Dancer' and the other titles with strings, I felt maybe I should have something ready for 'Get It On,' just in case. At the session, I reminded Marc that our first two hits had strings on them and maybe we should continue the trend. Superstitiously, he agreed. All I had written out were the notes G-A-E, as whole notes over the chords of the chorus. We did those first and realized it was icing on the cake! There was no need to write any more for an already dense track. It took about ten minutes."

As for outboard effects on the record,

Cool Spins

Stereolab: *Cobra and Phases Group Play Voltage in the Milky Night* (Elektra)
No one makes chilly synthesizers sound sweeter, warmer—or more swingin'—than Stereolab. Their sonic formula combines a sophisticated nostalgia for a '60s-style futurism with playful, forward-thinking jazz experimentation and altogether delectable grooves. On *Cobra and Phases*, long-time producer John McEntire (Tortoise) is joined by producer Jim O'Rourke (Sonic Youth, Faust). Adding string arrangements, marimbas and even musical saw, O'Rourke takes a "Time Out" for Brubeckian excursions such as "The Free Design," in which urbane horn charts, hyperactive basslines and percolating keyboards evoke a *Logan's Run*-like scenario, a utopian city gone awry. Vibes propel the Philip Glass-explores-*Alphaville* atmosphere of "Blips Drips and Strips." Vocalists Laetitia Sadier and Mary Hansen use their voices as percussion in "Italian Shoes," sorrowfully intoning vocables and sounding like Fellini-esque femmes cruising a *Solaris*-like shopping mall,

lost in the vacuous bliss of consumerism. Other songs, such as "Infinity Girl" and "Puncture," take a cue from Kraftwerk as well as the organ-and-bass-based soundtracks of Jess Franco and Dario Argento B-movies. Heady stuff, and while *Cobra and Phases* adds up to a less poppy outing than the last CD by the mad mod scientists in Stereolab, their loopy sonic surrealism is still mesmerizing.

Producers: John McEntire, Jim O'Rourke, Fulton Dingley and Stereolab. Engineers: McEntire, O'Rourke and Dingley. Studios: Wolf Studios and Blackwing Studios (Both London). Mastering: Steve Rooke/Abbey Road (London). —*Kimberly Chun*

Mark Isham: *Miles Remembered—The Silent Way Project* (Columbia)
The Miles Davis tributes just keep on comin'! Believe it or not, this is a good thing—Miles' music was always open-ended enough to invite creative reinterpretations. And Isham is a natural for this. Now known primarily as a superb film composer, he used to play Miles-ish horn in a band called the Rubisa Patrol in the late '70s, and another band he was in, Group '87, had flashes of *Bitches Brew* sonics in its eclectic mix. The music on *The*
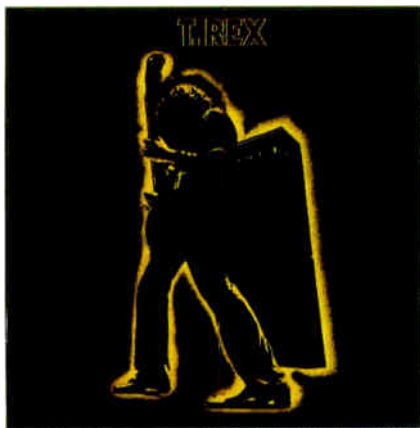
Visconti notes that "Trident had the usual effects available in those days—basically a bank of compressors and two EMT plates. We did our tight slapbacks and phasing with three tape recorders at the mixing stage, with someone in the band or the tape assistant slowly sweeping the VCO. There will never be a digital box that phases and flanges as well as the original method, because that method would technically process before and after the signal, crossing the 'node,' whereas a modern phase program only processes after the signal. There are many instruments treated this way on *Electric Warrior*. Ambience was our only other 'effect.' I'd often record guitars and hand claps from a microphone about 10 feet from the source, aimed at the studio window, in cardioid mode. I was never a fan of hitting analog tape very hard—to me it always sounded better live; the playback was always a disappointment."

Electric Warrior was released in October 1971 and quickly shot to the top of the British album charts. In the U.S., it made it up to Number 32, thanks largely to the success of "Bang A Gong." In England, "T-Rextacy" was in full bloom by the spring of '72—the group sold out two 10,000-seat shows at the Empire Pool in Wembley and Ringo Starr (of all people!) made a documentary about the T. Rex phenomenon called *Born to Boogie* around those concerts. Actually, the band's next (and better) album, *The Slider*, turned out to be the group's biggest seller in the U.S., though it produced just a minor hit in "Telegram Sam."

From there, T. Rex begins to unravel a bit, the hits become more scarce, and by 1975, Bolan has essentially dissolved the group. He was killed in an automobile accident on September 16, 1977, two weeks shy of his 30th birthday. Not surprisingly, this touched off a flurry of interest in Bolan and T. Rex. In the UK, five posthumous singles and five al-

bums charted in the early and mid-'80s, and to this day, previously unreleased session tapes are being issued to hungry collectors around the world.

For more information on Tony Visconti, visit his Web site at www.tonyvisconti.com. ∎

—FROM PAGE 175, CLINT BLACK

mally used a smaller kit and softer textures, rather than using API mic pre's and things like that, which, to me, have a little harder texture. I may have used some Neve mic pre's and I probably would not have compressed things as much. I applied more ambient sounds, mixed with the close mics, so it was a fairly aggressive rock 'n' roll approach to the drums.

"It was a Neve VR console, and we also brought in some vintage Neve mic pre's that we used for the kick drum," King continues. "We used API mic pre's for the snare drum and cymbals. As for microphones, we used some very standard and new things together—ATM 35 microphones for the toms and for the bottom snare mic. We used a KM84 on the hi-hat and Audio-Technica 4060s on the room ambient mics and Neumann

Clint Black (right) and drummer John Robinson (center) at Capitol Studios in Hollywood

87s on the cymbals. [Drummer] J.R. Robinson has lots of cymbals. I don't always put up three cymbal mics, but I spread three out over the cymbals this time, so I had three 87s set up with API mic pre's, and I had an 1178 for a compressor on those things.

"We tried to stick acoustic instruments in slightly different roles than you would normally have in our market, to create the illusion of a bigger, more powerful track," King says. "We didn't try for the acoustic guitar to take the place of electric guitars. We still used the acoustic guitar as the rhythm source, and it's playing a few fills on a few songs, but Clint went to some other textures to try to replace the electric guitar thing. He used horns on some songs and acoustic piano and some more unusual acoustic instruments to create like a pad-y kind of guitar. We used some dobro in some places, or he put some harmonic pad textures where he might normally have had some electric guitar. I used a vintage Neve 1081 mic pre on the acoustic guitar. We went back and forth with microphones on the acoustic guitar depending on the types of songs. We used an Audio-Technica 4050 on a few songs, and on a few songs we wanted almost a more old-timey feel, so we used an old Neumann U47. We used a Neve 33609 compressor for the acoustic guitar."

Because horns are not used abundantly in country music, King rarely has the opportunity to record them. As a former horn player himself, getting to use some of the industry's best horn players was a treat for the engineer.

"We tried not to put too many para-meters or rules on it," he says. "We just went for the texture that sounded right for it. Horns are horns—it's not a traditional country element, but I think the arrangements that Clint and Jerry Hay worked on together helped create a mood that suits Clint, as opposed to it being a Tower of Power approach.

"On the horns we used all Neumann tube U67s recorded through the VR console, and we used compression and EQ in the board. That seemed to work great. Ricky Cobble, my assistant, did a bunch of overdubs for Clint also and they re-did the horns on 'Burn One Down' [with Edgar Winter] at Clint's house through some 4060s and 4050s and the Yamaha console."

As a producer, Black definitely has a clear vision of what he wants: "A lot of producers I've worked with have a hard time knowing or saying what they're hearing," King says. "Clint knows pretty quick if he's getting close enough to what he's hearing from whoever is on the other side of the glass. And then he's good about being able to sing what he's heard—a lick or a line or something. He does a great job of letting people know if it's a rhythm pattern from the drummer, and he's able to play a little bit of everything, so he's able to use those tools to convey his thoughts to the players."

Black replaced his scratch vocals at his home studio. "We have a vocal sound that works on Clint that is basically already set up for him at the house," King explains. "It's the tube 47 into the Tube-Tech mic pre, and he has a dbx 160X that's plugged straight into the Pro Tools, so he can make track after track, one pass or 20. Or if he wakes up at 2 o'clock in the morning and wants to go downstairs and have at it, he can. We can go through it later and comp it or he may get the pass he loves in one shot. He's pretty proficient at using the Pro Tools system."

Waylon Jennings' vocals on "Are You Sure Waylon Done It This Way" were recorded at Digital Insight Recording in Las Vegas to accommodate Jennings' concert schedule. "I put down a copy of the song on ADAT and took it to Las Vegas," Black says. "Waylon did a great job, and then I brought the tapes back and put it back onto my hard drive. We got that track in one take. We talked it through, did a start and got close to the first verse and then I said, 'Hold on, let's do this and that and when you do this, let's do that.' Then it was, 'Okay, here we go,' and we played it from top to bottom and that did it for me."

This is Black's first album to include cover tunes. "Part of what this album is about is influences," Black explains. "I chose Waylon and Marshall Tucker because I wanted to exhibit the country influence, and then Leon Russell ["Dixie Lullaby"] and Monty Python ["Galaxy Song"] because I wanted to exhibit my influences outside of country. I've been listening to Leon Russell since I was 8 and Monty Python really speaks to my twisted sense of humor," he says with a laugh.

Black also re-recorded new versions of a few of his own previously released gems. "Part of what was behind that thinking was how much I loved Clapton's new version of 'Layla' [on Clapton's *Unplugged* album]," Black says. "There's always another way to skin a cat."

Lisa Hartman (Black's wife), who, heretofore, would not sing duets with her husband, joins him on "When I Said I Do." Other guests include Marty Stuart, Steve Wariner, Edgar Winter, Monty Python's Eric Idle, Bruce Hornsby and Kenny Loggins.

Right before this project, Black had two linked Yamaha O2Rs installed in his home studio. Stroud gave him a Formula Sound Q-8, an 8-channel individual mixer that Black likes to use when he's cutting his vocals. King also carts a pair of newer Calrec modules from place to place.

"They have a mic pre and EQ and compressor all built into one rackspace, so when I record piano, I'll use two of those with a couple of 4050s in the piano and then an 87 down at the bottom of the piano," King says. "Then I'll blend those three channels together to a

stereo pair. I also took the Calrec modules over to Clint's house for some overdubs, like Jerry Douglas' dobro and the fiddle. We went back and forth between the 4060 and Clint's tube 47, depending on the texture we needed for the song."

They mixed at Record One, where King used an SSL 9000 for the first time. "I was real happy with how it mixed, but I struggled with the automation at first," he says. "Clint put together a second Pro Tools system, so rather than dump everything back to tape, we mixed right out of the Pro Tools, which is something I had never done before. It gave him a lot of flexibility at mix time, so if there was something that

CLINT BLACK
D'lectrified

needed a rise that was faster than I could do it with my hand, I could go in with the Pro Tools and raise it pretty easily—things I was not able to do as precisely with a fader and a finger. That way we could go in and look at it on a little more of a finite level. Clint listens very deep."

To Black, that's the fun of the role of producer, and one of these days he'd like to do it for other artists.

"It would have to be someone I was really into," he says. "I feel like I could do it from the technical standpoint, but I'm not sure I could restrain myself from making a record that I want instead of a record the artist wants. It would be challenging to control myself, but it would be really exciting. I'd love to direct a video for someone else, too. There are so many things I want to do, which is why I feel as though there is always going to be something out there that will keep me interested and driven. You hear a lot of talk about the word 'formula,' and while I always consider myself not formulaic, in truth, that is my formula—to keep throwing myself a curve ball. That, in itself, is a formula that works for me and keeps me happy." ∎

man with that of *de facto* live recording producer. Until the beginning of the yearlong tour he was primarily a studio engineer, having worked at Bearsville Studios in upstate New York for many years, rising to the rank of chief engineer. Prior to that he had toured as sound man for Todd Rundgren. He knew Merchant from the Bearsville studio and was tapped to help ramp up the sound for her first round of big Lilith Fair dates, and then ended up taking over the full road responsibilities

To make certain that reel changes didn't stop the show, Hewitt had four machines sitting side-by-side in pairs in the machine room of the Silver Studio. The main recorders were twin Studer 820 24-track analog machines running in tandem at 15 ips with Dolby SR, backed up by two Studer D827 48-track digital recorders (set to run in sequence) as a general safety and to catch the overlap between analog reel changes.

Additionally, Hewitt's four Sony PCM-800 modular multitracks were taking MIDI signals and the feeds from 13 audience mics, arranged to facilitate a surround mix.

Despite the plethora of digital tracks this was a decidedly analog date. "I was pleased when they chose analog because I'm an analog recordist at heart," Hewitt explains. "These analog Studers have a wonderful sound—a warm bottom and silky top, which is just right for a female vocalist such as Natalie Merchant."

Merchant sang into her standard Shure SM58 wireless microphone and a wired 58 at the piano position. Was this road-standard mic really the best choice for the costly tracking of these important live performances? "I talked to Natalie about using a different mic, but she really likes the wireless for mobility and she likes the sound of the 58," Cowan explains. "I didn't consider other wireless units; however I did suggest trying a Neumann KM150, a premium wired handheld we've used on some television shows and which sounds good with her voice. And the idea of using a wired mic came more from concern about interference with the RF signal from cellular phone use."

Hewitt did use a Millennia HV3 preamp on Merchant's vocals. "It is my personal favorite," he notes, "because it has wonderful cleanliness and neutral sound and a lot of headroom with its high-voltage rails. It is wonderful for female vocals." Tube-Tech CL-1B and LA-2A compressor/limiters were also run by Hewitt

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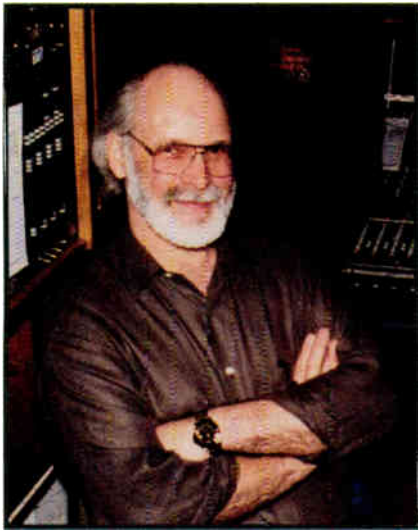
David Hewitt

on both of Merchant's vocal mics.

For the first show there was one big onstage glitch that forced Cowan to make a change—a MIDI-output acoustic piano was quickly replaced by a non-MIDI Hamburg Steinway 7-foot grand. "We wanted to record MIDI to the sequencer just because we could, and to allow easy fixes of the occasional flubbed note without needing to bring in the artist," Cowan explains. "But Natalie wasn't comfortable with the feel and the sound of the MIDI piano. However, she loved the Hamburg Steinway we substituted right after the first show, and we got beautiful results with two Micro-Tech Gefell UMT-70S mics from Dave Hewitt's truck."

Other changes onstage included isolating the Leslie and bass amp cabinets behind Plexiglas and packing blankets near the back of the stage. "We got some pretty good isolation that way. We thought about putting the drums behind Plexiglas but decided to forego it for the sake of the organic feel Natalie was after," Cowan says. "She did not want her live record to sound like it was made in the studio. We also passed on the Plexiglas for the band's comfort."

Almost no mic changes were made onstage from Merchant's touring arsenal, with the exception of putting a Beyer M160 ribbon mic on the saxophone, a Sony C-48 on the bass cabinet and the two Micro-Tech Gefells on the piano. MIDI data was also taken from the string synthesizer "for sweetening purposes, so we could fatten up the strings easily in post if we wanted to," says Cowan. Drum triggers were also recorded via transducers on the trap drummer's two snares and toms. "We wanted these to control the gates; we could've used them to open samples,

but we're not a techno act. And the drums sounded just fine as they were," Cowan says. The drum triggers were tracked to the PCM-800s along with the audience reactions.

Hewitt ended up with 69 inputs coming into his truck. A dozen of those were audience mic feeds, including a SoundField four-way field microphone that was suspended from a boom just in front of the balcony lip. The plethora of audience mics were there to accommodate surround mixing as the recordings are expected to end up on DVD, as well as CD and VHS. (The penultimate Broadway performance was also lavishly filmed with six 35mm motion picture cameras.)

"Natalie has an intimate act that requires audience interaction, and so we went to great pains with the audience and ambience mics, so those aspects will be as integral a part of the recording as they were of the performances," Hewitt says.

In addition to the SoundField (which was feeding from all four capsules so that the SoundField decoder could be used for steering the image in post), other audience mics included two AKG 460s with CK Short Shot capsules on stage right and left (which were fed to the band's in-ear monitors, so they could sense the audience's response), a Shure SM91 at center, Audio-Technica 4073s onstage, Sony 535s hung in the balcony and Audio-Technica 4073s pointing up toward the balcony. The audience mic signals were mixed to a Studer 961 24-track "sidecar" console in the truck.

"The SoundField gave a good ambient picture of the soundstage in the hall, and it was far enough away from the audience to not be overpowered by applause," Hewitt explains. "This is a bit more than average coverage for the audience and ambience, especially using all four capsules of the SoundField, but I think it is a good idea, especially when it will be going to a 5.1 surround mix," says Hewitt.

Hewitt also used a variety of compressors on the band, with four vintage UREI LA-3As on all background vocals, a Drawmer 1960 stereo compressor on acoustic guitar and mandolin, Summit DCL 200 stereo compressor on bass and Empirical Labs Distressor compressors on the kick and snares.

Hewitt's board is a Neve VRM 48x48 with Flying Faders and recall, which he chose for his truck in large part because of its solid construction. "It is the best-sounding, most robust board I could find. I don't want to talk about the other

consoles I've used that could not handle the traveling!" The Neve also has "nice-sounding preamps, and every channel has high-quality compressors and noise gates, which is useful for the monitor side as well. They had a wonderful-sounding Wurlitzer organ onstage, but it was noisy. We weren't, of course, taking the chance of gating it to tape, but the gates cleaned up the monitor mix so I didn't have to sit and listen to that noise for five shows and numerous soundchecks."

The truck is fitted with custom-made KRK 15A3 soffitt-mounted monitors with 15-inch woofers, 7-inch mids and 1-inch inverted dome tweeters. "I use the big speakers for detail and bottom end. When I mix I use the smaller KRK V8s," Hewitt explains. The crossovers are Bryston 10Bs and the monitor EQ is a Sigtech AEC-1000 Digital Time Delay. Power comes from two Bryston 4B amplifiers for the woofers and two Bryston 3Bs for the mids and tweeters.

The dates were captured on BASF tape on the analog machines and Quantegy on the digital. "We normally use Quantegy, but Natalie likes the BASF tape she uses in the studio," Hewitt

says. "A great thing about the two low-hour, 10-year-old Studer A820 analog machines is the ease with which you can use different tapes, thanks to their computer-controlled alignments and bias settings. They're a marvel for this type of work because it is such a pain to keep machines aligned on the road."

The gig was a pleasure for Hewitt. "Natalie's crew are all high-level professionals; George Cowan had everything mapped out well in advance," notes Hewitt. "We often get called in at the last minute on some crazy tours and TV shows that are not necessarily that well-organized artistically and logistically, so this was wonderful. The shows were a treat for us because Natalie is just the

right kind of performer for this intimate theater setting. She is so relaxed with her audience, and the music flows so freely. She is a unique artist." And the proof is on the new CD, *Live in Concert*, released in November on Elektra Records. ∎

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on this film I'm working on, *Pokémon*, and he said, "Do whatever you want. I'm up for it." That was nice to hear—that someone in the film community was okay with doing a music-all-around approach.

On the Sting project, you were starting from Simon Osborne's stereo mixes.
He came to Connecticut. I like using this room because it's perfectly aligned for 5.1 for me. I do all my 5.1 there if I can. I have a Panasonic DA7, and I use that in conjunction with the VR. They had done an 80-channel mix. There was a lot of programming on it. There's a lot of orchestra. A lot of effects. A lot of vocals. And it's absolutely astounding in 5.1.

What sort of decisions did you have to make particular to this record?
It was a perfect record to do in 5.1 because it had so much to draw from. I had the option to do pretty much whatever I wanted. I called [Sting's manager] Miles Copeland before I started and said, "Look, I really like to experiment. I put a lot of music in the surrounds," and he was fine with that. He said, "Go for it. Sting is very experimental himself."

When you sit down in a 5.1 room, you're right in the middle of this whole band.

What did you do with the orchestra?
Eighty percent of the time I put it in the rear.

When you're sitting there in the midst of this, are you trying to establish a visual picture of where the instruments are sitting, so you might have the band in front of the orchestra, literally?
Not really. It's more like the band is in front of me and the orchestra is behind me, like I'm sitting in between them. On another track you might want it to feel as though everyone is in a circle around you and you're facing the main band. With all the previous live projects I've done with Fogerty and The Eagles and Fleetwood, I wanted to just put the listener onstage. I always made the focus point the band. But anyone who wasn't one of the five or six guys in the band I'd put in the surround—maybe the extra keyboard player or the extra

guitar players or the orchestra or any soloists. When you're sitting there and you hear the audience behind you and to the side of you, you expect everything to come from the front, and then all of a sudden you realize you're *onstage*. It really doesn't matter what sort of visual picture anyone gets from it; I just want them to be engrossed by the entire experience.

What did you tend to do with Sting's vocal?
It's always up front, left-right with just a touch of it in the center. Primarily what I use the center for now is I put a little bit of lead vocal in there, a little bit of the

bass, a little bit of the snare, a little bit of bass drum and that's pretty much it.

So did you essentially have to mix from scratch using the 80 tracks?
Close to it. Basically what would happen is Simon would come in, we'd pull up the multitrack, and he would pretty much get the EQ that existed on the stereo [mix]. You know, if someone went out and bought the stereo and then bought the 5.1, I wouldn't want it to be jarring for them by emphasizing a lot of different things. So I try and maintain the sound that Simon had, though I punched up a few things differently, like the kick and the snare; those are a

little different than the original stereo mix, but having the subwoofer [in a 5.1 mix] it's never going to sound exactly the same as the stereo.

By definition, though, doesn't the spatial dimension change the emphasis of certain parts?
Of course it can, and it usually does. It creates such a great amount of space. You're not shoving everything into just two speakers. In a 5.1, you can pretty much pick out any element you want.

I feel as though we have to re-train our ears and our brains to listen to 5.1. It takes a bit of mental work to absorb it.
It can be a little tricky. I think people such as you, people who are in the business, are obviously going to be more open to this and really get a lot out of it immediately. We're going to see the biggest change happening in the market when the automobile manufacturers start installing DVDs in cars. People are going to be blown away.

When I mixed Fleetwood Mac, none of them were around when I was doing the 5.1. Finally, the very last night, I got them to come in, and I crammed them in this little space in the studio in the middle of the speakers, and when I played the 5.1 for them their mouths dropped. Lindsey Buckingham said, "I don't think I can ever listen to stereo again." That says a lot. I think it's going to be hard for a lot of people to go back to stereo.

How do you work with programmed and/or sequenced information? Are there any different requirements in terms of reverbs or effects with 5.1?
It depends on how they're used in the original mix. If it was a fairly important element, chances are it'll be up front, and if there's a lot of stuff going on, I may put it in the rear as well, so I can maintain the imagery up front and have this jamming at you in the back, too. There are so many options in 5.1, and so far there are almost no rules.

What speakers do you monitor on?
I use KRKs; they've been really good so far.

It seems as though in the first wave of people who bought home surround systems a lot of them would use smaller, cheaper rear speakers so there was always a sonic imbalance in the way the information was transmitted to the listener.
That's been a problem. And the reason it happened that way is that it's a film industry thing—for what they were using the rear speakers for in their mixes, they didn't really need full-range speakers all around. So the small satellite speakers

were fine for them. And the manufacturers followed suit and made systems with three mains—and sometimes even the center wasn't the same—and then two completely different surrounds. Now that music's getting done in 5.1, everyone's wondering if they should be full-range all around. I don't think we can dictate to someone where to put the speakers in their home. Sometimes people don't have room in the rear. Sometimes, because of where their furniture sits, they have to put the rear speakers off to the side. That's okay; it's a different effect but you still get some 5.1 ben-

The record might sound okay because it's in 5.1, but it might not have any bearing or resemblance to what the original record was.

efit out of it. I think as we get more into it, a lot of people are going to dedicate rooms to it. Especially with hi-def [TV] coming, I think people are going to go crazy with home theaters.

Say good-bye to the home office; now it'll be theaters.
I hope so. It could be a perfect listening environment. I can't tell you how many times I've gone into people's houses and heard my records on their systems and thought, "Wow, this is terrible!" [Laughs.] So I'm in favor of everyone upgrading their systems.

What are the limitations of the technology at this point? If the center channel is worthless, why have it at all?
I don't know that we need it.

So quad was the way to go after all!
Could be. Alan Parsons is doing 5.1 but basically he's doing quad, and his stuff sounds amazing. I think he's using a phantom center. We'll need to retain the center, though, because that's what the film industry does and we have to accommodate that if we're going to share the same technology.

You're becoming Mister 5.1.
Well, I'm a big advocate. I really support it. I love doing it. For me, creatively, it's a gas.

How do you think it would change what you do if you were on the project from the beginning rather than coming in at the end as a 5.1 mixer?
I do a lot of projects from the beginning where there's stereo first. I always now think that it might go 5.1, so if I'm doing a studio record, I'll set up ambient mics in the room so I have some ambient drum tracks, for instance. But beyond that, nothing much more. I think the venue that benefits most is the live recording; that's a wonderful medium, especially if there's a video with it.

At this stage, the Stings and Fleetwood Macs of the world are going 5.1. When is it going to trickle down to smaller projects?
It's hard to say. The record companies are being pretty selective right now until they see what's happening in the marketplace. I know they'd love to be mixing more in 5.1, but they don't want to pay for it.

The record companies are doing some despicable things. Like right now they're trying to take some classic records and remix them in 5.1, because they know the marketplace is an older demographic, so they think people will pay more money for a 5.1 of say [Steely Dan's] *Gaucho* or [The Eagle's] *Hotel California*. So record companies are going to the original guys who mixed some classic records and saying, "We want to redo this, but we can't afford you," so they end up getting the guy's assistant to do it much more cheaply. So it's a guy who shouldn't be mixing to begin with, and here is mixing in 5.1! The integrity of the original is at stake, especially when you've got a record company guy saying, "Oh, don't worry about what the original reverbs were. Use these new digital reverbs, it'll be fine." And, in fact, the record might sound okay because it's in 5.1. But it might not have any bearing or resemblance to what the original record was. I think you have to maintain some kind of integrity. In this one case I'm referring to, the artist is no longer alive, and the estate doesn't really care. In general, I hope the artists will get involved when someone from either their current record company or their old record company wants to remix something in 5.1 and doesn't want to consult them on it.

Well, look at the early days of remastering for CD, when the bands were almost never involved and some real crap got out there.
That's true, but there you're talking about remastering and the fact is most

of the bands weren't involved in the mastering of their records anyway. But I know what you're saying. I'm talking about actual remixing; that's a different thing.

Are there any projects you've been involved with where you've really been able to go crazy and do weird stuff yet?
Not really, because so far everything that I've put in 5.1 had already been released in stereo, so there's an integrity I've had to maintain.

But you're champing at the bit; I can tell!
Oh, yeah! The closest I came was when I remixed a Toy Matinee record; it was their first album, one that Bill Bottrell had mixed originally. And it came out unbelievable! I had stuff marching around the speakers. It was very cool.

On the Sting record I've got a 360-degree pan happening on a couple of things in there. Like in one case, it's like a scratch that I have going around; it sounds great.

I would think it would be hard to do that and not have it sound gimmicky.
Well, it depends on how loud it is. On the Sting record, it's almost subliminal because it is what it is, but for a second you get the impression you may be listening to vinyl.

How long did the Sting project take you?
About two weeks; it was a little bit more than a song a day. I like this record a lot. It's really well-made. I think it's got a bit more of a world music feeling than some of his records. His voice is amazing. It's very cool. And it sounds that much better in 5.1! ∎

Silent Way Project brings Isham together with two electric guitarists (including Group '87's Peter Maunu), a bassist and drummer, so it's not surprising to find that overall the feeling leans towards the late '60s/early '70s electrified Miles sound. The title cut—Joe Zawinul's "In A Silent Way"—is beautifully blended into Miles' earlier "Milestones." Other standouts include a fine version of "All Blues," with Isham in full muted glory, a workout on "Spanish Key," and the driving and hypnotic "It's About That Time." Isham's own "Internet" sounds like it could be a mid-'70s romp by Miles. Alternately bracing and soothing, and loaded with cool atmospherics, the album captures many of Miles' moods and visits plenty of new spaces, too. Highly recommended!

Producers: Mark Isham and Stephen Krause. Recording Engineer: Bruce Somers. Recorded live at the Baked Potato (North Hollywood, CA). Mixed by Stephen Krause at Wet Dog

Studios. Mastering: Ramon Breton/Ocean View Digital Mastering (L.A.). —*Blair Jackson*

Hot Tuna: *And Furthurmore…* (GDR/Arista)

It's hard to believe that the venerable blues/rock outfit Hot Tuna has been together 30 years—they've been around nearly as long as some of the blues greats they originally emulated! This live CD was culled from the quin-

tet's appearances on last year's Furthur Festival tour, and it shows the group is still capable of producing some fine, fine music. This is probably the most durable version of Hot Tuna in the band's history—besides founders Jorma Kaukonen (guitar and vocals) and Jack Casady (bass), the lineup includes second guitarist Michael Falzarano (also a strong vocalist and songwriter), the amazing keyboardist Pete Sears (of Jefferson Starship fame) and drummer Harvey Sorgen. *And Furthurmore…* contains a number of Kaukonen's best songs, including "Embryonic Journey" and "Third Week in Chelsea" from his Jefferson Airplane days, and Tuna classics such as "I See the Light," "True Religion," "Water Song" and "Funky #7." The blues range from the lilting, fingerpicking, Rev. Gary Davis variety to screaming psychedelic solos that recall the early days of electric Hot Tuna. All in all, this is a very satisfying outing by a band that continues to grow, even as it mines familiar territory.

Producer: Michael Falzarano. Engineer: Tom Flye. Recorded live on the road. Mastering Jeffrey Norman. —*Blair Jackson*

Freakwater: *End Time* (Thrill Jockey)

Freakwater was country when it wasn't cool, "No Depression" before it was a genre. And after 12 years, the band continues to be one of the most reverent in spirit to the Carter Family, the Louvin Brothers and less familiar skillet lickers and front porch singers. That spirit still shines through—even when vocalist/guitarists Catherine Ann Irwin and Janet Beveridge Bean take a more experimental turn, as they do on their latest CD, accompanied for the first time by a string section and a full drum kit (played by The Mekons' Steve Goulding). Here they are both helped and hurt by the lustrous pro-

duction. At its most harmonious in songs such as "When the Leaves Begin to Fall," *End Time* recalls the rich, pedal steel-driven beauty of the best of Gram Parsons. At its most over-baked, as in "Cloak of Frogs," Bean and Irwin's sweet-and-sour vocals and lyrics get bogged down in the overwhelming arrangements. Still, the stick-in-your-gut songwriting stands out, like Irwin's take on a headstrong woman on "Dog Gone Wrong" ("Give her a cake, and she's looking for a file. / Give her a kiss, and she's gonna suck the gold right out of your mouth. / Give her a car, and she'll be heading south.") Wannabe hay-seeds and alterna-roots fans can only hope that it's not the end of those times and that the band makes a successful transition to a different kind of country.
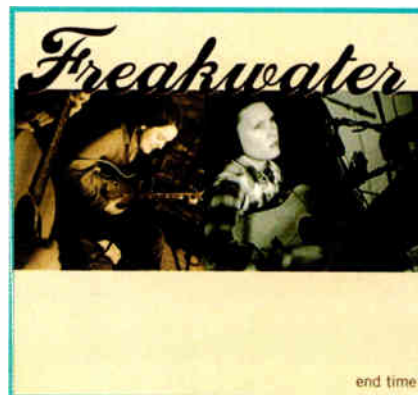
Producer and engineer: Brendan Burke. Assistant engineer: Mark Schwarz. Studio: Uber Studio (Chicago). Mastering: Roger Seibel/SAE Mastering (Phoenix). —*Kimberly Chun*

Other Star People: *Diamonds in the Belly of the Dog* (A&M)

If you've been wondering what's become of superstar producer Roy Thomas Baker in recent years, here's one answer. Other Star People's CD is pure RTB from beginning to end. Okay, he didn't write or play or sing the mate-

rial. In fact, he didn't engineer or mix, either. But the whole approach to the album—the shimmering stacks of vocals, the crisp and crunchy electric guitars, the sharp drum cracks, the keyboard washes, the way the songs lead into each other—are straight out of Baker's

work with The Cars, Queen and others. There are hooks galore and a sort of icy brilliance to the arrangements (by the group), but what the disc lacks is an emotional center. The lyrics are mostly vapid and borderline annoying (when they're not completely inexplicable), and there's no sense of a group personality, really. It's a credit to RTB that the album is as interesting as it is—sonically it's a marvel. If the group is telegenic and gets a break on radio, they could definitely go somewhere. This is infectious pop ear candy, RTB-style.

Producer: Roy Thomas Baker. Recorded by Todd Burke. Mixed by Nick Didia. Studios: Underground RTB (Lake Havasu, AZ), with additional recording at Cherokee, A&M, Audio X and Media Vortex. Mastering: Dave Collins.
—Blair Jackson

Lydia Kavina: *Music From the Ether—Original Works for Theremin* **(New Music Alliance/ Mode Records)**
Here we have a group of songs written especially for that melancholy and "out-of-this-world" instrument, the theremin. And the theremin is played by someone who truly understands its intricacies—a nice change of pace after hearing too many modern hipster
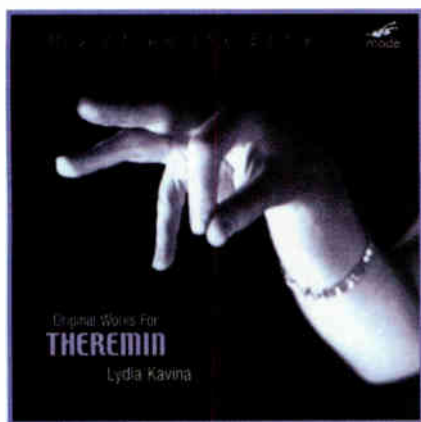
bands' ham-fisted attempts. The artiste is Lydia Kavina, granddaughter of Leon Theremin's first cousin. The last to study directly under the master, Kavina has performed and recorded all over the world. She also wrote two of the songs on this collection. The pieces run the "long-hair" gamut from romantic, multi-movement scores like Czech composer Bohuslav Martinu's Fantasia for theremin, oboe, piano and strings (1944), to Kavina's much more angular and experimental "In the Whims of the Wind," an arresting marriage of theremin and the voice of Elizabeth Parcells, a coloratura soprano. Play this one in your art cafe!

Producer: Brian Brandt. Engineers: Steve Puntolillo and Jamie Candildro. Studio: Baby Monster Studios (NYC); one piece recorded at the John Ford Auditorium (Portland, ME). Mastering: Sonicraft (NJ).
—Anne Eickelberg ∎

COAST TO

Vertigo Recording's owner and chief engineer Charlie Bolois, right, and chief tech Kevin Kaiser, left

L.A. GRAPEVINE

by Maureen Droney

Most people in town know that Charlie Bolois of Vertigo Recording Services, along with his chief tech Kevin Kaiser, are the only authorized Studer service reps for the Western U.S. Those in the know are also aware that Vertigo's staff does a lot more than just repair tape machines. They cover all technical aspects of the studio business, doing systems design, installation and support for a client roster that includes Babyface, Glen Ballard, Mark Isham, Van Halen, Hans Zimmer, Future Disc Mastering, MCA Music and many others.

Is your API console getting a little cranky, or is your room plagued with ground hums? Planning a Euphonix installation in a brand-new room? Need a custom mastering console? Or maybe you just have a problem with your Studer 800 and your MCI JH-24 needs a tune-up. These are the guys to call;

"No job too large or too small" might be their motto.

Established in 1981, Vertigo had grassroots beginnings, only moving to its present Sherman Oaks location in 1997. "I started at Charlie's garage workshop in the valley, with no air conditioning," Kaiser recalls with a laugh. "I'd be sitting there wiring harnesses with the door wide open."

"This was before Mogami cable," Bolois adds. "You had to make your own Mogami and tie it together to make 24-pair wire."

Originally from Pennsylvania, Bolois took his electronics degree in hand and came to California to be in the music business. His first job was at Motown. "Mostly I was in charge of fixing Barry Gordy's stereos," he says. "There were about 16 of them in his house." After Motown, he became part of the technical staff for MCA Recording Studios and then went on to work at the legendary MCA Whitney Studios in

NY METRO REPORT

by Gary Eskow

We spend a lot of time talking with the engineers and studio owners who are responsible for capturing the performances of our best recording artists—but what about those unsung performers, the session musicians? Getting misty-eyed over the possibility of a truly ear-grabbing, millennium-ending ren-

dition of "Auld Lang Syne," we thought it might be fun to check in with a few of New York's premier session players (see box below). Have the rapid-fire changes that have so deeply affected the way music is recorded changed them as artists?

Our round-table panel includes some of the most highly regarded studio players the City has to offer, although calling Will Lee, Rob Mounsey and Crispin Cioe session players is limiting.

NY METRO SESSION PLAYERS

Will Lee, the premier session bass player in New York, has a resume roughly the length of the Manhattan white pages. His work can be heard on several tracks of Donald Fagen's *The Nightfly*, James Brown's *Get Up Offa That Thing* and Phoebe Snow's *Second Childhood.*

Rob Mounsey operates an extremely successful jingle company, Flying Monkey. As an arranger, keyboardist and producer he has worked with Paul Simon, Natalie Cole, Michael Franks and Eric Clapton.

Crispin Cioe is a sax player and a founding member of the Uptown Horns, who have toured and tracked with the Rolling Stones, The Fugees and Wilson Pickett.

Crispin Cioe

Rob Mounsey

Will Lee circa 1980

COAST

NASHVILLE SKYLINE

by Dan Daley

Life goes on in Nashville, even as everyone seems to be buying everyone else. And there is much going on, on both conventional and unconventional fronts.

Studio III is trying to carry on the traditional niche of a one-room tracking facility. It has some big shoes to fill—the space has been a recording studio of one sort or another almost since the street it's on has been part of Music Row. In the 1970s, it was Bullet Studios. In the next decade, it became Digital Recording, the second Nashville studio owned by Norbert Putnam after he sold Quadraphonic. In the early 1990s, producer/engineer Mike Clute ran it as Midtown Tone & Volume. Two years

ago, Alabama-based entrepreneur Gerald Murray took over the space and named it Studio III. That long tenure in the same location has made the space a touchstone for a few generations of pro audio citizens.

One of those Nashville fixtures, Jeff Teague, former vice president of A&R at Word Records and now creative director and minority owner of Studio III, worked with Putnam back in the '70s. (Teague played drums for the Pousette-Dart Band, whom Putnam produced.) Today Teague takes his business to Studio III: He produced MCA artist Alicia Elliott's debut record earlier this year on the facility's Euphonix CS 2000 console (more connections: Piers Plaskitt, former chief engineer at Bullet, is now president of worldwide sales and marketing at Euphonix). "It's

Snoop Dogg and producer DJ Battlecat at the new SSL Axiom-MT at Skip Saylor in L.A.

SESSIONS & STUDIO NEWS

SOUTHERN CALIFORNIA

Priority Records rapper Snoop Dogg dug in at Skip Saylor Recording in L.A. and worked on his next recording at the studio's new SSL

Axiom-MT and SL 4000 rooms. Producer DJ Battlecat, engineers Chris Puram and Tracey Brown and assistants Ian Blanch, Regula Merz and Paul Smith hung in the Dogg house. (Snoop was also sighted tracking a new Fox Sports release at Frontpage Recorders in Glendale with DJ Mello D, producer Greg Banylyshyn and engineer Rick Hackley.) Also at Skip: Queen Latifah mixed for her new TV show with producer KenDu, engineer Puram and assistant Blanch. The Scorpions were in with engineer Erwin Musper and assistant Brown...Hard to keep track of all the stars at Track Record in North Hollywood: Stevie Nicks worked on new material with producer Rick Nowels, and Melanie C., or Sporty of the Spice Girls, tracked her solo Virgin Records debut with producer Nowels, engineers Randy Wine and Steve MacMillan and assistant Sergio Garcia. Garcia also worked with Rae Kwon of Wu-Tang fame on his solo Loud Records CD with assistants Ai Fujisaki and Eric Williams. Fujisaki assist-

The maestros of mastering stay on the move: Bernie Grundman Mastering opened new 5.1 mastering suites in Tokyo this fall and will open a suite in Hollywood in February 2000. All systems at the 16-year-old company are custom-designed with components built by partner Karl Bischof with Beno May. Digital mastering is done through a Harmonia Mundi BW102 system with dB Technologies and Apogee converters. Left, a year-old room at Bernie Grundman in Hollywood features one of the custom consoles; inset, Steve Vai takes a break from mastering his new Favorite Nations album, The Ultrazone, with owner/engineer Grundman.

PRECISION MASTERING
TWO DECADES IN HOLLYWOOD

by Blair Jackson

Precision Mastering, based in Hollywood, Calif., is celebrating 20 years as one of the top mastering houses in the industry. Founded in 1979 as Precision Lacquer by Larry Emerine (who had worked as chief engineer at Richard Perry's Studio 55), the facility has seen an incredible array of talent come through its doors, including such "name" acts as Bob Dylan, Fleetwood Mac, Alice in Chains, Eurythmics, the Rolling Stones, Pink Floyd, Beck, Roy Orbison, Nirvana, Red Hot Chili Peppers, Barenaked Ladies, Rod Stewart, Frank Zappa, Stevie Wonder, Tom Petty, Prince, Kiss, Stone Temple Pilots, Janet Jackson, Don Henley, R.E.M. and Barbra Streisand.

Like any great studio, Precision has built its reputation with a combination of superior technology and skilled operators for that equipment. In the late '80s, Precision was involved with the development of the Neve DSP mastering console and also purchased a Neumann DMM lathe. Then, in the '90s, the facility invested in a plethora of Manley tube gear and various other analog/digital converters (Prism, dB Technologies, etc.), as well as Weiss EQs and compressor/limiters, Sonic Solutions workstations, Audio Research amplifiers, and Genesis and Tannoy monitors. Each of the four mastering engineers on board at Precision has his own suite: Tom Baker, formerly of Oasis Mastering and Future Disc Systems; Rick Essig, who was a cornerstone of Frankford-Wayne Mastering for more than a decade; Don Tyler, who ran his own production facility in L.A. for several years; and Spencer Chrislu, a veteran

of studios in Boston, Nashville and L.A. (where for several years he worked as Frank Zappa's recording and mastering engineer).

"We do everything, and we still get a lot of ½-inch 30 ips analog tape coming in, but this year, for the first time, we're seeing more and more digital clients," Emerine says. "A lot of our clients are rock clients, and the truth is analog tape is your friend if you're trying to cut loud, musical records. Tape compression is its own kind of compression, and a lot of people like that. But we're seeing more digital tapes and more 24-bit DATs, even. We do a suprising amount of lacquer business, too. Rick [Essig] is running that lathe about five hours a day now. That's what a lot of people who do dance music want. And that's something the guys in the garages [who are mastering their own projects] aren't going to do. We like to do it all."

Asked how the quality of the tapes that come into Precision has changed over the past 20 years, Emerine comments, "The mixes are more together, for sure. In fact, the tapes in general are coming in consistently better. More people understand what a good tape sounds like. An unfortunate thing, though, is that everyone wants them pushed to the max. Everyone wants their CDs to be the loudest ones in the world. And unfortunately, we may be a little responsible for that because we were pushing CD levels when very few other places were doing that.

"My concern for the future is that people will keep using these inexpensive boxes that squash the sound and make them sound fuzzy, and then confuse that with mastering," he continues. "That's not what mastering is. Mastering is getting to know the music, getting a consistency to it and understanding that you have to EQ appropriately and musically." ■

Glendale. "I was there at a great time," he remembers. "The main room was usually booked with Barry White, and the other room was locked out with Mike Chapman producing Pat Benatar, Blondie, The Knack…"

In '81, Bolois decided to open his own business, and he's never looked back. Now, the company has more than 30 large-scale Euphonix console installations and over 100 other studio installations, both analog and digital, to its credit. Bolois is also the inventor of the patented Vertigo patchbay cleaning tools, which have been widely used by clients such as the Grateful Dead and the CIA.

Besides Bolois and Kaiser, the staff includes wiring experts Eric Fischer, Hiro Watanabe and Michael Bradley. A tour of the neat shop proves that analog is alive and well. Workbenches line the walls, and tape machines, consoles and compressors of all makes and ages fill the room. Tech support is the mainstay of the business. The proliferation of home studios and the trend in commercial studios toward cutting in-house maintenance makes plenty of work for guys this experienced.

The Vertigo team seems to enjoy all aspects of their work, from the fine tuning of machine electronics at a composer's project studio to large installations in Austria and Brazil.

Problem solving is a specialty. Among other things, they're known for their expertise in curing ground hums. "When Euphonix first came out, and were being interfaced with so many keyboards, we worked on a lot of their grounding issues," Kaiser says. "Part of our success in that came from perseverance: We keep working until we find the exact problem. We kind of became experts, and everyone started calling us for help."

"People come to us almost like to a shrink, sometimes," laughs Bolois.

Not surprisingly, installation horror stories abound, and although the crew is too discreet to name names, I got them to mention a few memorable jobs. "One time, we were called in to wire after the construction was done," Bolois recalls. "The wall treatment was completed, the glass was in, the ceiling was done. But the studio designer, who had no clue about the specs of the console they were putting in, had built tiny little troughs…it all had to be ripped out." Then there's the one about the master synthesist whose control room was built with special furni-

Larry Emerine

ture for his banks of keyboards, but with no AC outlets in sight.

For these reasons, Bolois prefers that Vertigo gets called into a project at the beginning. "It's so much better if we can be involved early on," he states. "We work with the designer and the contractor to make sure that it's right. People are very happy with their studios if there's a combined effort between us, the electricians, builders and designers. More than once I've gotten a phone call from someone at the end of a project who says, 'Would you come out and help us with this, and please, please promise that you won't say, 'I told you so?' Well, no problem, but it really will save time and money if you call us a lot earlier."

Recent projects that Vertigo has worked on include two new digital rooms for Burbank's Advantage Audio featuring Studer D950 consoles, installs of a 96-in Euphonix for Santana producer K.C. Porter and a 72-in SSL 9k for Eddie Van Halen, an all-Pro Tools film mix room for composer David Newman, and various studio projects for Jeff Lynne including the installation of a Pro Tools system that was used by Paul McCartney for his latest release.

To those studio owners worried about maintaining their cherished analog tape machines, Bolois offers some insights: "I don't anticipate any problem in parts support for the 827. First of all, they don't break much, and the things that do break on them are readily available. I walked into the parts storage area, and there are tons of individual things. I'd say for the 827 there's no worries for a long time. Now, the A800 is 21 years old—that's more difficult."

He also reports that some parts for MCI JH Series are getting rare and, in some cases, even impossible to find: "The transport motherboard, which used to be a very common thing, is no longer available. Neither is the autolocator circuit board. We can get around these things. Motors can be rebuilt, heads are still for sale, there are people like Athan Corp. who make key elements like pinch rollers—we can still fix almost anything."

Bolois has faith that analog recording will remain with us for a long time to come. "There's a real love and a reverence for it," he comments. "Scoring mixers who record orchestras for film are the best example. They have the budgets, they could record to anything they want, and they still choose analog 24-track with Dolby SR. Because, from the purist, top-quality point of view, and for

Amy Burr, new Record Plant studio manager

reliability, nothing touches it."

It was a typical day at Record Plant when I stopped in to congratulate Amy Burr on her promotion to studio manager. Typical for Record Plant, that is, where rock, pop, rap and country seem to coexist much more happily than anywhere else. On the day I was there, all four rooms were jumping—Christina Aguilera was in with Ron Fair producing and engineering, Kenny Loggins and Olivia Newton-John were working on a duet with Nathaniel Kunkel engineering, producer/mixer Toby Wright was behind the board for hip hoppers Rehab, and the world's busiest engineer, Mike Shipley, was in with Enrique Iglesias and Hawaiian artist Hoku.

Burr is starting on her seventh year at Record Plant, having worked her way up the ladder from receptionist to front office manager to traffic and operations, taking on more and more responsibility. "I was 'girl-with-no-title' for a long time," she says with a laugh. "It was, 'There's Amy. She's the glue of the studio.'"

Asked to describe why she likes her job, Burr obliged with, "It's fun to feel like you are somehow a small part of the music that's being made. Even though you might not be the musician or producer or engineer, you've helped put that project together in some capacity, and that's a buzz. It takes a lot to get to the level that many of our clients are on, and it really is exhilarating to be around people who are so talented and strong in what they do."

Extending the scope of the Left Coast, I checked in with TK's True Kiss Disc Studios in Hawaii, where Troy Gonzalez, former ace staffer at Sony Studios in Santa Monica, is now chief engineer. TK—actually the hit Japanese produc-

er/musician Tetsuya Komuro (called by some the "Babyface of Japan")—has, as those who know him will not be surprised to hear, spared no expense to build a world-class resort studio on Oahu, not far from Honolulu.

Designed inside and out by studio bau:ton and almost two years in the making, the two-room facility features views of a blue marina from both studios and control rooms, and is equipped with dual SSL 9000J series consoles (Studio A's has 112 inputs and Studio B's 96). The facility includes three Sony 3348HRs, a Pro Tools|24 rig in each control room and a very full complement of outboard equipment.

Special attention was paid to wiring and sync routing in the design of the control rooms. "The Pro Tools systems are fully integrated with both analog and digital AES/EBU patchbays," Gonzalez tells us. "There's also word clock in the patchbay, so you can patch word clock back and forth from the 3348 to the Pro Tools or to the DAT machines—it's really easy to get around sync-wise. The routing of this studio is the best I've ever seen."

Since opening, clients in at TK Disc have included Columbia's Blaque, produced by TK and Tone from Trackmasters and engineered by Chris Puram; engineer Ken Kessie mixing singles for Namie Amuro; Tom Durak engineering for new group Nina, with Kate Pierson from The B-52's; and Japan's top-sellers Globe, with Gonzalez and Prince alumni Steve Durkee recording and Eddie Delana mixing.

Mixing engineer Kessie sums up the TK Studios/Hawaiian experience: "Looking out the window of my hotel mini-suite, blues and greens to rival Myst, that more-than-languid air temperature—I almost forgot I was there to work, until a few minutes later. I'm flying north in [TK music production manager] Riki Melwani's Jeep. He's honking with one hand while simultaneously fielding two cell phones until we pull up at the studios. There I find A-list equipment and multiple iso rooms with lagoon views. The Bob Hodas-tuned mains sound great, chief engineer Troy Gonzalez has everything working perfectly, and after I plug in my secret weapon, the RNC (Really Nice Compressor), my mix proceeds smoothly, broken up only by frequent trips outside to savor the balmy weather. I can't wait to go back!"

since they are all highly regarded artists as well.

Has technology, specifically the MIDI revolution, changed the way you play?
Will Lee: Absolutely, and I can think of a specific example right off the top of my head. Alannah Myles had a hit a few years ago called "Black Velvet." The fretless bass part on that track was so precisely played that it kicked my ass. It made me a better player. The producer, David Tyson, hired me to play on Alannah's next album. I flew out to L.A. and was intimidated when David told me he was the guy who put down the bass on that track—but it was sequenced! It fooled me completely and made me realize how good a part can be using the technology.

Rob Mounsey: A touchy question for singers who can't sing in tune—not to mention instrumentalists who can't play in time!

In most of the music-making I'm involved in, the technological tricks are designed to be invisible to the audience, although there are times when we do want the techno-acrobatics to be obvious. One major recent change in my own work habits: I am able to offer expert Pro Tools editing and processing at my own studio, even on an acoustic-style project such as the last Natalie Cole record or the just-completed George Michael sessions.

I think performing to computer-created tracks has actually taught recording musicians to play in time more accurately. My own obsessive study of music and audio has improved my ability to hear detail in my own performances—sometimes to my frustration, as my ability to hear exceeds my ability to perform!

Crispin Cioe: There's no question that I'm playing differently than I was 15 years ago. I definitely think a musician reacts unconsciously to playing over digital/sampled/virtual, as opposed to live tracks. Digital clips high-end frequencies in different ways than analog, for example, and that results in different intonation and blending considerations.

Solo-istically, it's not a bad thing. Sometimes my horn can be the only "real" sound on a track. If that's the case, the producer's usually looking for me to supply the emotion, and that's fine with me. I'm an emotional guy…

As far as sampled horns go, the Uptown Horns have done a couple of "sample deals" over the years, so we're not unfamiliar with the terrain. But unless the

application for sampled horns is totally, pointillistically staccato, I think sampled horns generally suck, and I think most good producers know that. That's why we still exist along with Tower of Power, the Memphis Horns, etc.

Even a super-with-it, now kind of guy like The Fugees' Wyclef Jean knows the difference between Pro Tools and pro players. He called us in to come up with riffs and arrangements that were ultimately sliced and diced in true hip hop fashion. The interplay between music and technology is what makes for some of the more interesting pop stuff around today.

What does a studio need to have—equipment, ambience, personnel—to get the most out of your talent?

Lee: It has to have the ears of the person who's responsible for the project. I've always been a guy who wanted to have the most equipment possible—more toys, more potential. What it all boils down to is there are guys who have very little equipment and can do a whole lot with what they have. Knowing what your equipment can do and how to utilize it is more important than having a lot of toys.

A guy I've worked with, a great drummer and writer named Terry Silverlight, comes to mind. We've played on Nancy Wilson records together, and I've co-written and sung on lots of tracks with him. I'm amazed at what he does with a little reel-to-reel recorder, a sequencer and boatloads of talent.

Mounsey: As far as performing in the studio with a group, the recording engineer who can supply a really good-sounding headphone mix is worth his weight in Platinum. Elliot Scheiner, for one, is fantastic to work with in this regard. It makes it so easy and so much fun for the musicians to play if they can really hear. Good coffee and a few fresh bagels also helps a lot.

Cioe: Maintenance is paramount. Everything's got to work right so that the most important elements to getting good performances flowing are totally unimpeded. That means studio management and engineers who understand the first thing musicians need is good sound in their headphones—always and forever. Without that, strike one.

Next, engineers so experienced and gifted that they know all the palettes and colors that great players draw on, and can change mics, amps, EQs, effects, editing strategies and so forth, on a dime. I did a session for a high-profile rap group not long ago, in a high-pro-

file NYC studio, where the hot-shot engineer actually told us: "I'm excited. I've never recorded live horns in a room before." As if…

What's the most important piece of gear in a recording studio?

Mounsey: I'd say some good mic preamps. Also, a good coffeemaker [see above].

Cioe: I guess if I were forced to pick the single most important element for what I do, it would be good mics, because that's always going to be the entry point for my recording chain.

How do you feel about working analog vs. entirely digital?

Lee: Digital is a powerful tool these days, with much better sound quality than ever before. As we speak, a combination of both is the best, to my way of thinking. I prefer using tube stuff on the input side before the signal hits digital tape or hard disk, but I can go either way.

Mounsey: Analog vs. digital is probably the most outdated and insignificant conflict since "liberal vs. conservative." Many projects now are hybrid projects that combine elements of both. Also, in the ProTools-TDM world, where I spend a lot of time, there are various strategies for imitating the warmth and smoothness of analog tape saturation, vacuum tubes and so forth.

Digital editing and processing are definitely here to stay. The ease and speed of use that they offer have become indispensable. Not to mention, no more waiting for tape to rewind. Good riddance.

Cioe: My home studio, where I do mostly song demos and write cues for film, is completely computerized: Mac G3, Digital Performer, JV 2080, MOTU 2408, MOTU Digital Timepiece, etc. So I'm not a total Luddite about digital. But at the same time, I think Neve boards still sound incredibly great. And Neumanns, AKG 414s, RE20s—the classics still work for me. But I'm always open to whatever an engineer prefers, as long as the sound kills. It seems that some admixture of digital and analog is what the ear finds most pleasing.

But I suppose, given my druthers, I'll always come down on the analog side. I have a soundtrack out now from an independent film I scored called *Burnzy's Last Call* [on Cellsum/Ripe & Ready Records]. The film takes place in a bar, and the entire underscore is "fake oldies" coming from the saloon's jukebox, featuring songs I produced and co-wrote with George Gilmore, the film's screen-

play writer, and singers that include David Johansen, Debbie Harry, The Smithereens, Graham Parker, Evan Dando and Lou Christie. I recorded on 16-track analog, and the closest I came to digital was using some vintage keyboards modules for things like mellotron.

Do you expect to see many changes in the way music is recorded in the next ten years or so?

Lee: My dream of dreams is that great songwriting rule the airwaves.

Mounsey: I'm sure that in 2009 we'll be doing things we can barely imagine now. We're all permanent beginners from here on out.

Cioe: The movement I perceive is toward hard disk/drive recording, in conjunction with music being delivered more and more via Internet download. But as I mentioned, I also think crucial analog elements will never disappear from the recording chain.

Any end of millennium thoughts you'd like to share with our readers?

Lee: See you!

Mounsey: 2000 is just a number. Big deal! We knew it was coming. Let's all just get over it.

Cioe: Whether it's the reed section in the Guy Lombardo's Loma Linda Orchestra or the Uptown Horns playing at the Palace in Detroit with the mighty J. Geils Band this Y2K, people are always gonna want to hear a bunch of saxophones crooning "Auld Lang Syne." They can't take that away from me… ∎

E-mail your New York news to Gary Eskow at scribeny@aol.com.

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amazing how many careers this place has touched," says Teague, who recalls that Bullet launched several engineering and production careers, including that of producer/engineer Scott Hendricks, former Capitol Records Nashville chief and now head of Virgin Nashville. "There's a reason that this has been a studio for so long—it's situated in a great location on the Row, which is popular with musicians, engineers and producers, the tracking space is inherently warm-sounding, and it's one of the few places that has such a high ceiling, which really lends itself to tracking dates." Studio III's high ceiling also holds a lighting grid, and the studio has been rented for music-video tapings.

Single-room operations are difficult under the best of circumstances, but Teague believes that Studio III's built-in benefits allow it to succeed even in the roiling environment of the Nashville market. The facility's business plan is based on appealing to three markets (hence its name): music publishing, artist development and record dates. "Even with all the studios in Nashville right now, there is a gap in terms of rooms that have great tracking space and are equipped and configured for top-level record sessions and that are affordable," Teague explains.

The studio has an average rate of $800 per day, variable based on the type of sessions booked. The big attraction has always been the tracking space, which is augmented by large concrete acoustical echo chambers beneath the studio floor and by a loft above the iso booths along one wall. The Euphonix console, which has been expanded to 72 inputs in a control room reconfigured by designer John Arthur of Miami, is still something of a novelty in Nashville, but Teague says those who use it generally become converts. "But the real key to this

is that we believe that if you give producers and engineers an inherently good acoustical space that's well-equipped and well-maintained, at an affordable price, you can succeed," he says. "After all, that's what the studio business has always been based on. So it's kind of like baseball—we're sticking to the fundamentals."

On the less conventional side, tappedinto.com is the online music venture co-developed by former Sixteenth Avenue Studios manager Preston Sullivan and Judith Newby, former personal manager for artists including the Everly Brothers, Tom T. Hall and Johnny Rodriguez. Operating from offices a block away from Studio III on Music Row, tappedinto.com might be a model for the future of multimedia in Nashville. The company uses music as both a customer base and a content source for its 144 URL channels, and it creates marketing and sales packages for independent and major label artists, as well as its own burgeoning roster of recording artists.

"We'll probably sign about ten acts ourselves this year," says Sullivan, who continues to produce records within and without the new company. Still, music represents only a portion of the content that the company targets. Tappedinto.com also streams data on politics, sports and other specialty areas.

Tappedinto.com's own audio arsenal is Spartan—a Mackie mixer, a few microphones, RealAudio for MP3 encoding and Adobe Premiere video editing software. But that's about all it takes, Sullivan says, allowing the company to use the studio resources of Nashville, which become more affordable as consolidation continues. The company also taps into the facilities of Full Scale, a Seattle-based recording studio that is one of the venture's partners.

Looking back, Sullivan is happy not to confront the churning landscape of Nashville's studio business at the moment. "It was inevitable that all of this was coming, and I'm glad we got out when we did," he says of Sixteenth's closing nearly two years ago. "The way it's set up right now, it's nearly impossible for a one- or two-room studio to make a go of it, unless it's doing in-house productions funded by major record labels. The Net is the future, and we'd rather be on that side of progress." ∎

Send Nashville news to Dan Daley at danwriter@aol.com or fax 615/646-0102.

Limp Bizkit's Fred Durst (from L) and DJ Lethal cut up at Chicago Trax Recording with chief engineer Chris Steinmetz and assistant Lane Wintz while mixing "Crushed" for the End of Days soundtrack.

—FROM PAGE 189, SESSIONS & STUDIO NEWS
ed on Mercedes' No Limit debut (which features Master P) with producers Dez and Alan Floyd and mix engineer Tim Anderson...Grammy-winning producer David Kershenbaum began working on Tracy Chapman's latest album at Royaltone Studios in L.A. His monitors of choice: JBL's LSR Series...At Scream Studios (Studio City), Save Ferris mixed a new Sony CD with producer/engineer John Travis. Producer David Kahne also mixed Sugar Ray's "Falls Apart" and Solar Twins' "Puppet." James Murray assisted on all sessions...Jody Watley got busy on a new self-produced Avid Music CD, *Saturday Night Experience*, at Future Disc Systems in Hollywood. Studio chief mastering engineer Steve Hall lent a hand. Hall also mastered *Metamorph*, a new CD by South African singer/songwriter Karin Hougaard. Kris Solem remastered eight Motley Crue albums for re-release...

NORTHWEST

Xtreme Studios (Bellevue, WA) went to northern extremes to record a live concert video for the Canadian teen rock sensations The Moffats at Vancouver's Orpheum Theater. Leamon Gamel engineered with assistance from Steve Smith...At Music Annex (Menlo Park,

The Moffats

CA), mixer Tom Carr worked on a new Windham Hill/BMG CD by Tracy Silverman and CDs by soprano Iris Fraser, the Rory Snyder Quintet and the Contra Costa Children's Chorus...Rainstorm (Bellevue, WA) tracked a new Minimum Wage album by Ghana singer/songwriter Koo Nimo and Indian tabla prodigy Vishal Nagar with producer James Whetzel and engineers Paul Speer and Steve Carter...Producer/remixer Fran Ashcroft was at Studio Astoria (Astoria, OR) mixing CDs by Elks Skiffle Group and Thor Marius...Jackpot! in Portland, OR, captured Aaron Masonek (of the American Girls) with producer Ezra Holbrook...Vagrant Studios in Seattle saw the likes of West Section Line, Mystery Action, Cheatin' Hearts, the Long Faces and the Gravytrain Robbers, working either Erik 4-A or Evan Foster...Master Works (Seattle) mastered CDs for Modest Mouse, Slabco Records artists Dynomite D and Scientific American, and Eric "Two Scoops" Moore (formerly with Luther Allison)...

SOUTHWEST

Tab Benoit got the blues, down on tape, for Vanguard Records at SugarHill Recording Studios in Houston. Benoit co-produced with house engineer Andy Bradley. Bradley also worked on CDs for Scottish bagpipe band The Rogues, Mandarin Chinese gospel group New Heart and Christian artists New Light...Country vocalist Randy Travis recorded vocals for the TV show *King of the Hill* at Stepbridge Studios (Santa Fe, NM) with help from engineer Eric Fruits...At Sound Arts Recording Studio (Houston), Hamilton Loomis tracked an R&B/blues CD with producer/engineer Steve Ames. The Fire Ants mixed a pop/rock CD with engineer Brian Baker...

NORTH CENTRAL

Big hair made a comeback at **Colossal Mastering** in Chicago: Manager/owner **Barb Nashold** said that chief engineer **Dan Stout** recently mastered songs by **Enuff Z'Nuff** for an overseas compilation. Other projects in the studio included Polish techno band **D.U.I.**'s remix of **Christina Aguilera**'s "What a Girl Wants," a CD by **Satya Graha** entitled *Lyrics to Music* (**Doug McBride** produced) and a swing version of **Prince**'s "1999" for *Swing 2000*, a compilation for Q Records (**Kurt Elling** mastered)... **Chris Whitley** was captured live in Chicago by **Satellite Studios**. Engineers include **Tomas Ford**, **Jack LeTourneau**, **John Alagia** and **Jeff Juliano**...Not wasted: **Garbage** have been in **Smart Studios** (Madison, WI), recycling B-sides for a new compilation...Engineer/producer **Jeff "Madjef" Taylor** has been busy in Minneapolis: He recently recorded the Grammy Award-winning **Sounds of Blackness**' new album, *Reconciliation*, with producers **Gary Hines** and **Billy Steele**, and he worked the board on **Mariah Carey**'s new album with producers **Jam & Lewis** and engineers **Steve Hodge** and **Dana Chappelle**...

NORTHEAST

Mastering moments at **The Lodge** (NYC): *Saturday Night Live*'s 25th anniversary two-disc DreamWorks compilation, *The Musical Performances*; *Pokémon* original soundtrack on Atlantic; **Loudon Wainwright III**'s *Social Studies* on Rykodisc/Hannibal; **Mindless Self Indulgence**'s *Frankenstein Girls Will Seem Strangely Sexy* on Elektra; and a Putumayo release by **Oliver Mtukudzi**...

Sevendust

Heavy, man: Hard rock band **Sevendust** recorded their new TVT CD, *Home*, at **Longview Studios** in North Brookfield, MA, with Korn producer **Toby Wright**... In the getting-younger-all-the-time department: **Little Women**, a pop R&B trio of 15-year-old girls, tracked at **Perfect**

Pair Recording in East Orange, NJ, working with a smorgasbord of producers on a new Sony CD…At Indre Studios (Philadelphia), owner Michael Comstock mixed a live feed of Blessid Union of Souls, performing their song "Leonardo (She Likes Me for Me)" for Ill-adelphia's live morning show, *Good Day Philadelphia*. Performances for the nationally syndicated radio show *World Cafe* were also captured at Indre; those included Billy Bragg & the Blokes (featuring Ian McLagan of the Small Faces, as well as members of Public Image Ltd., Talk Talk and Shriekback), Freedy Johnston, the Afro Celt Sound System and Taj Mahal …Richard Stoltzman tracked and mixed his next BMG Classics CD at BearTracks (Suffern, NY) with producer Jeremy Wall, engineer Larry Swist and assistant Iain Fraser…Blues artist Susan Tedeschi got on the welcome wagon, tracking a duet with blues legend Little Milton for *Welcome to Little Milton*, a Malaco Records compilation. Kent Bruce engineered…Classic Sound (NYC) engineer Scott Hull recently mastered tracks by the Indigo Girls, Matthew Sweet, Tonic and Zap Mama…

SOUTHEAST

Southern Tracks in Atlanta has been all the rage—for producer Brendan O'Brien, who mixed Rage Against the Machine's long-awaited Epic disc, with second engineer Ryan Williams and assistant engineer Karl Egsieker. He also tracked and mixed Korn's new Epic album, with engineers Nick Didia and Williams and assistant Egsieker, and mixed Stone Temple Pilots' new Atlantic release entitled *4*, with Didia, Williams and Egseiker…Sinead O'Connor got back on track at Doppler Studios in Atlanta, recording her new Atlantic/NY Records release with producer Kevin "She'kspere" Briggs, engineers Darin Prindle and Ralph Cacciurri, and assistant Steve Fisher…LaFace Records artists Outkast produced new songs for their fourth LP at their new Atlanta studio, Stankonia Recording (formerly Bobby Brown's Bosstown Studios), with engineer John Frye and assistant Vincent Alexander…At East Iris (Nashville), "Four Leaf Clover" singer/songwriter Abra Moore got lucky, recording vocal overdubs with producer Jay Joyce and engineer Giles Reeves…Classical cellist Yo-Yo Ma got down home with Alison Krauss, mixing her tracks at Seventeen Grand (Nashville) with engineers S. Jenkins and assistant T. Neales. Boy Zone also overdubbed at the studio with producer Steve Lipsom, engineer Heff and

assistant T. Salsig….38 Special recently tracked with engineer Edd Miller at CMO Productions, a new facility in the former Kala Studios in Atlanta…Blind Pig Records artist and former Muddy Waters guitarist Bob Margolin tracked his new album, *Hold Me to It*, at Reflection Sound Studios (Charlotte, NC) with co-producer Kaz Kazanoff, engineer Mark Williams and assistants Tracey Schroeder and David Puryear…Latin acid jazz artist Alejandra Guzman recorded and mixed an upcoming BMG release at The Warehouse in North Miami with producer Oscar Lopez and Juan Calderon, engineer Dave Dachinger and assistant John Thomas. Also at The Warehouse, reggae band Inner Circle mixed a WEA CD with engineer Louis Diaz and assistant Abebe Lewis…Blues Brothers alum Lou Marini Jr. was in at Bates Brothers

Engineer Eric Bates with artist Lou Marini Jr. at Bates Brothers Recording in Birmingham, AL

Recording (Birmingham, AL), working on a big band CD with co-producer Ray Reach and engineer Eric Bates…At Catalyst Recording (Charlotte, NC), producer/engineer Rob Tavaglione worked with Blackacidisco and the Charlotte Philharmonic Orchestra…Capricorn Records arist Galactic tracked in their hometown of New Orleans at Magazine Sound, American Sector and Kingsway with producer Nick Sansano…At New River Studios in Fort Lauderdale, FL, BMG Mexico pop band Guardianes del Amor overdubbed strings with producer and arranger Bebu Silvetti and engineer Alfredo Mateus. Silvetti and Mateus also worked with Warner Music International Latin vocalist Ricardo Montaner, tracking and mixing a mariachi version of his hit "El Poder De Tu Amor"…Cantor David Sirull was in at American Holly in Charleston, SC, recording tracks with producer/engineer John Uhrig for *24 Historic Songs (Cantorings)*, which showcases 400 cantors…

STUDIO NEWS

Masters of the Universe: M Works in

Cambridge, MA, recently built a new mastering facility designed for 5.1. George Augspurger designed the studios, which include three Sonic Solutions suites and a DVD authoring area …Dewey Williamson, studio manager of DARP Studios (Atlanta), recently earned a BASF Master Award for the recording of TLC's hit single, "No Scrubs," which was mixed and mastered on BASF SM 900 analog tape …Chris Pelonis of Pelonis Sound and Acoustics in Santa Barbara, CA, finished work on two new studios: Larson Sound Services in Chicago and the private studio of guitarist Charles Michael Brotman on the Big Island of Hawaii…Rolling Stones mixer Michael Brauer recently purchased Otari's RADAR II HDR digital multitrack recorder after using it on a remix of Bob Dylan's *Street Legal*…At Van Halen's L.A. studio, loudspeaker designer Ted Rothstein installed Chevin Q6 and A5000 amplifiers and XTA crossovers to improve the sound of the room's classic Augspurger monitors…Downstream Sound, a new 5.1 studio in Portland, OR, went with a monitoring system from Quested. Russ Berger worked on the design of the facility…Ocean Way Nashville added a 96-channel AMS Neve VR Series console to Studio B. The console replaces the Sony Oxford, which was moved to Studio C…Transcontinental Studios in Orlando, FL, planned to install a 48-fader, 96-channel Solid State Logic Axiom-MT multitrack digital console as the centerpiece of its expansion…Engineer David Rideau recently

David Rideau with his Westlake speakers

chose Westlake Audio's Lc8.1 speaker system for monitoring projects with TLC, Chante Moore and Tom Scott. "The stereo soundstage of the Lc8.1 is extremely accurate, and details, such as the tail of a reverb, are very easy to hear," he said. ∎

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Sony Classical
Great Performances: 1903-1998

was always done on a case-by-case basis with the producer playing an important part in that decision-making process," Proper says.

THE MASTERING PROCESS

"For the volumes I worked on," Wilder says, "we started by finding all the CD masters, original mixed master tapes, original session multitrack tapes and any disc transfers that were done. We would listen to each CD master to determine if it was acceptable. If the CD master was acceptable, it was transferred to the DAW and became the basis from which we worked."

If there was no CD master version, or if it was not acceptable, Wilder says, "we would check the condition of the original mixed master tapes and listen to them to see if they were acceptable. If so, we would A/B between the two tape machines in my studio to hear which brought us closer to the sound we wanted. Then the signal would pass through a Cello custom mastering suite, and we would check different converters for their impact on the sound. Once we chose a converter, I would process as needed and transfer to hard drive."

In some cases, no acceptable mixed master was found, and the tracks would be remixed. "The decision to remix varied from producer to producer," Wilder says. "Some producers enjoy remixing, and we would remix almost everything. We would mix the 3-tracks and 4-tracks after all the mono and 2-track transfers. Generally, I would mix directly to the hard drives through Neve modules set up as a mini-console, while A/B comparing with the original mixed master. Once everything was inside the computer, we would edit and do some of the smaller cleanup work."

Proper describes a similar process, but using different gear: "The console in my mastering room was designed and built by the engineering staff at Sony Music Studios, and I use that for 2-track mastering rather than the Cello mastering suite used by Mark. I also tend to use a Studer analog console for mixing more often than the Neve modules, though I did use the Neves for a few tracks on the discs I mastered for this set. The decision of which console, tape machines, converters and EQs to use was based solely on which combination of gear would produce the right sound for a particular musical selection."

While drawing the best sound out of each source was the prime concern, the challenges were not always strictly technical. "Given the amount of producers, all of whom wanted it done the way they are used to, there was a lot of technical juggling," Wilder says. "What was needed from an engineering point of view was an open mind toward each producer and their way of working."

Both Wilder and Proper also point out that the time span covered by each volume was much larger than any typical compilation involving a single artist. That amplified the importance of the role of mastering, which is to create a cohesive whole from a set of parts. "When a CD begins with material dating back to the pre-tape era and ends with material from the late '60s or early '70s, there are a lot of transitions that need to be made, from both technological and musical standpoints," Proper explains. "Retaining the character of the recordings without calling the casual listener's attention to the changing technology was a very challenging aspect of putting together this collection."

While the broad range of material made mastering the volumes more difficult, it was also part of what ultimately made the job so interesting. "Working on this set really brought to my attention how each era in music and recording has its own definitive personality, both in the character of the music itself and the inherent sound of the recording medium," Proper says. "It makes me wonder what our modern recordings will sound like to the ears of future listeners."

In a sense, answering that very question is part of what *Soundtrack for a Century* may someday accomplish, Berkowitz says: "I think that if someone five, 20, 100 or even 200 years from now were to ask what music was like in America in the 20th century, and what was being recorded, this would be as good a document as you are ever going to find."

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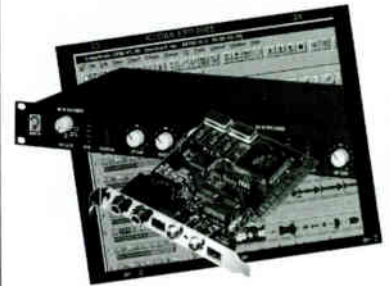
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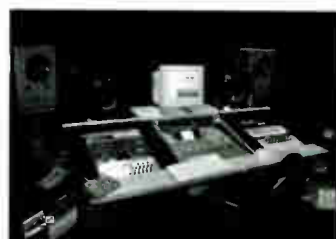
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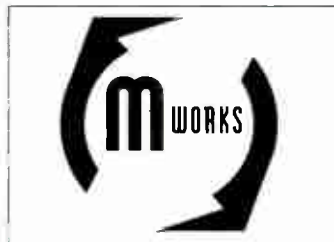
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FEATURES–
- 24-bit, 44.1-48, 88.2-96 kHz Sample Rate (±10%)
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FRONT PANEL:
- Power switch • Sample Rate (44.1, 48, 88.2, 96kHZ)selector • 16-bit (UV22), 20-bit (UV22) and

24-bit resolution selector • S/PDIF-ADAT optical selector • Soft Limit on or off • 12-segment metering w/ over ondicator & Meter Clear switch • Level trim
REAR PANEL:
- XLR balanced inputs • 2 × AES/EBU for 88.2/96kHz 2 channel path, Coaxial S/PDIF, switchable S/PDIF or ADAT optical outputs • Wordclock out

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Transparent analog to digital conversion designed to bring your music to the next level. XLR balanced inputs feed true 24-bit converters for revealing all the detail of the analog source. 16-bit masters can take advantage of the AD9624's noise shaping function which enhances clarity of low level signals.

FEATURES–
- 24-bit precision A/D conversion • Support for 32, 44.1, 48, 88.2 & 96kHz sample rates • Wordclock sync input • Selectable 16-bit noise shaping

- Simultaneous AES/EBU, coaxial and optical S/PDIF outputs • 20-segment LED meters w/ peak hold & clip indicators • **ALSO AVAILABLE:** DA9624 24-bit D/A converter

DIGITAL MULTI-TRACK RECORDERS

TASCAM DA-88 Modular Digital Multitrack

The standard digital multitrack for post-production and winner of the Emmy award for technical excellence, the DA-88 delivers the best of Tascam's Hi-8 digital format. Its Shuttle/Jog wheel and track delay function allow for precise cueing and synchronization and the modular design allows for easy servicing and performance enhancements with third-party options.

FEATURES–
- 1:48 minutes record time on a single 120 min tape
- Expandable up to 128 Tracks using 16 machines
- User-definable track delay & crossfade
- Shuttle & Jog capability
- Auto punch with rehearsal

- SMPTE, MIDI and Sony 9-Pin sync capability
- Options include RC-828/898 Remote Controllers, IF-AE8/IF-88SD digital interfaces, MU-Series meter bridge, MMC-88 MIDI machine control interface, SY-88 Sync Card

DA-38 Digital Multitrack for Musicians

Designed especially for musicians, the DA-38 is an 8 track digital recorder that puts performance at an affordable price. It features an extremely fast transport, Hi-8 compatibility, rugged construction, ergonomic design and sync compatibility with DA-88s.

ALESIS

ADAT M20
20-bit Digital Audio Recorder

The M20 represents Alesis commitment to meeting the high-standards of world-class audio engineers, producers, studio owners and high-end video and film post production studios. A new professional digital multi-track, the M20 records 20-bit for outstanding sound quality. Combined with a host of production features like SMPTE/EBU, the M20 is a powerful tool.

FEATURES–
- SVHS Recording format - up to 67 minutes recording.
- 18-XLR connections (9 in and 9 out) as well as a 56-pin ELCO connection. • Digital I/O
- Includes LRC remote and a digital cable.

- 24-bit, 64x oversampling recording, 20-bit, 128X over-sampling playback

ADAT XT20

The New ADAT-XT20 provides a new standard in audio quality for affordable professional recorders while remaining completely compatible with over 100,000 ADATs in use worldwide. The XT20 uses the latest ultra-high fidelity 20-bit oversampling digital converters for sonic excellence, it could change the world.

FEATURES–
- 10-point autolocate system
- Dynamic Braking software lets the transport quickly wind to locate points while gently treating the tape.

ADAT OPTIONS–
- **BRC** for all Adat (except M20) w/ 460 locate pts. smpte absolute time & bar and beat timing references, digital editing and transport control for up to 16 AOATs
- **AI3** 20-bit 8 channel analog - optical I/O interface

Digital Audio Recorder

- Remote control
- Servo-balanced 56-pin ELCO connector
- Built-in electronic patchbay
- Copy paste digital edits between machines.
- **CADI** remote control/autolocator for M20 w/ jog/shuttle & rj-45 ethernet connector for long distance cable runs
- **Adat/Edit** integrated PCI digital audio card and software for recording and editing on Mac & Windows computers

CD RECORDERS

hhb

CDR-850 CD Recorder

The new HHB-CDR850 is one of the most comprehensive CD-R, CD-RW recorders available today. It delivers the outstanding sound quality that HHB is known at a lower price than previous models. Equipped with a complete range of analog and digital I/O and easy to use one touch recording modes make the CDR850 suitable for any audio environment no matter how sophisticated or demanding.

- CD-R, CD-RW compatible
- All functions accessible from front panel menu
- 4 one touch recording modes; 2 manual, 2 automatic
- Sample rate converter accepts any digital signal from 32kHz to 48kHz including varispeed

- Copies all CD, DAT, MD, DVD and DCC tarck starts
- Complete user control over SCMS
- Balanced XLR analog I/O. Unbalanced (RCA) phono analog I/O, AES/EBU digital input, coaxial & optical S/PDIF digital I/O

STUDIO DAT-RECORDERS

TASCAM
DA-45HR Master DAT Recorder

The new DA-45HR master DAT recorder provides true 24-bit resolution plus standard 16-bit recording capability for backward compatibility-making this the most versatile and great sounding DAT recorder available. With support for both major digital I/O protocols plus the ability to integrate the machine into virtually any analog environment, the DA-45HR is the ideal production tool for the audio professional.

FEATURES–
- Word Clock
- 24-bit A/D and 20-bit D/A with dither
- XLR balanced and RCA unbalanced analog I/O
- AES/EBU and S/PDIF digital I/O

- Word Sync In/Thru
- Alphanumeric data entry for naming programs
- Independent input level adjustment capability
- Output trim for XLR balanced analog output
- Optional RC-D45 Remote Controller

Panasonic SV-3800

The SV-3800 & SV-4100 feature highly accurate and reliable transport mechanisms with search speeds of up to 400X normal. Both use 20-bit D/A converters to satisfy even the highest professional expectations. The SV-4100 adds features such as instant start, program & cue assignment, enhanced system diagnostics, multiple digital interfaces and more. Panasonic DATs are found in studios throughout the world and are widely recognized as the most reliable DAT machines available on the market today.

FEATURES–
- 64x Oversampling A/D converter for outstanding phase characteristics
- Search by start ID or program number
- Single program play, handy for post.

- Adjustable analog input attenuation, +4/-10dBu
- L/R independent record levels
- Front panel hour meter display
- 8-pin parallel remote terminal
- 250x normal speed search

Fostex
D-15 Pro Studio DAT Recorder

The new Fostex D-15 features built in 8Mbit of RAM for instant start and scrubbing as well as a host of new features aimed at audio post production and recording studio environments. Optional expansion boards can be added to include SMPTE and RS-422 compatibility, allowing the D-15 to grow as you do

FEATURES–
- Hold the peak reading on the digital bargraphs with a choice of 5 different settings
- Set cue levels and cue times
- Supports all frame rates including 30df
- Newly designed, 4-motor transport is faster and more efficient (120 minute tape shuttles in about 60 sec.)
- Parallel interface • Front panel trim pots in addition to the level inputs

D-15TC & D-15TCR

The D-15TC comes with the addition of optional chase and sync capability installed. It also includes timecode reading and output. The D-15TCR comes with the further addition of an optional RS-422 port installed, adding timecode and serial control (Sony protocol except vari-speed)

SONY PCM-R500

Incorporating Sony's legendary high reliability 4D.D. Mechanism, the PCM-R500 sets a new standard for professional DAT recorders. The Jog/Shuttle wheel offers outstanding operational ease while extensive interface options and multiple menu modes meet a wide range of application needs

FEATURES–
- Set-up menu for preference selection. Use this menu for setting ID6, level sync threshold date & more. Also selects error indicator.
- Includes 8-pin parallel & wireless remote controls

- SBM recording for improved S/N (Sounds like 20bit,
- Independent L/R recording levels
- Equipped with auto head cleaning for improved sound quality.

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lot of that stuff around these days, except at select biker bars. I almost never get it in the CDs I buy, and there are only so many E. Power Biggs CDs out there. Not to mention that never in the history of man has a beautiful woman been impressed or moved by E. Power Biggs. And those stupid specialty CDs for the 12-year-old kids with 30 grand of boom in their Honda Civics have only one low frequency—40. Lots and lots of 40.

But Harleys do deliver the goods, all the way down to about 5 Hz at idle. And I idle a lot. I built my bike garage so that there is one location that is tuned to amplify that 5Hz idle in the worst possible way. Unless I have a headache, that spot is where I start off each day with the bike's warm-up. You feel it in your chest if you are within 700 feet of the place—a simple, direct tribute to America and the dinosaurs that fed Her throughout the 20th century. I owe this ritual to myself and to others, as I am painfully aware of the certainty that nobody will be shaking the ground with gasoline-generated audio at the turn of the next century.

I realize that those pesky laws of physics make 20 Hz financially unrealistic for most situations, but for those of us prepared to sacrifice for the cause, I would have hoped that the material would at least be available by now.

I despise 60 Hz. In fact, I spent my late teen years living in Europe to get away from that endless buzzing 60Hz drone. Well, sort of. There were other factors as well, but they don't do much to support my 60Hz argument. Eventually I had to leave because 50Hz-based video update rates made my eyes explode.

I had certainly thought that by the end of the millennium the joys of 20 Hz would have been in the hands of the masses, but noooo. In the last century alone, we managed to put men on the moon and fish on bicycles, but we never put the "bomp in the bomp-sh-bomp-sh-bomp."

• I like that the recording industry does not hurt animals. We don't tie them down and drip contact cleaner in their eyes or hit them on their heads with Neumanns to test their tolerance to condenser mics. CDs aren't made from whale oil. Hard disks aren't made from ivory.

We do make guitars from exotic rain

forest woods, but that is stopping. And pretty soon now Ted Nugent should be getting too old to hunt.

• I like that the recording industry as we know it made it all the way to 2000.

On the other hand, I don't really see it surviving to 2005 at all, as the next gen's MP3++ should entirely eliminate the physical distribution of music by then. No more record companies as we have known them, no more shutting out new artists, no more re-signing dead bands to milk a few more bucks from pathetic reissues, no more rip-off prices… Wait, maybe I'm not so thrilled that the recording industry's current incarnation has made it all the way to 2000 after all.

• I like that we have provided a service, that we have created true, soul-moving art and managed to get it into the hands of the public in many different ways.

And even though my blatant elitist attitudes prevent me from personally owning or using a radio (actually, I

I spent my late teen years living in Europe to get away from that endless buzzing 60Hz drone. Eventually I had to leave because 50Hz-based video update rates made my eyes explode.

just can't take the screaming), I am very glad that they exist, for they deliver virtually endless music with minimal investment to almost everybody that wants to hear it. As annoying as it may be that the entire industry is still airplay-driven, it does assure virtually free music for all. I do like that. And I like the new windup radios that bring music and news to Third World countries and extremely isolated locations.

I KNOW, I KNOW…

As I wrote this column, I realized that I have, in fact, followed every paragraph

on things I like with another paragraph on what I *don't* like. Mmmm. I guess it's what I do. But there is a reason. Nobody ever got anything to change or improve by writing about how nice everything is. Never. I love this industry, and I love what I do. There is so much that makes me happy about creating art that others enjoy while actually getting paid for it. I guess the good only makes the bad more obvious. If the industry and the process of making music were tedious, boring and meaningless, the bad would sort of fit in better, or at least not be so surprising. But what we all do, and the results we offer to the world, are, in fact, incredibly important.

Maybe I'm chasing windmills, but I do feel driven to enjoy the positive aspects of my life with all of you, while pointing out and even attacking the stupid, the lame and the criminal. Yeah, that must be it… It's what I do.

AND IN CLOSING

I don't really relate too much to the entire kiloyear that is ending before our very eyes and ears, as I was only there for 5% of it. So I will close my last column of the millennium on this totally non-relevant personal note:

As I watch the 20th century come to a close and think back on my activities during its second half, I realize that there are certainly advantages to growing older. For one, I now have everything I always wanted. But…I now want everything I always had. ∎

I can't believe we made it! What a time to exist.

Puig, who was recruited from the field of technology transfer. Puig is still marketing director and was my host when I visited. He describes his task as providing a much more public face for IRCAM by creating products that people can use, getting the products out into the world and soliciting feedback. One high-profile project involved using IRCAM's resources to re-create a sound that few living ears have heard: the singing voice of a castrato. For Gerard Corbiau's Golden Globe-winning 1994 film *Farinelli*, about the life of a renowned 18th-century castrato (and if you don't know what that is, you won't find out in this column), IRCAM analyzed the voices of a countertenor (a male who sings falsetto) and a coloratura soprano, and fused them to create 45 minutes of stunningly authentic-sounding vocal material. The soundtrack CD for the film, Puig told me, has sold more than a million units, and the technology used is included in two programs—Audioscope (the analysis part) and Diphones (the morphing part)—now distributed by IRCAM.

Among other remarkable software

IRCAM has made available is Modalys, a physical modeling program that goes far beyond the popular synthesizer makers' implementation of the technology, in that you don't have to start with any real model—you can reinvent physics if you like. Then there is The Spatialisateur (the French never use four syllables when seven will do), a collection of Max patches for simulating and mixing

One high-profile project involved using IRCAM's resources to re-create a sound that few living ears have heard: the singing voice of a castrato.

in multiple surround environments, which according to Puig allows you to do a surround mix in one format, and then do direct remixes in other formats. In the released product, the emphasis is equally on the capabilities of the software and its usability. "We need to develop user interfaces that people will be comfortable with," says Puig, sounding suspiciously like a product manager at a commercial company.

Max has continued to be a success story for IRCAM, and in 1993, legendary programmer David Ziccarelli came to Paris for a year to work with Miller Puckette, taking the DSP objects that were created for Max on the NeXT platform and porting them to the Macintosh. Four years later, the Mac was fast enough for Ziccarelli to develop a whole new DSP environment based on the stuff done at IRCAM, which he is now selling through his own company, Cycling '74. The latest mutation of Max coming out of IRCAM is jMax, a Java version of the program that will run on UNIX and Linux machines, with Mac and Windows-NT versions on the way.

Another way that IRCAM is interfacing with the real world is through the Multimedia Library, or *Médiathèque*, a really impressive online index of musical works, recordings, articles, documentation, videos and Web sites, much of which (the text-based stuff, anyway) can be downloaded from anywhere, and all of which physically resides in their building. There's even a "virtual re-

ality" tour of the library online, using World View's VRML plug-in (which unfortunately I couldn't get to work).

Then there's the IRCAM Forum. This is essentially a worldwide user group open to any individuals or institutions. There are three subgroups dedicated to sound design, computer-aided composition and real-time interaction. For $300 a year for one group (or $600 for all three), you can get access to training, information, discussion groups, and a large software library, both online and on a CD sent to all members. You also get to participate in biannual meetings, which are sometimes held at IRCAM and sometimes not. As you read this, you will have just missed a Forum gathering at Columbia University in New York. Current membership stands at just over 1,000, with Americans making up about 15% of the total.

And finally, there's the Studio Online. About 125,000 sounds of classical instruments played by some of France's top musicians in traditional and modern styles, recorded in 24-bit digital using several different microphone setups, are painstakingly organized and cataloged, loaded onto a 160-Gigabyte RAID array, and available for download. In addition, you can access some impressive sound-transformation tools for tweaking the samples. Unlike commercial online sound effects libraries, there are no door slams or gunshots—just musical sounds in unimaginable abundance and variety.

I could go on with a laundry list of the resources available from this remarkable institution, but you can find out what's there yourself: Take a look at www.ircam.fr, and be ready to spend a while. The site is a little flaky in spots, and the English-language version of the site sometimes lapses into French at inconvenient times, but there's a ton of material to browse through. A quarter-century after its founding, IRCAM is still the place to be if you want to hang out with the best minds in the computer-music and research biz, or if you're interested in the latest cutting-edge sounds and sound-making tools. Thanks to the Forum and the center's other outreach efforts, you can be there, wherever you are. ∎

By the time you read this, Paul D. Lehrman will have just finished producing a concert of the 20th century's loudest piece of concert music—composed, naturally, by someone in France—and will still be getting the cotton out of his ears. Gory details at www.antheil.org.

Marley to make the album for $7,000. Blackwell responded that it wasn't a challenge: "I simply offered him 4,000 pounds to do the record, so that's about right."]

We did a lot of post-production on that record, editing the songs, shortening them, extending them, taking out vocals, adding guitars. Bob was involved in that process; he didn't expect it to be so extensive when he went in, but then neither did I. But I felt that by massaging the tracks afterwards we could make a record that would reach a wider audience.

Up till that time, reggae was considered novelty music, and it thought in terms of singles only. The whole process of that first record was to present Bob and the Wailers as a band, a black rock band. It was meant to jump over the predisposition that reggae was not serious music. There's always a system you have to face when it comes to new music.

A system?

Yes. A system of people, not the music makers, but the people who have to sell the records and get them on the radio—promotion and distribution and retail. The creative people and the people in the art department were into it immediately. But the system is slower to accept new things.

Aside from Compass Point and South Beach Recording, what other recording studios have you owned? Was it a business you liked in and of itself, or were studios a tool for the larger vision?

We had the little one in back of Island Records at 47 British Grove in London. I don't like studios as a business at all. I had and still do have them, because I'm in the record business. I don't think you can be in the record business without an affiliation with a studio.

Studios are part of the creative process, yet they are like the club business—it's all machinery and real estate. What makes them work or not work is their spirit, and that comes and goes. The spirit right now is very good at Compass Point. Terry [Manning, producer and studio manager] and his wife Sherry are fantastic. The studio had an incredible surge when it first started, then it lost direction. Now it's back on track. South Beach is the same thing: [Studio manager and producer Joe] Galdo is fantastic at his job. I intend to keep both places running. There may be a new one in Jamaica at some point.

Chris Blackwell sits behind the console with reggae engineer Steve Stanley at Compass Point in the Bahamas, 1979.

But it's hard to figure out what the future of the studio in general is right now. What value does it bring to the business? It used to be that you could only make records in a recording studio. Now, it can be done anywhere and often is.

You've been making films for more than two decades now. What are your feelings about the way films sound—music and dialog and effects—then and now?

I had no feeling either way at the time I started making them. Films were mainly in mono back then, but I was very interested in mixing them in stereo, to get a wider spectrum of sound.

On the subject of soundtracks, I think often that the soundtracks are simply overdubbed into the film to make the soundtrack record and not really thought of as integral to the film. That's certainly not the way I make music for pictures. One of my favorite directors, Martin Scorsese, is guilty of that. The music should be more integral to the film. It has to be. I try to choose all the composers and sometimes the sound mixers for my films. For instance, all the Jamaican films I did, like *Countryman*, were scored by Wally Badarou, who understands the music and what it means to the film.

Records, studios, films—now DVD and the Internet—how is creativity, yours and everyone else's, faring in the age of convergence and multiple media?

MP3? How is media affecting content quality?

The interesting thing is, I don't think they converge all that much. When these large conglomerates get a hold of [media companies], they are led by administrators and strategic planners, and as a result, they don't make as much use of their potential synergies as you might think. From the Palm Pictures point of view, everything is centralized with me and my team of management, and we can consider all the possibilities of a project—movies, music, Internet. What I think we'll see is the dawn of a new generation of independents, as we did in the 1950s.

You sold Island to Poly-Gram. Herb Alpert and Jerry Moss did the same with A&M, and now they're suing [PolyGram owners] Universal not only for unpaid royalties, but because they claim that the sales have undermined the vision they intended for the label. How do you feel about that and about what major conglomerates have done with Island and with the music industry in general?

I think that's something they had in their contract. It was expressed at the time the company was sold. In my contract, I frankly didn't think about that. On the other hand, once you've sold something, that's usually it. The problem with the way that conglomerates affect the entertainment industry is that you don't get any long-term artist development. As independents proliferate, you'll get more of that again. I also think, though, that Atlantic Records is an extraordinary exception to that, and still is. So it shows that big isn't necessarily less creative.

Finally, after all the time you've spent investing in Miami's entertainment and real estate infrastructure during the last 30 years, what do you think about what's going on in Miami right now with studios and music?

I'm very excited about it. It's something I've believed in for a long time, and I may have been a bit early. But I truly believe that Miami can be a serious music center. There is a great mix there of great music, which till now has been underexposed. But with the focus now on Latin and Caribbean music, Miami is the natural capital of all of that. ■

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MP20 Review, October 1999

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CIRCLE #134 ON PRODUCT INFO CARD

World Radio History

TC Electronic Finalizer 96

IT'S NOT JUST FOR MASTERING

Combining a host of processing functions in a single-rackspace package, TC Electronic's Finalizer 96 has more to offer than any unit I have ever used. Features include EQ, analog emulation, stereo width adjustment, de-essing, normalization, expansion, sample rate conversion, compression and limiting. So whether you need to fix or enhance sounds, track, mix or master, the Finalizer 96 can pro-

at the console, you can adjust the balance at the Finalizer's In page to compensate.

PUT THOSE CONVERTERS TO WORK!

When TC builds a machine, the company continues to support it. Owners of the original Finalizer could upgrade to the Plus version, and now TC offers an upgrade from the Plus to the 96. When mix-

master from various DATs of different sampling rates. No problem. The Finalizer handles sample rate conversion automatically—all you have to do is set the desired destination output rate. And the sample rate conversion sounded great.

PERFECT FADES EVERY TIME

On some consoles, the master faders will clip the tail of your fade, shift the balance as it gets to the

vide excellent results. Here are some suggestions for getting the most out of your unit.

CLIP CONTROL

I typically route my mixes through two Tube-Tech CL-1A tube compressors via the Finalizer's insert points and send the digital out to DAT. I then can use the Tube-Techs or the Finalizer for compression—or I can use both. A very useful tool in the Finalizer 96 is the "soft clipper," which is found in the Limiter section and in the Normalizer. The soft clipper is helpful for controlling percussion peaks that would normally send your mix into the "over" range on the digital meters. Also in the Limiter section, a Digital Ceiling parameter lets you achieve the optimum digital output without worrying about digital overloads.

ON THE LEVEL

The peak meter in Finalizer 96's Tools section affords a way to keep an eye on levels, but this is also a good way to get the maximum level to tape. You can also send a tone from the console to the Finalizer and ensure that its left and right channels are equal. If the balance is off, and you cannot adjust

ing, use the Finalizer 96 as your A/D converter and your mixes will sound better, even with the Finalizer 96 set on the Neutral (processing bypassed) preset. When the 96 was released, I was mixing a project for a client at Sony Studios and was using the Plus as my A/D converter mixing to DAT. Depending on the song, I was adding compression, some soft clipping and 1.5 to 2 dB at 17 kHz using the 5-band parametric EQ. Curious about the outcome, I set up an A/B comparison between the Plus and the 96. Using the same parameters on both units, I could not believe the improvement: The high end on the 96 was clear, smooth, and I no longer wanted to add any highs to the mix. I also found that in most cases you can use the 3-band compressor instead of EQ.

AUTOMATIC SAMPLE RATE CONVERSION

With all the Finalizer's other features, it's easy to forget about the unit's utility functions, such as sample rate conversion, which can be useful even on projects that don't require other DSP tweaking.
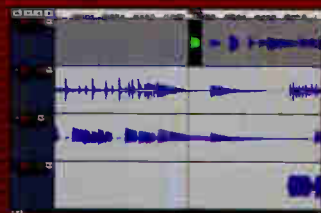
I recently had to assemble a DAT

bottom or actually thin out the sound of the mix as the fader gets to the bottom half. You can avoid all that with Finalizer's Digital Fader feature. Your fades will be perfect, maintaining quality sound top to bottom with absolutely no left-right shift. Another way to fade your mix with the Finalizer is to use the Auto Fade function found on the Out page. Pick from the two types of fades (I wish there were more!), set the duration of the fade, move the cursor to the down arrow and spin the knob counterclockwise to activate the fade. This is especially convenient when working on non-automated consoles. Just rehearse your fade by starting the fade at a SMPTE address you've selected, and adjust the duration and the "fade start time" until it is exactly how you want it. ∎

Ross Pallone started his career at Hollywood Sound Recorders in 1976 and has worked as an independent recording engineer/producer and FOH live mixer ever since. Credits include John Tesh, Michael McDonald, James Ingram, James Newton Howard, Olivia Newton-John and Prince. Visit his Web site at www. rossaround.com.

BY ROSS PALLONE

World Radio History

Neil Karsh is the Vice President of Audio Services for New York Media Group. Recently, Karsh selected LSR monitoring systems for two of his Manhattan facilities, *Lower East Side* and *East Side Audio.*

❝We've installed the first of our LSR 5.1 surround systems at East Side Audio and it's a great addition. The sound is extremely clear and is enjoyed by our mixers and our clients. Everyone is very pleased with the result.❞

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Profiles

The world's most noted recording professionals discuss the world's most advanced monitoring systems.

NO.1: New York / Los Angeles

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CIRCLE #136 ON PRODUCT INFO CARD

David Kershenbaum is a Grammy Award winner who has been on the cutting-edge of music production for decades. His discography is a remarkable *'who's who'* of popular recording.

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Los Angeles

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