

# MIX<sup>®</sup>

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## Sound Design for The Rock and Roll Hall of Fame

## Console Automation

## Chicago Blues Clubs

## Live Sound: Computer Control



INTERVIEW:

# CHRIS ISAAK

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*"The SL 9000 J Series is the best sounding modern  
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*"Our new Tracking Room demanded a console of  
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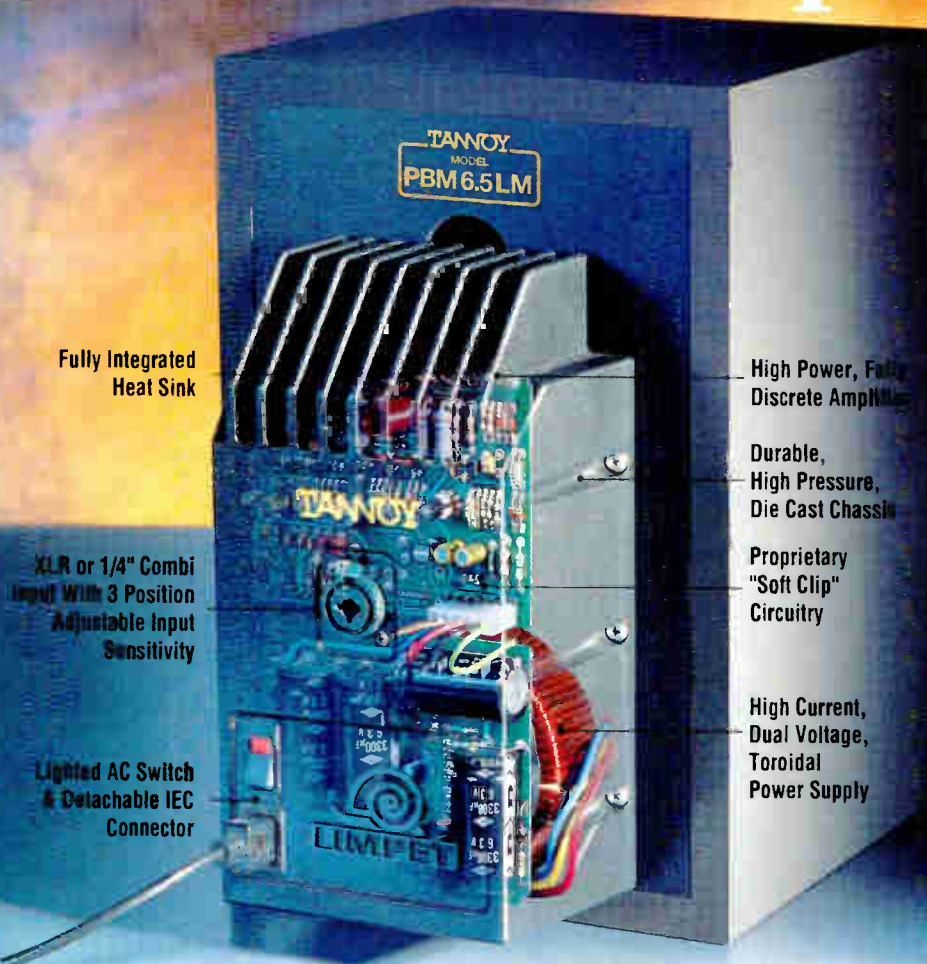
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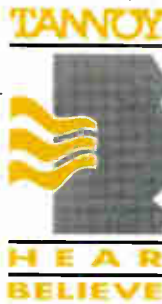
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Toroidal  
Power Supply

■ Every once in a while a product comes along which not only meets the ever increasing demands of the market, but one whose smooth commercial styling, ergonomics, durability and outstanding performance demands respect. Introducing MR. LIMPET. ■ The LIMPET is a unique, compact design that combines a very high current toroidal power supply, fully discrete amplification stages, and ultra wide (10 Hz to 80 kHz) bandwidth capabilities in a very affordable system.

■ Built using a one piece high pressure die-cast metal housing, the LIMPET is not only very rugged electrically and mechanically, its internal construction takes advantage of the industry's most advanced assembly techniques. ■ The LIMPET amplification system can be used with a wide range of TANNOY professional reference monitor systems, and provides the user with a number of improvements in both the performance of the loudspeaker system, and its flexibility. ■ Each single channel LIMPET system delivers an enhanced stereo image because the channels are fully separated - no power supply sagging due to inter-channel coupling, no crosstalk, no interference. Almost any kind of input level and connector can be used, since the LIMPET offers a balanced or unbalanced "combi" connector that can utilize either 1/4" or 3 pin jacks. ■ The ultra-low noise input section

can accommodate either 0.775, 1.0, or 1.5 volt drive levels with no performance sacrifice. ■ The LIMPET's universal power supply, equipped with an industry standard IEC connector easily deals with almost any voltage, making the LIMPET a true global traveler. Finally, you can take your monitors wherever your work takes you, and not have to worry about cumbersome and troublesome adaptors, power converters, or strange electrical systems. ■ In addition, the unique and proprietary soft-clip circuitry and the significant reserves in the power supply ensure that no damage will occur to the drive units while providing the headroom needed for even the most demanding requirements. ■ The LIMPET is ideal for professional recording, broadcast/post production facilities, remote and live recording reinforcement applications, and finally gives the private/home recording studio truly reference quality performance unequaled at twice the price.

■ Instead of settling for the ordinary, get a LIMPET and get a real grip on your reference monitor performance.





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The new Studer D827 24/48-track DASH recorder (right) sets new standards in digital audio recording – just as its



partner, the A827 (left), offers new levels of quality for analog recording. The Studer D827 digital multitrack offers full field upgradability from 24 to 48-track. With 18-bit converter technology and advanced noise-shaping techniques for the very highest audio quality – in the Studer tradition. There's a unique 24-bit Studer-format recording option – while retaining full compatibility with existing DASH machines. Both analog and digital 827-series machines are always on cue when you need them, thanks to a fast, responsive transport and built-in locator. Enhanced servo control and dynamic tape-handling ensure your masters get the respect they deserve.

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PROFESSIONAL RECORDING • SOUND AND MUSIC PRODUCTION

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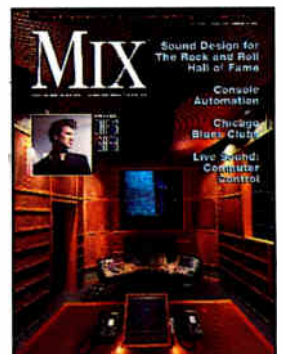
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**Cover:** Studio A of Buzz Inc., one of three audio rooms at Crew Cuts Film and Tape, opened in June 1994 on the top floor of a midtown Manhattan building, occupying the original offices of *The New Yorker* magazine. Acoustical design by Richard Alderson of Alderson Acoustics, New York City; architectural design by Wormser & Associates. The SSL Scenaria room includes Quested H210 main monitors and Alderson-designed Stealth near-fields. A 6x6-foot projection screen comes down to cover the skyline view when mixing, primarily for commercial spots. **Photo:** Peter Aaron/Esto Photographics.

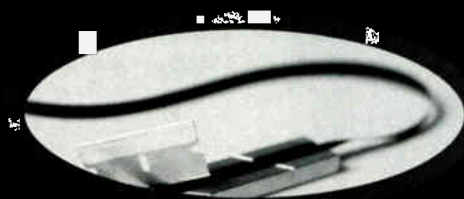


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**w o r l d**  
did people  
**w o r k**  
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..... [ p a i n f u l l y ] .....





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# FROM THE EDITOR

## The Good Old Days...

If you cruised the hotel bars or walked the floor at last month's AES show, you undoubtedly heard somebody beaming about the "good old days" of a bygone era. Curiously, this affliction seems to affect audio engineers more than broadcast or computer techs: I have yet to meet anyone who prefers the "nuances" of 1-inch, B-format videotape or the "warmth" of an amber-screened CPM machine. But audio engineers have an uncanny ability to focus on pleasant memories, while conveniently discarding the rest.

Remember those great mics from the 1940s? A few outstanding models stood out from the rest, but most vintage mics are truly horrible: How many dynamic mics from that era would you like on your next session? Perhaps you'd also like to record some tunes directly to a 78 rpm cutting lathe: no overdubs, no punch-ins and a frequency response that tops out around 8 kHz!

Tape came into its own in the '50s, but I'd rather choose from today's menu: either an analog deck running a +9dB tape (possibly with a noise-reduction garnish) or something from the digital menu (20-bit, 20-bit optimized for 16-bit playback, or a simple 16-bit entree).

In the '60s and '70s, modern recording consoles were beginning to evolve. And these days, there is an obvious emotional (and financial) attachment to those wonderful discrete equalizer and mic preamp modules of vintage API, DeMedio and Neve boards. But as nice as these sound, who wants to work on 20-input, 4-bus designs with only one or two available aux sends?

In terms of console automation, today's systems are truly better than ever, offering speed and a depth of flexibility that was unheard of even a few years ago. The integration of computer control into automation systems provides cost-effective and powerful solutions for any studio, so if you're looking to upgrade an existing mixer or purchase a new console, check out our automation article on page 52.

Analog tape, digital tape, MIDI or disk-based recording—the best thing about all this technology is that it affords endless possibilities for the creative producer or engineer. And speaking of technology, we'll provide a complete AES report with all the highlights next month.



George Petersen  
Editor



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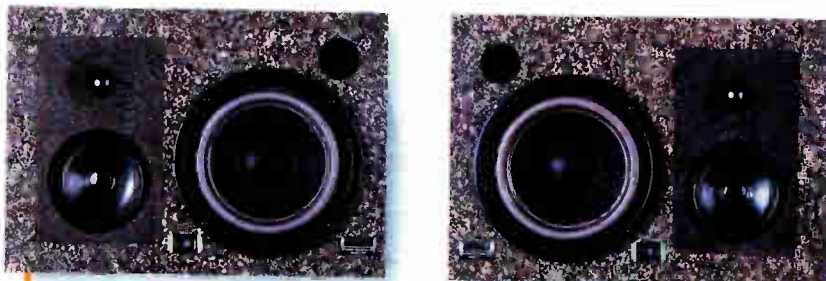
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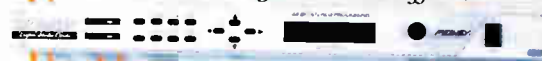
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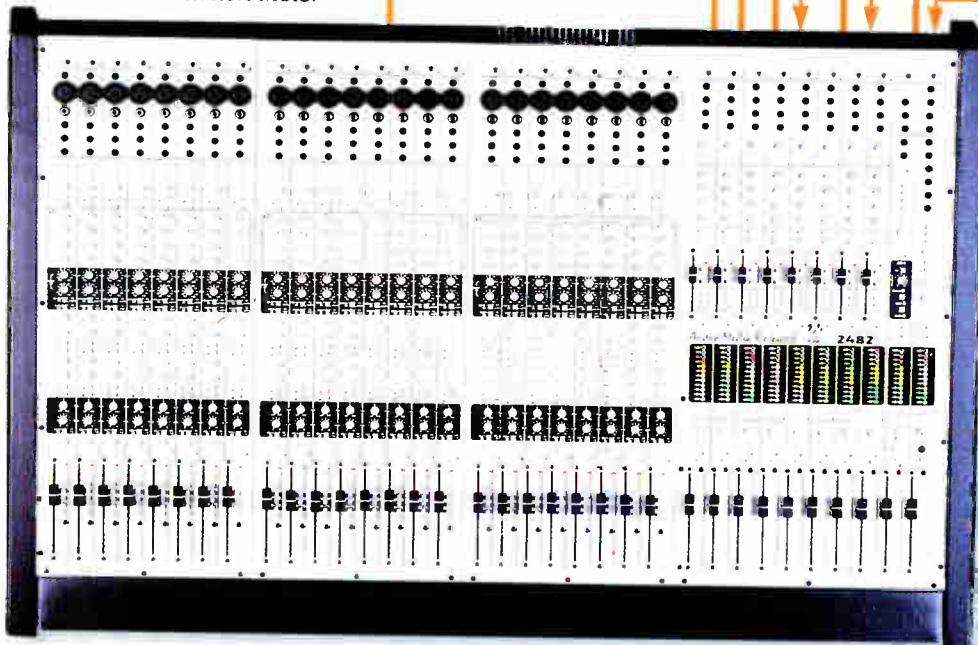
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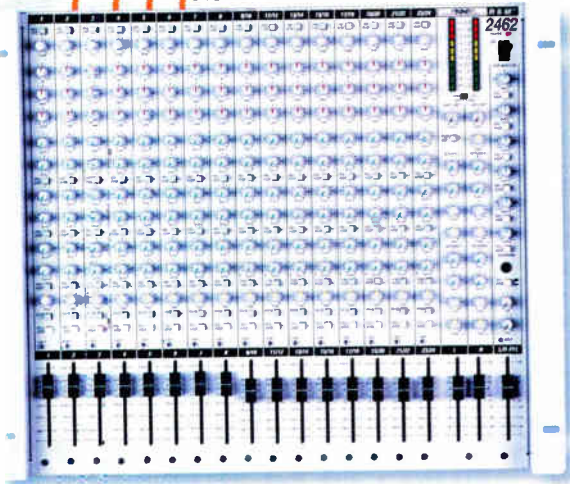
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# CURRENT

## **SOUND REINFORCEMENT PRODUCT SALES SKYROCKET**

The National Association of Music Merchants announced a 25% gain in the sale of sound reinforcement products and accessories in 1994. The 1995 edition of MUSIC USA, an annual music industry statistical report published by NAMM, declared a record year for music industry sales, due in part to a hefty \$609.2 million in SR sales.

Other factors contributing to increased revenues, according to NAMM, include improved economy, increase in construction and consumer demand for quality.

## **DAVID BLACKMER FOUNDS EARTHWORKS**

David Blackmer, founder of dbx™ and inventor of its VCA system, announced his return to audio manufacturing with Earthworks Inc. Earthworks "plans to produce and distribute a range of products which capture, store and reproduce the experience of sound with more realism than is currently available;" the product line debuts with the OM1, a microphone with a stated bandwidth of 3 to 30k Hz. For information, contact Earthworks at P.O. Box 517, Wilton, NH 03086. Phone 603/654-6427; fax 603/654-6107.

## **TWELVE TONE NOW CAKEWALK**

Watertown, MA-based Twelve Tone Systems is now operating under the trade name Cakewalk Music Software. The company changed its name in order to emphasize its core software business and to increase brand recognition, says president Tom Cook. "It was a logical step for the company to take. 'Cakewalk' carries far more recognition than 'Twelve Tone Systems.' Besides, our longtime customers have been calling us 'Cakewalk' for years. We're just acknowledging that."

## **DAR HITS TESTING MILESTONE**

Digital Audio Radio completed laboratory testing at NASA's Lewis Research Center in Cleveland, Ohio, and is now ready for field trials in San Francisco.

"After more than a year of intense and rigorous testing at Lewis, laboratory evaluations on nine DAR systems are now complete, and these systems can now move to the field-testing stage," says Gary Shapiro, group VP of the Electronic Industries Association's Consumer Electronics Group. "The results show that digital radio works. Consumers are demanding higher audio standards. The DAR system that best satisfies this consumer need will be chosen and will move America into the next generation of radio."

Testing is overseen by Subcommittees of the EIA and NRSC (National Radio Systems Committee); the groups plan to present their findings to the FCC by early next year.

## **ROLLS ANNOUNCES NEW PRODUCT LINE**

The Rolls Corporation introduced the Bellari division, a new line of vacuum tube-driven signal processors. The division, said by Rolls to focus on "efficient yet cost-effective audio devices that utilize the most advanced schemes of tube technology," includes a mic preamp, a compressor/limiter and a stereo tube active direct box.

## **JIM FRANK, IN MEMORIAM**

Jim Frank, director of Studio Operations for Master's Workshop (Toronto), passed away on September 15, after a long battle with cancer. During his twelve-year tenure at Master's Workshop, he helped the post-production company collect eight Golden Reel Awards, six Best Sound Gemini Awards and three International

Monitor Awards. Other accomplishments include the first computerized IMAX mix and the first digital IMAX HD simulator soundtrack. Frank is survived by his wife, Jennifer, and his three sons: Jonathan, Timothy and Nicholas.

## **NARAS AND HOUSE OF BLUES CELEBRATE BERKLEE'S 50TH**

The National Academy of Recording Arts and Sciences, in conjunction with its charitable foundation MusiCares, will host a celebration at the Los Angeles House of Blues to honor the 50th anniversary of Berklee College of Music.

The November 8 event, co-chaired by Tony Bennett, Quincy Jones, Branford Marsalis, Arif Mardin and Frances Preston, will feature performances by a large lineup of alumni and honorary degree recipients, including Joe Williams, Alan Broadbent and Ernie Watts.

The gala will launch the House of Blues Scholarship Fund, which will provide grants to Berklee students pursuing studies related to blues music. Additional proceeds will benefit the MusiCares Foundation.

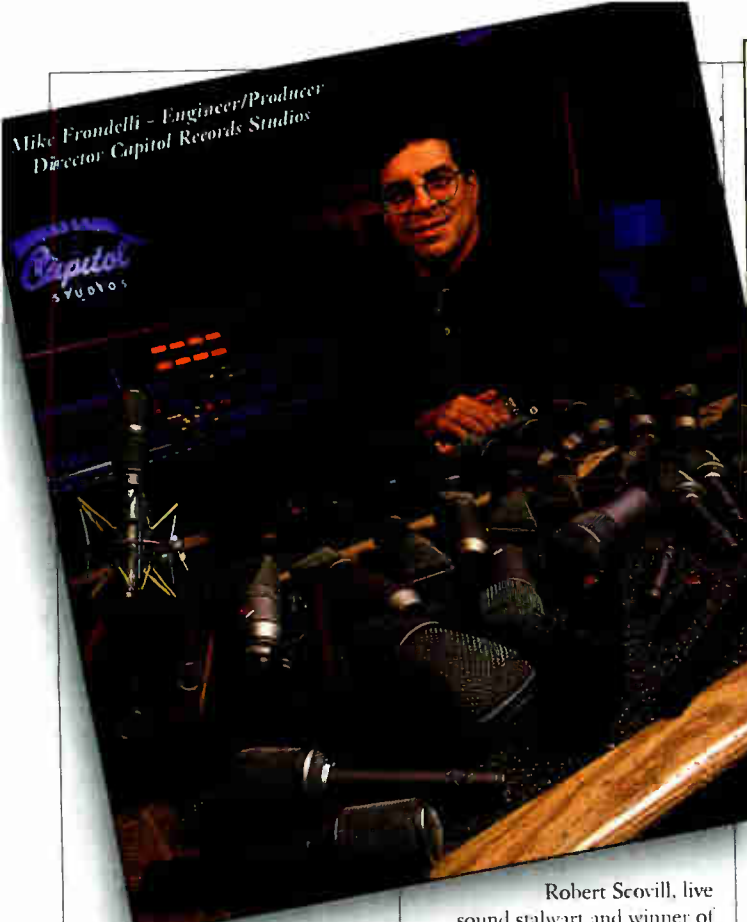
## **SHOW AND SEMINAR UPDATE**

The Institute of Acoustics offers its third annual Acoustics for Sound Engineers seminars, November 16-19 at the Hyro Hotel in Windermere, UK. Call 011/727/848-195 for details.

The fall Virtual Reality World '95 will be at Boston's World Trade Center from November 29 to December 1, 1995. For information, call 800/MECKLER.

The European Broadcasting Union announced an EBU technical seminar, hosted by the International Academy of Broadcasting. The event will be in Montreux, Switzerland, December 11-13. Con-

—CONTINUED ON PAGE 16



# TWO PROS WHO KNOW GREAT SOUND.

# TWO MICS THAT MAKE THEM VERY HAPPY.

**M**ike Frondelli, Director of Capitol Records Studios, has a connoisseur's mic locker, including more than 50 Neumann mics dating back to the 1940's. Newest in the collection? The mic Mike calls "the working man's Neumann," the TLM 193. Because it sounds so good in so many applications, Frondelli recommends the TLM 193 as "the one mic to have" for Capitol acts setting up project studios.

The TLM 193 is a stripped down, cardioid-only version of our famous TLM 170. It provides oodles of headroom, has virtually no self-noise, and can immediately give your project studio that professional sound (particularly on vocals) that you've been missing. (By the way, the TLM 193 has become our biggest seller.) It carries a retail price of less than \$1500.



**TLM 193**

Robert Scovill, live sound stalwart and winner of three TEC awards for Live Sound Excellence, knows a great microphone when he hears one. He has toured as the front-of-house mixer with bands like Rush, Def Leppard and most recently Tom Petty.

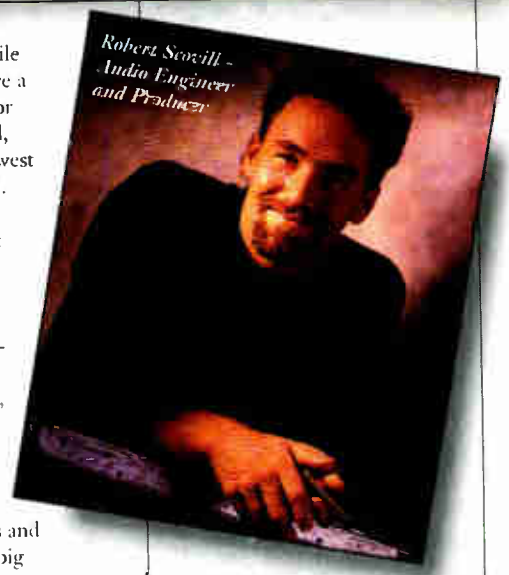
"I am using the new KM 184 both out on tour and at MusiCanvas." (Robert's studio in Scottsdale.)

"The KM 184 carries all of the Neumann signatures, and I have had great success on a wide variety of sources, from the subtleties of violin to the extremes of distorted guitar."

The KM 184 is perfect for instruments of all kinds, and excels at overhead drum miking and capturing the elusive acoustic guitar. For professional quality at less than \$700 each, a stereo pair of KM 184s can easily be a part of ANY studio.

Let's face it. While Neumann mics have a stellar reputation for rich, opulent sound, they are not the lowest priced mics around. Why? Because we have to ensure that our microphones satisfy even the most demanding engineers in hyper-critical recording environments. But, we *have* found a way to take a few of the bells and whistles off a couple of our mics and still give you that big (HUGE) studio sound on a project studio budget.

The bottom line is this: before you go dropping big cash on outboard gear trying to make your studio sound good, consider the most important part of the signal path, your microphones. The only way to get great sound *out* of your studio is to *capture* great sound. And no other microphone captures sound as well as Neumann... not even close.



**KM 184**



**Neumann USA**

6 Vista Drive, PO Box 987  
Old Lyme, CT 06371  
Tel: 203-434-5220 Fax: 203-434-3148

In Canada: 221 LaBrosse Ave.,  
Pte-Claire, PQ H9R 1A3  
Tel: 514-426-3013 • Fax: 514-426-3953

# THE COMPRESSOR LIMITER EXPANDER/GATE

The name that defines great compression!

A/B the sound with and without sidechain processing. No patching required.

OverEasy®-- the choice of top professionals for soft-knee compression.

12-segment gain reduction meter allows precision monitoring of compression.

Tells you when the zero-attack PeakStopPlus™ limiter is doing its thing.

Link both channels the best way with True RMS Power Summing—a very musical way to achieve stereo compression.



Flexible expander/gate works over a 70 dB range.

Monitor sidechain processing when setting up the unit.

Prevents low-frequency energy from punching holes in the sound.

Get that classic dbx sound by selecting program dependent attack and release times.

Monitor either input or output signals.

The illuminated switches are not only cool, but are easily seen in light or dark.

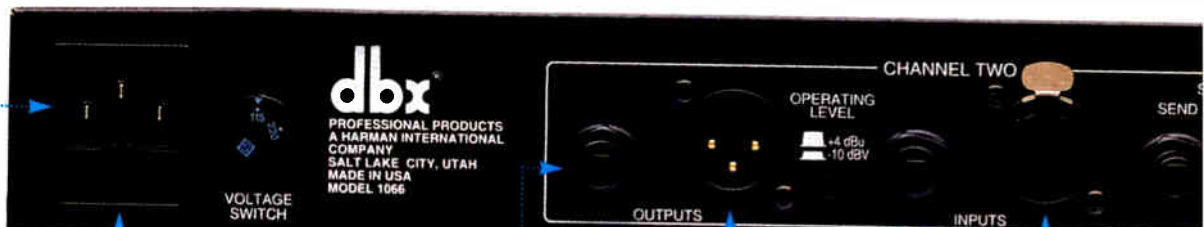
Internal power supply with easily replaceable power cord.

Easily accessible fuse — you'll probably never need to find out how easy.

Connect the unit hassle free using either unbalanced or balanced 1/4" TRS or balanced XLR connectors.

Ensure signal path integrity with gold plated locking Neutrik® XLR connectors.

Add processing to detector path for frequency-conscious compression/gating/special effects.





# THAT WILL TURN THE WORLD ON ITS EAR.

# AGAIN.

You've seen and heard dbx signal processors for as long as you've been involved with audio. After all, our boxes are in daily use all over the world, with major touring companies, world class recording facilities, radio and television broadcast facilities and anywhere else audio professionals ply their trade.

Now, after over twenty years of pleasing the most finely tuned ears in the business, dbx has done it again with the new 1066. The dbx 1066 will, of course, be the standard against which all compressor/limiter/gates are judged. State of the technology VCA's, meticulous component selection, and scrupulous testing procedures are just a few reasons the new dbx 1066 is the latest in a long line of pedigreed signal processors.

So head on down to your local dbx dealer and audition this box. We're sure you'll see why the dbx 1066 is destined to turn the world on its ear.

For more information contact us at:  
**(801) 568-7660**  
**Fax (801) 568-7662**  
**dbx 8760 S. Sandy Parkway, Sandy, UT 84070 USA** or if you prefer surfing to snail: send e-mail to [customer@dbxpro.com](mailto:customer@dbxpro.com)

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Over/Under LED's let you know at a glance if you're expanding/gating.

3-segment OverEasy® indicator lets you know when that classic dbx compression starts happenin'.

Fully adjustable attack and release controls offer maximum flexibility. or (see #7)

Peak-reading meter allows easy setting of optimum input and output levels.



Vary the Ratio to select anywhere from gentle downward expansion to gating.

Detented controls and soft-touch knobs assure precision adjustments.

Adjusts from mild compression to infinity:1 limiting.

Add make-up gain or match levels over a 40 dB range.

Newly developed PeakStopPlus™ circuit intelligently tames signal peaks.

Add optional custom dbx output transformers manufactured by Jensen®.



Servo-balanced outputs drive up to +22dBu

Convert semi-pro -10dBV signals to the dbx 1066's professional +4dBu internal level.

Precision balanced inputs reject hum and noise in tough audio environments.

Separate sidechain send and return jacks —no special "insert Y-cables" required.

Heavy-duty steel chassis will take years of road use and abuse.

# INDUSTRY NOTES

Steve Smith, formerly VP of sales and marketing at TimeLine Inc., returned to Ampex Media Corporation (Redwood City, CA) to assume the newly created position of director, marketing...Waltham, MA-based Lexicon promoted Brian Zolner to international sales and marketing manager and Steve Frankel to product manager, international sales...Bill Robinson joined Harman Music Technology as national sales and marketing manager for the DOD/DigiTech division, in Sandy, UT...TimeLine (Vista, CA) sales and management update: Peter Swientek was appointed regional manager, Asia/Pacific, as well as manager of radio markets; Theodore Price is sales programs manager; Michael MacDonald serves as director of product marketing; Ray Niznik is western regional sales manager, south; Michael Donahue joined as Mediasound™ national manager; Alan Hardiman is regional manager for Eastern North America; and Cynthia E. Jones is TimeLine's first marketing communications manager...Mark IV Audio Canada (Gananoque, ON) brought Darrell Sweeney on board as Eastern sales manager...John Nemeth was promoted to the position of product support director at Solid State Logic in Oxford, UK...T.G.I. North America (Kitchener, ON) is now exclusive North American distributor for all Oram Pro Audio products...Digital Audio Research (Surrey, UK) named Paul Lindsay as director of sales, Chris Gibbs as regional sales manager, and Terry Lightfoot as technical services engineer...Christy Meadows joined the design team at Russ Berger Design Group Inc. in Dallas...AKG Acoustics (Northridge, CA) promoted Jeff Radke to national sales manager and David Rahn to product manager...Renkus-Heinz, of Irvine, CA, appointed Brian R. Oppegaard as director of engineering...Audio Intervisual Design (West Hollywood, CA) announced five new international distributors for Brainstorm Electronics. HHB is the distributor for the United Kingdom, A/D Technologies for Germany and Benelux, D.S.P. for France,

Sanken Audio Systems for Japan and Best Logic Sound Company for Korea...Corbell Publishing released the fifth edition of *The Video Duplication Directory*, a complete listing of video duplicators in the U.S. and Canada; call 310/574-5337 for more information...Richard Skillman, VP of sales for Allied Digital Technologies Corp. (NYC), was named to the International Television Association national board. In other Allied news, Hugh Coppen was appointed VP of manufacturing...Bill Wolfenbarger joined the radio field sales staff for the broadcast division of the Quincy, IL-based Harris Corp...ComStream and MUSICAM USA announced a five-year licensing agreement for the exclusive use of the MUSICAM technology in ComStream digital satellite receivers. MUSICAM was also certified for MPEG layer II compatibility by the Institut Fur Rundfunk Technik (IRT)...Mitsui Toatsu Chemicals Inc. relocated its subsidiary MTC America. The facility is now located at 2500 Westchester Ave., Suite 110, Purchase, NY 10577...Klipsch Professional (Hope, AR) appointed Howard Australia Pty. Ltd. as its distributor for all of Asia and the Pacific Rim...Academy Award-winning sound director Richard Portman joined the faculty of the Florida State University's School of Motion Picture, Television and Recording Arts in Tallahassee...Stow, OH-based Audio Technica appointed Online Marketing, Bruce Wismer Sales and Bormann Marketing as independent sales rep firms...Innovative Solutions moved into a new facility, located at 5235 W. 65th St. Unit D, Bedford Park, IL 60638. Phone 800/552-1639; fax 708/563-4956...Jeff Phillips joined Washburn International (Vernon Hills, IL) as director of marketing and product development for SoundTech Pro Audio...Pro-Tech Marketing is the newest rep firm for Whitinsville, MA-based Eastern Acoustic Works...Pinnacle Micro (Irvine, CA) named Compaq senior VP and chief financial officer Daryl White to its board of directors. ■

—FROM PAGE 12, CURRENT

tact the EBU or IAB for more information.

This year's Winter CES show will once again take place in Las Vegas, January 5-8, 1996. For details, contact the Consumer Electronics Group at 202/457-4919.

The 16th annual Summit conference on touring issues and information, will be held at the Hyatt regency La Jolla in San Diego, January 11-14. Call Summit Registration at 817/338-9444 for information.

Synergetic Audio Concepts announced the seventh in a series of live sound reinforcement workshops, to be held at Chapman University in Orange County, CA, January 15-17, 1996. For more information, call Syn-Aud-Con at 800/796-2831.

The Electronics Representatives Association (ERA) will hold its 34th Management and Marketing Conference on April 20-25, 1996 at the Hyatt Regency in Monterey, CA. Contact ERA at 312/649-1333 for event information.

The first annual Montreaux Interactive Media Services Symposium and Technical Exhibition will be held June 6-9, 1996, in Montreaux, Switzerland, in conjunction with the third Montreaux International Radio Symposium and Technical Exhibition. Call 41/21/963-3220 for more information.

The International Recording Media Association (ITA) is sponsoring the following events: The annual Forecast and Update Seminar will be at the Plaza Hotel in New York City, on November 21; the third annual REPLitech Europe will be in Utrecht, The Netherlands, on April 16-18, 1996; and this year's REPLitech International will take place in San Jose, CA, from June 4-6, 1996. For information on ITA events and seminars, call 212/643-0620.

## CORRECTION

The September article on production music libraries listed an incorrect telephone number for TRF. The correct number is 914/356-0800. ■

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about recording***

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provides all the critical information. Wrap all this well-thought-out technology in an utterly professional six-pound solid die-cast aluminum chassis. Of course, make it 100% compatible with over 60,000 ADATs already in use world wide. Introducing the new, definitely improved **ADAT-XT 8 Track Digital Audio Recorder**. Consider

it a think tank for your creativity. See your Alesis dealer. Don't think twice.

# Again



For more information on the new ADAT-XT, see your Authorized Alesis Dealer or call 310-841-2272. The Alesis ADAT-XT offers the advantages of the world's largest digital multitrack user base as well as an extensive list of compatible products from our 100+ members in The ADAT Group.

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# ALESIS

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by Stephen St.Croix

# YOU'VE READ THE BOOK, NOW CD MOVIE

**H**ere it is folks: my response to the TDK advertisement/rebuttal that ran in *Mix* last month:

Hi, TDK! Thanks for the letter. I appreciate the fact that you took time out from your busy manufacturing schedule to write to me this "open letter," and to pay for the privilege. I am moved. In fact, I am so moved that I will take the time to "do my part," as you requested in your ad, and respond to your points. For my regular readers, please go back and get this TDK ad, which is on pages 5 and 6 of the October issue. Things will make a lot more sense if you keep it open for reference as you read this. It's going to be a bumpy ride.

Some time ago, I did a series of columns which were, in a way, similar to this recent CD-R series. You probably know what I'm talking about. In those columns, as in the CD-R series, I refrained from mentioning the company names of the offenders on that particular issue. And an interesting thing happened...One company that I didn't even know was one of the offenders went completely ballistic, claiming I had aimed the column at them. Hey, if the shoe fits...

#### THE SUN SETS ON THAT EPISODE AND RISES ON THIS ONE

Actually, I was not going after TDK at all. In fact, I have had no contact with them or their CD-R media whatsoever. I generally trusted that it was good, because all other TDK media that I use is fine. It is the only audio cassette media I use, and one of my primary choices for DAT. But, as I did not name names in my column, TDK

came out of the woodwork steaming as if I had attacked them directly. Well, now that they have, I will respond as they requested. Here goes...

TDK claims to "have liked to have reviewed the data" while writing their rebuttal. They claim my piles of paper "remain unavailable to [them]." What? I would have been more than happy to share my tests and results with them. I only agreed with my

**I** have no bone to pick.

I get paid the same

whether I write a nice,

friendly story about baby

ducks and flowers, or

blow open tripe like this.

sources not to *publish* them in my column! If TDK wanted to see the data, why didn't they call and ask? I never received a call, fax or letter from them at all. No requests to see the data, ever. I didn't even know they cared until this ad showed up. By the way, all others who *have* requested it have seen it. So it looks like I do have some very interesting real data that they claim to not have, which I will share with you here.

In simple terms, TDK CD-R technology is certainly not your best choice, not by a long shot. Now, it's



David Byrne. Many Stories.



One Microphone: Shure Beta 87.



SHURE BROTHERS INC. EVANSTON, IL 1-800-25-SHURE. THE SOUND OF PROFESSIONALS...WORLDWIDE™

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not your *worst* choice (a third dye family, azo, is your worst choice), but before we even get to the dye issue, let's cover a point that TDK (wisely) chose to ignore in their rebuttal. TDK CD-R media does not have the extra protective top layer, which is so very critical to data integrity. Because I have easily worn through CDs without this layer, that point alone makes TDK a nonviable choice for me. Take a look at Fig. 1 (courtesy of HHB).

But that's not where TDK chose to fight. They chose dyes. Okay. There are really *three* dye families: azo, cyanine and phthalocyanine. Azo (very dark blue-green) is horrible, and there might not be that much of it around by now. Some form of cyanine is used by most companies, and it is green (the exact color depends on the additives used to help long-term stability and to stop UV damage). Phthalocyanine is used by Mitsui, Kodak and HHB, with other major names joining very soon. Phthalocyanine is gold with a very faint green tinge. HHB switched from cyanine to phthalocyanine this March, after testing revealed to them what I have been telling you for months. By the way, so far *every* CD-R blank that I have tried that uses phthalocyanine dye also uses that critically important additional protective top layer.

You should also know that Mitsui (the originator of phthalocyanine dye) actually got a patent on it, so it's not like TDK could just use it for free. This fact should also be considered as you evaluate the TDK claims used in explaining their choice to use cyanine.

As for TDK's conclusion that I got confused about "raw" cyanine dye—wrong. Nobody would use pure cyanine, because as TDK states, it is a "terrible material to use..." No, I meant the entire metal-stabilized family of cyanine dyes in use today. There are only five or so companies manufacturing all these disks, even though countless brand names are on the market. Each company makes its own choices about the compromises necessary to UV stabilize its cyanine product, and so each is slightly different; ergo: "family." The entire diversion and Fig. 1 in the TDK ad is silly. The issue obviously isn't about raw cyanine vs. stabilized cyanine. It's about stabilized cyanine vs. phthalocyanine. And who cares about the "dramatic improvement in light fast-

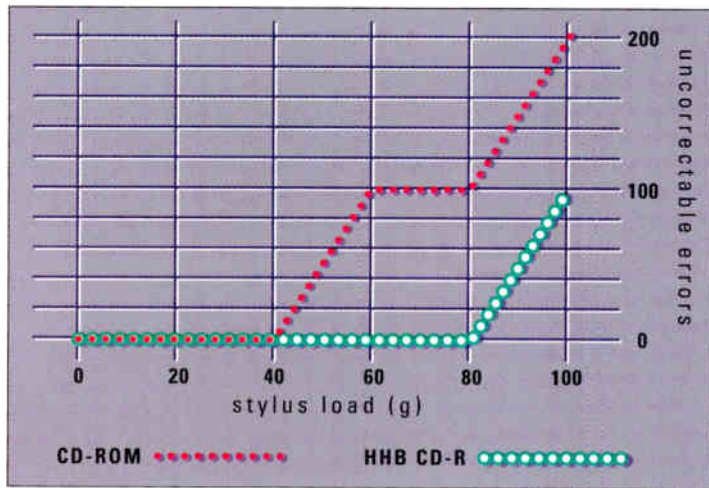
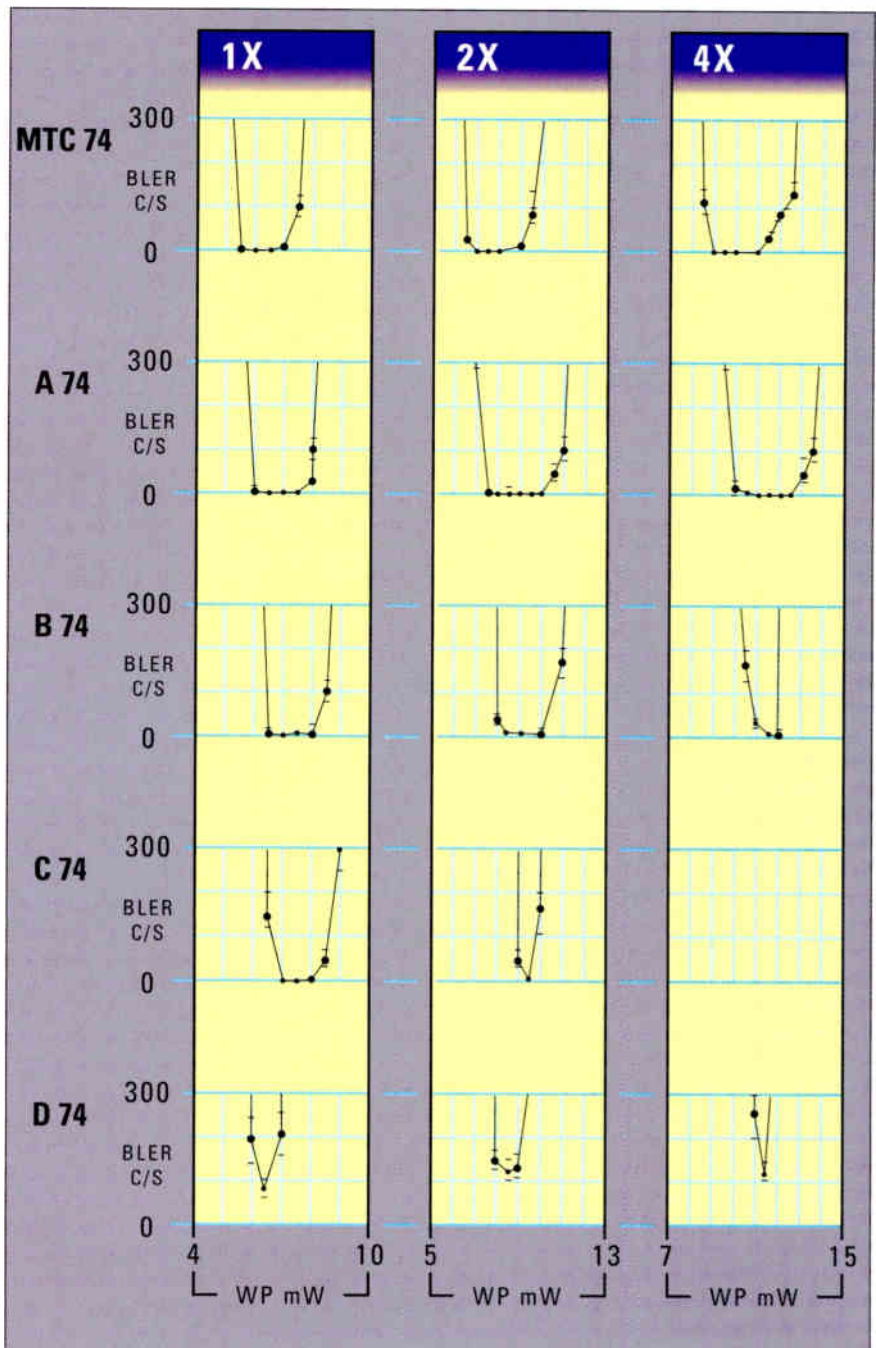


Figure 1: (left) increase in uncorrectable E32s measured on a CATS SA-3 as a function of load using a 4-mil sapphire stylus scratch tester. Figure 2: High-speed recording performance.





# Their Wish was OUR COMMAND



**T**

he Eventide DSP4000 Ultra-Harmonizer brand effects processor won this past year's TEC Award for signal processing. But when we asked the top professionals who inspired the DSP4000 what they wanted in version 2 software, they demanded even more:



Jude Cole  
I DON'T KNOW WHY I ACT LIKE THIS  
Produced by Kevin Killen

**KEVIN KILLEN** "Give me the power to do everything at once."

"Now I can strap together EQ, digital reverb, pitch correction, and a modulatable delay line with individual mix levels and pan positions in ONE preset! All with totally transparent audio quality so as not to degrade the tone I've worked so hard to achieve. Now THAT's power."



John Elefante  
WINDOWS OF HEAVEN  
Produced by John & Dino Elefante

**JOHN & DINO ELEFANTE** "We need really good digital compression modules"

"Best digital compressor we've heard yet - we left our own preset up in the machine after one of our sessions, then the people from TNN's "Live at the Ryman" TV series (featuring Pam Tillis, Rickie Scaggs and Reba McEntire) came in and said "Hey, this sounds great." They wouldn't let us take the DSP4000 out of the room!"



Nine Inch Nails  
THE DOWNWARD SPIRAL  
Produced by Flood and Trent Reznor

**FLOOD** "Can you make the patch editor more usable?"

"You did it! The NEW patch editor is finally really usable in a creative way — whatever I imagine in my head I can now create in the mix — the new distortion modules are fantastic."



Steve Vai  
ALIEN LOVE SECRETS  
Produced by Steve Vai

**STEVE VAI** "I want to go beyond effects." I want it to sound real."

"I've always wanted a pitch shift device that would simulate the differences in timing and tone of having two or three other guitarists in the room playing along. With the DSP4000's new software, I can have one voice slightly behind me, one right on top of me, a third drifting between the two, all with their own unique tone, and even distortion — very realistic simulation of multiple players."



Billy Joel  
THE RIVER OF DREAMS  
Live set engineered by Kooster McAllister

**KOOSTER McALLISTER** "Make it faster and easier to use. That's what we need in the truck."

"Yes! The new software makes things happen a lot faster. And it's a lot easier to set up. Fewer keystrokes, more intuitive. And the new sampler card is everything you promised. At Record Plant Remote, the DSP4000 is the box we count on most."

**DSP4000 v2 MAKES IT POSSIBLE**

If you can dream it, you can do it — faster, easier and better — with v2 Software, now playing on the Eventide DSP4000 Ultra Harmonizer processor: 130 effects modules and over 500 presets, all 30% faster and easier to use. Powerful internal sampler option also available. Call Eventide or your DSP4000 pro dealer and get into all it's got.

**Eventide**  
the next step

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ness" anyway, when it is still a minuscule fraction of the native light fastness of raw, pure phthalocyanine?

TDK claims an archival life of 70 years. Fine. There is no standard for accelerated aging or exposure tests; each manufacturer uses its own test rig. If Mitsui's tests from last year show phthalocyanine lasting 100 years, cyanine lasted 20. Therefore, if TDK shows 70 years for their cyanine, then I guess they get 1,000 years on the same test rig for phthalocyanine. They somehow forgot to tell us this in their rebuttal ad. The truth of the matter is that phthalocyanine simply works, naturally, and all by itself, but cyanine needs various added compounds to stabilize the dye and to attempt to protect it from ultraviolet. After extensive discussions over the last year with manufacturers and short-run CD-R production houses, I certainly would not trust these compounds to remain intact for more than five years, and I don't, so I told you.

TDK says that nothing could be further from the truth and mocks my "weekend's worth of longevity" with yet another "nothing could be further from the truth," citing their own tests of "two years worth of sunlight" passing through a window in the Netherlands (home base of Philips). First of all, are we really supposed to believe that they put a bunch of disks on a desk in Eindhoven for two years? Come on! And if they did—*why*? Their reference is sunlight passing through a window in the Netherlands? There's no steenkin' sunlight in the Netherlands! Its latitude is 52 degrees. How much sun do you think is up there? What is the sun's angle? Is that where *you* go to get a tan? And third, UV, the destructive component in this evil sunlight, can't go through glass! UV lamps aren't made of glass, they're made of quartz, so the UV can get out! Now, some UV can get through a window (enough to fade furniture over years), because window glass is thin, but there is significant attenuation, and twice that in the double-pane windows typical in the Netherlands. Let's get to the real world. I took three CD-Rs, one azo and two cyanine, put them dye-side-up on a desk in full southern summer sun, at an *open* window (summer breeze, you know), on a Friday morning. By Monday night, the azo and one of the cya-

# Don't be a Tape-based googlehumper.

**I**n 1856, Charles Darwin determined that the *Tape-based googlehumper* species died off because of its failure to evolve with the times. 150 years later, E-mu's DARWIN 8-track Digital Hard Disk Recorder is proving to be the salvation of the digital recording species, with its highly evolved functionality and streamlined cost.

It's true: DARWIN

delivers the power of digital audio workstation-style recording and editing at a price every *Homo erectus* can afford.

Play music? Doing some recording? You won't believe what DARWIN will do for your creative process! That's because DARWIN's heart pumps with the power of non-destructive random access recording technology. Consider the benefits of that over taped-based beasts:

- Effortlessly cut and paste that perfect chorus throughout a tune
- Completely rearrange a composition without screwing up the original
- Instantly resurrect that insane guitar riff you accidentally wiped out
- Create a virtually unlimited number of tracks from a single unit
- Avoid time wasted waiting for tape rewind
- Operation so easy and evolved, even a dinosaur can run it

Any question about who will be picking who's teeth with who's bones in the recording food chain? Face it, you need this thing.

Don't make the mistake of the googlehumper before you. Spit that tape out of your mouth and sail to your nearest E-mu dealer to learn about the DARWIN Digital Audio Disk Recorder in the flesh. After all, DARWIN is... the natural selection.

**E-MU**  
**E-mu Systems**

To find your local E-mu dealer, contact: PO Box 660015, Scotts Valley, CA 95067-0015 • 408.438.1921  
UK Office: Suite 6, Adam Ferguson House, Eskmills Industrial Park, Musselburgh, EH21 7PG • 44.131.653.6556  
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**GOOGLEHUMPERUS**  
TAPEZOIC PERIOD

Extinct due to its diet of magnetic tape  
limited brain power and incredibly  
slow speed





nines were fried—read errors resulting in unrecoverable files. The other cyanine (Tayio Yuden, by the way) was okay. The next weekend, I tried it with three phthalocyanines, and all survived perfectly, so I tried it again with the same three for two more weekends, and they still survived. Though all disks tested in this way got quite hot to the touch, by the way, the cyanines got much hotter than the phthalocyanines, simply because they are much darker. This is a valid point in real-world testing. And here's why:

This is something that was just pointed out to me in recent discussions with Kodak. We all know this, but I hadn't thought much about it until now. When you take a CD out of a CD-ROM drive after heavy use, it is quite warm. Now I don't mean a writer, I mean an everyday *reader*. Make it a double-speed reader; it's warmer still. Make it one of today's 4x readers, like the ones that come inside the new Macintosh systems, and they come out quite toasty. Now take a nice dark-green cyanine, put it in your new internal 2x or 4x CD-ROM

drive, use it all afternoon and pop it out: very hot. The reading laser is infra-red, remember? Infra-red, as in the infra-red lights that keep the burgers hot at Mickey-D's. Then there's the additional heat of driving the spindle motor at 4x speed.

And here, dear friends, is the rub. Cyanine is intrinsically light-sensitive, in a bad UV way. We all agree on that, even TDK. So it is doped with "stabilizers" to minimize that sensitivity. Again, we all agree. The problem is that some of these metal stabilizers are very sensitive to heat. The stabilizers can get cooked, leaving behind the dreaded raw cyanine, which everyone agrees is very useless stuff. This decomposition of the protective stabilizers is a linear function, and so is greatly accelerated by 4x players. Now I know why TDK repeatedly warns against heat! By the way, phthalocyanine has no such fragile metal doping, so it is much more tolerant of such real-world abuse.

TDK claims that they chose cyanine because they have a broader write-power window, and lasers age, etc., and shows you their Fig. 4. Doesn't TDK know that today's CD-R

recorders automatically run a test program that calibrates the laser and sets the proper write power for every disk, every time you write one? The one I use has 100 power levels, tries them all and chooses the one that gives the best center (reading contrast) every time I write.

Evan Brooks of Digidesign is one of my most valued resources when it comes to details of CD-R hardware, media and real-world compatibility. He *has* to know what's up—he is responsible for getting Digidesign's MasterList CD to work with every new drive that comes out. He has no real biases; he simply needs to support as many drives and brands of media as possible. He says that all Orange Book CD recorders run an optimal power calibration test on a special area of the disk known as (big surprise) the power calibration area. It tests for the write power that produces the best reads—fully compensating for variables such as temperature, humidity, media characteristics, and laser aging and degradation at that particular point in time. So much for TDK's assertion that laser

—CONTINUED ON PAGE 204

# TARGET FEEDBACK WHERE IT LIVES

THE FBX-SOLO: REAL-TIME AUTOMATIC FEEDBACK CONTROL AT A GREAT PRICE!

Now you can target specific microphones with Sabine's affordable new **FBX-SOLO**. Using the same **adaptive micro-filter technology** as the award-winning FBX-901, the SOLO delivers automatic real-time feedback control, with more gain and clarity than is possible with 1/3 octave EQs — all for about half the price of what you would expect to spend for FBX technology.

With the SOLO, you focus FBX technology only on the channels with feedback problems — with either the **SL-610** for a specific mixer insert point, or the **SM-610** (with built-in mic preamp and phantom power) for direct connection to a problem microphone. Finally, the entire audience can understand every word, monitors have more gain and clarity than ever before, and conference rooms will be free of feedback.

**Optional: 1U Rack holds from one to six SOLOs.**

FBX Feedback Extreminator is a registered trademark of Sabine, Inc. and is the brand name of its line of automatic feedback controllers. Covered by U.S. Patent No. 5,245,665. Other patents pending.



Get the industry standard in feedback control in your mix. Call now for a demonstration of the **FBX-SOLO**, the latest in Sabine's line of adaptive audio products.

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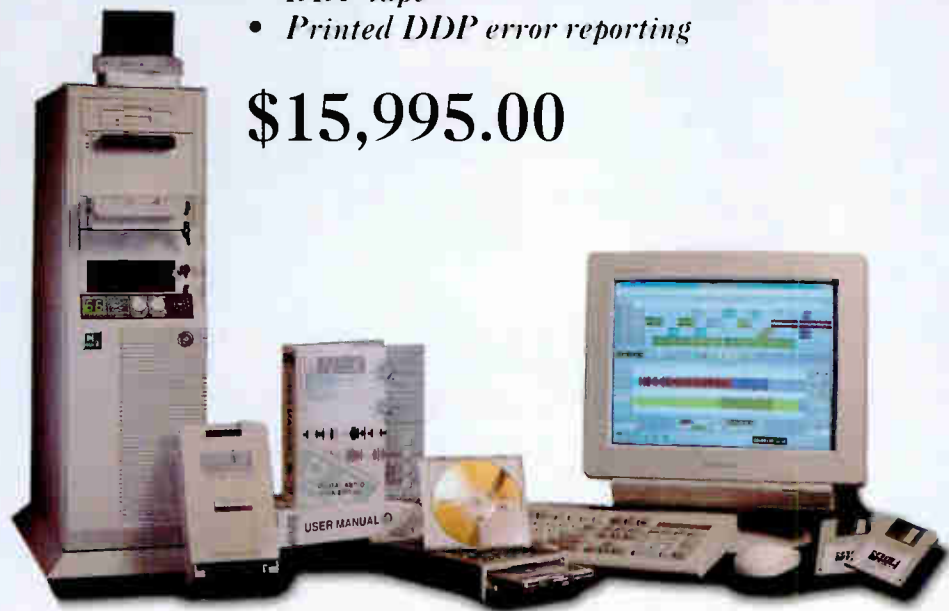
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Acme Recording's Mike Rasfeld organized the first meeting, which was held in the music room of a historic Chicago tavern. More than 50 engineers from both small and large studios attended that very successful first meeting. The name EARS was chosen after a wild and raucous debate, and the official EARS Cheer was adopted. ("You want more reverb in the headphones? #%\*&@ You!") The group unanimously voted to continue the meetings every month, as an outreach committee of NARAS. At the same time, EARS established a wacky, irreverent monthly newsletter, *The EARDRUM*, to publicize the meetings and to provide a forum for issues facing the audio industry. Mike Konopka became the "Cub Reporter/Jammin' Journalist," and I ended up as the editor.

Mike Konopka recalls those early meetings: "I remember the first time I attended an EARS meeting in 1986. In those early days, meetings were held at Gaspar's, a music club that was just down the street from Mike Rasfeld's Acme Studios. I had seen a lot of

punk shows at this club in the early '80s, but on this evening, the music room was filled with audio engineers, producers, equipment dealers and manufacturers, students and recording studio owners. I only knew a few people there even though I had co-owned a recording studio for a number of years. But someone insisted that we introduce ourselves like the Kiwanis Club. That is, you say your name to the group 'My name is Mike Konopka,' and the group yells back 'Hi, Mike!' By the end of that night, I sure knew a lot more people on the Chicago audio scene! And that introduction process is still a part of our EARS meetings today." After the untimely passing of our dear friend and founder Mike Rasfeld, EARS adopted a yearly election schedule for EARS chairperson. This process mirrors our infamous Chicago elections ("Vote early, and vote often!") with comedic speeches by the candidates and slanderous catcalls from the audience.

From the very beginning, it was obvious that EARS was not going to be a conservative, "Robert's Rules of Order" kind of organization. EARS celebrates the renegade attitude of

underpaid, overworked engineers. Each meeting has its own wacky tone, with jokes and witty barbs flying about. After meeting in taverns for many years, EARS now meets in a different studio every month. This gives everyone the opportunity to check out new rooms in a noncompetitive atmosphere. The primary function of EARS is social, so the first hour of every meeting is devoted to general schmoozing. Rival engineers and studio owners have the chance to discuss the Chicago recording scene in a neutral setting. Informal discussions spring up about favorite microphones, secret mixing techniques, and arguments about analog vs. digital. After a few beers, the conversations are lively but mostly good-natured.

When everyone finally settles down, the formal part of the meeting starts. After the introductions, our current chairman, Harry "El Presidente" Brotman opens the floor to the usual meeting agenda. The "Show & Tell" segment encourages members and manufacturers to bring new and vintage gear. Instead of typical "dog and pony" shows, EARS has witnessed some unique demonstrations. Shortly



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after the Iron Curtain fell, microphone guru Bill Bradley displayed some of the very first vintage Neumann Geffell mics to enter the U.S. Equipment manufacturers have asked EARS members to evaluate and critique prototype gear.

John Hardy, the man behind the world famous Hardy M-1 mic pre, doesn't attend EARS meetings with a typical manufacturer's attitude. "It certainly doesn't hurt my sales when I go to an EARS meeting. But there are friendships to be developed with people of common interests, and that's more important than the sales aspect." Tom Der, of Zero THD, gives a pro audio dealer's perspective on EARS. "Since there is no set membership requirement in regards to money and/or skill level at EARS meetings, you receive a wonderful cross section of the Chicago recording community covering all disciplines, from your simplest project studio to the most modern post house, and everything in between. This makes the meetings an invaluable forum for introducing and getting feedback on new equipment and technologies."

Another agenda item is the "Most

Heinous Session of the Month." Engineers relate nasty tales of intoxicated, gun-toting clients, 24-hour overdub sessions, massive gear meltdowns, and weird workstation crashes. The best story sometimes wins a small

**EARS celebrates  
the renegade attitude  
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engineers. Each meeting  
has its own wacky tone,  
with jokes and witty barbs  
flying about.**

prize, like a promotional T-shirt or a Radio Shack pen protector. EARS Gear Shootouts have also been another popular meeting topic. EARS has evaluated new and vintage large-diaphragm microphones, digital re-

verbs, outboard microphone preamps and near-field monitors. These free-for-all shootouts end up being a cross between a NASA tech briefing and a professional wrestling match.

The semi-regular EARS Roast is another unique activity presented by EARS. Legendary Chicago engineers Marty Feldman, Malcolm Chisholm (Chess Records) and Paul Serrano (PS Recording) have been publicly honored and humorously abused in this charity event. In a formal dinner setting, friends and coworkers tell outrageous stories about these engineers during the grand old days of recording. At the last roast held at Chicago's comedy showcase Second City, Paul Serrano, famous R&B engineer, received the very first D.O.A. award—"Dinosaur of Audio," a gold-painted dinosaur trophy. The funds raised by these Roasts have been donated to EARS' favorite charity, The Center on Deafness.

Over the years, *The EARDRUM* has evolved from a simple meeting notification to a snappy four-page newsletter. Each issue includes a new credo ("I wouldn't shout bingo numbers into that microphone") and features articles



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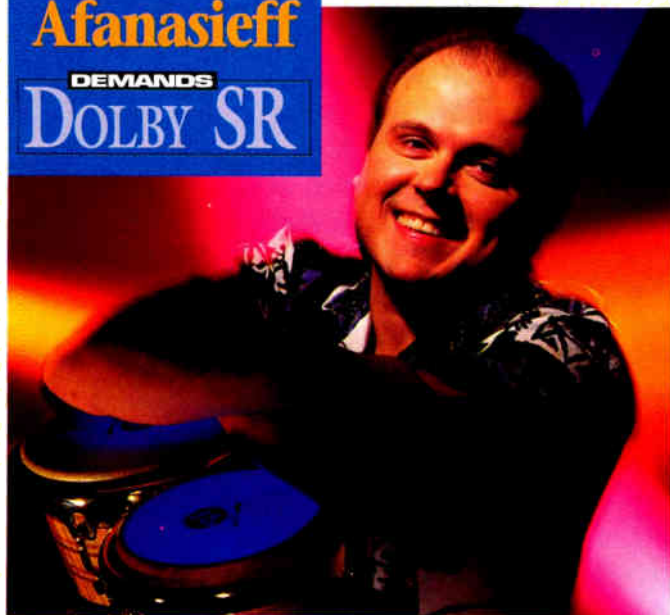
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“I plan to continue writing and producing, as well as scoring films.”

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Michael Bolton “Time, Love & Tenderness” (Columbia)

Kenny G “Breathless” (Arista Records)

Peabo Bryson & Regina Belle/“A Whole New World” (Aladdin’s Theme), Walt Disney Records

Peabo Bryson and Celine Dion/“Beauty and the Beast”, Walt Disney Records



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about engineering techniques, important audio services and occasionally a stolen-equipment hotline. Reflecting the rebel nature of the EARS organization, the newsletter also raises many controversial issues rarely seen in the mainstream pro audio press. Biting the hand that fed it, *The EARDRUM* took NARAS to task for the lack of Grammy Awards for engineers. Major equipment manufacturers have been chastised for their bizarre overpricing for parts and repair services. Owners of 8-track digital tape machines have related the many problems they experienced with these new formats. As a result of NARAS' national reorganization in 1994, the Chicago Chapter of NARAS informed EARS that they could no longer fund *The EARDRUM* without “editorial oversight.” The majority of the EARS membership took “oversight” to mean “censorship,” so in February of this year EARS voted to pull out of NARAS and become independent. EARS is now pursuing nonprofit status and has received many donations from engineers, manufacturers and dealers. *The EARDRUM* also plans to have a World Wide Web page soon.

After nine years, some minor controversies and a pile of fun meetings, the future of EARS is still bright. Due to the influence of EARS, many long-term friendships have developed between members of Chicago’s audio community. Cub reporter Konopka reflects, “It’s 1995, and we’ve pulled away from NARAS. EARS has grown by leaps and bounds with a truly unique, bottom-up grassroots approach to the audio industry that has left our mailing list and membership over 600 strong, and our meetings in various Chicago area studios well-attended. Every EARS member deserves a share of credit for this. With a lot of *EARDRUMs* (over 80), and important audio issues under the bridge, I think our founder Mike Rasfeld would be proud of knowing what EARS is today.”

(For more information on EARS, write to *The EARDRUM*, 2097 John’s Court, Glenview, IL 60025, or send e-mail to TTone007@aol.com or The Eardrum@aol.com). ■

*Timothy R. Powell is the engineer/owner of Metro Mobile Recording, a 48-track audio truck based in Chicago. He’s editor of The EARDRUM and is an avid collector of vintage mics.*



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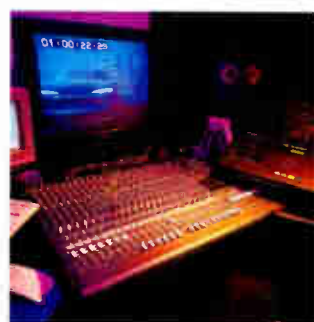
Writer/Producer Shep Pettibone (of NYC's Mastermix Studios) has a long list of credits including Madonna, Elton, Janet, Whitney, and Euro-dance group, Real McCoy, to name a few.



Frank Serafine was one of the first to use an 8•bus for ADR, Foley and sound editing on a major motion picture. He's got Mackie 8•Bus consoles in every room of his facility.



Hyle Lehning, President of Asylum Records, Nashville, uses a 32•8 in his living room to record demo's and mix tracks for a variety of the label's top talent.



Prime-time editing at Helix Studios. Three-time Emmy Awarded David Scharf's credits include effects/sound dialog editor on the hit TV show, "Cheers" and "The Untouchables."

# EVER WONDER WHY OTHER 8-BUS MANUFACTURERS



Engineer/producer, Frank Heller uses his CR-1604 and 32•8 on a variety of recording projects for major label acts.



Jonny Caswell, co-owner of Center Staging in Burbank, California—rehearsal center of the stars.



Technician/engineer of Vancouver B.C.'s Warehouse Studio, Ron 'Obvious' Vermeulen custom-configured a 32•8 and 24E into Bryan Adams' Jamaica studio (pictured here).



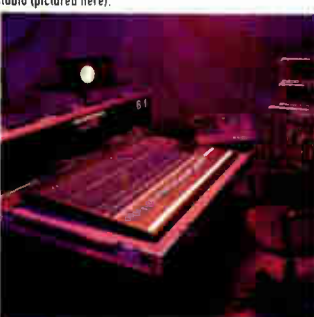
Hooked up at all times into Capital Television Network's Mackie 24•8 are 10 VTR's, 4 satellite receivers, 2 off-line editing suites, and 8 mics, says video production editor, Gary Morgan.



Marc Ramaer is, among other things, k.d. lang's right hand man when it comes to sound. He designed her studio around a Mackie 8•Bus system and helps her track and mix her dazzling records.

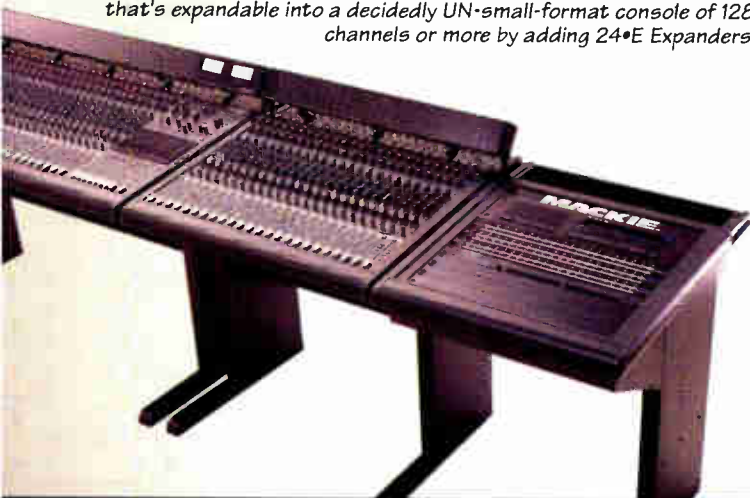


Matt Rollings is THE first call session keyboardist in Nashville. His credits list more stars than exist in the three closest galaxies.



Paul Levy's Advanced Audio is one of Los Angeles' premier tech/rental firms—everything from outboard gear to custom wiring—with clientele including members of the Stones.

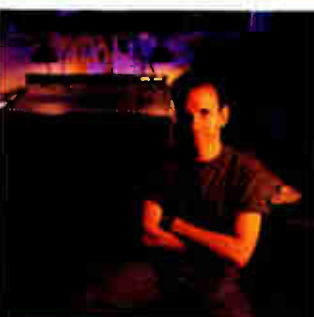
This is the console that won the 1994 TEC Award for Technical Achievement in Small Format Consoles. It's also the only 8-bus mixer that's expandable into a decidedly UN-small-format console of 128 channels or more by adding 24•E Expanders.



# MAYBE IT'S BECAUSE SO



Surround sound and digital post production on the independent Canadian feature film, "When Night Is Falling," 112 DA's and Protocols channel, mixed directly to ADAT via an 8•Bus. (L to R): Sound Designer, John Hazen, Writer/Director Patricia Rozema, Sound Effects Editor, Alan Geldart.



David Rosenberg's music pushes the creative envelope so much that MTV created a "Top 20 Countdown" visual ID from his music. He's done album gigs for Bob Dylan, Chaka Khan among others, and composed award-winning music for a slew of major network television series and top jingles.





Drummer David Abbruzzese gained fame with Pearl Jam and has moved on to doing interesting sessions including work with Eddie Kramer on his latest Hendrix orchestral opus.



Creative Director/producer, Michael Frondelli, of the legendary Capitol Recording Studios, has a 32-B installed in both his home and work studios.



Engineer Ian Parks with main man, Kirk Hammet of Metallica. Ian installed a 56-channel Mackie 8-Bus system in Kirk's home studio.

**W**

we once noted in print that a console is only as good as the people who use it. This ad is our way of recognizing all of you who own and use a Mackie 32-B, 24-B or 16-B 8-Bus console. Thank you for trusting our promise that an affordable mixer could deliver the sound

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8-Bus-recorded platinum albums, feature motion picture soundtracks and TV series credits grows, we're getting pretty confident that we really HAVE delivered on that promise.

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Steve Milo talked his boss Michael Bolton into buying one of the first 24-Bs that Mackie Design's manufactured.



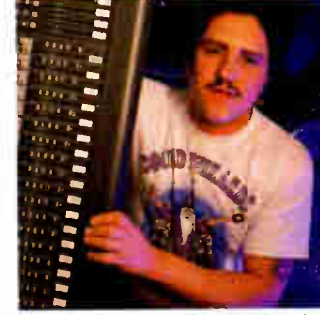
Billy Moss uses his 8-Bus for production work with acts like Coming of Age, Sisterhood, 112 Extreme and Tasha Scott.



A man of many hats, guitarist/composer/producer Terry Wolman's home studio boasts not only a CR-1604 but a 32-B.



Queensryche tracked (and partially mixed) their latest Platinum album, Promised Land, in an island cabin retreat/remote studio—Big Log—using a 32-B and a 24-B. Two automated CR-1604s were also used at a separate ADAT station; a second 24-B was used during playback.



Brian Van Kleeck of Sound Wizards Entertainment in Middletown, New York told us that the 32-B is one of the best mixers he's ever used.

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Paul Hastings's Assembly Room is a cutting edge facility doing music for records and movies in Los Angeles. His latest album, Future Primitive, Wildcat Records was recorded, tracked, and mixed on a 32-B and 24-B.



Having developed a reputation as one of Hollywood's top orchestrators, Hummie Mann has scored over 15 feature films including Mel Brooks' "Robin Hood: Men In Tights," and numerous TV projects.



Ricky Peterson is a producer and keyboardist of uncommon gifts. Best known for his work at Paisley Park, check out his Mackie tracks on a series of releases on Ben Sidran's Go Jazz label, and on an upcoming album by Donny Osmond!

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exhibit which dominates the museum when you walk in. It has two 48-screen video walls, each of which has 4-channel sound plus surround. In addition, there are other 'zones' around the museum from which you will be able to hear the audio from the wall—even though you are distant from it—through ceiling speakers with different mixes going into different parts of the museum. It is a 20-minute loop, and as you go through the museum, you will end up in a place where you can watch it for a while, and then you can move off and go through different parts and then end up somewhere else where you can see it. That has been my pet project, because it is the first one we had available to work on, and one of the most complicated ones. I am basically designing that one myself, and delegating most of the others to other editors who are working with me. And I am mixing quite a number of them here in my edit room.

"The first exhibit you go into," Murray continues, "is the twin theater. You enter one of the theaters and watch a 12½-minute movie called *Mystery Train*, which is about the roots of rock 'n' roll. It has to do with blues, R&B, gospel and C&W, and how they all had something to do with the initial



Sound designer Douglas Murray (L) and director Mike Tourney look over re-recording logs at the "vintage" Neve console in Fantasy Control Room A.

creation of what is now rock 'n' roll. It starts with Robert Johnson, and it ends with Chuck Berry and Elvis. Then you get up and move into the next theater and watch another 12½-minute movie, which is synchronized so that it starts just after the other ends. It looks at the concept of what makes good rock 'n' roll. It has to do with all the energy and the primal rhythm and the sort of orgiastic state of mind that rock performers and audiences get themselves into.

"The two movies are not information-packed documentaries in the Encyclopedia Britannica sense," Murray continues. "They are experiences that drive home their points through more cinematic means. They are entertaining and pretty intense."

The two theaters are designed with quadraphonic sound and laser-disc playback, which is the primary delivery format for audio-visual exhibits throughout the museum. Like all the exhibits, the movies will play unattended. "The whole museum is totally automated," Murray says. "All the exhibits are controlled by one central computer. A company called D&P [Design and Production] in Virginia put together the system, which incorporates all the wiring for audio, video and control."

The automation offers, perhaps, the most efficient way to operate the museum,

but Murray admits to some trepidation about total reliance on central control. "That is the thing that is most scary about this project," he says. "If something goes wrong with the system, everything could stop, or jump back and restart from the beginning."

#### PREPPING THE AUDIO ELEMENTS

The flow of production for the project, though naturally varying somewhat due to the variety of the exhibits, was basically rooted in video production, starting with initial offline editing of the visual elements and moving through approval, online editing and then into audio post-production. The exhibits presented some unusual challenges compared to a typical show, however, not only in the manner of delivery to the end-user (museum-goer instead of theater patron), but in the nature of the source material itself.

"The audio-visual exhibits are all basically documentaries using archival material of interviews and performances," Murray explains. "Some of it is new, and some of it goes way back. One of the sources was that recent Time-Life series on rock 'n' roll. The museum had a huge research department. They would have a concept for each exhibit, and they would start pulling any footage that could be useful, with themes and categories of things that they were looking for. They assembled this material on ¼-inch video, and kept track of who it belonged to, and then started rough-cutting it for the exhibit."

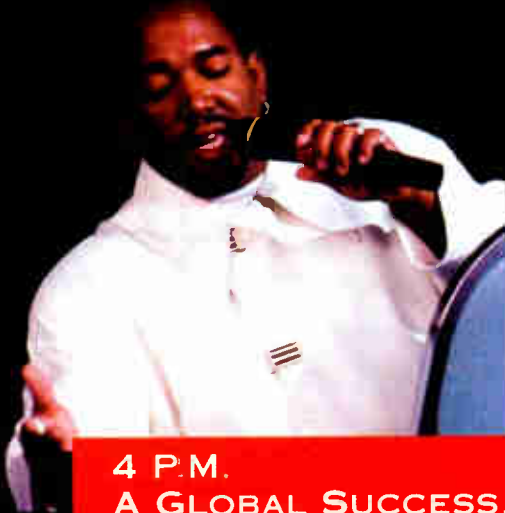
Murray's own involvement with each exhibit began at this stage. "We would see the rough cuts and talk to the directors and editors about our input before the picture was locked and approved," he says. "When a cut was approved, the picture department would then identify the actual shots that they used in the offline edit, and the Museum would go back to all the different sources to negotiate rights to use those shots in the final. Because this was for a museum and not for commercial release—none of these films will ever be shown anywhere else—they were sort of expecting that people would give the rights for nothing, and they would just have to pay the lab costs. But for the people who shot the footage, this is what they make a living from, and they wanted to be paid. So there is a lot of material that



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swer was based on the fact that, with the Avid Media Composer, they are using the same Pro Tools audio interface to go in with their audio that we would use. So they could take the audio out of the Beta SP deck and run it into the Avid with theoretically no difference in quality from what we would have gotten if we had done it, and then they could be sure that it is all in sync. On the day they are ready to go online, they can hand us the master audio in sync, broken out in tracks with all the names. So, much of the prep work is

already done for us."

To make this new way of handing off the audio feasible, Murray had to have a way to use the picture department's files and session information on his system. "We are using a technique based on OMF [Open Media Framework] with Avid and Pro Tools III," Murray says. "The OMF Interchange file format can contain within it audio, video and sync information for multiple tracks and images, with the format for each of those data types specified—AIFF for audio, for instance. This format is very sophisticated in what it can contain. The lingo is actually one of the

hardest parts to master, but basically, what's happening is that an Avid 'sequence'—which is essentially a kind of EDL—gets converted into an OMF 'composition,' which then gets converted into a Pro Tools 'session.' And since Pro Tools and Avid use the same format for audio files, the files are just copied as-is.



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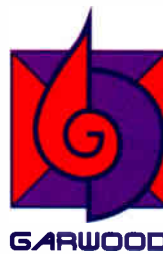
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Claymation dolls of members of Alice in Chains used to make the video "I Stay Away"

TONY FESTA/ROCK AND ROLL HALL OF FAME AND MUSEUM

"What they do within Avid is to 'consolidate' the sequence to a new location. What that means in Avid lingo is to just take those parts of the source files that are really in the particular sequence you are working on—plus a user definable 'handle' on either end—and to copy them onto a new, clean optical disk. Then they export the sequence information from that consolidated sequence as an OMF Interchange composition document, which is put on the disk along with the consolidated media files and shipped to us.

"We then run this thing called OMF Tool, which is a new piece of software from Digidesign that is still in beta test but is working for our purposes. From the OMF composition, OMF Tool creates a Pro Tools session file, which has pointers to the Avid media files. We copy that onto our hard disk and open it up in Pro Tools. When we started, it didn't work at all, but now everything is in sync. We have the right tracks at the right length, and it preserves the names that the Avid editor gave each region, as well as the crossfade durations and the automated panning and level changes."

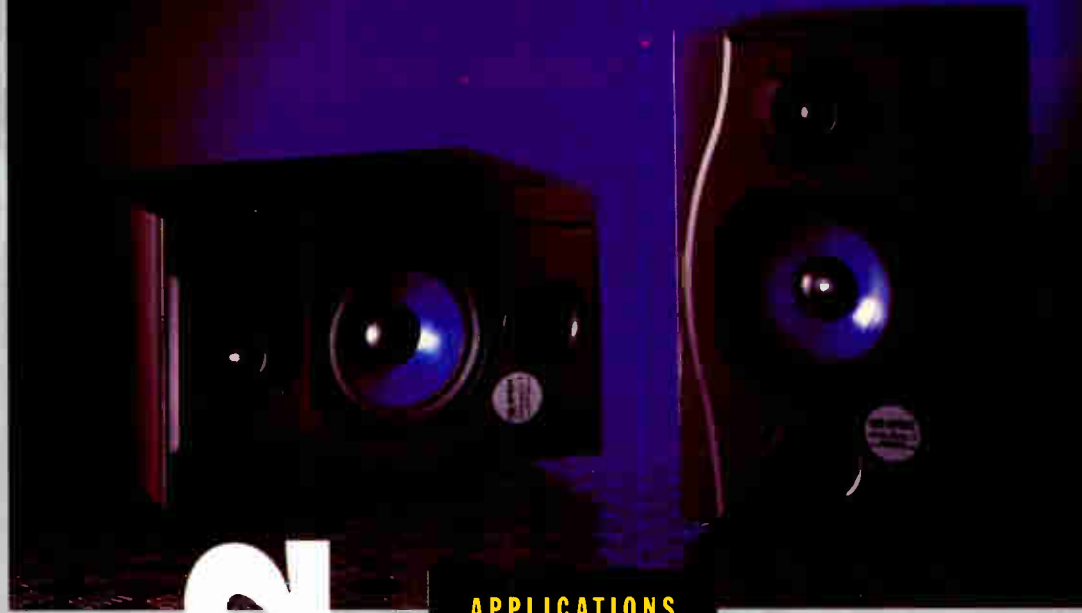
### EDITING AND MIXING

With sync audio in hand, Murray began the sweetening process.

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- As with Spirit mixers, the electronic design of Absolute 2 uses **high quality components**, including film capacitors and an air-cored inductor, in a circuit that embodies classically simple design principles. Terminals allow **bi-wired** as well as standard connections.
- Rather than compromise with off-the-shelf components, we use **custom hardware** built to our specifications - both drivers are exclusive to Absolute 2.
- The **ferro-fluid cooled soft-dome tweeter** ensures minimal distortion, with excellent heat dispersion. Not only does that mean a more accurate sound, but it puts less strain on your ears after long periods of high-volume monitoring - and don't pretend you don't like it loud!
- The LF driver features a **solid cast chassis** and **30mm edge-wound voice coil**, for optimum efficiency and cooling. That means you can push Absolute 2 to the limits and still hear music, not distortion.
- The vented cabinet employs a **special port design** that does more than simply deliver extended bass response. With its carefully chosen dimensions, air turbulence is reduced, contributing to Absolute 2's smooth, uncoloured low frequency characteristics.

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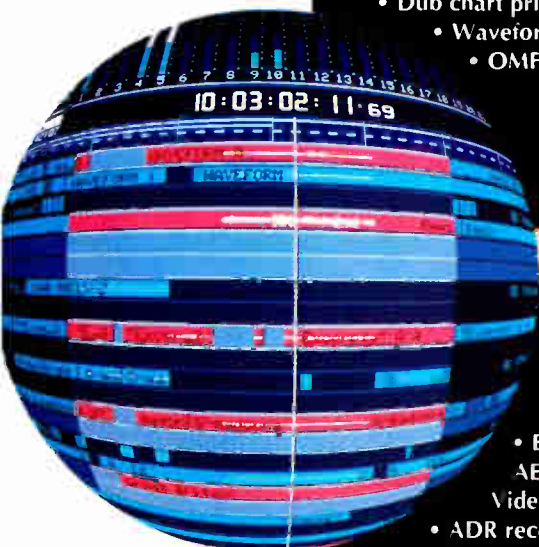


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"We're not taking something that has no sound and putting in the sound," he says. "We are working with the music and interview material. The elements are from everywhere, new and old, in studios and out on the street, and it is all just cut together. Like in any mixing of film sound, I have to put this wide variety of source material all into one universe and give it coherence and dramatic punch.

"When we open up the Pro Tools session, we have access to all the separate sounds. They are usually crammed together on a couple of tracks, and we pull them out so we can mix and pan them; we clean up all the stuff that sounds cruddy, all the bad-quality old audio from old Kinescope'd TV shows and things like that. My editors basically lay it all out and leave the work of EQ'ing and compressing and all of that to me. In many cases, for the smaller exhibits, I've been doing the mixing itself in this room."

Murray's setup includes a Pro Tools III system with TDM and three DSP "farm cards," which allow him to use multiple DSP processes at once for enhancement and restoration. "I have spent a lot of time cleaning up sound elements in Sound Designer II, using different plug-ins," he says. "I usually take the sound, normalize it, run Q-10 equalization, and then I run DNR on it if necessary to clean it up. In the mix that I am in the middle of, I am running everything through C1 for compression and then running the output of that through L1 to get

the gain correct and keep it from clipping. I am also running two Proton plug-ins for spatialization to give a little ambience to the sound. With all the different plug-ins you can get now, I almost don't need my analog console at all. If I had the digital interface for the Tascam DA-88, I could just go direct."

DA-88 was the format used for master mixes for the shows mixed in Murray's room. The DA-88 mixes were then transferred to timecode DATs (two in the case of 3-channel mixes), which were laid back to the D2 video masters by post house Varitel Video in San Francisco. The D2 tapes were then sent off to the pressing plant as masters for the museum's laserdiscs.

"Most of the exhibits are two channels per D2 master," Murray says, "because each D2 master goes with one videodisc." Exhibits using more than two channels involve on-site playback synchronization of multiple laserdisc players, which is handled by the automated D&P system. "Rock Around the Clock," for instance, has its ten

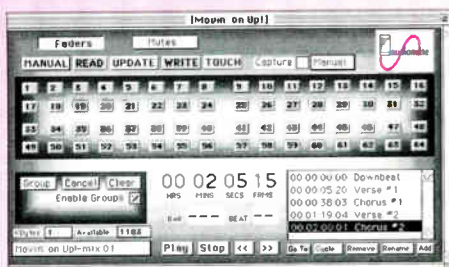
TONY FESTA/ROCK AND ROLL HALL OF FAME AND MUSEUM



Keith Moon's platform shoes.

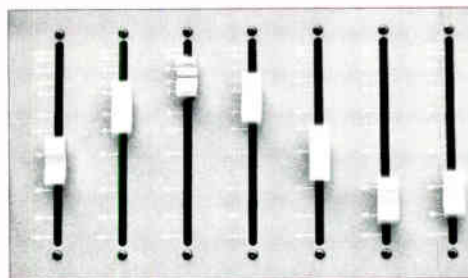
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audio channels spread out over seven videodiscs that also feed picture to its two video walls. "I haven't seen it all work yet," Murray says, "but I have been assured that the players are all locking to house sync at the frameline and that they will turn over each frame at the same time and all be going at once at the same speed."

For the larger exhibits, with their unique physical configurations and audio channel requirements, Murray's room was clearly too different from the intended playback environment to allow him to mix there. So mixes for the twin theater movies, "Rock Around the Clock" and the giant video wall were done in Studio A at Berkeley's Fantasy Studios, allowing mixer Sam Lehmer to get a better feel for what the audio would sound like onsite.

The two movies were mixed using a quad monitoring setup in the control room simulating the Bose system in the theaters. Setup for mixing the two video-wall exhibits was more complicated, involving not

only the control room but the studio as well. "Out in the main room," recalls Michael Mennies, "we had a literal mock-up of what the installation would be like in the museum, spec'd out to the actual plans. They would do the main part of the mixing in the control room and then go out to the studio to listen and make final adjustments based on what it sounded like out there."

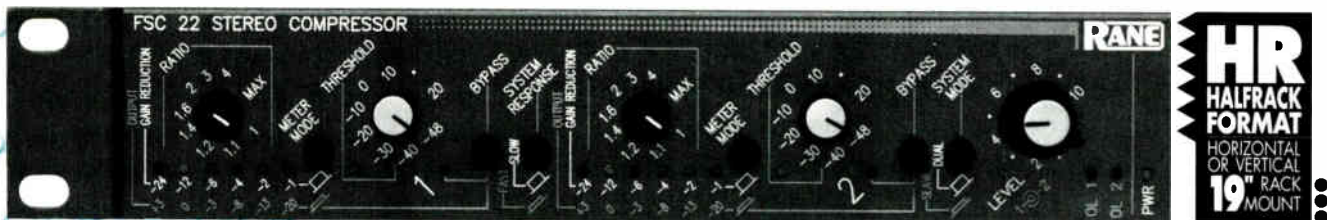
During the mix, the edited sound elements were fed from a 16-channel Pro Tools system into Studio A's Neve console. Elements whose channel placement would be changing during playback were then routed from the Neve into a setup dubbed the "Pannist 3" by its creator, Alex Stahl. Pannist 3 is an auto-panning application written in Opcode's MAX programming environment that allows a Niche MIDI-controlled 8-channel VCA unit to be commanded via a Wacom graphics tablet hooked to a Macintosh computer. Looking at an onscreen graphic representing the actual speaker setup of an installation, Stahl was able to use the panner to control the placement of sound elements in real time by changing the

position of a stylus on the surface of the graphics tablet. The outputs of the VCAs were fed back into the Neve for mixing with the other elements (those that remain fixed in a given channel for the duration of the exhibit's soundtrack). These pre-mixes, known as "stems," were sent to a Dolby SR 24-track in a process that involved several passes. Mennies credits Pannist 3 with "allowing us to really take advantage of all these playback channels we were using."

After two weeks of mixing, the stems were "mastered" from the 24-track tapes to DA-88 with some last-minute polishing of balance and EQ. The DA-88s were then taken to Varitel for layback to the D2 video masters. These final transfers culminated a process of several months for Murray and his team. Rocking nearly around the clock at the end, they managed to wrap up their work a mere two weeks before the museum's planned grand-opening extravaganza. ■

*Mix's media & mastering editor, Phil De Lancie, is a mastering engineer and multimedia designer for Fantasy Studios in Berkeley, Calif.*

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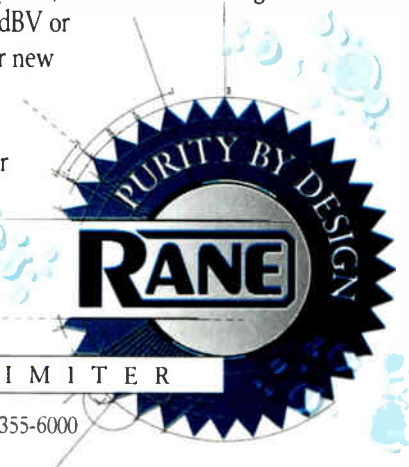


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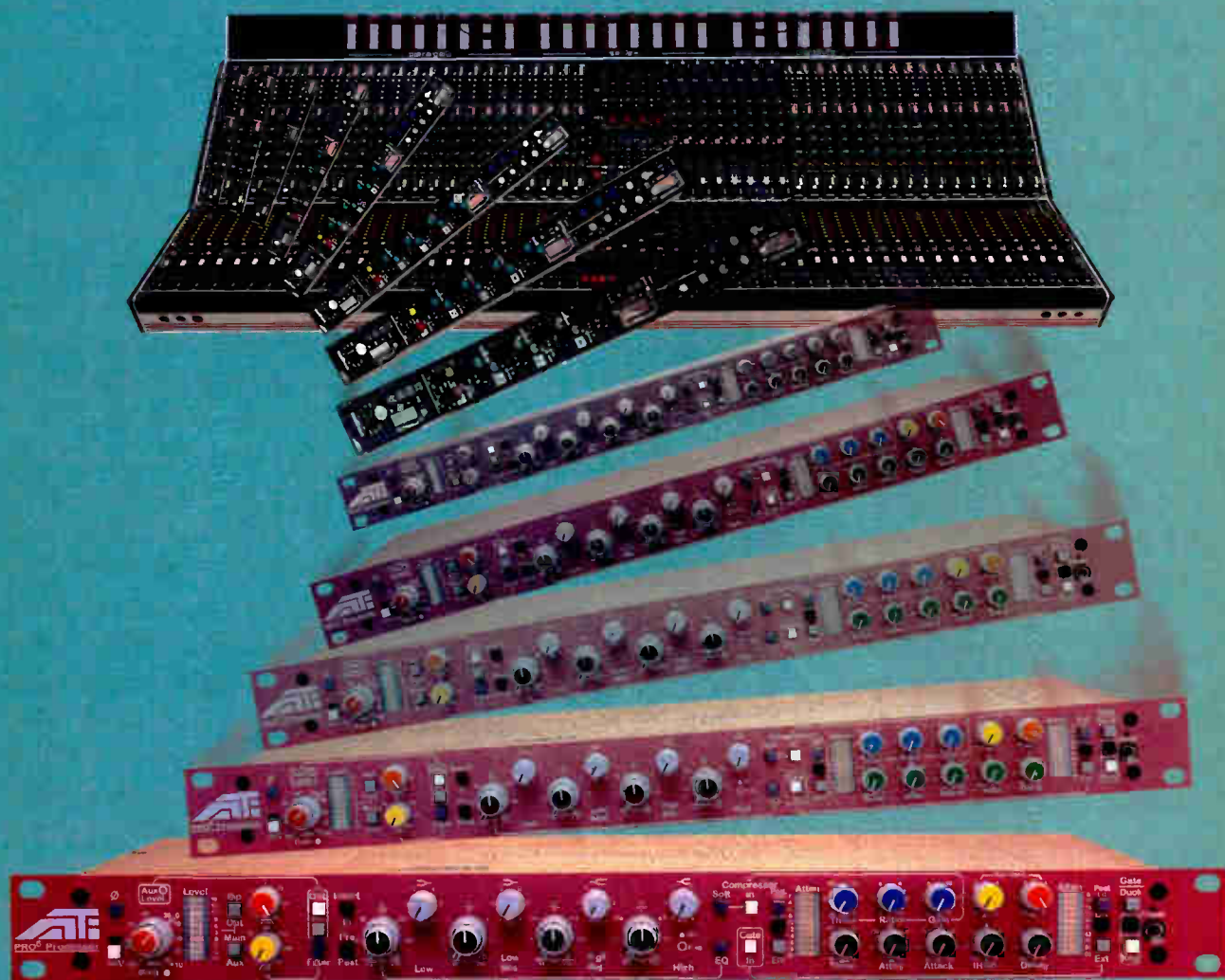
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# TOP OF THE BIT PARADE

## Leading Engineers Talk About Automation

by Chris Michie

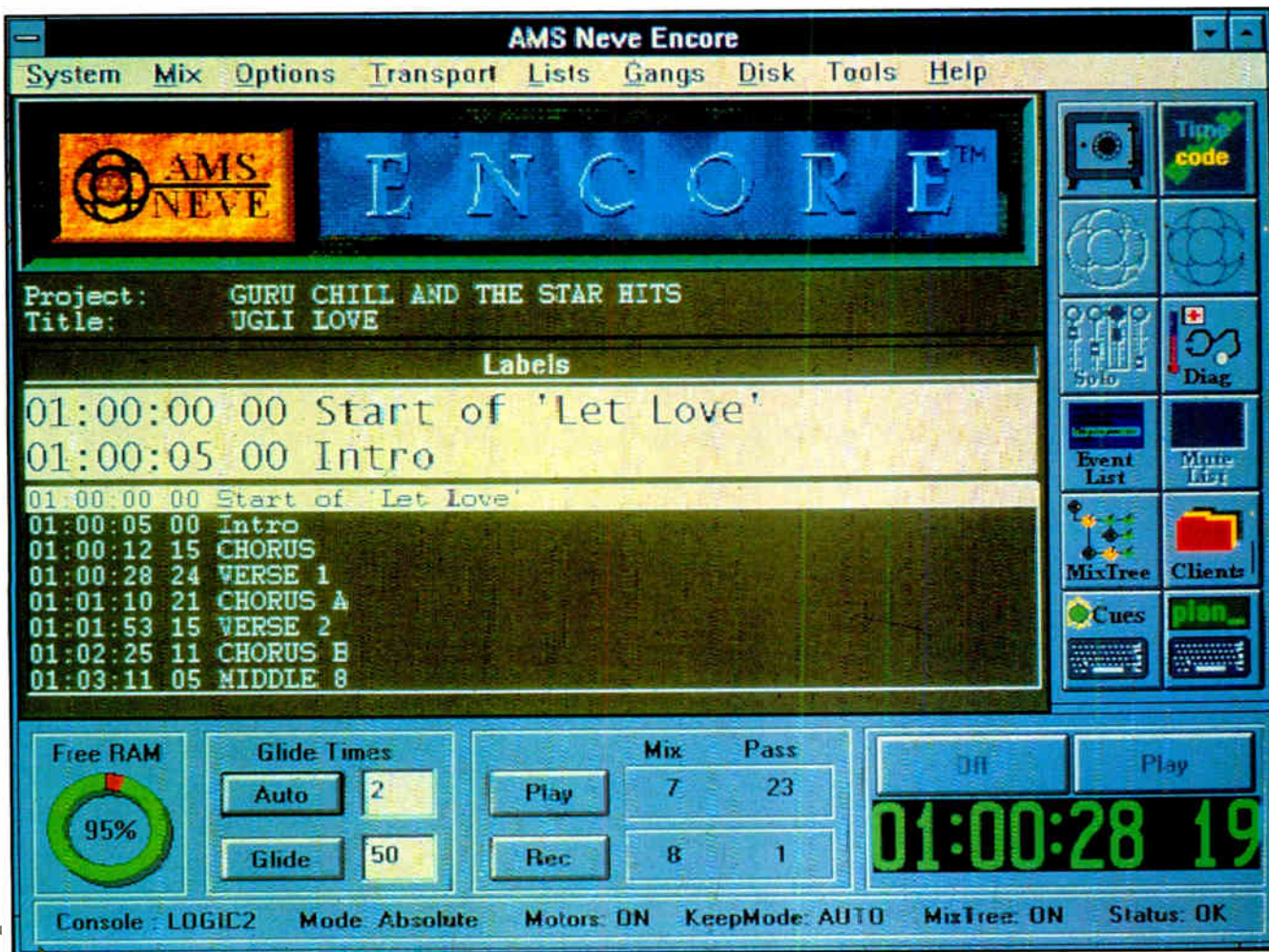
Sometimes, it seems that advanced technologies have completely changed the face of music and sound production in the past 20 years. In fact, only a few new recording technologies—disk-based digital recording, MIDI production, tape-based MDMs and console automation—have significantly changed day-to-day studio operations. The introduction of 2-inch tape, auto-locate, noise reduction and digital effects all brought superficial changes to already-established practices. But console automation has fundamentally changed the ways in which engineers (and producers) now approach their work.

Automation has virtually eliminated some of the studio's more colorful and arcane practices. In the dark ages of the 1970s, complex mixes were only possible in real time if a team of fader jockeys hit all their cues exactly. Today, automation allows mixers to build the "perfect mix" incrementally, track-by-track if necessary. The ability to store and

recall "snapshots" of an automated board's configuration means that lock-out sessions are no longer the only method of preserving console settings overnight. With the near-instantaneous recall of console settings and mixes, it's now practical to mix songs as soon as they are finished (or even earlier), rather than wait to the end of a project's tracking sessions. If changes are later deemed necessary, engineers can recall the exact console settings for the original mix and insert updates seamlessly. In certain circumstances, automation makes it possible for an engineer to start a mix in one room and finish it another, with a minimum of reconfiguration.

Nearly two decades after console automation first appeared, we interviewed over a dozen music and post mixers for their views on the usefulness and useability of the various systems. Based on their comments, it seems safe to say that automation is here to stay. Most music mixers find it useful, some find it invaluable, and the post mixers we spoke to depend





on it. Francis Buckley is emphatic. "Mixing without automation would be almost impossible with today's incredibly huge multitrack projects. Automation has given us the ability to work with 48, 64, and—now with the ADATs—128 tracks if we so desire."

#### TAKING CARE OF BUSINESS

Automation significantly affects the speed of operations and throughput in audio post applications, but the connection between automation and profits is harder to define in the music-only environment. Though automation may improve productivity, it rarely gets clients out of the studio any sooner, which is good news for commercial studio owners.

The choice of automation system presumably has some effect on a studio's marketability, yet no clear leader has yet emerged among the major players' systems. Most engineers are familiar with several systems, and the majority opinion seems to be that all of the major vendors' systems are functional and reliable, yet several engineers have

*Coming soon is Encore, the Neve/AMS SMPTE-driven automation system, available for AMS Logic, Neve V-Series or any Flying Faders-equipped mixer. Pentium-based Encore provides a logical, icon-based interface, with a unified platform similar to that of the Capricorn automation.*

specific criticisms. For example, Robert Feist finds that the requirements of film sound mixing are not fully met by some automation sys-

tems. "[With] Massenburg and Flying Faders, you can't automate the dynamics and EQ," he says, comparing those systems to the AMS Logic consoles he often uses for post-production. With the Logic automation, "I can do EQ changes to match dialog changes. And I can just dial in [a dynamics setting] when I need it and back it off when I don't want it."

Some engineers' complaints relate to specific models and configura-

Mixing today's huge multitrack projects would be almost impossible without automation.

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MIX



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tions; in many cases, manufacturers have addressed the shortcomings in later versions. But Ken Kessie has complaints about software upgrades. "I try to stay away from the newest upgrades, as they are often buggy," he says. "I don't like to do beta testing for feature-happy software de-

signers."

Poor software design also draws the wrath of Ed Cherney. "I would love to get some of the [automation system] designers," Cherney explains, "and have them mix a song, showing me how they imagine their automation works. A lot of automa-

tion systems seem to be set up for something else—playing with a computer or fancy graphics—but have little to do with mixing music. And put together by design teams that have never mixed a record. As a result, you have to change the way you work to the way some software

## Our Panel Of Automation Experts

**Michael Brauer** has remixed tracks for artists as diverse as Bruce Springsteen, Belly, Harry Connick Jr., Booker T & the M.G.s, Roxette, Fishbone, the Rolling Stones, Sade and Prefab Sprout. He has engineered six Platinum albums, and more than a dozen of his remixes were Top 10 hits.

**Francis Buckley** went independent after spending ten years with MCA Music Publishing. As an engineer, his credits include both Wilson Phillips albums, and he has worked for Paula Abdul, the Pointer Sisters and Quincy Jones. He recently mixed a track on the Alanis Morissette album.

**Bruce Buehlman** is senior sound designer at Video Post and Transfer, a Dallas-based audio, video and film post-production facility with SSL Screensound, Scenaria and Omnimix systems. Buehlman recently completed ADR on Disney's *The Big Green* and a current CBS television series.

**David Cantu** is chief engineer for New Wave Entertainment, of Burbank, Calif. David Cantu is chief engineer for the audio department of New Wave Entertainment, of Burbank, Calif. Since 1987, Cantu has mixed all of the commercials for theatrical releases from Buena Vista Distribution.

**Ed Cherney** has engineered for Jackson Browne, Eric Clapton, Ringo Starr and Bob Dylan, and produced Juno Award-winner Jann Arden's *Insensitive*, which recently topped the Australian charts. Currently mixing Bonnie Raitt's new live album. Grammy Award-winner Cherney recently completed a new Rolling Stones record.

**Mark Curry** is chief engineer at Music Forever, a Hollywood-based film post-production facility. His engineering credits include features (*Strange Days*, *Internal Affairs*, *Stand by Me*), movies of the week, soundtrack albums and hundreds of commercials.

**Eddie DeLena**, an independent engineer/producer, spent most of 1994 working on Michael Jackson's *HIStory* project. Originally a staff engineer at Record Plant, DeLena has worked with some of the great names of rock, including Jeff Beck, Red Hot Chili Peppers, 4 Non Blondes, Meat Puppets, Nazareth, Lita Ford and Joe Cocker.

**Robert Feist** is an independent engineer and post-production mixer. He has worked with artists as diverse as Allan Holdsworth, Belinda Carlisle, Mojo

Nixon and Stevie Nicks.

**Ken Kessie** is an independent engineer, producer, writer and programmer whose mixes are often found at the top of the Billboard R&B and pop charts. Recent credits include Terry Ellis (En Vogue), All 4 One, Regina Belle, Swing Out Sister and Duran Duran.

**Bernie Kirsh** is chief engineer at Mad Hatter Studios and has recorded 23 Grammy-nominated albums. Currently working on a 5-CD Chick Corea career retrospective, Kirsh recently recorded the new Chick Corea Quartet album, *Time Warp*.

**Martin Kloiber**, an independent engineer known primarily for his work with Yello, has also worked with Lee Scratch Perry and X Perry Mental, and has recorded music for film, including the European release of *The Santa Clause* and *Marilyn, My Love*. He's now the sound designer on the Yello movie, *Once Upon a Dream*.

**Gavin MacKillop** is an independent engineer and producer. Credits include The Rembrandts' latest album (including "I'll Be There for You," the theme for NBC's *Friends*), and projects for Toad the Wet Sprocket, P.I.L., The Church, the Goo Goo Dolls and Sarah McLachlan.

**Andre Perreault** is chief operating officer of Enterprise Post, a new division of The Enterprise, Burbank, Calif., home to audio post for *NYPD Blue*, *Chicago Hope*, *Murder One*, and *Land's End*. An engineer and studio builder, Perreault's recent projects include the new Ken Russell movie and "Undercurrent."

**Jeff Tomei**, chief engineer at Triclops Sound Studios in Atlanta, has been responsible for recordings by Smashing Pumpkins, Corrosion of Conformity, Soul Asylum, Collective Soul and others. At press time, his recording of Brother Cane's "And Fools Shine On" from the album *Seeds* was topping Billboard's Album Rock Tracks chart.

**Erik Zobler** has worked as an engineer with producer/musician George Duke since 1978. Zobler has engineered for Anita Baker, Vanessa Williams, Whitney Houston, Gladys Knight, Stanley Clarke and others, and recorded film sound and soundtracks for *Leap of Faith* and *The Five Heartbeats*.

### ACKNOWLEDGMENTS

I would like to thank all the interviewees for helping with this article. Thanks also to Keith Risinger of Solid State Logic, Tammy Armand of Media/Scan, C.J. Flynn of GML, Peggy Blaze of Euphonix and *Mix* editor Rick Clark for their assistance. —Chris Michie

# BUYING AN AUTOMATION SYSTEM

by George Petersen

You need an automation system. Otherwise why would you be reading this article? Perhaps you're tired of settling for *near*-perfect mixes, especially when automation could have fixed that less-than-smooth fade out, muted that buzzing guitar amp just before the downbeat, or brought in that background subway station walla a frame earlier.

If you're in the market for a new console, you're in luck. Today, you can buy an automated board with mov-

ing faders for as little as \$1,995—assuming you want a 16-input, 2-bus Yamaha ProMix 01. More practical perhaps is the new generation of affordable 8-bus boards, such as the Allen & Heath GS3V, Mackie 8•Bus, Soundtracs Topaz, Spirit Studio/Auto, Studiomaster P3 and Tascam M-2600—all of which are available with fader and/or mute automation packages. Slightly higher up the price food chain are selections such as the Otari Status, RSP Project X, Soundcraft DC-2000, Soundtracs Solitaire, Tactile Technologies M4000, Tascam M-5000 and Yama-

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AMEK U.S. Operations Inc. 818/508-9788	Supertrue. Fits all current AMEK recording consoles, BIG by Langley, 9098 by Rupert Neve.	VCA	12-bit	128	128	10	0
AMS Neve Plc. 212/949-2324	Flying Faders. Fits any AMS Neve analog console.	motorized	12-bit	96	96 x 2 (large, small faders)	unlimited	100
Audiomation Systems 508/881-7808	Audiomate. Fits all 100m fader systems.	motorized	10-bit	64	64	64 (equal to faders)	32
CTI Audio Inc./CAD Division (Conneaut Audio Devices) 800/762-9266	MegaMix M1600. Fits all consoles.	VCA	8-bit	128	128	128	one for each file in software
D&R North America 903/485-2344	PowerVCA. Fits all consoles.	VCA	10-bit	128	128	8	optional
Euphonix Inc. 818/766-1666	CS2000. Available for all CS2000 systems.	motorized and DCA	12-bit	104	104	same as no. of faders	50 per title
GML Inc. 818/781-1022	Series 2000. Fits all API, Focusrite, Harrison, Neve, SSL consoles.	motorized	10-bit	256	256	256	unlimited
Harrison by GLW 615/370-9001	Available for Harrison MPC, Series Twelve consoles	motorized fader, DCA	8-bit control, 16-bit audio	384	384	48	unlimited
JL Cooper Electronics 310/306-4131	MAGI Systems. Fits all consoles.	VCA	7-bit	64	64	15	unlimited
JL Cooper Electronics 310/306-4131	V/Desk Universal Console Automation System. Fits all consoles.	VCA	8-bit	96	96	15	unlimited
Dptifile/Sascom Marketing 905/469-8080	Tetra. Fits all consoles.	VCA	9-bit, 512 step	64	64	9	unlimited
Dtari Corp. 415/341-5900	Concept I/DiskMix. Fits Concept, Status, Premiere consoles.	VCA, motorized optional	8-bit stored, 10 bit internal	96	96	unlimited	99
Dtari Corp. 415/341-5900	Status/DiskMix. Fits Status, Concept, Premiere consoles.	VCA, motorized optional	8-bit stored, 10 bit internal	96	96	unlimited	99
Solid State Logic 212/315-1111	Ultimation. Fits SL 4000/6000/8000 E, G, G-Plus Series.	motorized, VCA used to write trim	10-bit	96	96	32 in software, 8 in hardware	none
Trident Audio Developments 615/783-1625	Trimix. Standard on Trident Ninety, optional on Trident Vector 432.	VCA and motorized	11-bit, 2048 step	96	12 switches per channel	8	dynamic 1/4-frame accurate
Uptown Automation 303/581-0400	System 2000. Fits Neve, Trident, Raindirk, MTA, DDA, Soundcraft, La Font.	motorized	10-bit	128	128	128	unlimited
Uptown Automation 303/581-0400	System 990. Only faders need to mount in console.	motorized	10-bit	96	96	96	unlimited



ha 02R. In the mid-price console range are dozens of models, most of which can be ordered with the automation of your choice, either from the manufacturer or via third party suppliers. And if you have more money to spend, your selections can include such lofty entries as the AT&T DISQ System, Harrison Series 12, Neve Capricorn, SSL Axiom and the Sony OXF-R3—which incorporate extensive automation of all console functions.

However, most of us already have a console that we like, and what we really need is a reliable, retrofit automation package. The first step in your search for the right automation is to call the console manufacturer and see what they might offer or recommend. Your next step may be the decision to go with a moving fader or VCA-based system; keep in mind that some new consoles (and a lot of used consoles) are built automation-ready, which simplifies the installation of VCA systems. Although not included in this article, several companies

(such as Russ Jones, at 818/993-4091, CTI Audio, JL Cooper and others) build external automation systems that connect to the insert jacks of any mixer without modification and offer an affordable alternative for studios on a budget. A new slant on outboard automation is offered by Uptown Automation's System One, a portable system that connects existing console insert points to moving faders housed in a compact enclosure.

The chart below lists a number of automation systems that can be fitted into a variety of consoles. Therefore, automation systems that are specific only to a single model—such as those used in the Neve Capricorn, SSL 9000J, Studer 990 or Yamaha 02R—are not included. And we have omitted pricing from the chart, as variables—such as console configurations, existing faders, computer requirements and installation costs—make head-to-head cost comparisons too difficult to squeeze into a simple chart. ■

TOTAL NUMBER OF AUTOMATABLE SWITCHES PER CHANNEL	EQ IN/OUT SWITCHING	AUTOMATED CONTROL OF EQ PARAMETERS	PAN AUTOMATION	SMALL FADER AUTOMATION	ONBOARD DYNAMICS	CONSOLE RECALL/ RESET	MAXIMUM LEVELS OF UNDO	SYNC FORMAT	COMPUTER PLATFORM	VISUAL DISPLAY TYPE	STORAGE MEDIUM
18	yes	yes (via recall)	yes (via virtual dynamics)	yes	yes	yes	1	SMPTE	DOS (IBM 486)	SVGA monitor	hard, floppy disk
4	yes	no	no	no	yes (on V Series)	yes	none	SMPTE	Windows	VGA	hard, floppy disk
1	no	no	no	yes	no	no	unlimited	SMPTE, MIDI	Macintosh	VGA	hard, floppy disk
0	no	no	yes	no	no	no	1	MIDI	Macintosh	computer screen	floppy disk
2	no	no	no	yes	no	no	99	SMPTE, MIDI	DOS	SVGA	floppy, hard disk
all	yes	no	yes	yes	yes	yes	99	SMPTE, MIDI	DOS and proprietary	color LCD TFT	floppy, hard disk, Syquest
16	yes	yes (limited by console)	yes (limited by console)	yes (limited by console)	yes (limited by console)	yes (limited by console)	Version 7.x: 1, Version 8 x as memory allows	SMPTE	Macintosh	Macintosh, VGA, SVGA	floppy, hard disk, DAT, optical (via SCSI)
all	yes	yes	yes	yes	yes	yes	8	SMPTE	Macintosh	1024 x 768 interactive touchscreen	floppy, hard disk, Syquest
n/a	yes, via MIDI	yes, via MIDI	no	yes	no	no	1	SMPTE	Macintosh	Macintosh b/w or 256 color	hard, floppy disk
2	yes, via MIDI	yes, via MIDI	yes	yes	no	no	1	SMPTE	Macintosh (optimized for Power PC)	Hi-resolution 256 color display	hard, floppy disk
0	no	no	no	yes	no	no	1	SMPTE	proprietary (built in)	Analog RGB	floppy disk
19	yes	no	no	yes	optional	no	3	SMPTE	DOS	EGA	hard disk
11	yes	no	no	yes	optional	yes	3	SMPTE	DOS	EGA	hard disk
1 (mute)	no	no (optional automated 2-channel EQ w/pan)	no (optional with joystick)	no	yes	yes	revert to any saved mix	SMPTE	proprietary	monochrome plus color for recall	floppy disk
12	yes	no	no	yes	yes (optional)	no	360	SMPTE	DOS	SVGA	hard disk
16 max., 4 min.	available	no	available	no	no	no	unlimited	SMPTE	DOS	color VGA	hard disk
8 max., 1 min.	available	no	no	no	no	no	unlimited	SMPTE	DOS	color VGA	hard disk

designer imagines you work. That's why I like the GML system so much, because it doesn't make any assumptions about what it is you're supposed to be doing."

Martin Kloiber is equally critical of all the systems. "In general, I think all the automation systems are still a little bit clunky," he says. "The Euphonix is better than most, but still not perfect."

Specific criticisms aside, most engineers agree that automation systems have come a long way. For several mixers, the now long-gone (and unlamented) Alison system was the first automation system they'd seen. As Kessie describes it, the system "stored the actual automation data on two tracks of the multitrack. You could ping-pong the data back and forth for about five passes before the scanning delay of the system made all your carefully worked-out moves about a half-second late."

Mark Curry has vivid memories of the old Necam automation. "It was a great system, but you had to have the strength of Arnold Schwarzenegger because the motorized mechanisms for those faders were so hard to push manually. It wasn't very accurate, of course."

Despite the limitations of the first automation systems, mixers welcomed them with open arms. "It was great to have, because at least you could do a [mix] performance, and if you made a mistake you wouldn't have to go back and redo a whole performance," says Curry. "Before automation, it was performance mixing. The engineer had to perform almost as much as the band did. You had one shot. You could also edit, of course, but basically it was a performance, and you learned the tune really well."

For many engineers, the most valuable feature of automation is its ability to repeat difficult or boring moves. As Kessie puts it, "automation breaks a very complex job into small, manageable jobs that can be completed and then forgotten about. Not having to repeat moves over and over saves energy and concentration and allows for creative and artistic mixes. If your automation system is stable and accurate, you can do something until it's right, then move to another area, until the mix is done."

Feist is also a firm believer. "In the music world, you have to use

automation," he says. "Having everyone in the studio put their hands on the console and try to remember a move is ridiculous. Automation takes all the hare-brained craziness out of mixing. Rather than things becoming more difficult as you get more involved and more tired, it just starts sounding better. Pretty soon you find yourself sitting back, listening, and saying 'Yeah, it's working.'"

#### **MUTE IT!**

Although fader control is typically the main reason for using automation, muting is also an essential part of the process. "I use automation a lot to write mutes and to mess around with arrangements," says Cherney. "As a mixer, I often get tapes from producers who put too much information on the tape. You have to cull through it and make some editing decisions, like what not to use to create some space. So the biggest benefit to me [of automation] is to make arrangement decisions."

"Doing mutes, while being a chore, helps me learn all the parts of the production," says Erik Zobler. "Even though it's drudgery—I hate doing mutes—it's necessary on something I'm not familiar with, if I get a project [to mix that] I didn't work on. Just sitting there doing mutes seems very mundane, but I'm actually learning the parts of the song while I'm doing it."

One example of the creative possibilities of mute automation is Michael Brauer's single remix of "I Know" by Dionne Farris. "The normal arrangement had the music going throughout the song," says Brauer. "Two or three times, I cut everything off but the vocal, which made it much more dynamic. Once I set those [cuts] in, they happened every time, and they were very tight cuts. If I were to do them every time manually, it would have taken me forever."

Zobler often uses mutes to clean up tracks. "[Automation] allows me to use less gates," he says. "I will mute things rather than gate them; I perceive a benefit in the sound." Gavin MacKillop also uses mutes as a form of after-the-fact noise reduction. "I do a lot of cuts to clean up noise, because I still tend to work analog," he explains.

For some mixers, fader moves and mutes are the only automation

functions they use regularly. Jeff Tomei says of Triclops Sound Studios' Neve 8088, "This is a '79 board, and the only thing they could add was level-and-mute automation. Which is all I use it for anyway—I'm a real base-level automation user. You can [use the automation to] edit mixes and cut and paste, but I don't have a use for that. I use automation at a very base level, to do some rides and mutes and to clean up tracks."

#### **RECALL THE BEGINNING... A JOURNEY FROM EDEN**

As well as using automation to write successive passes during a mix session, many engineers use it to recall previous mixes and setups. But the exact recreation of past console configurations is not always as easy as hitting a switch. "When they brought out Total Recall, Solid State Logic claimed that you could go to any SSL room in the world and recall a mix, which is absolute nonsense," says MacKillop. "The toleration of the parts on every console is different [and] you need the exact same revision of EQ. The only way the recalls work is in the room where the original mixes were done, and then it actually works very, very well indeed. So something that maybe takes you a couple of days' work, you can get back to in a couple of hours, which is a good thing. Obviously, it's also dependent on the assistant engineer notating all the out-board gear."

While SSL's Total Recall provides the means to reset an analog console to a previous configuration, the process can be time-consuming and labor-intensive. "If you have a 92-input SSL and you're recalling it, you have to physically move every knob on the console," says Eddie DeLena. "With [the Euphonix], you push a few buttons, and it just comes up."

DeLena, who spent much of 1994 working on Michael Jackson's *HIStory*, used SSL's Ultimotion for maintaining consistency over the marathon project. "Everything was recalled from the beginning of the tracking of the song," says DeLena. "So whenever we did a rough mix, it was recalled. We could always get back to anything, even if the song took a year to develop."

"Each time you're at the console, whether you're doing a rough mix or whatever, there's a certain





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amount of performance involved that happens at that moment," says DeLena. "The next time you put up the song and remix it, it's going to be a different vibe, something's going to be different. If you have that prior mix documented and recalled and saved, you can always get back to it." Brauer has a similar comment. "I may get to a point where I like something, but I want to hear what I had done on an earlier mix," he says. "I can just recall and play an earlier mix and hear if that sounds better. I might like certain ingredients of one mix and ingredients of another, and I can join them to get a

compilation of two or three mixes."

David Cantu ensures that common setups can be easily recalled by using automation to standardize operations at New Wave Entertainment. With three SSL rooms in use at all times, Cantu has "an in-house template of things you do and don't do. We've made it very simple. Since we know that we only use about six narrators, we already have a preset EQ setup for each narrator. We just call up the relevant preset, and there it is. We use the same microphone for all narrators [and] if a narrator goes to another facility to read a wild line or pickup line, we make

sure they use the same mic."

#### ONCE MORE, WITH FEELING

While automation allows for almost infinite levels of refinement, it can also lead the unwary into difficulties. One potential problem is overmixing. "The biggest danger of automation lies in its overuse," says Kessie. "Pass 321, the adjustment of every other hi-hat accent in the bridge, can lead to sterile and awkward mixes. All those great soul and pop mixes from the '60s never bothered with such infinitesimal details. You shouldn't either." Curry notes that automation can help produce better results "if you don't get hung up on the detail so much that you lose the perspective of the music. When you first get automation, that's the trap you fall in. You lose the macro."

Automation also allows producers and artists to postpone decision making. "It can be very problematic," says Cherney. "I've worked on songs where there's been three, four or five arrangements inside of one song. A lot of times the decision as to what it's going to be is put off until you go and mix the thing." Brauer has had similar experiences. "I'm a very fast mixer—I can mix two songs a day, easily. But if a producer wants to hear 30 different approaches because the mixes are automated, it can take a lot more time."

Brauer's preferred mixing method is to do without automation until relatively late in the process. "I mix until the mix feels like a record and I am ready to record it," he says. "At that point, I turn the computer on because I know I have the record and I know it's exciting. The next thing I'm going to do once the computer is in, is do my cuts and my vocal rides or do my instrument rides. I know it feels good now, and I really want to get the dynamics and arrangement correct."

#### TIME AFTER TIME

All those interviewed listed time savings and increased speed of operation as benefits of automation, but few claimed that sessions ran shorter as a result. "Automation can save time," says Zabler. "I think in the long run it doesn't save any time, because it allows you to go further in the process of mixing and tweeze it a bit more. So it ends up taking the same amount of time, or maybe even more time."

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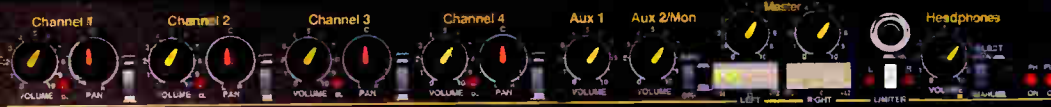
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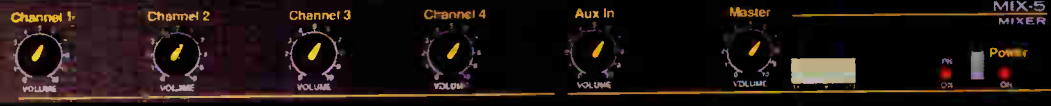
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STEREO  
MIXER



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MIX-5  
MIXER



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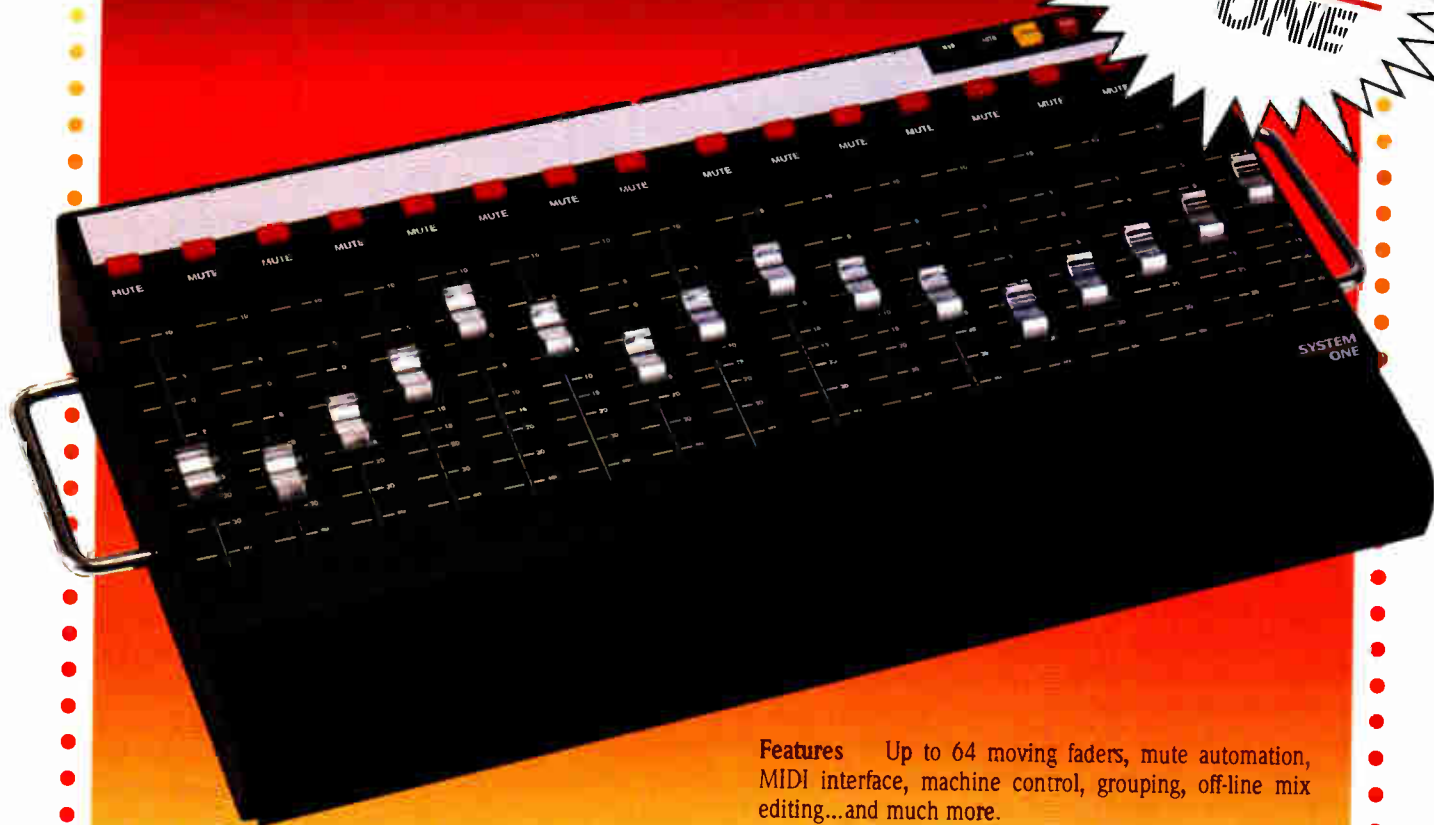
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"It saves time in that you can quickly get a mix idea," says Curry. "It depends on how you use it. I know a lot of people get bogged down in making things perfect. That actually wastes time. I like to do things fast. A great engineer, Brian Reeves, told me a long time ago, 'You can screw up in a hurry just as well as you can screw up in a day.' You might as well screw up in a hurry, and then if you don't like it, you can just go fix it."

Of the music mixers, only Jeff Tomei reports that automation makes for shorter sessions, but adds that many of his clients are at first suspicious of automation. "Their biggest fear is that it'll slow them down," he says. "But I find the contrary—it speeds things up. I've mixed a record in three days—twelve songs, using the automation. That's four songs a day."

Audio post mixers also tend to agree that automation can accelerate the mixing process. Andre Perreault estimates that automation helps shave 30% off the time spent on mixing projects for video and film. "[It's] much more efficient," he says. Feist cites the example of *Mr. Stitch*, a film written and directed by Roger Avery (who also wrote *Killing Zoe* and co-wrote *Pulp Fiction*). "We did the mix here [at Pacific Ocean Post]," says Feist. "It was a regular ten-reel film, about 90 minutes. The whole thing took about nine days to mix, which is very fast. I think we did two pre-dub days and five mix days, and one day to make print masters. Without automation, I don't think we could have done it that fast. It allows us to make changes we couldn't have made."

Cantu, whose work for Disney may go through several approval cycles, uses automation to eliminate the costly and time-consuming process of making and distributing tape copies. "All our clients are fiber-optically connected to our building," he explains. "We finish our commercials, and then we jump on the fiber. Whoever the client is turns their TV to channel whatever and we play the mix to them. They're on the phone, and they call back changes, and we make changes on-the-fly and get immediate approval."

"The automation helps us work really fast," Cantu continues. "We can go back to any project—it takes about a minute to set up to make a

change. Because of that, we do not mix down to any medium. Any time anyone needs a version of the mix, for final delivery or for approval, we will play all of the channels live, and we will play all the automation live. What they're hearing is a first generation of the mix."

But even Perreault concedes that the time savings don't necessarily translate into shorter hours. "Clients always spend the same amount of time, no matter what," he says. "At the point where you run out of time, you get a better result overall with the automated systems."

#### ADVANCED FEATURES FOR POST

For audio post applications, a digital (or digitally-controlled analog) console's ability to completely automate all functions is a significant benefit. As Bruce Buehlman explains, "The main problem for an automated [traditional] analog console and a digital disk machine is that there is no intelligent interface between the analog console and the disk recorder. The console doesn't know where the audio is. With a tape machine, you can't write automation frame-by-frame. These [digital] systems allow you to speed up or slow down or go frame-by-frame. On a 10-frame pan, you can slow it down, so [you] have more control over projects."

Buehlman notes that, although the SSL Scenaria has no stereo compressor, it is not necessary to patch out to a stereo compressor for the overeasiness he typically uses on a commercial mix. "We dedicate two channels [on the SSL Scenaria] to create compressors, run the sidechain of one compressor into the other, and use a macro to put the compressor in and out." Not only does this technique avoid the D/A and A/D processes necessary with an outboard compressor patch, but the macro is automated. "If I have to recall that project a year from now, I have it all instantly," Buehlman says. "With digital systems, revisions are a snap."

As music is (generally speaking) more linear and less fragmented than film sound, the ability to automate EQ, effects and dynamics changes is less prized by music mixers. "If I have to automate EQ, I'm in big trouble," says Ed Cherney. "Something bad happened while it was being recorded."

#### I FORGOT TO REMEMBER TO FORGET

Asked about reliability, none of the mixers had any serious complaints about the current systems. The typical viewpoint seemed to be that the systems were about as reliable as any other computer-based system. "Sometimes you get corrupted [recall] data—[the mix] doesn't come back quite the way you remembered it," says Curry. A few times it just lost the data. But that's like with any computer. Fortunately, it doesn't happen very often—it's just one of those computer things."

MacKillop has a similar attitude. "Like any computer-based system, it crashes on you every now and again," he says. "One of the problems is that the VCAs start to do some weird and wonderful things, [but] you just reload and go back to your previous mix, and everything's fine."

Service and support was not a topic that excited much comment. Some engineers were of the opinion that the quality of a studio's technical staff was more important than an automation system vendor's support philosophy. Bernie Kirsh claims that, in his experience, support from GML "has been superb. We call them for support at all hours and they're always there for us, whether it's a software need or a hardware need."

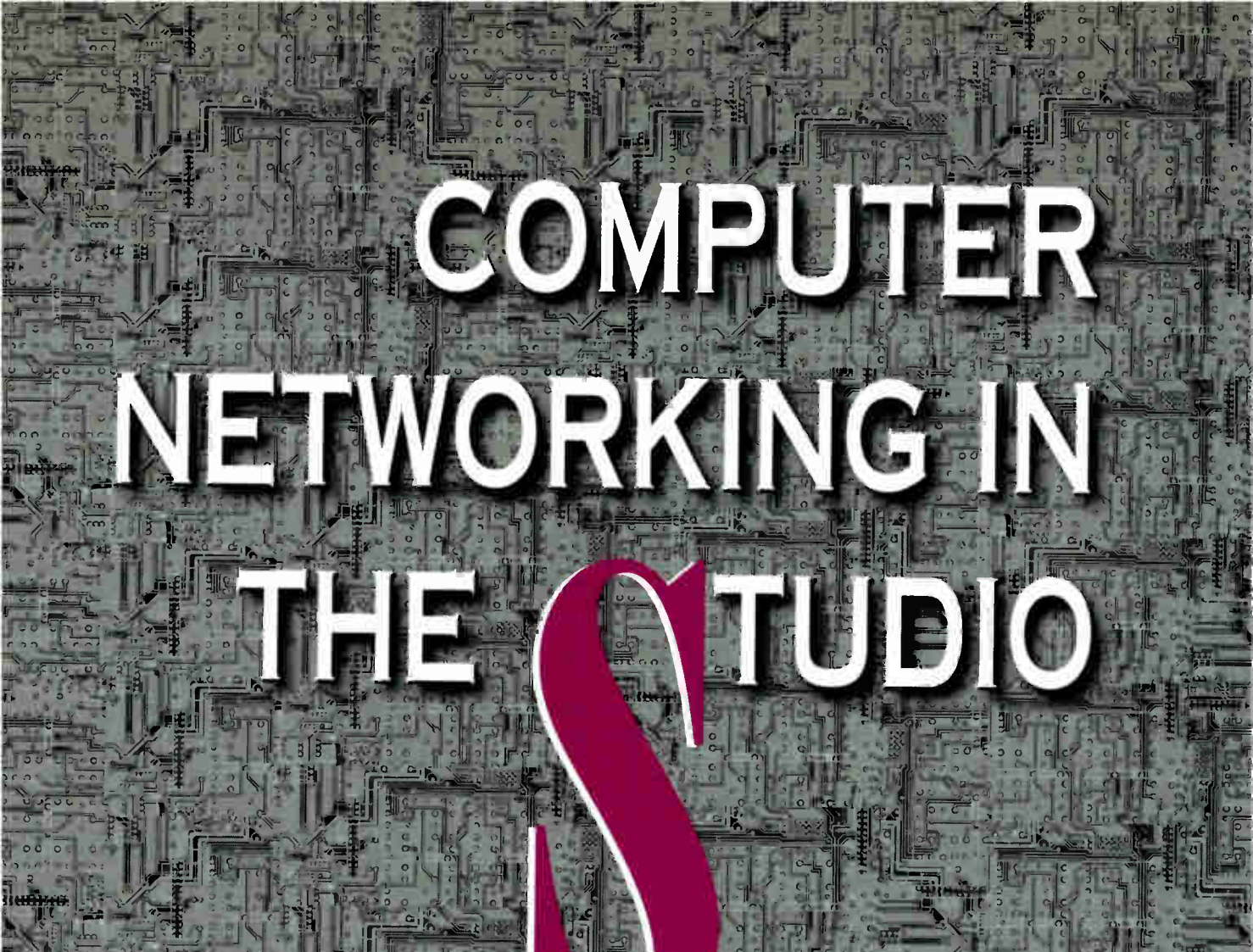
#### CRYSTAL BALL, ANYONE?

Looking to the future, Francis Buckley sees professional audio following the overall trend to downsizing made possible by computer control. "This stuff is coming," he says, referring to smaller-format, digitally controlled audio consoles. "They work well, they sound great, they're a third the price. How many people can afford a million-dollar console?"

However, Buckley also sees a downside to the introduction of many more digital consoles and automation systems from a wider range of manufacturers. "As an engineer, you should be able to walk into just about any studio and put your hands on any board and make it work," he says. "But I don't think that's going to be the case in the future, because you have things like the Euphonix and the Capricorn and the Tactile Technologies that have their own operating system, and they don't look like any other console." ■

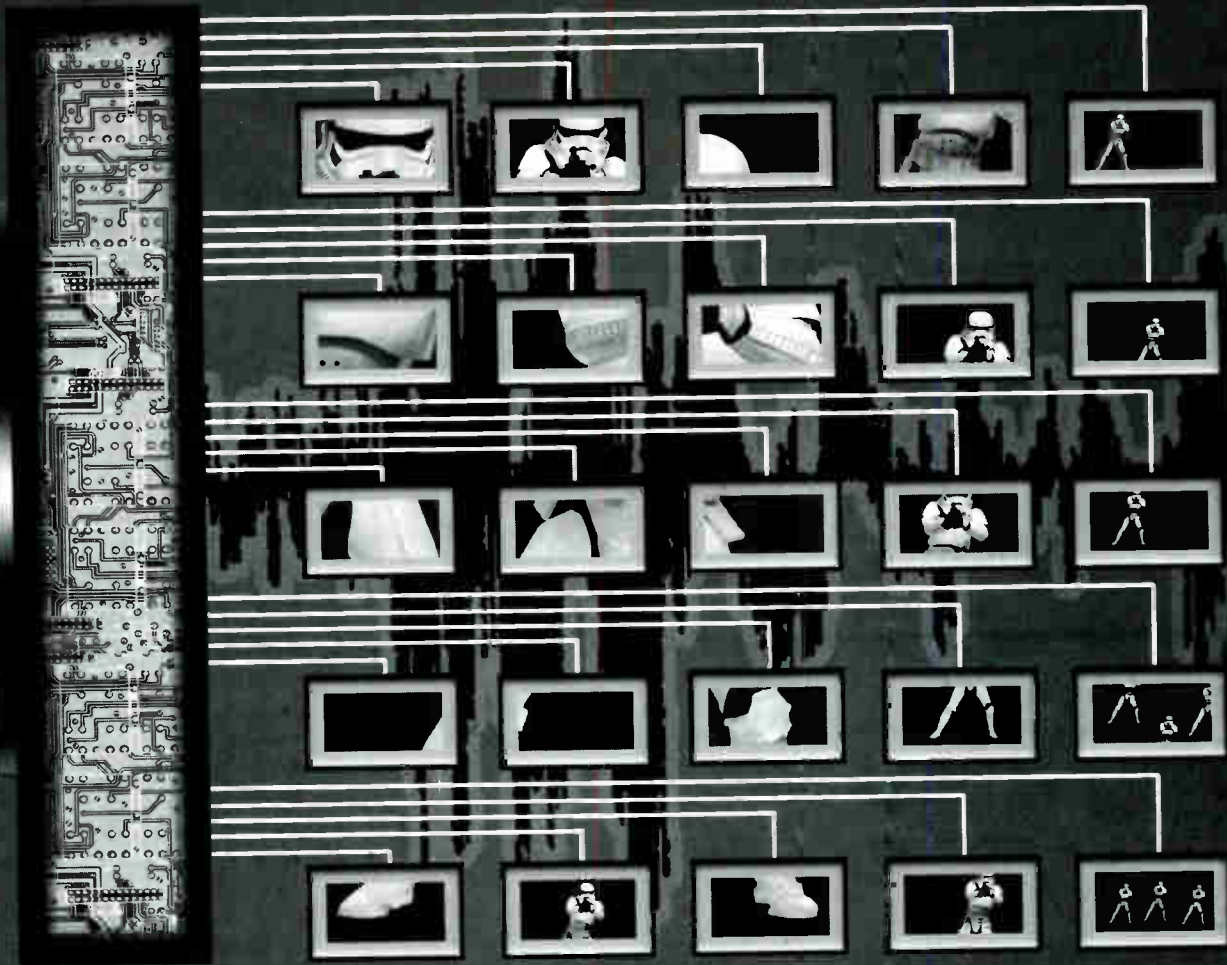
Chris Michie is Mix's technical editor.





# COMPUTER NETWORKING IN THE **S** STUDIO

**E**volving network technologies are swiftly changing how we process and share information, manage operations and generate results. Today, more studios are using these new resources to streamline data management and improve productivity. *Mix* talked to three industry veterans, to find out how networking has developed at their facilities.



## PUTTING IT ALL TOGETHER AT LUCASARTS

Name a job in the audio industry, and chances are that Larry The O has done it. His experience spans film and television production, live sound and music recording. He has been a teacher and a bench tester and has worked for retailers and provided support for computer musical instruments. He has also been a performing musician for more than 25 years, specializing in drums, vibes and guitar.

Larry's latest career move has brought him into the multimedia realm. He recently became a sound designer at LucasArts, which has grown over the past 13 years to become an industry leader in the interactive game market. The George Lucas-owned company produces

games for PC, Macintosh and stand-alone platforms, and is creator of *Rebel Assault*, one of the largest-selling CD-ROMs of all time. In addition to designing sound effects, ambiences and sonic character for LucasArts games (he is currently working on *Rebel Assault II*), Larry has been directing his efforts toward computer network planning and development.

"Networking, on the whole, is exploding in the same way that sampling did in the '80s," Larry explains. "It's just unbelievable how fast change is happening. And that makes it very difficult to decide what to get and what to use. Because of the way [LucasArts] is growing, we basically have

BY SARAH JONES



to reinvent ourselves periodically."

In the past, sound designers were limited by game technology when creating effects. Now, the sound department at LucasArts draws from off-the-shelf libraries, creates custom sounds and even uses original sound effects from movie tracks. (For the *Star Wars* games, LucasArts obtained some of the original effects from Skywalker Sound.) In the past year, the structure at LucasArts has increased from a small network with a few servers to include many servers, mail gateways and a new computer room.

With all this in mind, the sound department decided that they needed

to create a "power workgroup"—a dedicated sub-network that would still allow them to communicate with the rest of the company. After months of research and planning, they began laying the foundation.

#### FIRST THINGS FIRST

"The most basic issue that we faced, which is the most basic issue everyone faces, was identifying what our needs were," says Larry, "and that seems a very obvious statement. Because of the complexity of networking and how many different products there are out there, I'd say it's even more critical, in the networking

arena, to be absolutely specific about what your needs are before you make a move. Making a mistake and committing yourself can be extremely expensive to redo, if that is even possible."

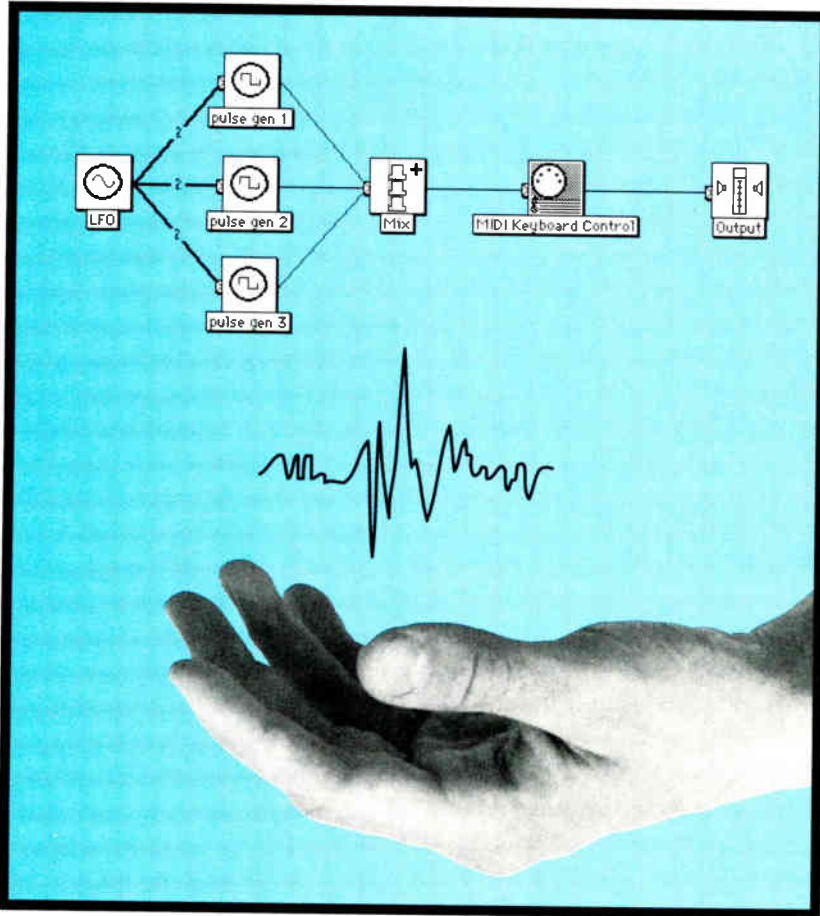
The department needed to communicate internally, and to interface on a larger scale with the rest of the company. These needs were further broken down into two classes of applications: real-time applications (such as auditioning sound files), and file exchange. "In essence, what it came down to was two different needs," Larry says. "Number one is just bandwidth—just being able to do things quickly. For file transfer, that's pretty much the only real need. If you're moving very large files and you have the bandwidth, you can even tolerate a little hanky panky going on in the network while it happens, as long as the overall bandwidth is fast. For real-time applications, however, there's the additional and very stringent need for uninterrupted data streams, and that is considerably more problematic."

They researched both proprietary and off-the-shelf solutions. "The only really viable proprietary solution that I found out there is the Sonic Solutions MediaNet," says Larry. "There are some other proprietary networks, but most of them involve being either completely dedicated to that company's products, or they are not yet very mature. We happen to be, at this point in time, a [Digidesign] Pro Tools house. And when we looked at that in the MediaNet environment, and we looked at the fact that our requirements were to be able to hook both Macintosh and PC to the network, MediaNet just didn't really pan out for our needs. I think it's a good product, but it just didn't really work out for us."

#### THE CHOICES

The first step the group took was choosing the basic hardware, and lowest-level software, definition—the network transport. "To take three months of research and boil it down to 50 words or less—Ethernet, FDDI and ATM were the three primary candidates," Larry explains. The first option they considered was Standard Ethernet. However, Standard Ethernet is a "shared access" network, so the bandwidth designated for each user fluctuates; the more users on the network, the smaller the bandwidth al-

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## COMPUTER NETWORKING IN THE STUDIO

### Sound One: Living Large With MediaNet

A quick glance around Sound One's expansive New York post-production complex reveals state-of-the-art facilities. The building contains numerous re-recording stages, Foley and ADR studios, and editing and transfer rooms. Behind the scenes is a Sonic Solutions MediaNet that links one of the largest FDDI networks of digital audio workstations in the industry.

One of the forces behind the design of the network is Jonathan Porath. He was approached by Sound One three years ago when the facility was a pure film house; they wanted him "to help bring them into the future." Porath explains. Now a mixer at Sound One, he relates how he and John Purcell (now a product manager at Sonic Solutions) designed the network.

"Basically, we took everything we knew about film, everything about video, and kind of bridged it together, and we tried to build a facility that would be seamless, whether you work in film or in video, or switch. The concept was that, when things move in the film business toward nonlinear editing systems and video mixing and digital and all that stuff, [Sound One] will be ready for that.

However, when we started, no one offered anything we wanted, so we started talking to Sonic Solutions, and they were in the first stages of trying to put together some kind of network between systems. So, we helped them; we bought 13 systems right away. We were their biggest purchaser in history, at that time, I think... We decided that every mix room would have the Sonic Station in it, and we also had a couple of editing rooms that had stations in them. We networked eight systems together. We put all of the computers in one space, and re-moted the monitors and key-

boards. All of the systems were normaled and patchable in the back, and at the same time, we were all on the network. So the concept was that all of the loading could be done in the background while people can work, and people could be editing while people are mixing, off the same drives. And it really worked out pretty great.

"Right now, we have four studios online, two edit rooms, and a transfer room and large system for dumps. We have three 8-tracks, two of them for the editing room and one for the transfer room. We have one 16-track system, which is like our dump machine, and we have four 2-track systems that are in the mix rooms. All of the sound files are still in the computer, but in the mix rooms, we use smaller systems, like a 4-track system. The concept was, if suddenly you want to do a change, you don't need a wide machine. We set it up in a way so the editor has a little monitoring station, so the mix doesn't have to stop if there is a problem—the editor can continue working, and the mixers are still mixing. At the same time, we built a pretty big equipment room, so even if the editor wanted to have access to his or her own, let's say 3/4-inch machine, while the mixer is working with another machine, we've also hooked up machine controls to those systems.

"When we [built the Sonic network], we thought we were conservative, and we realized that we were not conservative at all. We're just trying to catch our breath, you know? I think a lot of people were experimenting with workstations about two or three years ago, and I think the only ones who were really into it were people who were doing either sound design or music people, and then as we suddenly had a room available with Sonic, the whole film business in New York was completely revolutionized, and everybody works with a workstation now. And it does work. We're impressed."



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lotted per user. "This was not really a viable solution for us," says Larry. "The other problem with your garden-variety shared-access Ethernet is that it is what's called collision domain, and what that basically means is, if you imagine a classroom full of third-graders, and they're all standing there raising their hands and going 'Oh, choose me, teacher, I've got a story about my summer vacation'... you can see that it's nearly impossible to administrate, because none of them have enough patience to wait for one to finish before they interrupt. And for real-time applications, that's where you start running into problems." The sound department decided that standard Ethernet would not suit their needs.

They next considered Switched Ethernet which, like Standard Ethernet, has a stated bandwidth of ten megabits per second. The advantage Switched Ethernet offers over Standard Ethernet is that it incorporates an internal high-speed switch, allowing each user to have his or her own dedicated bandwidth without fluctuations.

The group also considered Fast

**The most basic issue that we faced, which is the most basic issue everyone faces, was identifying what our needs were.**

**— Larry The O**

Ethernet, which has the same network structure as Standard Ethernet but offers a wider bandwidth of 100 megabits per second. The final variation of Ethernet considered was Switched-Fast Ethernet, which like Fast Ethernet has a 100Mb/second bandwidth, but also contains an internal switch to allow each user a consistent individual bandwidth.

In addition to Ethernet, the department looked at two other network transport technologies, FDDI and ATM. "ATM is obviously the best candidate," says Larry. "It is set up for what they call 'guaranteed quality of service.' If [the data stream] is not interrupted at all, then you have a guaranteed quality of service. And it's the only technology that does that. However, it's pretty new, and it's not really mature yet. You can buy ATM, put it in place, and it works, but it's not fully developed. For that reason, we decided it wasn't really quite time for us to go to it yet."

FDDI met their bandwidth requirements but employed a Token-Ring network protocol, a structure rejected by the group. "The Token-Ring approach is basically one where if

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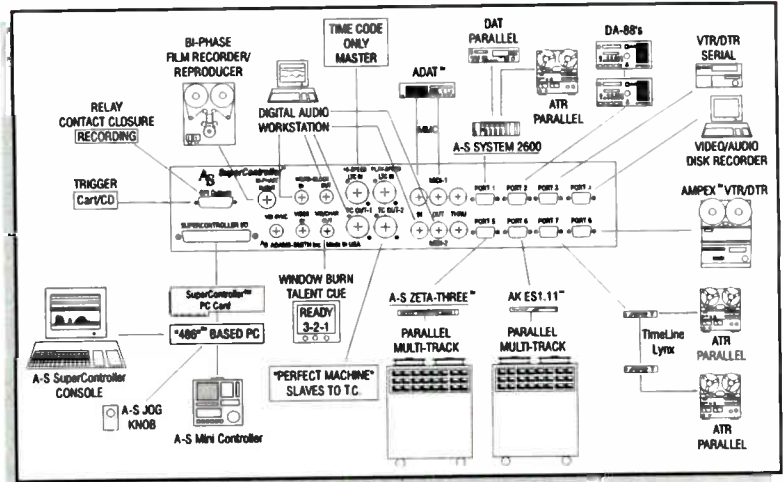


you take your third-graders, and you have some little token, it can be whatever you want—a baseball—and the teacher says 'whoever has the baseball can talk, but only for  $x$  amount of time, and then you have to hand the baseball off.' You can see that once again, you face the threat of data streams being interrupted. So, the general consensus was FDDI is a very mature technology; in fact it's so mature that it is basically hitting the wall with its capabilities." FDDI was rejected.

The group was then left with the various types of Ethernet to choose from. "My first thought was, go for the greatest bandwidth possible. But when we looked at Fast Ethernet, we found that, like ATM, it's really just starting to happen. Now, because it's a variation on established Ethernet, it's going to mature much, much faster than ATM. Nonetheless, it still seemed somewhat costly. And we carefully considered it, because the network cards we had in our PCs could already do fast Ethernet. So we already had part of the capability installed, which made it very tempting. But in the end, it just seemed an expensive way to go. The other limitation that we faced was that the company's network, which we wanted to have high-bandwidth access to for these large file transfers, was going to offer us FDDI. So, we had this requirement that if we wanted to have what's known as a 'big pipe'—high bandwidth—to the rest of the company, we had to be able to give them FDDI. We also knew that in the future, we were going to want to have a sound server, with our own sound library on it, that we would want a big pipe to, which we may or may not want FDDI on. And we knew that we wanted to have dedicated bandwidth per user. So in the end, after considering all of those, we ended up using Switched 10-megabit Ethernet, because ten megabits seemed like sufficient bandwidth to handle auditioning two channels of real-time digital audio. And at this point in time, we didn't see the need for multitrack digital audio across the network."

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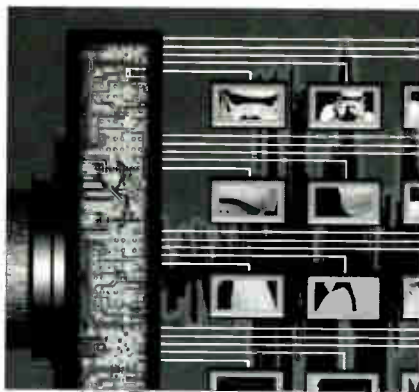
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room for growth," says Larry. "It also had two slots in it, where you could plug in high-bandwidth modules. So we plugged in an FDDI module to one of them, and that's connected to the company's network, and the other slot will be filled with something that will go to our sound server." Larry plans to begin research on the server soon and hopes to make a decision by the end of the year; however, there are many issues to resolve, such as how to transfer digital



audio efficiently in real time, while communicating with both PC and Macintosh platforms.

"You really have to be careful, and you really have to do your homework," Larry concludes, "and that's complicated by the fact that every single day, things are changing. So you basically do your best and take your best shot, you know? And then live with the results." ■

*Sarah Jones is Mix's editorial assistant.*

## COMPUTER NETWORKING IN THE STUDIO

### Recording Without A "Net" at CRC

This summer, the Chicago Recording Company celebrated 20 years of recording. It opened in 1975 with the first 24-track room in Chicago, and has since expanded into a three-building complex, housing four multitrack music studios, nine digital editing/post-production studios, and three duplicating studios. A long client list includes major label artists, most recently Michael Jackson, Pearl Jam, Smashing Pumpkins, and R. Kelly. A significant source of work is network television commercial production for major advertising agencies.

Hank Neuberger has been with CRC since it opened. Starting as an assistant engineer, he has since become a Grammy-winning mixer, has held the post of chairman of the Recording Academy, and is now operations manager at the facility.

"We're more and more networked among our rooms, but it's not a completely integrated process: it's more sporadic," says Neuberger. "We have a server that we use; that's where our Quick Mail and our tape logging and our accounting live, and [they] can be accessed by various members of the staff. Our only audio connection, currently, is through conventional copper wire tielines, to a central room. And we use that frequently, to patch in our digital LAN

patch sessions, our EDnet sessions, to distribute those around the facility. In terms of handling audio among the facility, all of our post rooms have 16-channel AudioFile Spectras that back up on Exabyte cartridges. So that compatibility allows us to pass around audio files from room to room, on the Exabytes."

"Sneakernet" (manually passing around digital storage media) is a cost-efficient, although sometimes time-consuming, alternative to network data transfer. However, CRC has found this method best suits its needs, at least for the moment. "We have to archive these files at the end of the session. That archive has to live on a shelf somewhere where we can retrieve it. I've never run into a problem yet where putting the archive, the Exabyte, in the next engineer's hands and saying, 'here's your file' is slower than somehow transferring data from some server," explains Neuberger. "Now, the reason this works for us is this: Say there's a film project, where there are half a dozen teams working on the same project and passing the baton back and forth; I can see where some kind of central hub server might be more desirable. But in our situation, where typically one engineer works on a job, and if he's not available on a subsequent day another engineer works on it, sneakernet is fine. I'm much more interested in the speed with which I can archive the data off my audio file—which is four-times real time, which is pretty good—than the

speed with which I can send it to a server, and then from a server to another studio. Because I have to archive it anyway.

"We, some days, generate literally 100 pieces of tape that we have to log into our system and keep in our facility for a year-and-a-half to two years for clients who come back and revise it. We're right in the middle of integrating our job order system that tracks the session, with our tape-logging system. 4D is the database that we're using to customize all these applications. I'm not using anybody's off-the-shelf studio-management software. Through a combination of stubbornness and fear, we've resisted doing our scheduling on the computer. We still schedule our sessions with a pencil, in our schedule books, in our central office. And although we might consider converting that to a computer in the future, we're much more focused now on trying to integrate our job orders to include the tape logs for the tapes that are created during the session, as well as—and in many other rooms we can do this now—generating all the box labels needed for our master tapes, as well as our client copies, right in the session, as the session is being completed and the dubs are being run. So that's all started to become integrated in our sessions, as well."

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Nearly 800 audio professionals filled the Broadway Ballroom at the New York Marriott Marquis on October 6 to honor the nominees and winners of the Eleventh Annual Technical Excellence & Creativity Awards. Special awards were also presented to Hall of Fame inductee Phil Spector, Les Paul Award winner Alan Parsons and Environmental Merit Award winner BASF Corporation. For the complete TEC Awards wrap-up, please check next month's issue of *Mix* magazine.



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by Mr. Bonzai

# CHRIS ISAAK

## TRUE BLUE



"In the Heat of the Jungle" opens with the wild cowboy howl of Chris Isaak, a troubled troubadour in the great soul-wrenching tradition of Roy Orbison, Frankie Laine and Gene Autrey. His latest collection, *Forever Blue*, is a *tour de noir* of broken hearts and lost love, but not without a hint of hope and redemption. Evidently recovering from a really bad day, Isaak somehow picked up his guitar and sang from the dark night of his soul.

Since his recording debut a decade ago, Isaak has become an icon of angst. Thrust into the spotlight with his "Wicked Game" from David Lynch's *Wild at Heart*, along with the moody music video, this is an artist who has only improved with mass exposure. In addition to his considerable prowess as a singer/songwriter, he's also taken cameo roles in films such as *Silence of the Lambs* and co-starred in *Twin Peaks—Fire Walk With Me*. A former boxer, Isaak has a handsome style, confident and muscular in his music, sensitive and sensual in his delivery.

**Bonzai:** Is it true you're extremely popular in France?

**Isaak:** It is, to hear me tell it. [laughs] Actually, we've always done pretty well in France. Our first hit ever was "Blue Hotel," and that was in France. It's funny, you come from the States and you don't expect it. We played a show in Paris, and afterward we walked out and I thought, "What are all these people doing? Does the bus stop here?" And it was people who couldn't get in to the show, hanging out trying to get tickets. We didn't know what was happening, so we walked right out, and it was like *Hard Day's Night*. We had a ball.

**Bonzai:** You recorded *Forever Blue* at Studio D and at Dave Wellhausen Studios. Where are these facilities?

**Isaak:** The Wellhausen studio is right here in the Sunset District [of San

Francisco], near where I live. Studio D is in Sausalito over by the Bay Model. You ever been there?

**Bonzai:** No, what's that?

**Isaak:** They've got a model of the whole Bay Area, an exact replica which they fill with water. The Golden Gate Bridge is about eight feet across. They fill this thing with water, and when storms come, they can tell where it's going to flood. They also use it to help find bodies. I guess they take a little Bull Durham sack and throw it in—"Looks like he drifted over here."

**Bonzai:** One of your albums has a photo of you and the band in what looks like an old *Twin Peaks* motel—where's that?

**Isaak:** That's my house, where we work up the records.



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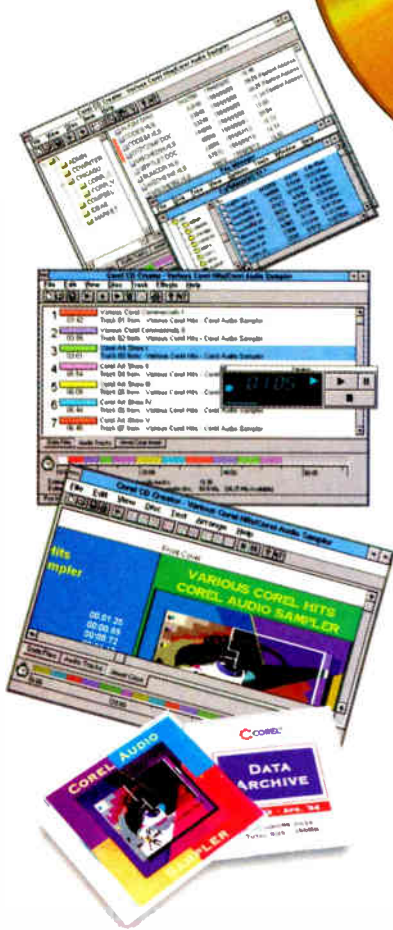
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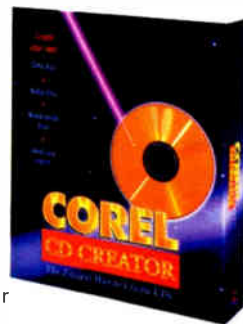
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**Bonzai:** Is your recording style a little offbeat?

**Isaak:** I don't know if it's that different, but we're lucky to have a producer who's worked on all of my albums. Eric Jacobson is a part of the process from day one. It's not like he comes in at the end and says, "We have two weeks to make an album." He comes in at the beginning, and I'll give him tapes and say, "What do you think of these songs?" He'll point out the ones he likes, and we discuss things from the get-go.

Eric's the hardest working guy you'd ever want to meet. He's got a Norwegian background and brings

I do a ton of preparation

so that I can have fun

onstage. We'll do the

two-hour soundcheck

even when we're

dead tired so that

it sounds good

when people get in there.

that kinda uptight, ready-to-work-every day, preparing-for-winter attitude. We work things up at my house, and typically we get the whole band together from 1 o'clock till about 6 every day. We work on the arrangements, trying the song to see how it feels. And we can do that for six months, if that's what it takes. A lot of artists have to hire musicians to try the material, and then they have to hire a producer—they have to push through. Even though it may take them as long, or longer, they don't get to experiment as much. It's a help to me.

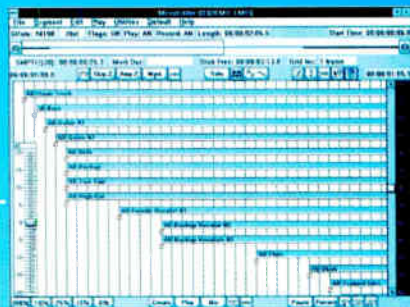
**Bonzai:** I was talking last week with an engineer you've worked with, Lee Herschberg...

**Isaak:** What a nice guy. He's about the nicest guy there is. In fact, we were talking about going in and recording with him again to do some of the stuff we did on *Unplugged*. We

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### LUNCHING WITH BONZAI

thought we ought to just go in and knock out a record in a more acoustic form. He'd be the guy to do it if you wanted to do one-take recording. That's his forte.

**Bonzai:** Lee mentioned that Eric had worked with Norman Greenbaum and Lovin' Spoonful, so I gather you're in good traditional company with your record-making?

**Isaak:** Yes, Eric goes way back and has done a lot of good work. The nice thing is that he doesn't color everything with the "Eric Jacobson Sound." It's really all about the *song*, and from there we work out what it's going to sound like.

**Bonzai:** When you finally get to the studio, do you do a standard basic track setup with the band playing live?

**Isaak:** We try to get as much done in a take as you can get done. Hopefully, you get a basic track with rhythm guitar, bass, drums. If the lead guitar is ready, you have that on there, too. On some of these songs, I played lead guitar, so I'd go back in and do the lead guitar at the end. We just try to get as much as we can live.

**Bonzai:** Do the vocals come down last?

**Isaak:** Usually, but there's some stuff, particularly the quiet numbers and ballads, which I do a fair amount of, that gives you a shot to actually sing it when you do it. "Forever Blue"—I'm playing it, and I'm singing it. You can get most of it done because it's a quiet song, and you can actually hear well enough in the room to sing it.

**Bonzai:** You have a young unknown, Jason Morgan, on the *Forever Blue* album. How did you find him?

**Isaak:** He was playing in a guitar store and just jamming—very good player, very facile. I asked him what he was doing and if he wanted to shoot some sides down. He was all for it, came in and played real well. There's always that point when you look over at the producer and you can see it's going good. Afterward, something gave me a hint that it was his first session. When we went out for a dinner break, he tried to pay for his dinner. Then I knew, "He's green."

**Bonzai:** Why do you call your band Silvertone?

**Isaak:** My first guitar was a Silvertone, which I still play—on this album, too. So I named the band after the guitar.

**Bonzai:** What comprises your personal guitar and amp arsenal?

**Isaak:** Well, I've got a lot of mix-and-match stuff. I'll use some old stuff and some new stuff. There's a guy named Paul Chandler here in the Bay Area who has a guitar and effects company and makes a tube box that you can use for distortion, but it also warms up the sound. I also use his slaphack-style echo on some things.

**Bonzai:** Is it a tape device?

**Isaak:** No, it's electronic, but it's about as close to an Echoplex sound as you can get, without having the hiss. But you can always add the hiss if you want it. Usually, if it's an acoustic guitar, it's a Gibson J-200. If it's me on electric rhythm guitar, I try to bring in different oddball stuff, like an old Silvertone, or an old Kay guitar. By doing that, I think it gives a little different texture to the songs. For the lead guitar, a lot of the time I like to go with a Stratocaster or Telecaster. Buddy Holly was right.

**Bonzai:** What do you think about this big resurgence of surf music?

**Isaak:** It's funny, we just played with Dick Dale, and I'm surprised that so many people now are discovering him. Seven or eight years ago, people were asking me who I was listening to, and I'd answer, "Dick Dale." They'd go, "Who's that?"

But now, all of a sudden, it's Dick Dale—"Oh, he was in *Pulp Fiction*." Yeah, but he had records out before that. We just jammed with him over in Australia. We were on a TV show with him, and he came down to our gig, and he came up and jammed and pretty much set the place on fire. Believe me, he's one of a kind.

**Bonzai:** What is the equipment, the amp and the reverb that you need to get that rolling, boingy sound?

**Isaak:** You need a Fender amplifier, an old Fender. I don't think you're gonna get it without one. I never saw anybody playing surf music through some kind of digital setup. You go back to what Dick Dale was playing and what the Ventures were using.

**Bonzai:** What's the connection in your life between surfing and music?

**Isaak:** Very little, really. I wouldn't say my music is surf music or influenced too much in that direction. If anything, it's that surfing is my release, my break. I'm working all the time, and it's like an hour of Zen or whatever you want to call it. You're on the phone, you're working, you're doing promotion all day long, and then you go out and sit on the ocean for a couple of hours and become normal.

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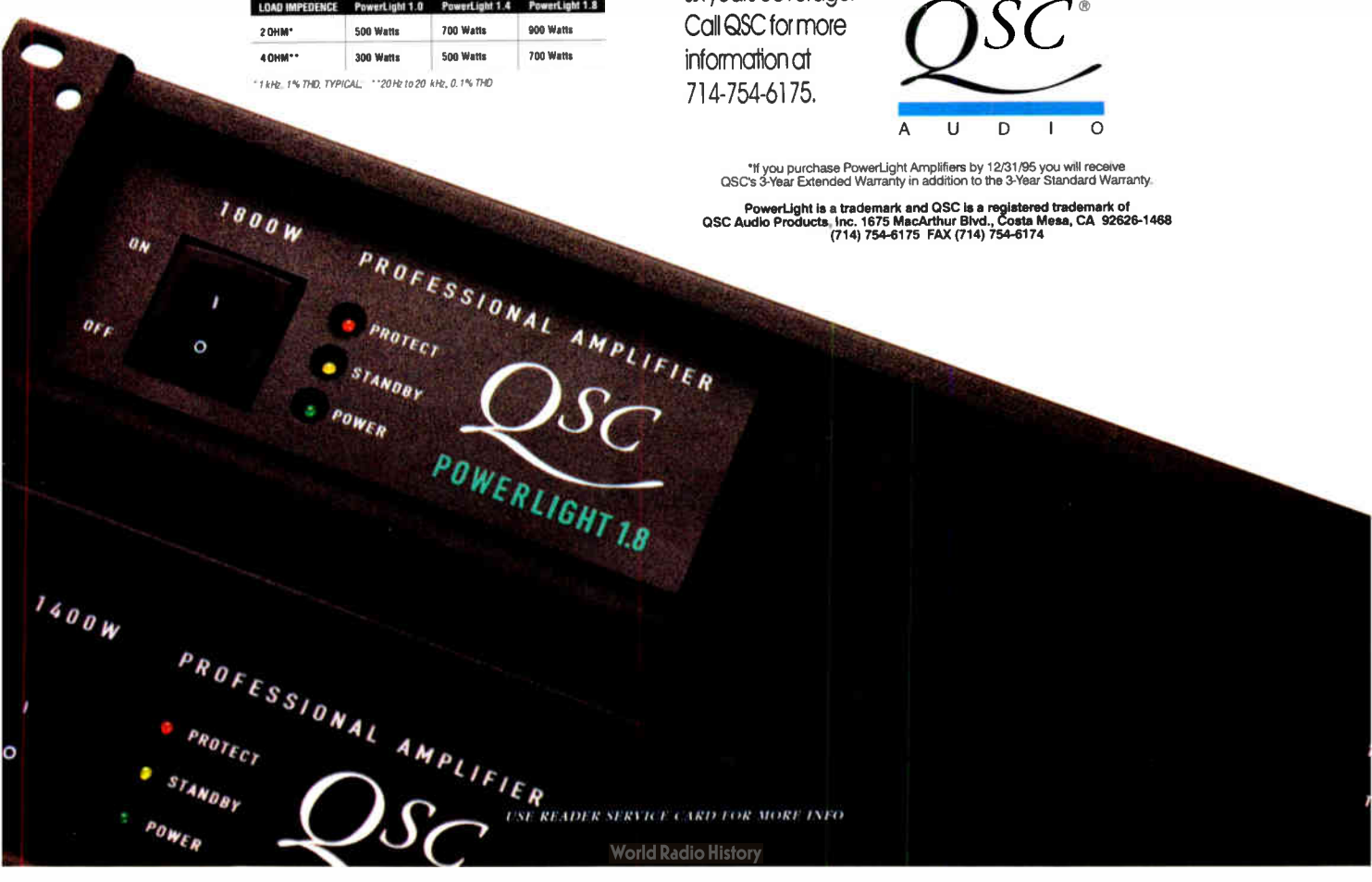


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It was outdoors, and I stood off by some trees. It was just getting dark, and I was watching him and thinking, "He makes it look so damn easy." The best live show I ever saw. The most moving performance I ever saw. There was no reliance on any kind of trick. I go out and do a live show, and I'll run around, I get the audience going. I'll wear a shiny suit, I'll make jokes—you know what I mean? Trying to entertain. And you watched Roy, and you realized the guy had so much talent that there was really no need for him to do anything like "entertaining," except for singing these songs which he'd written. You know that song, "It's Over"? When he did that song live—unbelievable. Best performance I'd ever seen.

**Bonzai:** You mentioned Mike Tyson. Did you break your nose boxing?

**Isaak:** I used to box, and it comes with it. I wish I could have grown up surfing, or if my parents had had some money they could have taught me how to golf or something. Unfortunately, it comes with being white trash in a small town. "Gee, what sport can we do?" "Hey, let's beat the hell out of each other!"

**Bonzai:** You know, we share something in common, something very important in our upbringing. We were both busboys.

**Isaak:** Yeah, I think a lot of people were. I've done a lot of that kind of work. I also did a lot of roofing.

**Bonzai:** What a terrible job.

**Isaak:** It is a terrible job, but it's one of those jobs where you make enough money, you have enough work and you keep doing it. You work up there on the roof all day, and then you start thinking you can fly. At first you're real careful, and then four or five hours into it, you'll walk right up to the edge. You start to have this attitude like it's no big deal. Then you slip and you go back to where you started.

**Bonzai:** Do you have any business advice for musicians who are green?

**Isaak:** Make sure the boss is real happy with your work, and he won't fire you. And if you don't know who the boss is, take a look out from the stage. That's the boss. If you think you can cut corners, you're nuts. The boss is gonna check it out.

I do a ton of preparation so that I can have fun onstage. I work hard, we do rehearsals, and we'll do the two-hour soundcheck even when we're

dead tired so that it sounds good when people get in there. You think you can have a rock 'n' roll lifestyle, party all night and then skip soundcheck? That kind of attitude shows up, and the audience catches it. Pretty soon they fire you. Sometimes they fire you a little at a time. You got a thousand people coming, then you've got 800, then 600, 400. Pretty soon you're playing on Tuesday night.

**Bonzai:** One of my favorites is your "In the Heat of the Jungle." What is that horrendous wild beast sound at the beginning?

**Isaak:** That's me screamin' over at Fort Funston. It's an old military fort out here where I live in the Sunset

I was in awe  
and unable to get past  
thinking, "It's Roy Orbison.  
I'm singing with  
Roy Orbison."

District, and it's right on this big cliff overlooking the bay where the ships come in. Most seaport towns have these big guns from World War II—great big turrets built in with underground bunkers. The walls are 16-foot-thick concrete. They were built because they thought the enemy planes were going to come and bomb night and day, and they wanted to have a place where they could sit down and have a cup of coffee, you know? With walls that thick, when you go in there and sing, every bit of it comes back. I went there with my engineer, and he sat with the recorder on one end of a block-long hall and I stood at the other end, and I hollered. It's dark in there, pitch black. It's nothing but a dark, abandoned place, and people go in there to make out, or maybe just to walk through. I told my engineer, "I only have about two of these screams in me, so get it." I screamed, and then screamed again. Then we walked out, and about 30 people came pouring out in a hurry—it just freaked 'em.

**Bonzai:** Who's your engineer?

**Isaak:** Mark Needham. He's worked on most of my records, or in other cases, Lee Hershberg. They've done all the engineering. Mark has gotten

to that level where he can operate the recording machine with his feet. I'm not kiddin' ya. He can hit the buttons with his knees. A guy who's been in the studio ten hours a day for 15 years gets to another level. Mark will be talking, and he can keep a conversation going while he bumps Rewind with his elbow and he's wrapping tape with his hands.

I once asked Lee Hershberg if I had too much bottom end on one of my records, back when we were mixing down to LPs. He said, "Well let me see." Then he took a test pressing and looked at it, put his eye close and tilted it in the light and was looking at the sheen. I said, "What are you doing?" He told me he was checking the bottom end on my record. "It looks pretty good," he said. He was looking across at the grooves. He explained, "Originally, we'd have to mix these things and look at the grooves and check."

Basically, you do anything for 40, 50 years, and you learn something. Guys like Lee...once he's out of the business, retires or whatever, I don't think there will be a generation that comes up and learns as much. He went through the system from the time when they made up engineering.

**Bonzai:** If you ever get your romantic life together in a totally beautiful way, what are you gonna write about?

**Isaak:** I can imagine lots of good things to write about. I like love songs. In many of them, the basic story of the song is simply, "I love you." I think that can be written again. One of the most romantic and beautiful songs ever, one that I've been singing this year, is a Hawaiian song written in the 1890s. It has the most basic lyrics: *When the dew from the night is falling/glistening on the flowers loved so well/then my heart to thee is calling/from our little meeting place within the dell/My heart is there for you forever/It thrills with love for thee alone/It's constancy fades never/I'll be true to thee and thee alone.*

What's the whole point of that song? It says, "I love you. I'll never forget you. I think about where we met, and I'll always be true to you, always love you." That's somebody who's got somebody. The guy who wrote that song had his lover. I think there's plenty to be written about being happy. ■

*Roving editor Mr. Bonzai's pompadour days are long gone.*

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# DAVE ALVIN

## MORE THAN A BLAST FROM THE PAST

The rockabilly revival—that wonderful offshoot of the DIY, back-to-rock 'n' roll-basics punk era—gave us a whole lot of fun in the '80s. It gave us, among other great (Stray) cats, two brothers from Downey, Calif., Phil and Dave Alvin: The Blasters. Dave was the composer for the band, penning songs that sound like they've been around since the '50s, only wiser. His lyrics, in so many words, signified the band's love of "American Music": "We got the Louisiana boogie and the Delta Blues/We got country swing and rockabilly, too/We got jazz, country western and Chicago blues/It's the greatest music that you ever knew/It's American music..." with Phil Alvin's wild, edgy vocal and Dave Alvin's raging guitar-playing at the center of it all. What a great band. And they still are, minus one brother.

Dave Alvin left the Blasters in the mid-'80s. Since then, he's released four solo albums. *Romeo's Escape* included the writer's first solo versions of the Blasters' hit "Border Radio" and the broken-down beauty he wrote for X, "Fourth of July." The next three are on Oakland, Calif.'s Hightone Records label. Each contains elements of the rockabilly, blues and gospel influences that made him a Blaster, though a great deal more tenderness and social awareness come through in his role as a singer/songwriter. His most recent release, *King of California*, includes what he calls the "true songwriter's versions" of some older songs, as well as new compositions and covers, all in breathtaking acoustic arrangements.

In the past decade, Alvin has also produced quite a few other artists, many for Hightone. He was co-executive producer on the much-acclaimed *Tulare Dust*, the singer/songwriter tribute to Merle Haggard, and, more recently, produced two

other critically adored releases: Chris Gaffney's accordion-spiked country *Loser's Paradise* and Big Sandy and His Fly-Rite Boys' *Swingin' West*, which Alvin describes as somewhere between country swing and hillbilly bop. While on a break from a summer tour, Alvin talked about his production work, and explained some of the finer points of American musical genres.

*What were the first projects you produced?*

I've always been reticent about producing, because it's a heavy responsibility. So, for years, young bands that didn't know any better would ask me to produce their records, and I would say no, because it's like taking someone's life into your hands. What I started doing productionwise was for movies, because if a movie fails, it's not going to be because of one song. But if musicians fail, that's another thing, especially for the young ones.

I wrote and produced the rockabilly songs for a John Waters movie

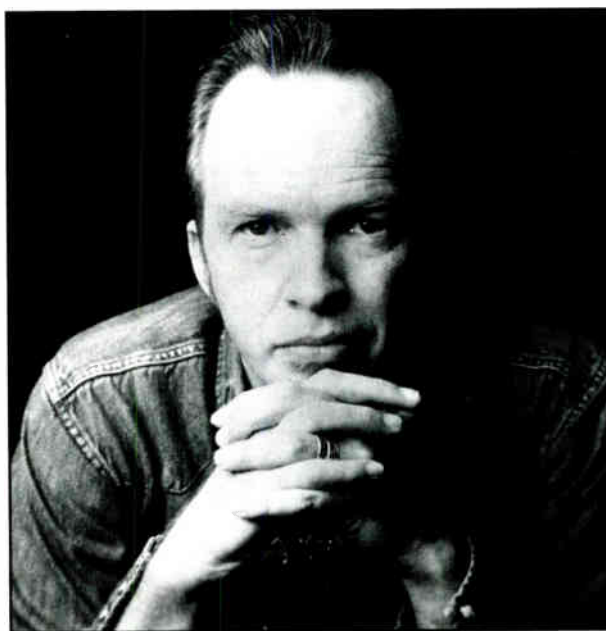


PHOTO: STEPHEN W. SMITH



called *Cry Baby*; and I wrote and produced music for a very underground film called *Border Radio*. It was Alison Anders' first movie.

**Which came first? The song "Border Radio" or the movie?**

The song came years before the movie, and the movie had nothing to do with the song. The movie budget was extremely low, and I did mainly instrumental, ambient tracks. Actually, one of the ambient tracks off *Border Radio* got picked up and was used in *Wall Street*. I got more money for that than the entire recording budget of the *Border Radio* movie. Work like that got me more used to taking control in the studio. The first thing I did where I was like "Hey, I want to produce you" was a guy named Sonny Burgess.

**So his record with you, Tennessee Border, was the first album you ever produced?**

Yeah. Well, with the Blasters, we kind of gang-produced our first two albums. With the first album, we kind of got by, but the second one definitely suffered. The album suffered, our careers suffered, everything suffered. We just wouldn't listen to other people. If you're a genius, then maybe that's a good thing, but if you're just some schmoes from Downey, that's not the right thing to do. I produced Sonny because we did a gig together and I thought, "He still has it, and I know how to do this."

**How did you meet him?**

A friend of mine, Jack Smith, in Rhode Island, had one of the best rockabilly bands around at the time, and his wife flew me and Sonny out for his birthday. They had this party at a club, and Sonny and I played together. So, I went to Hightone, who I had just done my first album [*Blue Boulevard*] for, and I kind of sheepishly said [in a small voice] "You guys maybe interested in maybe a Sonny Burgess record?" I talked them into it, and I enjoyed the whole process. It was extremely low-budget, and it was rehearsed, recorded and mixed in five days.

**So, you recorded at Normandy Sound in Rhode Island because the band was there?**

Yeah. The funny thing is it was the same studio and the same engineer, Phil Greene, who did all the New Kids on the Block and Marky Mark records. He was so happy to be doing Sonny. The whole session, he was

going. "My God, live musicians. This is such a trip. I haven't seen live musicians in years."

**Is that how you like to work in general, live in the studio?**

It depends on the music. For rockabilly, I think live with an overdub here and there—95 percent live—is the best way to capture it. There's that quasi-rockabilly that comes out of Nashville now; some of it's real good, but you can definitely tell they start from the drum track up, and everything's layered and perfectly in tune, and all the parts are worked out. But for real Sun Records-type rockabilly, it's got to be live, and somebody's got to be making a mistake.

**Do you involve yourself very much in technical/equipment decisions?**

I have a couple of engineers that I trust. Mark Linett is the one I use the most. In regard to Big Sandy, we



Chris Gaffney

would get in discussions about modern technology vs. old technology—heated discussions.

**What was your stance?**

My stance is that, well, if you listen to Gene Vincent records that were cut in the same room where we did Big Sandy, that was state-of-the-art sound for that time period, and those records still sound incredible today, whereas with the Sun records, you could tell that they were recorded in a very small room with a 1- or 2-track machine. I think it's important to get the best mic you can, the best board you can, the best room you can—the state of the art that's available.

**How did you get booked up with Big Sandy?**

I'd seen them around for years. They were, at one time, more of a rockabilly trio, but they were great in all their incarnations. After I'd done the Sonny Burgess record, I'd been out on tour with one of my own records and ended up at some gig at the Palamino. It was a Hank Williams birthday gig, and everyone was doing Hank Williams songs, and Big Sandy did "Weary Blues From Waiting," and that was it. It was like "I *really* would like to have a record of that." And at that time, they were sort of progressing away from rockabilly into hillbilly bop, which is kind of this proto rockabilly sound, and not many people understand that sound. Not that I do, necessarily, but maybe I do more than your average person.

**What is the difference between rockabilly and hillbilly bop?**

Rockabilly is more aggressive and doesn't swing. It's more white R&B of 1954. Hillbilly bop has elements of that; it can be aggressive, yet it swings. The first album I did with Big Sandy [*Jumpin' From 6 to 6*] was pretty much a hillbilly bop record, but I think the new one is country swing. A good example of hillbilly bop would be Bill Haley when he had a band called The Saddlemen, before The Comets. It was basically the same band, except that for The Comets, they fired the steel player and added a saxophone, and they turned the drums up. The beats involved in hillbilly bop are more western swing and pure swing beats; the boogie feel swings a little bit more. It was more of a late '40s, early '50s sound.

Swinging is something that has not happened in rock 'n' roll in a long, long time. That a band would specialize in it is, to me, one of the things that makes Big Sandy unique in the field. When I play rockabilly, my physical inclination is to thrash it. I'm more of a Sun-influenced player. Big Sandy and His Fly-Rite Boys know all those records, and they've been through that, and they've found their own sound. Most rockabilly groups don't swing, and these guys really swing. I guess that's the word for today.

**What's the process you use in the studio with Big Sandy?**

I don't have to do a lot. I've produced four records this year, counting their new one. With the others, like with Chris Gaffney and Tom Russell, we would start with acoustic guitar and build from there. But with Big

—CONTINUED ON PAGE 209

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by Mel Lambert

# BBC TELEVISION CENTRE STUDIOS

## COMMERCIALIZATION IS NOT A DIRTY WORD

The British have an odd habit of doing things their own way. Maybe it's down to the fact that, like the Japanese, the English—and their Celtic cousins in Scotland and Wales—are an island race; centuries of isolation may account for their cultural insularity. But that “go-it-alone” spirit was at the core of the British Broadcasting Corporation's fundamental charter. Back in the '20s, Lord Reith, the Beeb's benevolent father figure and first Director General, saw the airways as hallowed territory. It was the BBC's role, he claimed, to fill the ether with wholesome and informative entertainment. Here in America (without dismissing RCA's noble attempts with its fledgling National Broadcasting Company), the driving force was more commercial in nature.

“Broadcasting in Britain,” wrote Francis Williams, adviser on public

relations to the British Prime Ministers in the mid-'40s, “is...conducted as a public service. By this we mean that it is not governed by the making of private profit or run in the interests of advertisers, but solely in the public interest and without having to pay regard to purely commercial standards.”

That was then; this is now. With the political compass pointing firmly to the right, the 70-year-old Corporation's *raison d'être* has been brought more into line with current commercial practices. In particular, a new set of directives, “Producer Choice,” meant that individuals wanting to produce programming for the BBC would have to be aware of the costs involved. In other words, although the BBC would continue to underwrite the expense of preparing the

—CONTINUED ON PAGE 95



Sound supervisor Tony Philpott at the AMS Neve Capricorn digital console in the Music Studio at BBC Television Centre.

**FACILITY SPOTLIGHT**

# Hopscotch Recording Studios

Cayman Islands

by Barbara Schultz

A one-hour flight from Miami is all it takes to get to Hopscotch Recording Studios in George Town, Grand Cayman (the Cayman Islands). This facility has been operating since September of 1993. The owners are partners Charles "Greggie" Gregory and Charles "Lammie" Seymour, who are also members of the band Memory of Justice. They are proud to run the only professional recording facility in the Cay-

mans, which may sound like a small claim to fame, but running a pro facility in such a breathtaking location is certainly something to be envied.

Hopscotch comprises a 24x20-foot studio, an 8x12-foot MIDI room and a



19x17-foot control room featuring an automated Sony/MCI JH-600 36x24 console. The facility is also equipped with Sony/MCI JH-24 and JH-110 recorders; a Pana-

sonic SV-3700 DAT machine; Tannoy System 215 DMT, UREI 811, JBL 4311, Yamaha NS-10M and Auratone VS monitors; Hafler and Crown amps; mics from Neumann, AKG, Sennheiser and Shure; and a wide array of outboard gear, effects and electronic musical instruments.

—CONTINUED ON PAGE 95

**FACILITY SPOTLIGHT**

# Addaudio Post-Productions

Kuala Lumpur, Malaysia

Malaysia's Addaudio Post-Productions recently expanded, opening its Studio 5, the first studio in Asia to be fitted with a Digital Audio Research Soundstation Gold. The new workstation is equipped with automated mix control, a dedicated touch screen control console, 16 channels of hard disk recording, editing and playback, and 16-channel segment-based equalization. Three of the

other rooms at Addaudio are also DAR Soundstation post-production suites: there is also one MIDI suite that features a Tascam DA-88 and E-mu Emulator for music-scoring to picture, and one transfer/editing suite. APP's clients include advertising agencies Dentsu,



Young & Rubicam, Saatchi & Saatchi and Leo Burnett, as well as the Malaysian government.

—Barbara Schultz



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—FROM PAGE 93, HOPSCOTCH STUDIOS

Hopscotch caters mainly to local groups like Tabia, Hi-Tide and calypso band The Tradewinds, whose greatest hits compilation was recently completed there. The studio has also done work for the Cayman Islands National Museum and the Cayman National Cultural Foundation, as well as volunteer work in local schools and churches. "Last year, I did some work with high school kids," says Gregory. "They were fascinated by the technology and, of course, nobody had to ask them a second time to step up to the mic."

Despite the owners' pride of place—or maybe because of it—they have begun looking outside the local market, to the southern U.S. and Jamaica, to expand their business. "Reggae music has become so big in the industry," says Gregory, "that, at times, even though Jamaica has 120 recording studios, it's impossible to find one available to rent. We feel that might be a plus for us here, located so close to Jamaica. We're looking to put Hopscotch on the international map in 1995." ■

—FROM PAGE 92, BBC TELEVISION

same materials for which it enjoyed an enviable reputation, program makers would now be given a budget from which would be re-charged a competitive rate for hiring the stages, studios, editing rooms and sound post-production facilities that the Corporation owned and operated. (And remember that all of the BBC's activities are funded from license fees; no advertising is allowed.)

But producers and directors would not be forced to use the Corporation's extensive technical facilities; instead, they are free to shop around for the best rate available. To put the whole procedure onto a more commercial footing, a new organization was established to run the Corporation's facilities, services and engineering operations as a stand-alone trading entity within the BBC. Known as BBC Resources, the new organization has invested heavily in promoting and marketing its in-house services to TV and video producer/directors around the world.

BBC Resources' largest and best-

equipped production complex is Television Centre (TVC), located to the west of London in White City, approximately eight miles from the city center. Here, as I discovered during a recent visit to TVC, the Corporation operates a number of production stages, as well as a dedicated music-recording studio and several all-digital post-production rooms. "We are unique in the broadcasting industry," offers Rob James, manager of BBC Television's Post Production Sound, "thanks not only to our award-winning staff but also our history, our range of facilities, and the size and breadth of our operation—including serial digital component studios, digital VT edit suites, over 50 nonlinear offline edit rooms and several computer graphics areas." TVC also supports transmission of BBC-1, BBC-2 and World Service Television.

TVC offers eight fully equipped TV production studios, varying in size from 3,500 to 10,250 square feet; audience shows, live transmission and recorded productions can be made from any studio. In addition, the BBC's Services Division provides a full range of planning, project management and technical support services to radio and TV producers.

#### ALL-DIGITAL MUSIC PRODUCTION STUDIO

Pride of place in the TVC's Music Production Studio is a 64-input/72-fader AMS-Neve Capricorn console, linked to a Sony PCM-3348 DASHI-format 48-track and a Studer A800 MkIII analog 24-track with Dolby A/SR noise reduction. The control room measures a comfortable 25x21 feet, and the studio comprises a main 55x27-foot performance area and companion 21x16-foot isolation/voice-over booth.

"With adjustable studio acoustics, an acoustically trapped 'dead' area and a large iso room," says sound supervisor Tony Philpott, "the Music Studio offers optimum conditions for all styles of musical ensemble, up to a 40-piece orchestra. The controlled 'liveness' of this area, combined with variable lighting levels and efficient air conditioning, makes the room very pleasant to work in. One end has been designed to provide a large drum/rhythm area with a deader acoustic, but still offering good views into the main room."

The large control room also includes a permanent facility for keyboards, samplers and synthesizer

players that might be working in the same monitoring field as the recording engineer. Control-room monitors are ATC units.

"Our primary clients," Philpott continues, "are internal BBC producers, UK-based commercial broadcasters and ad agencies that want to record jingles here—mainly TV-related sessions, but some for radio. While 85 percent of our sessions are currently for BBC-originated projects, the proportion of outside work is increasing each year. Because producers now have a choice of working here at TC [Television Centre], or at an outside music studio, we need to be more aware of current production techniques and not adopt an 'isolationist' attitude, which was more the case a few years ago. I like to think that a combination of good equipment, good staff—and the BBC certainly has access to some very talented individuals—and good product, stand us in good stead."

The BBC's operations staff members are full of praise for the all-digital Capricorn console, which replaced a vintage 48-channel Neve 50 Series analog board. "I wouldn't be without it," Philpott says. "It provides great sound quality—transparent and open. And, being totally assignable, I can remap the [Capricorn's] control surface to move sources onto any fader on the mixer, and then store those settings for later recall. It's a great piece of technology, and one that has dramatically improved the quality of the music-recording projects that pass through this studio."

In terms of purchasing the "latest and greatest" audio recording and production technology, the BBC obviously needs to keep a careful eye on cost-effectiveness. "We need to establish two main criteria," Philpott says. "One: Do we have a need for the system in terms of offering a distinct advantage over the way we now work, either for creative or technical reasons; and second: does it fulfill our requirements in terms of being acceptable to the BBC's technical standards?"

With separate cost centers established within Television Centre, each department has an allocated operating budget and must remain cost-competitive. Self-managed teams of engineering staff and supervisors within each department define their specific technical needs. "Obviously, we need to remain fully up-to-date



with new types of production systems," Philpott stresses. "Let's take the selection of new monitor loudspeakers, for example. We will produce a short list of what we think is appropriate for the studios in question, and then have those evaluated *in situ*. We will also discuss our choices and final selection with managers in other departments, and also compare it with the types of products being used by outside facilities.

"We also try to diversify our sources of equipment. That way, we don't all end up with the same brand of hardware in each location; what would happen if the manufacturer went out of business? Also, a range of suppliers will be more responsive to our various requirements."

#### ALL-DIGITAL POST-PRODUCTION SUITES

Several years ago, the BBC developed a standard technique for remixing TV soundtracks. Elements would be edited on tape or mag and then prelayed to 1-inch analog 8-track tape locked to a 3/4-inch U-Matic video work reel. As the change was made from analog to digital production, this technique was re-thought and upgraded. The result is the "Sypher Concept," which involves the use of an AMS Neve AudioFile Spectra hard-disk recorder/editor locked to a D-3 digital VTR; the Corporation operates a variety of edit, prelay and mix-to-picture dubbing suites at Television Centre based on just such a configuration. Picture editing is handled on a variety of tape-based and nonlinear, disk-based systems.

The BBC also operated five 16mm film-based dubbing theaters that dated from the early days of television broadcasting. During the late '80s, these theaters were subject to a complete re-evaluation; the process of "post offline dubbing" using AudioFile workstations and Logic Series digital consoles was developed as a replacement.

At the heart of the process is enhanced speed using a hard disk system and, whenever possible, as post-production sound manager Rob James explains, the elimination of additional transfer stages. "The process relies on building up a complex soundtrack in automation data rather than re-recording audio. The D-3 digital VTR [forms] the heart of our

integrated system that includes AudioFile Spectra and R-DAT. This configuration provides a highly flexible and fast dubbing system and takes less time than conventional film dubbing, ensuring a highly cost-effective dub. Working directly on the transmission tape [the 'Air Master'] removes the need for an extra generation or a lay-back session, although a safety clone is made at a later date."

A total of three Sypher post-production/remix rooms and six dubbing theaters are available for clients, seven equipped with AudioFile editor/recorders and two with Avid AudioVision hard-disk editors. In addition, seven AudioFile-equipped rooms handle prelay of dialog, music and effects elements prior to dubbing, while two more handle effects and music editing and prelay of the Sypher suites. Of the seven track-laying rooms, two are described informally as "High-Spec" and offer a Logic 3 all-digital mixer with integral 24-output AudioFile Spectra editor/recorder; the remaining five cost-effective suites are basically used as replacement for traditional film-style track-laying, with a 16-in/8-out Soundcraft analog board for monitoring only, linked to a 16-track AudioFile Spectra. Music elements are available from scored sources and music libraries; sound effects are provided from PC-controlled CD jukeboxes that enable cuts to be auditioned and then prelayed to AudioFile hard drive. Effects and other materials are also available from CD sources.

A new room, TCV in Stage 5, features an AMS Neve Logic 2 digital console and 24-output AudioFile system. The companion track-laying rooms feature 16- or 24-track AudioFile Spectras that are used to prepare materials for the dubbing suite; removable hard drives and MOs can function as "digital dubbers" for transfer of materials from one area to the another, or to receive premixes, and of the final stereo soundtrack mix.

"We also make extensive use of [Sony PCM-7030] timecode DAT



PHOTO: MEL LAMBERT

**Dubbing theaters R and V feature AMS-Neve Logic 2 automated consoles with 24-output AudioFiles, plus removable Winchester drives and Exabyte backup. Both theaters can handle Dolby Surround mixing.**

machines," James continues. "DAT has largely replaced 1/2-inch as the location recording machine. Dialog, effects and music elements might arrive on that format—and can be slipped to picture or conformed to an EDL—as well as [Tascam] DA-88 [digital multitracks]." As I discovered, DA-88s are used extensively during production of the popular "Grange Hill" TV series, which centers around day-to-day life at an English high school. Crowd and class backgrounds are pre-dubbed to DA-88 8-track prior to the dubbing session; sound effects would be replayed from the AudioFile drives.

Each dubbing theater and Sypher suite features a companion voice-over booth that also doubles as a Foley area, with gravel tray, hard floor and other surfaces. Of the primary suites, Sypher 1 features a 40-channel Neve 66 analog console with NECAM 96 Moving Fader automation; an Akai S1000 sampler with extended memory and hard-disk storage is also provided. Sypher 3 and 4 feature identical 42-channel/32-bus Solid State Logic SL-5000 analog consoles with Ultimotion servo-fader automation. A Studer A820 24-track and A812 2-tracks with center-track timecode are also available in all rooms. Monitoring is BBC/Rogers LS/8 speaker systems.

Dubbing Theaters R and V feature AMS-Neve Logic 2 fully automated consoles with 24-output AudioFiles, plus removable Winchester drives and Exabyte backup, Tascam DA-88 digital multitracks and Sony PCM-7030 timecode DAT machines. Nagra T-Audio 1/2-inch, center-track timecode machines are available to cope with analog interchange requirements.

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Dubbing Theater W features a 48-channel Neve 51 console with NECAM 96 fader automation and 24-output AudioFile plus an Otari MTR-90 analog 24-track. Theater Y is similarly equipped, aside from an SSL SL-6000 console. The other two dubbing theaters, designated Q and White City, are identically equipped with Yamaha DMC-1000 digital consoles and Avid AudioVision editors. Monitoring is again BBC/Rogers LS 5/8 cabinets.

Additional equipment available on an as-needed basis includes DAT recorders with and without time-code, plus various reverb and effects systems.

#### LARGER PRODUCTION STUDIOS: STEREO TECHNIQUES

For drama, live-entertainment, sports and game show-style productions, TVC offers a number of large-format, self-contained studios, several of which are capable of accommodating

widescreen productions (16x9 High-Definition aspect ratios). Each studio features a companion video control area and sound mixing booth. "We believe that Television Centre [offers] the most comprehensive talent base of craft staff available anywhere in the country," James states. "These include lighting directors, vision mixers, editors, graphic designers, camera and sound staff—several of whom have won prestigious awards, including BAFTA, BDA and RTS—floor management staff, electricians and designers."

The largest stage, Studio One or "TC1," has a floor area that measures 108x95 feet, with a lighting grid height of 45 feet. The sound control room features a 96-input AMS-Calrec Assignable Console with 24-track interface; similar mixers are featured in Studios Three and Four. Monitoring, as in the case in the majority of BBC Television's sound control rooms, is handled by BBC/Rogers LS5/8 units.

Studio Six features an AMS-Calrec Q-Series console equipped with 60 stereo channels, routing to eight stereo groups; Studio Seven boasts a Q-Series board with 24 mono plus 12 stereo channels plus eight stereo

groups. Finally, Studio Eight boasts an AMS Neve console equipped with 60 stereo channels routing to eight groups; an outboard AMS Neve "mini-mixer" equipped with eight stereo channels handles additional tape, CD and vinyl playback sources.

Since the late '80s, all of BBC Television's broadcasts have been accompanied by NICAM-format stereo audio. According to TV Sound Supervisor Barry Bonner, even sports remotes are miked in stereo. "We usually shoot from one side—or either end of the ground—so that we can establish a stereo sound perspective without changing POVs confusing the audience. We aim to produce a wide stereo perspective that can serve as a background for commentary and spot effects. We use radio shotgun mics, which are easier to rig and relocate around the grounds, along with specifically fixed, cabled mics."

Bonner confides that sports productions, which figure prominently in BBC TV's programming schedule, have become increasingly complex during recent years. "We now use satellite links during live coverage, in addition to digital T1 and ISDN

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by Dan Daley

# CHICAGO PROJECTS

## A PARADIGM FOR COEXISTENCE

**W**hen it comes to regional responses on the project studio phenomenon, it's ironic that L.A. declared them "The Untouchables." In the city where Elliot Ness and his crew of Feds were based, the experience has been characterized more by Darwinian adaptation and an almost Aquarian harmony.

"As the project studio progressed in Chicago, the traditional studios responded in one of three ways: They either closed, like Universal did a few years ago; they shrank; or they adapted and expanded," says Hank Neuberger, operations manager of Chicago Recording Company (CRC), the largest of the city's commercial studios. The adaptation came mainly in the form of adding the formats most used by project studios, including Alesis and Tascam modular digital multi-tracks and various software platforms. The expansion was prompted by traditional studios sensing that their future lay in providing service, expertise and technology that project studios could not—large rooms and expensive workstation systems. In doing so, says Neuberger, the community avoided much of the strife that occurred in Los Angeles and, to a lesser degree, in New York.

This assessment is buttressed by Gary Gand, owner of Gand Music, which, like many musical instrument dealers in other major markets, moved into pro audio to support the project phenomenon and take up the slack left by pro audio dealers who were disappearing for the same reasons some studios were. "The main studios were forced to move away from music and more toward advertising because the music work was shifting toward the project studios," Gand says. "They had to change their technology strategies by buying

more expensive equipment than the project studios could." There may be no end to the evolutionary aspect of this trend, Gand adds, noting that local project studios are now ordering ever-larger consoles.

### COMMERCIAL AUDIO

"There are two clear permutations of coexistence in Chicago," observes Cliff Colnot, a commercial music composer with his own sequencer-based project studio. (He also holds

**A**s the project studio progressed in Chicago, the traditional studios responded in one of three ways: They either closed, they shrank, or they adapted and expanded.

—*Hank Neuberger*

teaching positions at the University of Chicago and De Paul University, as well as conducts new music performances with the Chicago Symphony Orchestra.) "There are commercial music houses that have various levels of project studios within them, and

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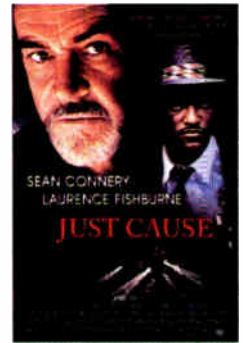
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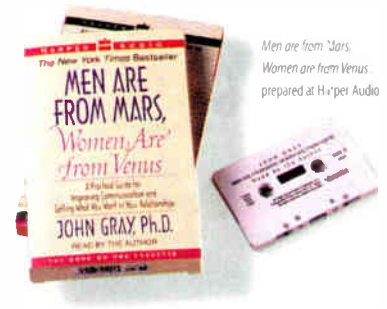
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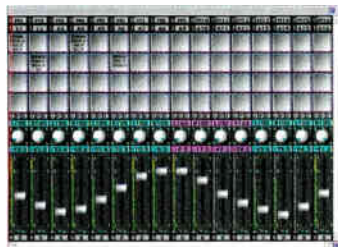
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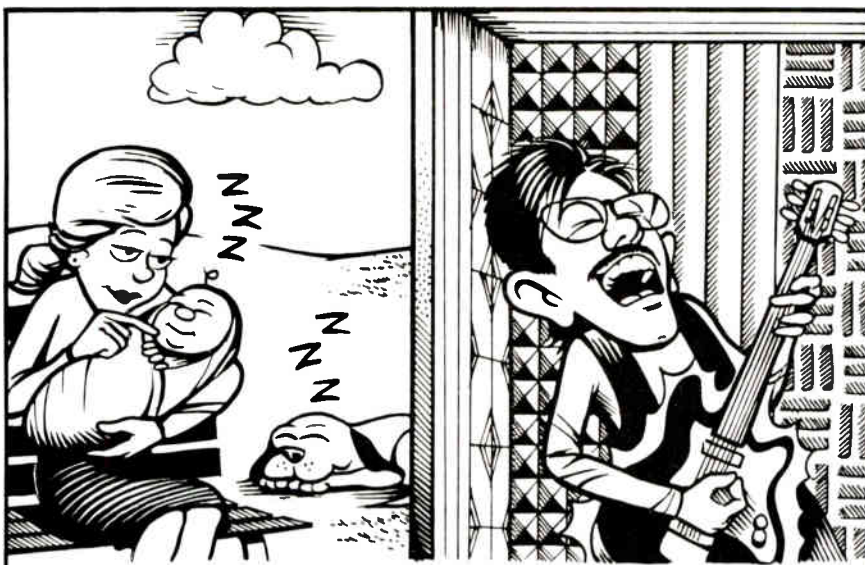
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that go to the larger studios when they need a large room or an assortment of technology they don't have, which is the prevalent paradigm in this town. Or the reverse of that, like me, who do pre-production and some overdubbing in their own facilities and do the bulk of their sessions at larger studios like CRC and Streeter-ville. I think it's usually based on what you grew up with. I grew up with jazz and live rooms; others grew up with sequencing to get basic tracks. It's not a judgment; it's simply a matter of taste."

Colnot, who added a studio to his commercial music business in the late 1980s and has written and produced spots for United Airlines, Diet Dr. Pepper and the Illinois State Lottery, says the impact of project studios on commercial facilities in Chicago was both "irrefutable and undeniable. From an economic point of view, the major rooms took a hit when the agencies started using the project studios. But what didn't happen was any overt hostility. It happened here very different from how it happened in L.A."

Part of that is attributable, Colnot believes, to the fact that there had been some form of a project approach in Chicago's advertising industry before the modern project studio appeared. "Guys like Dick Marx and Bill Young, who were sort of mentors to the project studio, were doing their demos for agencies on pianos and into cassette players in the early 1970s," Colnot says. "That evolved into 4- and 8-track rooms at music houses that eventually led to the kinds of project studios we have now." However, he adds, this slow evolution away from using only commercial facilities was relatively opaque to the agencies and didn't directly affect the decline in commercial budgets in the 1980s. "That was driven by the agencies' clients," he states. "The clients started saying, in effect, 'The party's over.' It just happened to coincide with the rise of the modern project studio. It was a case of serendipity, not causality."

The accommodating attitude of Chicago's larger facilities has engendered a more ready willingness by project owners to interact. It also has given them a break on technology investments. Gary Fry, a commercial composer whose Reference Standard

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Recording Studio serves his Com/Track music house for commercials, film scores and music recording, says he didn't have to make certain types of equipment investments because he knew those needs would be addressed at the larger studios. "I use larger studios for [commercial] finals 90 percent of the time. They have the outboard and the microphones, and I don't need to buy those," says Fry, who works off an 8-track Synclavier through a DDA AMR 24 console. He says he feels more comfortable working without having to constantly stay on the cutting edge of technology.

#### MUSIC

Chicago's music scene is beginning to heat up again. Neuberger assessed it as being like "Seattle two years ago," with acts like Smashing Pumpkins, R. Kelly and Pearl Jam doing portions of their records in Chicago, as well as established acts like the Smitherens and Poi Dog Pondering making the city a base of operations at least part of the time. "The same thing that happened in advertising is now happening in music," observes Tim Pow-

ell, owner of Metro Mobile Recording in Chicago and a founder of alternative pro audio association EARS. "What's happening is that the music studios are also stratifying into upper

## The classic music project studio still thrives in Chicago, particularly among the house producers that kicked off the genre eight or nine years ago.

and lower levels. The studios in the middle are getting squeezed. They can't participate in the advertising work, and the music is increasingly following the project studios because that's where the artists are."

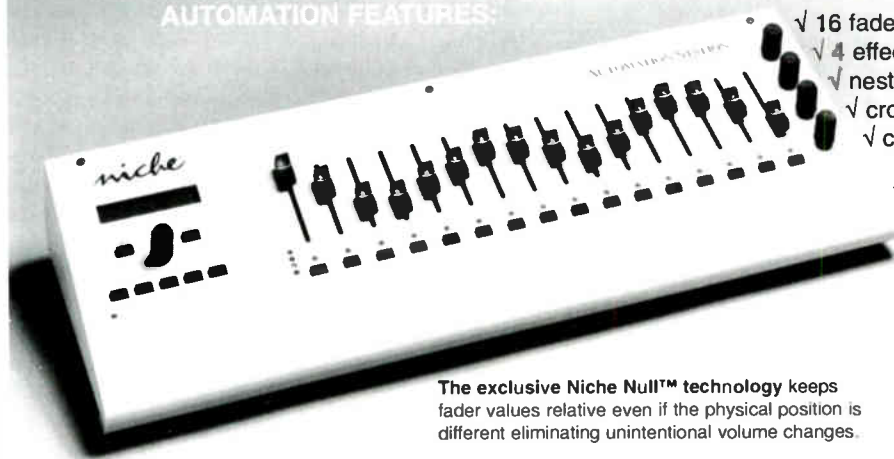
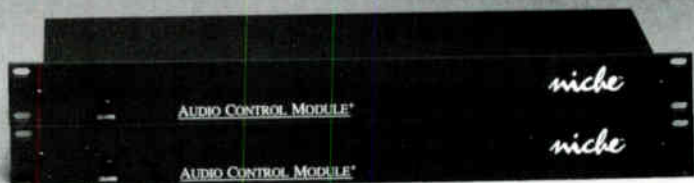
However, the middle class may be renewed as some project studios go commercial, at least part of the time. Die Warzau, then on Atlantic Records, opened WarZone in 1993 as a base to make their records and the in-house productions of its members. Designed by Fletcher of Mercenary Audio and outfitted with a pair of API consoles and Otari and MCI 24-track machines, the studio's overhead and the attraction of its large recording room led the band to make it available on a for-hire basis. They booked clients around their own work and, after switching to a smaller independent label, booked themselves into the studio on the same basis as clients. "It wasn't a painful decision," says Van Christie, the band's programmer and guitarist. "I found I liked owning a recording studio more than I thought I would. I wound up working as an engineer on outside sessions and found that that helped expand my and the band's horizons."

But the classic music project studio still thrives in Chicago, particularly among the house producers that kicked off the genre eight or nine

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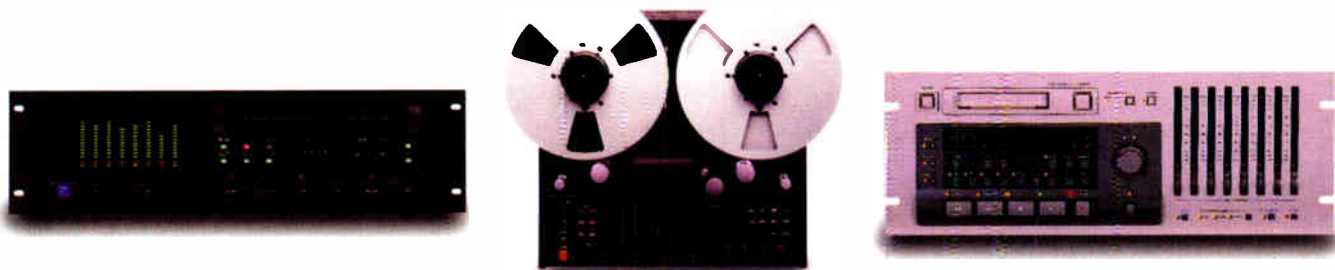
years ago. Vince Lawrence got Bang Productions off to a start in 1986 after years of working in commercial studios like Chicago Trax doing house and dance records. "We'd cut on Monday, mix it that night, sell it to a dance label on Tuesday and pay the studio on Thursday," he recalls. And in remembering the kind of epiphany that's happened to others thousands of times since, adds, "One day I woke up with a pile of money and realized I could keep paying for studio time or put a down payment on some gear of my own." Lawrence showed local dealer Pyramid Audio \$70,000 worth of studio receipts from the previous year and used them as a basis for a loan to outfit the studio with a Soundcraft TS-12 console, an Otari 24-track deck and outboard gear. Throughout the building process, Lawrence continued to use the city's larger facilities for mixing, continuing relationships that began a decade earlier.

He's building a new four-room Amek/RADAR facility in a former soap factory (talk about liking industrial space: his current studio is in the basement of a Payless shoe store) slightly closer to downtown to accommodate the commercial music clients that are becoming a larger part of his client base, augmenting his work with artists like Erasure, Taffy, CCP and Destry. The new facility will have to rent itself out eventually, Lawrence acknowledges. However, that won't necessarily make him a traditional facility. "We'll deal with it as a project-based facility," he says. "I don't want to deal with hourly rentals. Dance music tends to be more one-off oriented than rock records. You do a single at a time. So we can keep it project-oriented but still be for-hire."

Chicago, like Nashville and Atlanta and other markets behind the point cities of L.A. and New York, had the benefit of watching the more difficult transitions those two cities went through as project studios grew. But Chicago, abetted by its traditional advertising audio client base and an incipient music boom, has been a working model of what happens when both sides of the market realize they have more to gain than to lose. ■

*Dan Daley is Mix's East Coast editor. He visits Chicago to pick up frequent-flyer Miracle Miles.*

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# sweet home

## Blues Clubs of the Windy City

by Barbara Schultz



*Clockwise from top left: Otis Rush at Buddy Guy's Legends, Karen Carol cutting her live album at Blue Chicago, Junior Wells at a Sunnyland Slim memorial show at Blues Etc., and Koko Taylor rocking her own house, Koko Taylor's Chicago Blues.*

**I**n the deep heart's core of rock 'n' roll is the blues. The screaming and crying of a heart broken too many times. The joyful shout of love. The wild howl of desire. You can hear it rumbling underneath the surface of every rock 'n' roll song ever played, from Chuck Berry to Sponge. And the music's path from there to here, from Robert Johnson or the first Sonny Boy Williamson to Bo Diddley to Green Day, with a million steps in between, was a well-documented geographical journey as well as an artistic one. The blues made its way from the Mississippi Delta to southern cities like Memphis and New Orleans, where records were being made. It traveled north to more money, more venues and bigger record companies, to cities like Chicago, where it set down deep roots.

Since the early '50s, the blues has called Chicago home sweet home, and it is still a huge part of the city's live music scene.

# CHICAGO



Although we've lost the first generation of Chicago's blues greats (Muddy Waters, Howlin' Wolf and Willie Dixon form the top of that list), the second generation is still going strong thanks to artists such as Otis Rush, Junior Wells and Buddy Guy, and the third is coming right along. Every summer, Chicago's blues festival is still the biggest and the most star-spangled in the country, and the city probably supports the most blues clubs anywhere. This month, *Mix* spoke with four of the engineers working in Chicago clubs about the same old places, and the new ones, where fans get the blues, seven nights a week.

## **KOKO TAYLOR'S CHICAGO BLUES**

The club that bears Koko Taylor's name is owned and run by Ala Carte Entertainment.

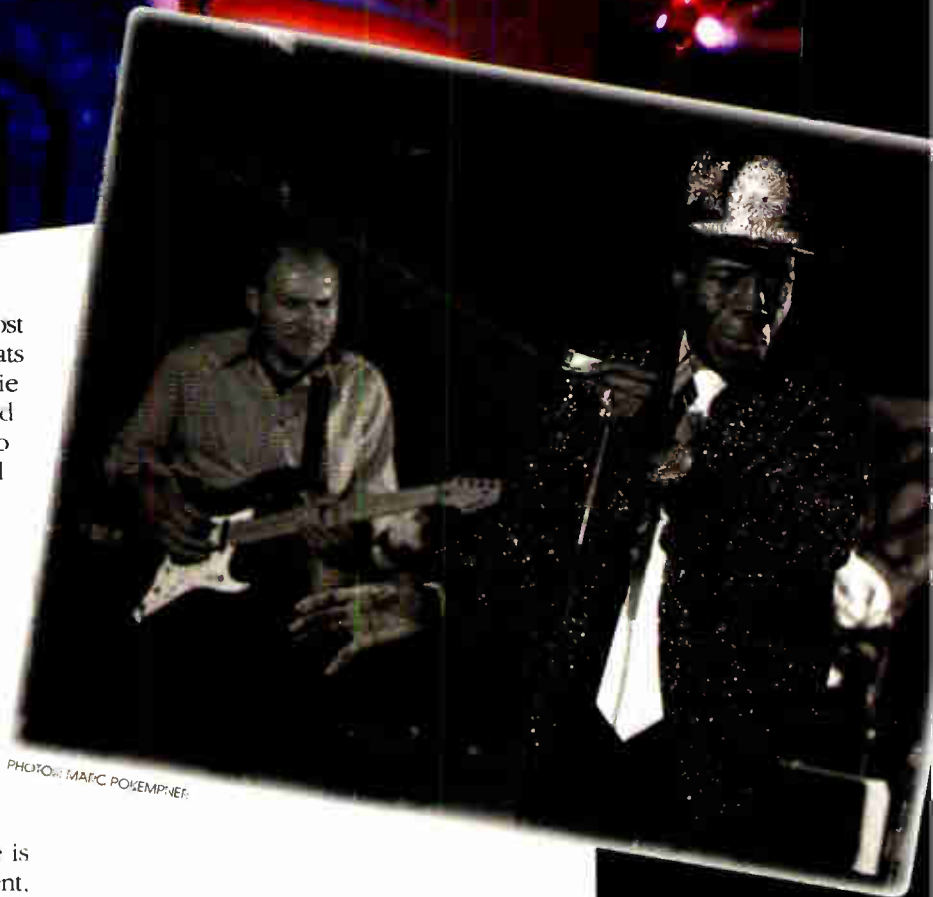


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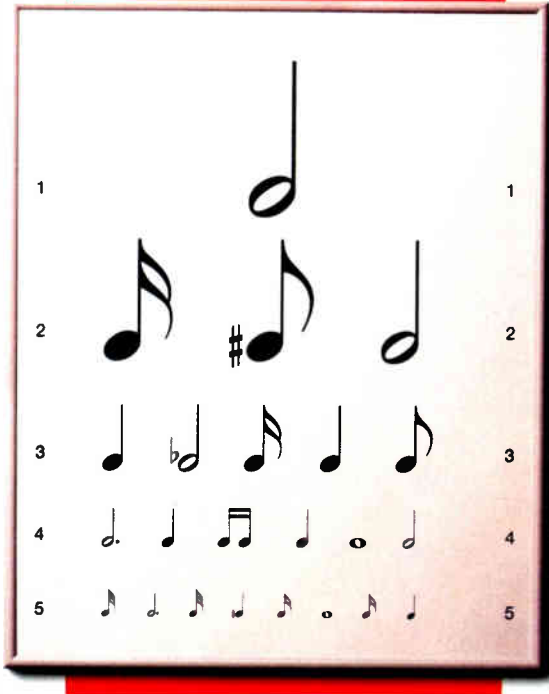
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a local firm that owns 16 clubs in the Chicagoland area. The venue, which opened in March, features national and local blues acts, with particular attention paid to female artists.

The club employs a few live sound engineers, including Michael T. Alioto, who also works locally as a recording engineer and DJ. Alioto has been with the club since its opening and participated in the initial room tuning. "The room itself is almost all hardwood. The walls are wood, and the roof is tin," he says. "You could sing a note in there and come in five minutes later, after you've ordered your chicken from across the street, and it would still be there. But Koko likes to have a softer sound in the room, so people near the back or halfway back can at least talk to each other." To soften the room sound, a curtain was hung behind the wooden stage. A sidefill was also added on one side of the bar to help distribute the audio evenly. "But that comes with opening a new club," reasons Alioto. "You find out where the dead spots are.

"And it isn't like when you do a big venue where you have to have the whole mix coming out of the mains, because your stage volume can be so loud that it doesn't matter. In a small club, your stage volume really matters, and the house system ends up just supplementing what's coming off the stage, though of course the vocals are very present in the mains. I'll put some of the bass and the kick drum into the subwoofer to really pound the beat in, but for the most part, with the rest of the instruments, especially the guitars, the stage volume will carry them through the whole club. And if it doesn't, I'm there to push it into the house a bit."

The club sound system was installed by Ala Carte's technicians Ed Kukulski and Todd Seisser, who also provide system maintenance. Gear includes a Soundcraft Spirit 24 Live console and Electro-Voice speakers: two 2181 subwoofers and two DML 1122s for mids and highs. Crest amps are used—a CA6 on the high end, a CA9 for mids, and CA8001s on the subwoofers. The monitors are four EV FM1502 ERS slants powered by another Crest CA6. Mics are Shure SM57 and 58s.

When we spoke with Alioto in August, Taylor had performed at the club on the previous Friday night; it

was the first time she'd played there since the opening, though she is a regular visitor. "Twice a month or so, I see her come in," Alioto says. "She takes her table over in the corner, and anybody that's onstage then acknowledges her. She comes in with her daughter, Cookie, and has a couple of drinks. She is such a sweet and lovely lady and will give anybody the time of day. The club itself is very warm and friendly that way, too."

#### BLUE CHICAGO

Blue Chicago has been showcasing the city's blues acts for years, but it's

only been in its new location on Clark Street since April. The club's proud owner is Gino Battaglia, who also sets up and operates the sound system every night.

The new location features a Studiomaster Gold Session board and JBL 15-inch Concert Series speakers, which are hung from exposed beams. Crown Power Base 2 amps provide the power. Shure Beta 58 mics are used. "With the blues, I think it's got to be played real natural," says Battaglia. "A blues room really can't be too big, because if it's too large, it loses its feeling." Blue Chicago's capacity is 140.

## REAL TUBE™ DIRECT

Leland Sklar

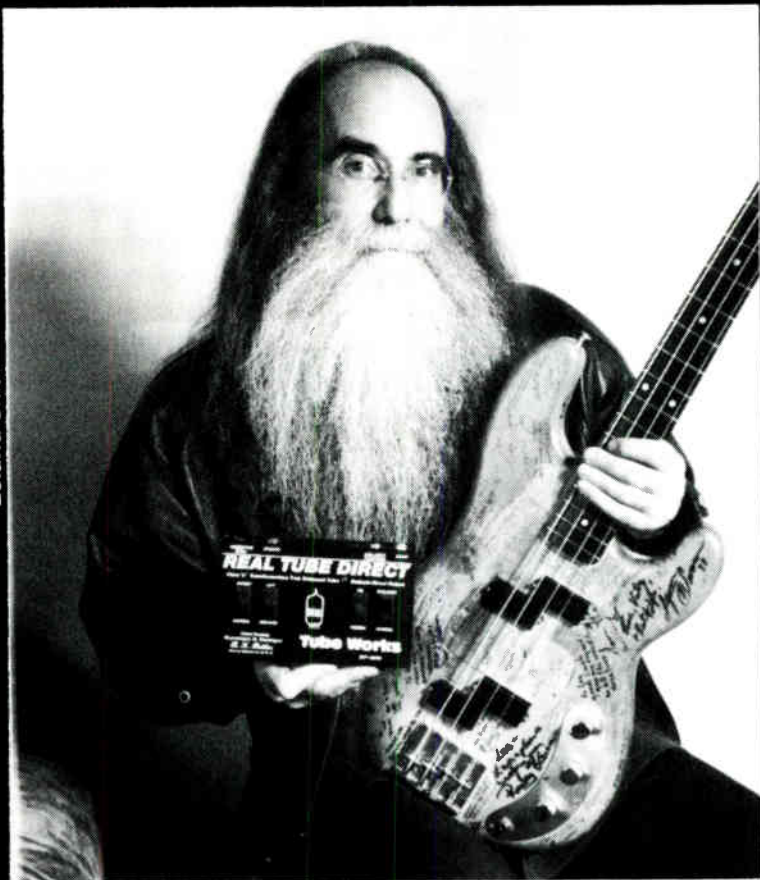


PHOTO BY: RICHARD NEWMAN

What do Leland Sklar, Reba McEntire, Elton John, Alabama, Diamond Rio, ZZ Top, Lorrie Morgan, The Dixie Dregs, Garth Brooks, Dan Fogelberg, Alan Jackson, Clint Black, The Steve Morse Band, Little Texas, Type O Negative, John Michael Montgomery, Megadeth, Sawyer Brown, Dwight Yoakam, (and more touring bands than you can shake a stick at) have in common? They ALL tour and record with the **Tube Works REAL TUBE™ DIRECT**. *Why Don't You?*

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John Palusso, a local acoustical consultant, helped Battaglia develop the acoustical treatments, which consist of sound insulation material, covered with potato sacks, wedged between the ceiling beams and joists. This is the blues, don't forget. This is club sound at its most basic.

When we spoke with Battaglia, he was gearing up for a Saturday night live album recording session. Delmark artist Karen Carol would be playing with the Blue Chicago house band, and the label's engineers were set to record it as her next CD. Battaglia expressed great appreciation for the fact that Delmark has maintained a real commitment to Chicago acts over the years, as has he. "We book strictly local Chicago people," he says. "You can find the cream of the crop here playing the Chicago circuit."

"Blue Chicago is the only place Karen sings right now on a regular basis," explains Delmark's Steve Wagner. "In the economics of the blues world, it's hard to keep a working band together, especially for people who don't like to take care of business as well as being a

singer. So the way Gino formats his club—they have a house band each night of the week—Karen doesn't have to keep her own band together. We have our own recording studio here at Delmark, Riverside Studio, and we can record here, but my philosophy is that a lot of things happen live that don't necessarily happen in the studio. This is definitely the case with Karen Carol. She's got a big voice, and she really fills up the club, and I don't know that we would get the same feel in the studio as live."

#### BUDDY GUY'S LEGENDS

Probably the most high-end dedicated blues venue in Chicago is Buddy Guy's Legends, which opened in 1989. The front-of-house position there belongs to veteran blues-recording engineer Dave Katzman, whose credits include work with Albert Collins, Albert King, Otis Rush and others, including Guy. In addition to his Legends gig, he is co-owner, with partner Rich Wojtach, of Chicago's Straight Arrow Productions, a full-service show-production company. Katzman's reaction to the

450-person-capacity Legends room, at first listen, echoes Mike Alioto's sentiments about the Koko Taylor club: "The acoustics are hell. It's four store bays, side by side, and it is a short throw of 60 feet, with a hard floor. I had to hang panels at the first reflection of 4k, because when a harmonica player would play a high key like a D, it didn't matter if it was James Cotton or Sugar Blue or whoever, people would stand up and walk out because 4k was so sharp in the room. I could take my knife out and notch the EQ even lower, and it still would drive people out. So, I totally stopped the first reflection at 4k with sound panels."

The club also added a false wall to the stage to prevent "cannon effect." "The cymbals were a little painful," Katzman explains, "and as the songs change key, you have to tweak things. Also, it's a hollow stage, which resonates in the key of G, and we have a major 250Hz standing wave in the room. It is a problematic room, but in six years, I've figured it out."

Katzman uses an Allen & Heath GL4 console, which he's "incredibly

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overjoyed with." Speakers are Macpherson three-ways. JBL-loaded Macpherson monitors are also used. "It's a very high-quality, short-throw cabinet," says Katzman. "It realizes bass at a short distance. The horns are wide-dispersion; the monitors are a low-profile monitor, which works well on a club stage instead of something you have to stand 15 feet behind. We have a 16-foot-deep stage, so that would be real hard to do." Katzman uses Peavey, Crest and QSC amps, and dbx EQs. He also employs Rane compression and the BBE Sonic Maximizer. The club is Shure-endorsed, which means all Shure mics. "I do four monitor mixes from the house," he says, "and my effects are very simple. A digital reverb. Nothing fancy. I mean, we're dealing with the blues here."

One of the biggest attractions of Buddy Guy's Legends is, of course, Buddy Guy, who spends a lot of time in the club when he's not on the road. Every January, he plays 12 straight days. During the rest of his off-schedule, he often joins visiting artists onstage. "He gets up and plays with these bands," says Katzman. "And the young guys that get to play with him have to scrape their jaws off the floor."

### BLUES ETC.

John Turner, better known as J.T., has been the house engineer for Blues Etc. since it opened eight years ago. This club has been thriving all along but only recently added a permanent sound installation. "When they opened, there was no concept of a sound system," Turner says. "They put in some speakers, that was it, and it's one of the bigger clubs in the city. It just grew to be a necessity."

Turner calls the installation "the Schwinn Bicycle System. It's pretty much Peaveys and Hills for power and Peaveys and Hills for speakers. You could dump this thing off the roof of the club, and it will still work. It's a pretty primitive setup. No effects. It's a very live room with brick and glass, and we've baffled parts of it the best we could. The room is so live that I have people tell me all the time. 'Take the reverb off my voice,' and I say, 'Well, guess what? There isn't any on you.'" For mics, Turner uses the apparent going thing in the city, Shure 57s and 58s. "I may have to mike horns one night and violins

the next, so we just stick with your standard microphones. We do a lot of zydeco as well, and that entails accordions, etc."

The owners of Blues Etc. own another, smaller club across the city called B.L.U.E.S. "They're a quarter our size," says Turner. "Our drum riser is about as big as their stage." Though the smaller venue doesn't have an installed "system"—just a P.A. and a few Shure mics—Turner shares Blues Etc.'s gear when needed and provides some maintenance for both clubs.

After eight years, four nights a week in Blues Etc., Turner knows more than a little about mixing Chicago blues. "The blues scene is pretty small compared to the rock scene, so I pretty much see the same bands over the eight years. Like tonight, I'm working with Son Seals. He plays here a few nights a month. I know exactly what needs to be done.

"I see cats on a nightly basis that just blow me away," he adds, "like Magic Slim. This guy has one of the bigger bands in the city, and they do their couple of hundred nights a year. Talk about great guitar players. I see great cats every single night of the week, and I must say that the bands really make my job easy because they are so good. Donald Kinsey is one of my favorite guitar players, and I always say if he were white, he would be listed up there along with Clapton and Beck. There's an awful lot of talent, and I think it's still really fresh. You've got cats like Otis Rush, who is just hitting his stride now. Since he went with the big record company and he's gotten real healthy, he's just been unbelievable. And he's one of those cats that when he's on, it's just magic."

Turner says that the one aspect of the Chicago blues scene that he wishes he could change is the lack of radio coverage, which is really minimal compared to the amount of live work being done and the number of blues releases and reissues on the market. "It would be like going to New Orleans or Nashville and hearing hardly any jazz or country. There's a couple of stations that do play blues, but you really have to listen for it, and it's weird, because we are the blues capital of the world." ■

*There are two things Mix copy editor Barbara Schultz misses about Chicago, and one of them is the blues.*

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The final mix breathes life into the body of the visual medium. From the subtlest foley effect to the roar of jet engines, the audio must create a convincing experience for the audience. Each actor's voice must be treated like that of a skilled vocalist. The orchestral score must be combined with dialog and effects without losing detail and dynamic range. This final stage is the culmination of all the time, talent and investment that has gone into the production.

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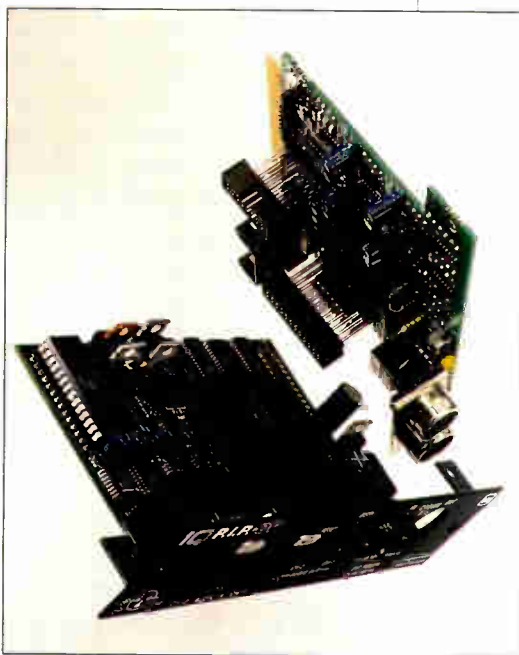


by Mark Frink

# SOUND CHECK

## SIGNAL PROCESSING IN THE AGE OF COMPUTER CONTROL

Sound reinforcement systems continue to grow. Larger systems, either portable or permanently installed, have dozens or even hundreds of amplifiers and signal processors, distributed among various areas and equipment racks. The ability to operate "all things audio" from a central point via a personal computer can enhance a system's performance by saving time and allowing for greater precision. Benefits include reduced setup time, as well as the ability to effect complete modifications and rapidly reset the system by using systemwide presets and templates. Screens and control surfaces can be designed to allow access to only those parameters that are task-specific for a wide variety of events, or to suit the individual operator's skill levels. System maintenance can be improved through immediate online access to historical infor-



Crown SP Module



Crest CKS 400

mation. The system's performance can be optimized by quick and accurate manipulation of parameters in groups. Even the act of turning a complex system on and off can be simplified, all at a net savings when compared to a manually operated system.

In general, computer-controlled sound systems consist of a controller (usually a personal computer), a variety of audio appliances that can communicate their parameters and accept instructions using a common language, and a means of connecting them all together. The acceptance of computer-controlled sound systems has been limited by the proprietary nature of the systems developed by manufacturers. Cross-vendor compatibility is limited; few manufacturers have been brave enough to offer products that could work with more than one of the competing communication protocols. System designers have been forced to make hardware decisions with computer issues taking priority over traditional sound quality priorities.

One of the great developments in pro audio was the establishment of the XLR connector as a means to distribute signals throughout a system. Our community is still waiting for a stand-

ard that would allow integration of computer-controlled equipment from a wide variety manufacturers. I call attention to the recent AES paper, authored by Bob Crane, Jeff Barryman and others, describing a method of doing this with currently available technology. It is possible that 1996 will be the year that the SC-10 committee can finally establish the standards necessary for continued progress in this field.

Before we take a look at the latest developments in signal processing from three leading amplifier manufacturers, let's review the story so far. The concept of computer-controlled sound began as manufacturer-specific technology for remote access to amplifier instrumentation. (Though one or two companies developed signal processing to communicate on different proprietary systems, notably Rane, they were exceptions.) The advent of distributed signal processing at the level of individual amplifier channels reduced the expense of individual signal processors' chassis, wiring and space. New products made it practical to furnish signal processing economically for every amp channel in a sound system. Features include multiband EQ, crossover, compression, delay and loudspeaker protection, all controlled from a central location.

Three amplifier manufacturers who have not previously sold

—CONTINUED ON PAGE 122

## TOUR PROFILE

# Hootie & The Blowfish

## THE "CRACKED REAR VIEW" TOUR

by Mark Frink

**W**e caught Hootie & The Blowfish's set of self-described blues-pop-folk tunes at Berkeley's classic Greek Theater. Hailing from Columbia, S.C., The Blowfish are on a sold-out, whirlwind North American tour, supporting their Top 10, debut album *Cracked Rear View*, which has sold more than six million copies. South East Audio Specialists and its parent company, Special Event Services (SES), both based in Winston-Salem, N.C., are providing all production for the tour. No simple overnight sensation, The Blowfish have been together for eight years and have worked with SES for the past year-and-a-half.

Jim Brammer, president of SES, is out on the tour as production manager. "This is the first band I've worked with in many years that I've cared about touring with,



and once you meet them, you'll see why. They have a straight-ahead, no-nonsense approach to their music that fits our company perfectly." Vice president Jeff Cranfill is the lighting designer (SES is also providing the lighting rig for the tour). It is immediately evident that the band and crew are a close-knit family.

I spoke with Billy Huelin, the group's FOH engineer, who has worked with the band since 1991. "I came up with this band through the clubs," he confesses. "This is my first big FOH gig." Huelin's FOH console is a late-model Soundcraft Series 4. "I've gotten to use many fine consoles over the past year, but I really enjoy mix-

ing on the Series 4," Huelin comments. A Soundcraft 800B is also on hand for the opening acts, of which there have been four, each supporting a different leg of the tour. Effects are simply a TC Electronic 2290 delay, and one Lexicon SPX-990 and two 900 reverbs. Inserts include the Behringer Composer stereo compressor, Multicomp quad compressor and Autoquad gates. "The Behringers are smooth, and can't be beat for the money," Huelin says. A dbx 160XT compressor is used for bass, and a dbx 165A is on mandolin. System EQs are Klark DN 360 graphics.

The Blowfish tour carries an EAW speaker rig consisting of 16 SB 850 subs, powered with Crown VZ 5000 amplifiers, and 32

—CONTINUED ON PAGE 120



FOH engineer Billy Huelin (left) and monitor engineer Mark Fulton

PHOTOS: STEVE JENNINGS



## TOUR PROFILE

ON THE ROAD WITH  
**Sheryl Crow**

by Mark Frink

**A**fter a whirlwind year that started with a chart-topping single, "All I Want to Do Is Have Some Fun," and then winning two Grammy Awards, including Best New Artist, Sheryl Crow has been touring around the world. While on tour with Tony Bennett, I crossed paths with the Crow crew in Australia and then, a month later, at the World Music Awards in Monte Carlo. Back in the States finally, Crow is out with a new speaker system from MD Systems, a sound company whose most famous client is country music's biggest draw, Garth Brooks.

Originally from Kennett, Mo., about 30 miles from Memphis, Sheryl Crow has a degree in classical piano from the University of Missouri (where she went to school with Brad Pitt). The original *Tuesday Night Music Club* bandmembers (including David and David, famous for their '86 hit "Boomtown") who made significant contributions to Crow's record were committed to other projects and unable to

tour. Crow's current band is culled from her Missouri hometown area.

Crow plays electric guitar through two Vox AC 30 amps, with one set for tremolo. She also plays a '55 Gibson Country Western acoustic, as well as all the keyboards onstage. All the electric-instrument amps are miked with Sennheiser MD-409s, including *Tuesday Night Music Club* producer Bill Bottrell's steel guitar amp when he appears with the band. "It's simply the fattest-sounding electric amp mic and perfect for this kind of music," says David Eisenhauer, Crow's front-of-house

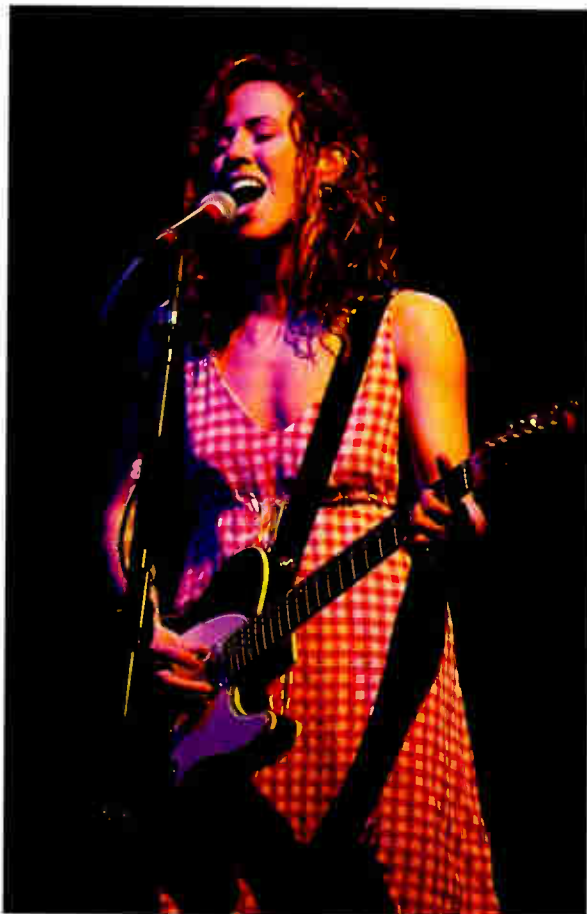
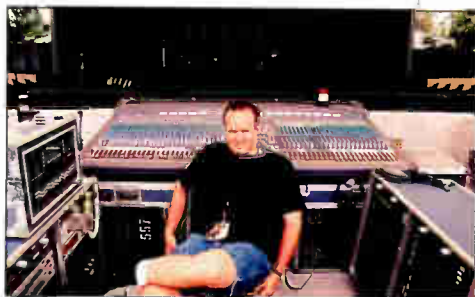


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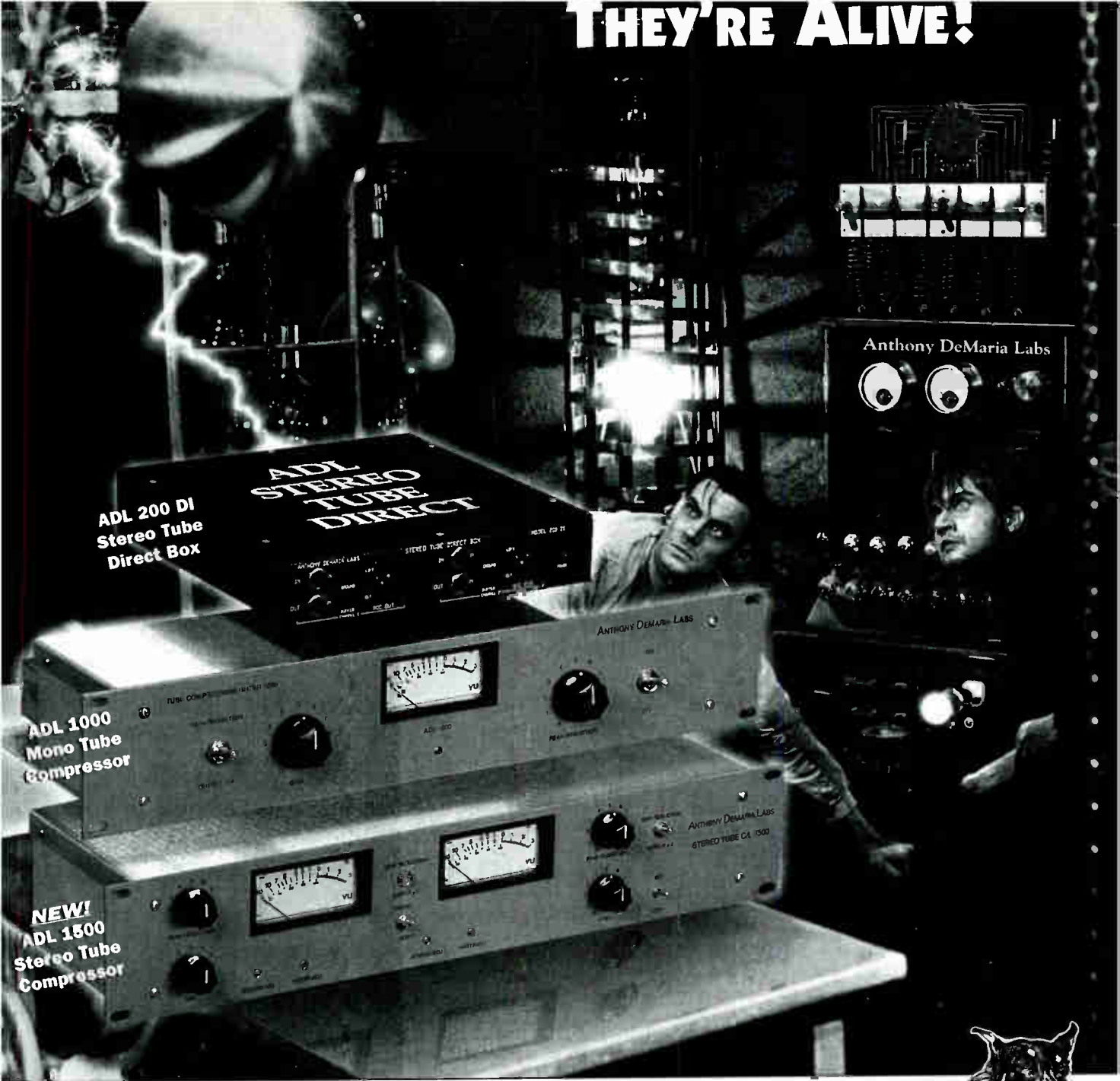
FOH engineer David Eisenhauer

mixer. "It really brings out the warmth of the instrument." (Yes, he is related to "Ike," who changed the spelling of the family name when he started having political ambitions.) Guitarist Todd Wolf plays electric and acoustic. Two Countryman DIs are used for each of recently added bassist Spencer Campbell's two

basses, an older P-bass and a modern 5-string, which have entirely different sounds.

Multi-instrumentalist Scott Bryan plays keyboards, acoustic guitar, pedal steel and electric. His Leslie cabinet is miked with a Beyer M-88 on the low end and two Sennheiser MD-409s on the high rotor. In addition to the Hammond, Bryan has a vintage Wurlitzer electric piano, plus an

# THEY'RE ALIVE!



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E-mu with a number of vintage modules mixed through a Yamaha DMP7 automated mixer.

Wally Ingram's drum kit is miked with a Shure SM91 on kick drum and Beta 57s on snare, top and bottom. Rack and floor toms are miked with SM98s using the EQ pattern adjusters. A Shure SM98 is also mounted with Velcro™ on the old Italian accordion played by Sheryl during the "living room" set, as well as on the bongos and djembe. Halfway through the show, after it builds to a peak, the lights go out, and stagehands move living room furniture onto the stage. The show breaks down to an "unplugged" format for several songs. Everyone except drummer Ingram sings, and all vocal mics are Shure Beta 58s.

Eisenhauer mixes Crow on a 56-channel Yamaha PM-4000, with four stereo returns at the instrument end of the desk and four more in the vocal section. Also from Missouri, Eisenhauer got his first mixing board at the age of 13 and owned the first digital reverb in St. Louis.

There are two TC Electronic 1128 programmable equalizers with a 6032 moving-fader remote. "I can walk down front with the remote and tune the P.A. in front of the speakers or take it up to the balcony," Eisenhauer explains. "They are really transparent, and the EQ is dead-on. Also, it's nice to be able to give the opening act's engineer his own bank on the EQ with confidence that I can get back to mine." A Night Technologies EQ3 stereo 6-band mastering equalizer is used after the TC 1128 as an overall system EQ to "knock back the 2.5 kHz and boost the 'air' a bit," Eisenhauer continues. "It has wide filters with extremely low phase distortion." A Klark-Teknik DN360 EQ is used for front fill speakers and for the in-house lawn system feeds in some sheds.

In the effects rack is a TC Electronic M-5000 with two machines. One side is used with the "480 hall" program exclusively on Crow's vocal. "I think it sounds better than the Lexicon 480,"

Eisenhauer says. The other side is used on background vocals, using the "5000 hall" preset. A TC 2290 delay is used exclusively on vocals, a Lexicon PCM80 is used primarily on keys and guitar with the "piano hall" preset, which "has a little delay and chorus as well as a short hall, fattening up the instruments and putting them in a space," according to Eisenhauer. "It takes the edge off a little bit." An Eventide H3000 is used to fatten acoustic guitars, and two Yamaha SPX990s are used on the drums. Inserts include four dbx 160x compressors and three Drawmer DS-201 dual gates. Crow's vocal mic goes directly from the snake into a Drawmer 1960 mic pre. into the console for EQ and back into the 1960 again for compression.

There are 48 of MD's new T2 enclosures on the tour, flown by crew chief Robert "Tiny" Behrens. These trapezoidal speakers are 48 inches tall, with a 4-inch "crown" that mates to the box above it, in prism fashion, with stainless-steel pins. The boxes are 30 inches deep and weigh about 300 pounds. They are loaded with a JBL 2241 eighteen. There's a removable mid-high module above that, with two JBL 2123 tens facing each other at a slight angle, and a JBL 2450 on a 2385 horn. Besides aiming straight out, the mid/high modules can be tilted by ten or 20 degrees. These were designed with input from Galaxy Audio's Brock Jabara of Wichita (where MD originated). He has worked with MD for the last dozen years in this capacity. Another version of this enclosure is simply loaded with two eighteens, having a second eighteen mounted where the mid-high module goes. MD has replaced the Yamaha D-2040 used on the previous tour with a BSS FDS 388 Omnidrive, and the system is crossed-over at either 250 or 300 Hz, and at 1.3 kHz.

The MD FOH system is typically flown four-wide and five-deep for sheds on Thomas-constructed hardware. Long-throw boxes, using a tighter 2386 horn for the highs, are used in the top row. Below that, the onstage col-

umn in the array has two enclosures with the mid-high module aiming straight, then a ten-degree down and a 20-degree down in the last two rows. The next column is all lows, then back to a full-range column. The offstage column is like the onstage, but with a low box in the middle. Four double-18's are sometimes placed in the pit on each side and used as subwoofers to fill out the low end.

Local crews all over the country have been surprised at how easy the new system is to fly. "You just pin a plate on top of the first row and take the pins holding the wheels out of the bottom," MD president John McBride describes. "Once you get the first row on the fly bar, the rest of the P.A. goes up in ten minutes." Under the last row, an alignment block keeps the columns together, again held on with the same pins that hold the wheels. Two wheels attach to each pair of rigging points "so there are no dollies for merchandising to steal," McBride explains.

Geno Salerno mixes monitors on a Yamaha PM4000M with Klark-Teknik DN-360 EQ. As at FOH, a Drawmer 1960 compressor is also used for Crow's two vocal inputs at the monitor desk. Eight channels of BSS DPR 404 compressors are available as inserts. For effects, there are a couple of Yamaha units for occasional use. Monitor enclosures used are a dozen of MD's custom single-twelve, JBL-loaded 1202 wedges and a couple of 1502 single fifteens for the bass and keys mixes. For the drum mix, Salerno uses the twelves, plus subwoofers run on a separate mix. The wedges are all powered with Crown Macrotech 36x12 amps. Two of MD's new T2 mains speakers are used for side fills, again powered with Crown 3600 and 5000s. ■

—FROM PAGE 117, HOOTIE & THE BLOWFISH  
KF 850s powered with Macrotech 3600, 2400 and 1200 amps. They also use two-way EAW JF 260 speakers for near fills, which are hung sideways under the mains (when they are flown), as well as





In the center is the Network bay. The basic amps are sold with a blank panel here, the BLK card. Two different optional N-card modules support either full NexSys control and monitoring (the NXS card) or the reduced functionality offered by NexSys Lite™ (the NXL card), which forfeits Load and AC monitoring but works with the standard Power/Output card (the STL) that the basic amp is shipped with.

On the extreme right is the

Input Bay, where the audio processing cards can be installed. Several optional input-processing N-cards with different audio processing functions are offered. The IPN simply provides the programmable gain elements for making level changes. Another card, the MCO, provides a mono, two-way 24dB crossover. Unbalanced loop-through barrier connectors provide line-level outputs for nearby amplifiers. The MCL has the crossover plus programma-

ble limiters. A fourth input card, the MEQ provides a 4-band parametric equalizer, instead of the limiters. Other cards will include a cinema card with crossover, equalization and delay, and two DSP cards: one with analog inputs and another with an AES/EBU input.

Input modules can be programmed by means of N-Coder software for Windows or by a small, hand-held N-Coder programming device. The N-Coder simply plugs into the input module via an RJ-14 connector. It recognizes the type of module and its parameters, displaying this information on a two-line LCD. Parameters can be stepped through and modified in SPX-like fashion. Another small device, called the N-Switch, has four buttons and connects to the RJ-14 connector. It allows the user to call up one of four presets pre-programmed into the amp, allowing inexpensive, simple local control.

#### QSC

Taking a different approach, QSC introduced its new Multi-Signal Processors (MSPs) at the New York AES show. Designed to be installed in an amp rack, the MSPs provide either eight channels of signal processing, or control and monitoring of eight amplifiers, or both, in a two-rackspace chassis. The signal processor allows implementation of computer control into systems that do not yet include amplifiers with those capabilities, perhaps even those made by other manufacturers.

The MSP DA8 provides eight channels of digital audio signal processing. Balanced audio input and output connections are made with Euro-style unplugable barrier blocks. Using 20-bit A/D, D/A and 24-bit processing architecture, it has a 104dB (A-weighted) dynamic range. Its eight line-level inputs are first applied to an 8x8 audio matrix. The rest of the signal flow is eight channels of processing, each of which includes more than a second of input delay, up to ten EQ filters, high, low or



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Mixing is something like painting. Whether it's for a live audience or in the studio, equalization, or eq, is like the "palette and brushes" that let you adjust the shade and tint of each sound in your mix.

In the eq world, true parametric eq is the most precise of all. But it can be very expensive. It's normally available only as an integral part of a large console. Or as a separate add-on unit that can cost thousands.

So why would someone pay big bucks for parametric eq? With Pro Mix 01 you can afford to find out—because Pro Mix 01 is the only mixer in its class with true parametric eq on every input channel.

#### Fundamentals and harmonics: the hues and tints of music.

Each sound in your mix is made up of many "colors" or frequencies. If you look closely at a shiny object, you notice it's not simply gold or silver—it

displays a complex array of colors that let you know it's reflective.

When you listen to a sound by itself, you mostly hear its predominant frequency—the fundamental. But like the shiny object, if you listen closely you'll hear subtle frequencies called harmonics that give the sound its character.

Eq lets you control these subtleties. Making an acoustic guitar seem larger than life—more out-front—by simply boosting the high-frequency harmonics from the strings. So the guitar becomes more noticeable in your mix, without

actually raising its volume.

You can also use eq to solve problems in a mix. Such as removing feedback in a live concert, removing hum or noise from an electric instrument, or taking the "edge" off an instrument that's stealing attention from a lead vocal. With eq, you can make sounds stand out or blend in. In short, it's the accent that can turn a group of sounds into a great mix.

#### A different shade of blue?

Most equalizers give you a pre-determined choice of two or three frequency locations at which you can boost or cut. That can be really limiting—like having only two or three colors to paint with. You'll quickly discover this when you want to add presence to your vocal track, solve a feedback problem, or remove electronic "hum," and need frequencies that fixed-band equalizers don't provide. Parametric eq, as provided by Pro Mix 01, gives you a spectrum of frequency choices. Like having all the colors of a color wheel available to paint with.

#### What size brush?

In addition to frequency and gain controls, the true parametric eq on Pro Mix 01 includes a Quality Factor or "Q" control. Going back to our painting analogy, Q is like the width of your paintbrush. It lets you determine how wide or fine an effect you want the eq to have. Unlike the pseudo-parametric or "sweep" eq some mixers provide, true parametric eq lets you boost and cut subtleties in your mix with the precision of a Renaissance artist.

#### The Pro Mix "Paint Box."

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We could go on and on about Pro Mix 01's other advantages. But that's another ad. In the meantime, get the book and see the movie. **Just call 1-800-937-7171, ext. 550** for your free copy of the new Pro Mix 01 Application Guide and Video. Then take a spin at the dealer nearest you, and see how Pro Mix 01's parametric eq handles the curves.

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A second model, the MSP MC16, provides control and monitoring for eight amplifiers

(16 channels) through small HD-15 instrumentation connectors on the back of the MSP and the amplifiers. QSC's new PowerLight series will have these connectors, as will most future QSC amplifier products. The MC16 has individual control to turn each amplifier on or off, plus four additional relay contact-closure outputs. There are also connections to accept four contact-closure inputs. The MC16 provides open and short detection and load monitoring, as well

## QUICKTIPS

by Robin Danar

A common problem for touring professionals is keeping in touch from the bus, hotel or backstage, whether it means keeping an eye out for the next tour, dealing with the main office, or with family events. I don't know of anyone who hasn't felt isolated while on the road. The usual result of trying to stay on top of situations thousands of miles away is a frustrating game of phone tag and the resulting high long-distance phone bills. A modern alternative makes life on the road a lot easier.

Before my recent tour as Laurie Anderson's engineer, I bought a laptop computer with a modem and went online. I had heard a lot about the Internet and World Wide Web (www), but I didn't know what I was getting into. I also heard horror stories about people getting addicted to the net, and the resulting major monthly phone bills.

My first night online was spent wasting seven of the ten free hours I got for starting with my particular commercial service. It was fun, but at that rate, I figured I wouldn't be able to afford it. Then I started browsing through the books. It turns out there are a lot of ways to save money and stay in touch online, the

simplest of which is E-mail.

As many of you already know, E-mail is electronic mail. Private messages can be sent from one individual to another. Transmission is immediate, and the mail is stored until the intended party picks it up by logging on to his or her account. Composing letters before signing on means the clock isn't ticking, and it costs practically nothing. Messages and replies can likewise be downloaded and then read offline, saving further connect charges. It only takes a few minutes to sign on, send and receive multiple letters.

My particular commercial service has phone numbers for local access, not only in many American cities but also in most major cities in Europe and throughout the world. This means signing on takes only a local phone call. I can check into a hotel or go to the production office at the venue, plug my laptop into the phone line, and sign on locally. It takes less than five minutes to send out the seven or eight already-written letters and pick up as many as I had waiting for me, all with no long-distance charges.

As an independent record producer who also enjoys doing live sound, I always felt out of the loop when on a tour. E-mail is the answer. On the U.S. leg of our tour alone, I saved hundreds of dollars on

—CONTINUED ON PAGE 128

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as complete amplifier instrumentation. Current and voltage signals can be sent to a special DSP for real-time impedance calculation and analysis. Audio from any amplifier's output can be bused back to the operator for monitoring.

A third version, the MSP E816, provides the functionality of both units in the same 2RU chassis. It combines eight audio channels of digital signal processing with control and monitoring of 16 amplifier channels. The MSPs connect to an Ethernet network using RJ-45 connectors (using two pairs of twisted wire), as well as fiber optics, or even spread spectrum wireless

media. This approach provides the additional signal processing for what it used to cost for just control and monitoring.

These units are part of a new line of Computer Controlled Sound System (CCSS) products developed at QSC. The CCSS consists of a system controller (PC) for operation of the sound system, a network (Ethernet) for distribution of monitor and control data, and MSP devices that can be remotely controlled from the system controller. The use of Ethernet represents a departure for QSC and is part of a plan that includes taking advantage of off-the-shelf networking technology developed by and for the computer industry. ■

—FROM PAGE 127, QUICKTIPS

phone bills, while communicating (sometimes more than once a day) with many associates I normally wouldn't have called from the road. On the European leg, where there is also the time zone to deal with (six or more hours' difference), I didn't miss the phone tag, or the phone bills. On a normal day, I could sign on with a local call to pick up and leave mail for people in the U.S. to receive when they got to work. I could then check my mail again at dinner time (noon in New York), to get any replies and send out my answers. After the show (around 5:00 p.m. NY time) I could see how things turned out. Three local calls on any given day, and I was completely in sync, as if I had gone back to the States and done some serious phone work.

I didn't realize the implications until I got back home. There was no "start up" period that usually accompanies returning from the road. There were already sessions and gigs lined up. Meetings for the projects being shopped were happening within the first week, with labels showing up at club showcases. I didn't miss a beat. And there is the personal

aspect, as well. We all know how crazy being with the same people on the bus for months at a time can get. It's great to be able to communicate with friends and family, basically for free. It's amazing how fast you can type about a bad production day in Italy.

Keep in mind that you'll have to connect to the phone lines. This means adaptors, which are easy to get. We all shared a local adaptor in each country. Another handy device is a modular phone plug that breaks out to alligator clips for emergencies. That and a Swiss army knife will get you onto the net almost anywhere.

E-mail is only one of the many services available. There are "message boards," to find out about potential gigs, or announce availability for work. Buying and selling equipment can be done online, while reading about the latest buzz bands and industry activity. I even found out where the best rollerblading spots were in Amsterdam before I got to town, but that's another story. ■

*Robin Damar can be reached at RDSquid@aol.com when he's not hanging out at the Mercury Lounge in NYC.*

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World Radio History



by Mel Lambert

# FAIRLIGHT MFX3

## DIGITAL AUDIO WORKSTATION

R

egular *Mix* readers might be aware of my "Workstation Wish List," which includes blindingly fast screen response, simple user interface and easy-to-understand system commands. In many ways, the Fairlight MFX3 fulfills nearly everything I look for in a flexible and speedy—yet elegant—workstation for music, broadcast and post-production applications. It doesn't offer every bell and whistle that the competition says you need, but it's a beautiful system to use.

In essence, the MFX3 is being touted as the hard-disk replacement for a conventional analog/digital multitrack transport, with up to 24 tracks of simultaneous, real-time record/replay locked to timecode, and all of the normal editing functions, as well as track slipping and moving sound elements against timecode. The graphics screens reflect this easy-to-comprehend design philosophy, with simple, intuitive displays that look like tape scrolling past a tape head. With the recently announced DaD Digital Audio Dubber for mixing stages and the Dali-2T 2-track Editing Station (see sidebar), Fairlight now offers a spectrum of design solutions that will provide a great deal of speed and power for a wide range of users.

### SYSTEM HARDWARE

The MFX3 hardware is easy to describe: a 6U mainframe that holds the master processor, clock, timecode and I/O cards, plus master hard drive, choice of removable MO and/or Exabyte backups; a dedicated user console; and a color VDU. Two models of the mainframe are offered: an MFX3 "Mini," configured with either four or eight tracks of playback, and a standard MFX3, which offers full 24-track record/replay functionality.

And just in case those tracks/disk equations didn't quite sink in, the MFX3 provides full 24-track record/playback from a single hard drive; other systems typically require one drive per four or eight tracks. Because all fetch commands are handled via a single SCSI bus and drive controller—rather than across multiple drives—there's no need to swap data around between drives, or scramble across different sources. (Which, in reality, means that a maximum of 48 track-events can be performed during real-time cross-fades; a remarkable achievement from a single-drive array.)

The advantage is two-fold: dramatically



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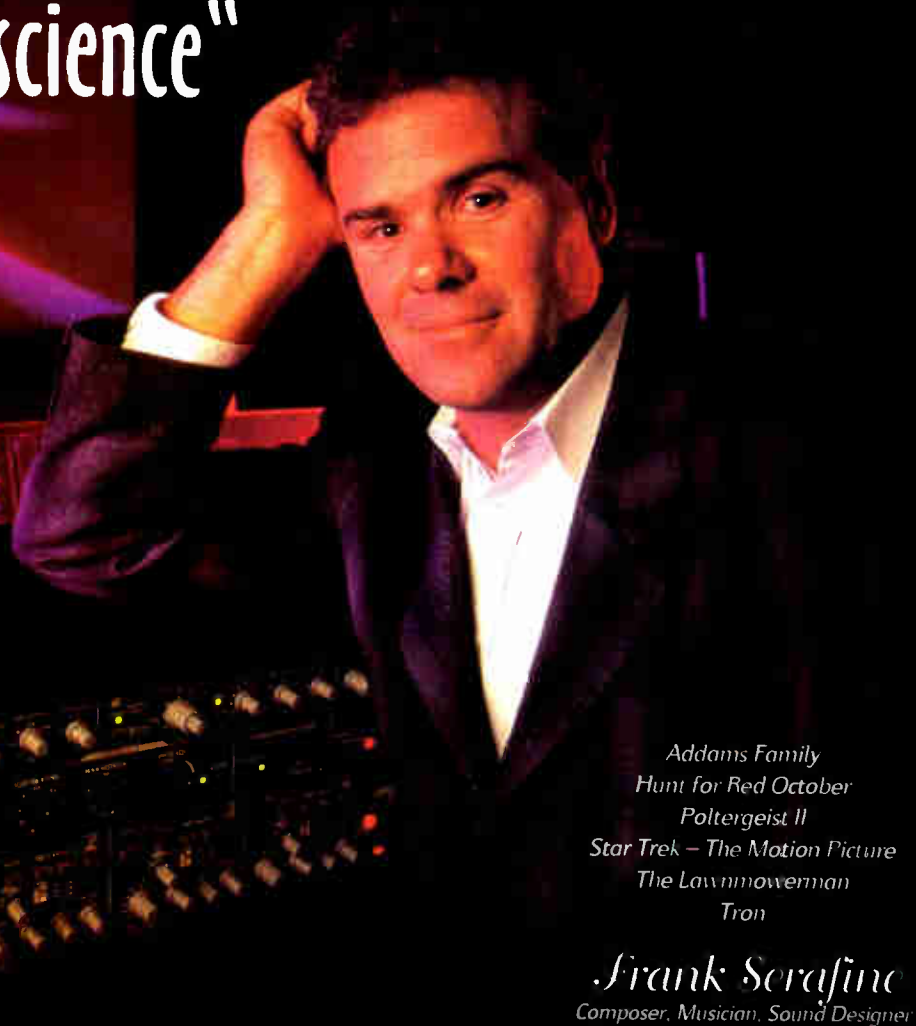


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improved access speeds, and the ability to swap an entire project simply by exchanging a single drive.

The mainframe can be rack-mounted or free-standing. (The Mini can be field-upgraded to the large MFX3 configuration if your needs change.) A fully equipped 24-track MFX3 system, including a 4GB hard drive and MO, costs around \$75,000. Other SCSI-compatible drives can be connected to the mainframe to provide additional storage.

One advantage of the MFX3 is that the removable 5/8-inch MO drive can not only hold a complete 24-track project, but will also replay up to 12 tracks continuously. Although Fairlight claims that 24 tracks are available for short periods, average playback capacity is quoted at around 16 tracks. Certain (less demanding) projects are accessible instantly by loading an MO cartridge and hitting the play button. You will need to wait for digital data, EDLs and other information to be transferred from a removable media to the permanent hard drive; the MFX3 outputs audio instantly.

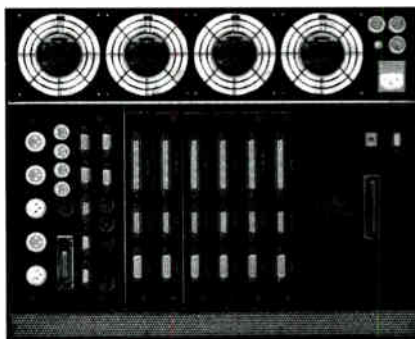
The mainframe rear panel has the various analog and digital I/Os, plus MIDI, timecode, video sync and other ports. System I/O cards can be supplied in two flavors: complete 4-channel input and outputs, or just four outputs, for users who need more replay sources than inputs. A fully loaded mainframe accommodates up to six I/O modules, for a total capacity of 24 simultaneous I/Os. Digital I/O is via 25-pin D-Sub connectors that can be toggled under software to accommodate AES/EBU, S/PDIF or Yamaha Y2-format signals.

Analog input is via Crystal 18-bit A-to-D converters that, as expected, sound excellent. All internal data storage and I/O transfer is to 16-bit precision. A separate power supply for each analog I/O module helps ensure clean, quiet system operation.

External audio/video transport control is via familiar 9-pin ports to VTRs and audio decks and various timecode synchronizers. Multiple MFX3 mainframes can also be linked together via dedicated multiplex ports. Individual systems can access one another using a Fast Ethernet network topology, allowing stereo sound files to be auditioned in real time and then transferred between

hard drives over co-ax connections.

The video source used in these tests was a hard drive record/replay system manufactured by Future Equivalent Design; the new FEID V-Mod 100 provides 20 minutes of replay from a single 5/8-inch MO drive. The MFX3 was issuing 9-pin transport commands to the video drive, which in turn output timecode that the workstation locked to. Synchronization time was virtually instantaneous in all modes. The MFX3 outputs audio in all Forward and Reverse modes, enabling the video source to be jogged a frame at a time, for example, with audio following behind it in full-sync varispeed. This is simplicity personified: a fast, intuitive and seemingly foolproof system configuration, which sounds and behaves very much like familiar analog tape systems.



**Mainframe rear panel**

Contained within the mainframe is what I suppose represents the MFX3's trump card: a series of interlinked data-storage, DSP, waveform generators and a 64-bit Video Bus moving information around at blinding speeds. The MFX3 has been optimized to slam data from hard disk through the internal D/As and to the outside world in record time. Simultaneously, the visual data used to select each cue or edit function, and to view a real-time graphical representation on a companion 17-inch color display, is pipelined through a dedicated video card. The result is a virtually glitch-free color display of up to 24 tracks of audio streaming across the screen from right to left (the Now Line is fixed in the center), with real-time waveform display and timing information. I can think of few other workstations that offer the type of fast and sophisticated display functions you soon take very much for granted on the MFX3.

## DEDICATED SYSTEM CONTROLLER

Given such a powerful feature set, it would be unfortunate if the MFX3 were hampered by a clumsy user interface. Happily, this is not the case. The MFX console hardware controller occupies about the same area as a couple of computer keyboards and is loaded with keys. Above a standard QWERTY keyboard are a bank of user-definable function keys to trigger specific repetitive tasks. A bank of 24 Track Keys arm the record functions and select playback sources. Multiple selections can be implemented by holding down the start and end of the target range, and double-clicking.

The control section has a bright LCD screen, plus a keypad and jog wheel. The LCD is divided into two sections. The upper area displays timecode information and a menu of current command choices, while the lower is relabeled with legends for the assignable bank of five softkeys. Other buttons clustered around the screen provide dedicated Edit mode keys, plus Solo, Mute and a set of Transport mode keys for machine-control functions.

The lower section is where users spend most of their time. The keypad enables direct entry of timecode or cue point locations; the Jog Wheel controls either audio/video motion or scrubbing during editing. An array of Setup keys can take the master video deck on/off line, and cause the MFX3 to jump to the next or previous start/end of a designated sound clip.

The average user could be up and running with the MFX3 controller within a couple of minutes' time. The keys are easy to find, have a satisfying feel to them, and let the user confirm a required action via the LCD screen, built-in keycap LEDs, or via the companion video display. A great interface—yet there's no mouse or pull-down menu in sight! (To be fair, a mouse can be connected to the system for editing and related functions; however, most users will not need to wander too far from the MFX console.)

The MFX Recording and Editing screen is a study in the understated. You are presented with information that you need to see; no more and no less. The lower section provides simultaneous waveform display of up to 24 tracks, and this can be switched to enable high-resolution



examination of just one, two or four channels, for example, complete with clip names.

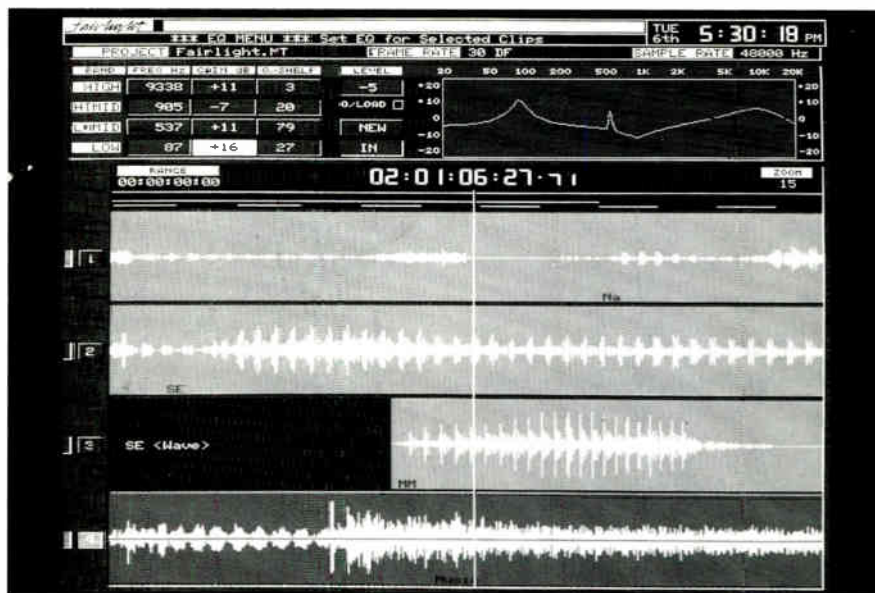
Selected clips are colored red; unselected elements remain light blue. A Time Line area situated above the waveform display shows the current timecode location (all rates are supported by the system), along with four horizontal line markers that correspond to hour, minute, second and frame gradations. In this way, it's easy to see where you are on a project while zoomed in tight or with the entire project displayed across the screen; the range is variable between viewing less than a second of audio across the full screen width, to several hours. All zooms, track expansion, jog and shuttle, go-to-cue operations are performed virtually instantly, with no video tear or visible pixel rewrite. It's exactly what you'd expect from an accelerated VDU driver.

The upper section changes according to the selected system mode. A Takes screen, for example, displays information about audio clips on the currently selected track, including currently invisible Clip Layers that are stacked beneath the clip. Because each clip can have an unlimited number of Layers, it's possible to speed up the edit process by "opening" upper layers to view the underneath layer—an ambience or fill track during a dialog-editing session, for example—and be capable of playing it back. During ADR/Foley sessions, the layering allows multiple, named tracks to be stacked one above the other and then moved to bring sections of the best take(s) to the top of the stack.

During recording of material into the system, the upper section becomes a 24-track array of meters. Both mono or 2-channel sources can be accommodated, with track linking for stereo clips. A companion display screen enables cross patching of physical analog/digital inputs to the targeted tracks, with +4/10 dBu gain adjust, AES/EBU or consumer-format selection, plus level trim.

#### HIGH-SPEED EDIT AND DSP FUNCTIONS

If the maxim in real estate is "Location, Location, Location," then the watchword for digital editors and power users of workstations is "Speed, Speed, Speed." In terms of



EQ curves and parameters are displayed along with status and waveform displays.

satisfying the random-access power jockeys, the MFX3 is up there with the serious hardware. The user interface is slick and extremely straightforward. Having loaded clips into the system, or called up a previous project, you can slam cues around with wild abandon as you match sound to picture, or move sections of a chorus, for example, to the bridge or new section of a song. You can also autoconform to CMX, Sony, Ampex or GVG list formats using timecode DATs.

The MFX3 really is like a very smart 24-track; you always know where you are in the session, and what's displayed on the available audio clips. Edits can be made across all 24 tracks, including clip-copy, mute-delete, razor-delete, insert-paste and overlay-paste modes. Once you master the simple scrub and transport controls, it's easy to move around a project and to trim material on individual tracks and/or take sections from one area and move them to another. The layers expand the functionality by providing additional sources per track. Material is always referenced to the point at which the scrub pointer currently resides; copy and paste moves are then to the current Now Line. Front and Rear Clip handles can be opened up to reveal material that was originally recorded into the system. One level of Undo is provided.

Crossfades can be generated in a dedicated window that enables in/out transition points to be varied, and cross-point level adjusted. A dedicated fade control is also pro-

vided, along with overall level adjustment for single or multiple clips. You can also delete from the current location to the head or trail of a clip—useful for removing noise at the head of a vocal take, for example, or unwanted material from the back end. Loops can also be set up very easily, in Forward or Backward mode, as well as "AutoFade," which sounds a whole lot more realistic than simple repeats.

Each sound clip can be equalized individually, using a 4-band parametric EQ and filter screen. All bands can be set for cut/boost or high/low-pass shelving. Parameters are easily set; the overall result, implemented in real time, sounds great. Settings are retained with the clip, even when it is copied, split or moved. Parameters can also be copied from one clip to another; this way, a library of favorite settings can be stored on a set of dummy clips and used to duplicate EQ parameters across multiple elements. EQ In/Out is provided, along with Old/New, for A/B comparisons of two settings.

A Gate menu allows low-level material below a preset threshold—such as background noise—to be removed from a selected clip. Time expansion/contraction—or TimeFx in Fairlight parlance—is available as a system option. Three modes are possible: Pitch Change, in semitones (this takes around three-times replay duration to process a stereo clip); Stretch/Relax, in percentage duration (nine-times processing); and Vari-speed over a -25 to +400% range (!). In addition, a user choice of six time-

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## New MFX3 Versions Debut at AES

During the recent AES convention in New York, Fairlight demonstrated two new versions of the MFX3, designed for specific market segments:

- The whimsically named Dali-2T provides 2-track record/playback and editing for the broadcast, music-editing, and sound-editing markets. Dali-2T comes complete with TimeFx software, which provides varipitch, varispeed and temporal dilation, as well as a real-time, 4-band parametric equalizer and 4-stage dynamics processor. The system locks to and generates standard timecode formats and frame rates. Projected list price for Dali-2T, complete with a 400MB hard drive (approximately 60 track-minutes of audio) is \$9,990. (The name, I discovered, is a rather oblique reference to surrealist painter Salvador Dali, who is infamous for his use of distorted clock motifs).
- The new Digital Audio Dubber (DaD) provides control of up to 576 tracks from a single controller. Up to 24 rackmount dubbers can be connected via a control bus, and configured in any combination from four to 24 tracks per prelay station, in multiples of four tracks, with replay in Forward and Reverse modes. Storage is via magneto-optical or conventional hard drives. The remote control provides replay status of each track in the system via LEDs. Individual tracks, groups of tracks or even entire dubbers can be selected and slipped to picture, in feet, frames or perforations. Projected list price for DaD is between \$1,000 and \$1,500 per track, depending on system capacity.

### STOP THE PRESSES!

At press time, I heard about Fairlight's plans to offer an MFX3-to-Yamaha 02R digital mixer interface. Also expected is an expandable, integrated mixer for the MFX3, designed to handle more demanding applications. Stay tuned for details. ■

## FIELD TEST

dilation settings are available, formulated to provide the best results with certain types of sound clips, including male and female voices, pop or classical music. Operations can be matched as a percentage of the original timings, or by specifying the desired extended or reduced duration. The results, using the appropriate settings, are quite remarkable; I never detected glitches during my (albeit limited) exposure to the system.

System parameters (including clip names, crossfade profiles, EQ and other information) are stored within a dedicated Project File. For enhanced compatibility with other platforms, Fairlight is currently finalizing a utility that will read OMFI-compatible files from Avid's Media Composer. And planned for the very near future is a high-speed networking implementation, including file servers.

### THE BOTTOM LINE: POWERFUL SIMPLICITY

All in all, the Fairlight MFX3 demonstrates what a manufacturer can achieve by being faithful to its design concepts. From the get-go, the MFX3—and its predecessors, the original MFX and 16-track MFX2—was designed to function like the digital equivalent of an analog 24-track. The user interface resembles a familiar multitrack remote, with the addition of just enough buttons to let you use the appropriate editing and processing functions. All controls fall easily to hand and are remarkably simple to master.

My only complaint is that the MFX console is a bit on the large size, and I might have liked to have seen some form of internal mixing control offered. (Now you need an external console to monitor the 8/24-track outputs, dependent upon the system configuration.) Having said that, however, the MFX3 from Fairlight ranks among the most powerful, easy-to-use workstations I've encountered. It got the job done with the minimum of fuss.

Fairlight USA, 3855 Hughes Ave., 2nd Fl., Culver City, CA 90232; (310) 287-1400; fax: (310) 287-0200. ■

*Former editor of Recording Engineer/Producer magazine Mel Lambert currently heads up Media&Marketing, a consulting service for pro audio firms and facilities.*

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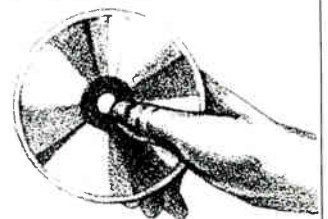
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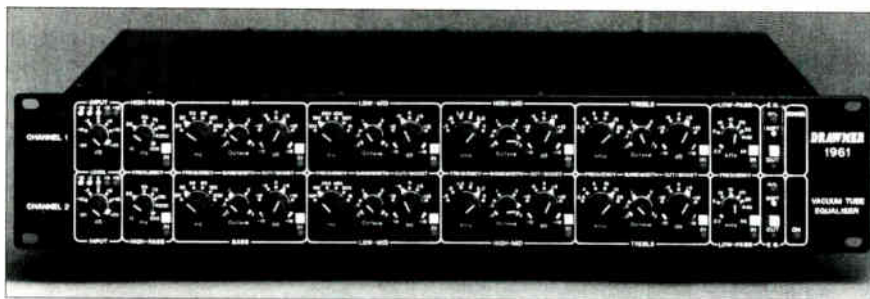
NOVEMBER 1995, MIX 139



by George Petersen

# DRAWMER 1961

## STEREO TUBE EQUALIZER



I

have a confession to make. I really love this box. In fact, I liked it so much that I delayed writing this review for nearly ten months so I could keep using the 1961 as long as possible, under the thinly veiled pretext that I still needed “more time” to really get a feel for the unit. The good—and rather patient—folks at Drawmer weren’t fooled in the least.

Let me explain. You see, one only has to spend about five minutes with the 1961 to become completely enthralled with the rich, warm sound of this smooth, musical equalizer. Not a bad effort for a company that is renowned for its gates and other dynamics-control devices.

But before we get into the 1961, let’s start by examining its name. The Drawmer 1961 is a new product, and though the “1961” model number may evoke images of vintage tube gear of bygone years, this device isn’t a copy or reissue of anything else: It’s a modern hybrid design that combines the desirable warmth and soft-overdrive characteristics of vacuum tubes with the low noise and high reliability of semiconductor technology. The filter sections are an adaptation of the gyrator virtual inductor circuit, which re-creates the characteristics of a vintage LC (coil/capacitor) network without incurring the noise, instability or susceptibility to magnetic interference of such designs.

Essentially, the 1961 is a stereo/dual mono unit, with each channel

equipped with a four-band, quasi-parametric equalizer with widely overlapping bands and -12dB/octave shelving high- and lowpass filters. I describe the EQ sections as “quasi” parametric because each band provides a selection of center frequencies, determined by a six-position switch rather than a continuously variable potentiometer. This approach is common to vintage equalizers, and though losing a small amount of flexibility, it allows the user to create easily repeatable, true stereo settings. Each EQ band also provides a  $\pm 18\text{dB}$  gain control, a wide-ranging (0.3 to 3.0 octave), continuously variable bandwidth (“Q”) control, and individual bypass switches (with LED indicators) on every section. Overall EQ bypasses (with LEDs) are also standard on each channel, as are  $\pm 20\text{dB}$  input level controls, 5-step LED input ladder meters and indicators for overload and “soft-clipping” conditions.

The 1961’s two-rackspace front panel has a power switch (with LED), but for some reason, you push the switch down for “on” and up for “off.” (Perhaps I was reviewing a unit designed for export to Australia.)

The rear panel has a standard IEC power jack, and the 1961 can be converted from 115- to 230VAC operation in a matter of seconds. Inputs and outputs are electronically balanced XLR types, and each channel can be switched for -10 or +4dB op-

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and  
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Dodd



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eration. Unbalanced operation can be accommodated by simply connecting pin 3 to ground (pin 1) on your XLR cable. Each channel also has ¼-inch TRS insert jacks (tip=send, ring=return) for connecting the 1961 to Drawmer's Model 1960 compressor/limiter for creating frequency-dependent dynamics effects such as de-essing.

Operation of the 1961 is simple, straightforward, obvious and intuitive. The only reason I ever needed to look at the manual was to check the configuration on the insert jacks. The manual is well-written and complete, but unfortunately doesn't include schematics. Other than that, Drawmer leaves nothing to chance: Printed on the outside of the shipping box is a legend explaining that the unit is wired for pin 2 hot. No programming, Version 1.17a startup disks or lengthy orientation sessions: This is the ultimate in plug-and-play.

And once I was plugged in, I was ready to play. The layout of the panel is clear, and a yellow pointer at the bottom of each knob eliminates the guesswork when re-creating specific settings. A thoughtful touch is the small diameter of the bandwidth knobs, which not only provides more room for getting fingers into the crowded (30-knob) front panel, but also makes it easier to see settings at a glance. The switched center frequencies are staggered, allowing equalization at almost any frequency. For example, the "bass" band has settings for 20/32/50/80/125 and 200 Hz, so are you out of luck if you want to make a change at 100 Hz? No, because the next band (low-mid) begins at 100 Hz and then goes to 160/250/400/650/1,000 Hz. There's enough overlap between bands to home in on just about any problem frequency, and the treble band goes up to 25 kHz, ideal for adding a little "air" to a mix. Best of all, the lowpass filters (which have a continuously variable control) begin at 2.5 kHz and go out to an impressive 56 kHz. Just the thing for doing a bit of pre-Nyquist roll-off when recording to 96kHz digital systems.

Nice aspects of the 1961 are the overload and soft-clipping LEDs, which offer a quick visual indication of the amount of desirable, even harmonic distortion imparted to the

signal by the tube circuitry. The exact amount can be adjusted by changing the input level control, and the output tube can be slightly overdriven, even with no equalization applied, for imparting a warm sound to the output. Conversely, I spent a couple of weeks tracking lead, rhythm and bass guitar parts directly to tape by feeding the 1961 from a Tech-21 SansAmp guitar preamp. The combination provided a rich palette of sounds and textures, without once leaving the control room.

One thing about the 1961 that I didn't care for was the taper of the  $\pm 18$ dB gain adjust pots. Don't get me wrong: The  $\pm 18$ dB aspect is nice and even provides some useable notch filtering when the bandwidth is turned to its sharpest ½-octave setting. However, the pots leap from 0dB gain to +6 dB (or -6 dB) in less than a one-twelfth rotation of the knob. (At the same time, the 1961 requires nearly a quarter-turn of adjustment for the 6dB difference between the 12- and 18dB settings.) My equalization needs typically fall within a  $\pm 4$ dB range, so I would rather that the gain knob's taper provide more adjustment in this critical area and less in the upper range.

This relatively minor point aside, the strength of the 1961 is its sound. The EQ points are well-selected and musically useful. And the unit is equally at home adding some sparkle to individual instruments or correcting a kick drum as it is as a stereo shaper in mastering, broadcast, restoration, post-production or other program equalization chores. On the test bench, the 1961 yielded a flat frequency response that was only -1 dB down at 40 kHz, while THD+N measured just under 0.3% (at 1 kHz, with the EQ circuit switched in), which is excellent for a tube processor.

Offering top-notch audio specs, rich, full musical equalization and the flexibility to handle just about any studio task, the Drawmer 1961 is a winner. At a retail of \$2,699, it's not inexpensive, but taken over the 30-plus-year lifespan that high-quality tube studio processors have offered in the past, you may find that today's 1961 is a pretty good investment in 2025.

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by Michael Cooper

# MANLEY GOLD REFERENCE TUBE MICROPHONE

**I**t's an amusing fact of life that we humans are easily impressed by size. Yet, every one of us who was tricked as a child into trading a dime for a nickel knows that size does not always equate with value. Still, I can't help but get a little excited about every new behemoth mic I run into, hoping its superficial promise of quality will be fulfilled. Sometimes I'm disappointed after hearing the mic, sometimes I'm not.

This time, I was not disappointed. The Manley Gold Reference microphone sounds every bit as good as it looks, and it looks awesome. Straight out of its beefy, hand-built oak storage box, Manley's large-diaphragm, multipattern tube condenser immediately elicits enthusiastic superlatives from all onlookers. Mounted in its visually striking and highly effective proprietary shock-mount, the mic looks like some high-tech treasure stolen off a 25th-century intergalactic warship!

## A WORK OF ART

Except for the capsule grille and connector base, the entire mic body is plated in 24-karat gold (over machined brass for the main body). The mic measures a whopping 9½ inches long by 2 inches wide (4¼ inches across, including the captive shock mount) and weighs a solid 2¼ pounds with the mount. The dual 1-inch, gold-sputtered diaphragms are mounted in a side-address orientation and are surrounded by an unusually open, stainless-steel mesh grille.

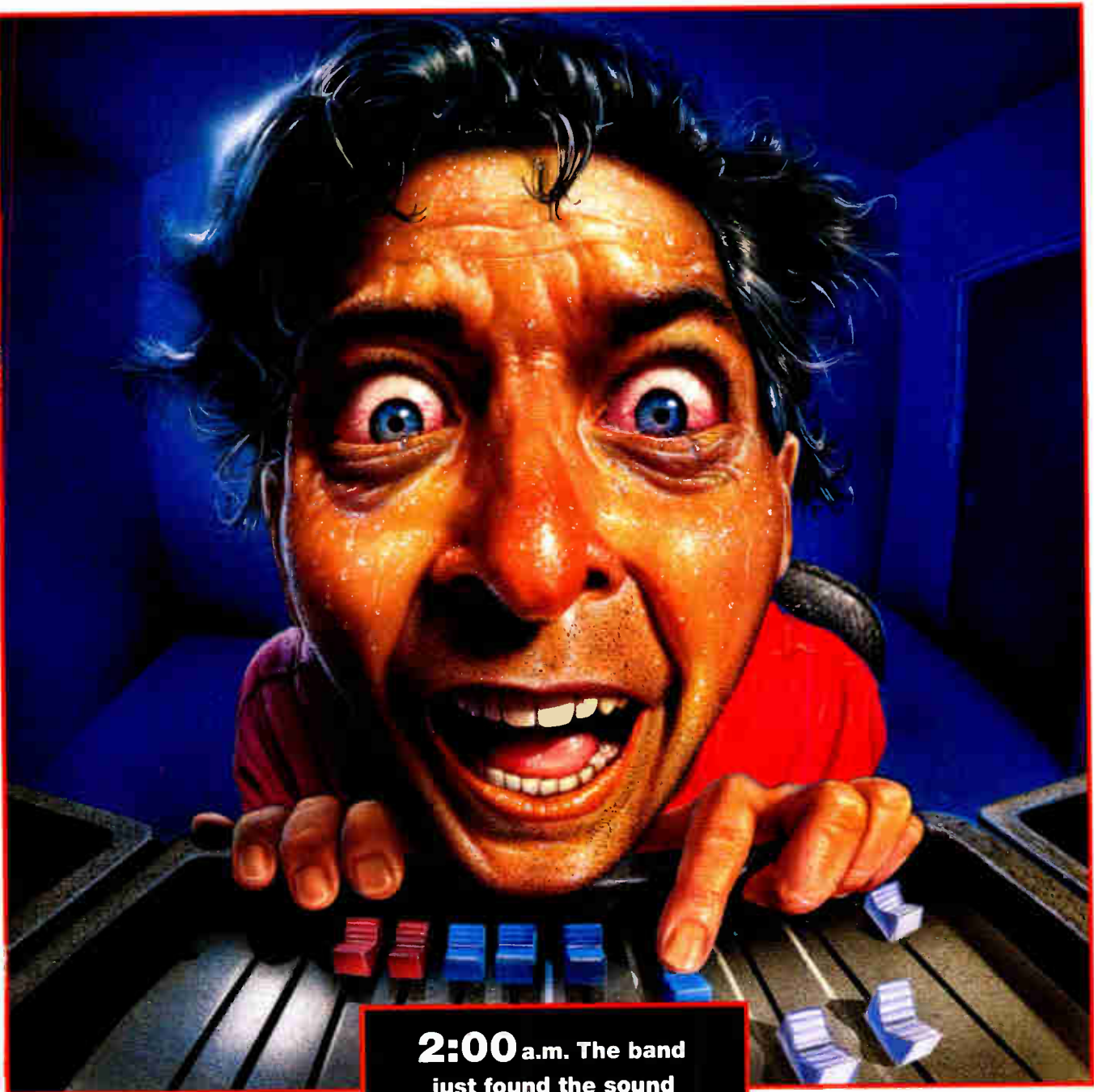
The open portion of each square grid in the grille measures a full ¼-inch to the side, and there is no internal wind screen. The obvious benefit of such an open design is less interference with high-frequency

acoustical transmission; the usual drawback is a greater tendency toward popping from air turbulence. However, the mic does not pop too easily, and the supplied foam wind-screen mitigated any such tendency without noticeably cutting high frequencies. I rarely had to use my Popper Stopper.

Near the base of the mic is a non-stepped, rotary knob that continuously adjusts the polar pattern from omni through cardioid to figure-8.



The mic base has both a threaded, 4-pin connector for the 30-foot power supply cable (included with the mic) and a gold-plated, 3-pin XLR connector for audio output. A



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## SPEC TALK

Manley's representatives are fairly secretive when it comes to giving out certain specifications for their gear, so some specs were not available. I did manage to obtain a "general" frequency-response chart that was professed to be true for all polar patterns. It shows the Reference mic to be ruler-flat between 30 Hz and 6 kHz. There's a smooth rise in response between 6 and 15 kHz, culminating in an 8dB peak at 11 kHz. The response is down 4 dB at 20 kHz and 2 dB at 20 Hz.

The maximum SPL handling capability is rated at 150 dB unpadding and 145 dB with the 10dB pad switched in. (The reason that the maximum SPL rating actually decreases with the pad in is that the pad is in a feedback circuit after the capsule.) Self-noise is rated at -116 dBm, referenced to .775 volt. In critical listening tests, the Reference proved to be very quiet for a tube mic.

Polar pattern charts were not available for the Reference, but I can tell you what I heard: Recording di-

rectly to a Panasonic SV-3700 DAT through a Millennia Media HV-3 mic preamp. I first recorded shakers and then hissed at the mic at various points on- and off-axis, in close and at a moderate distance. I also spoke and sang into the mic.

The Reference's off-axis response in Cardioid mode was outstanding. I heard very little coloration out to almost 90°, where a slight loss in both bass and high-frequency response started to become evident. In Omni mode, high frequencies were just a tad duller at 90°; otherwise, the off-axis response was phenomenally uniform. The figure-8 pattern yielded equally impressive results: Both the shakers and my vocals sounded virtually indistinguishable (to themselves!) at 0° and 180°, and relative high-frequency attenuation between 30° and 90° was minimal. My appetite was whetted. It was time to try this on my clients.

## IN SESSION

First up were male vocals in Cardioid mode, recorded through an HV-3 preamp. The Reference lends a warm, tight bottom end, open mids

and beautifully detailed highs to vocals. The mic achieves a degree of overall smoothness that is rarely even remotely attained by most other mics. Its smoothly articulated high end serves as a wonderful counterpoint to its significant (and musical) proximity effect, preserving clarity and intelligibility even at close working distances.

When placed about 5 to 6 inches from the typical singer, the Reference is absolutely fat and warm. Unlike some tube mics, however, the Reference never sounds bottom-heavy or blurry in a dense mix (unless you're eating the mic in Bidirectional mode).

The Reference can thin out a little when placed more than seven inches away in Cardioid mode. However, this is just the ticket for recording background vocals. Miked this way, background vocals still sound sufficiently warm without being cloudy or overly weighty, and the Reference's detailed high end keeps lyrics intelligible even when tucked way back in the mix. Recording a circle of singers around the Reference in Omni mode, it was very easy to

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achieve the perfect homogeneous balance due to the mic's superlative off-axis response.

The Manley Reference also did wonders for tenor sax in Cardioid mode, providing a big, warm sound with the perfect amount of "fizz" at the top. The timbre was quite present without being harsh or edgy. Likewise, the Reference lent a very fat, warm and detailed sound to various Native American wood flutes in Cardioid mode. The figure-8 mode's greater proximity effect added needed body to smaller, higher-pitched flutes.

On acoustic guitar, the Reference produced a wonderfully warm and smooth timbre with a nice sparkle on top. In A/B/C test recordings of the same guitar, the Manley's transient response, while far better than average, could not compare to that of a B&K 4011 or Neumann KM184 (which, in all fairness, are perhaps the "fastest" mics I've heard anywhere).

I must confess that I am generally predisposed to using small diaphragm condensers on acoustic guitar. The smaller mass and lighter tensioning of their diaphragms often yield a more detailed sound on plucked instruments. However, neither the 4011 or the KM184 could compete with the Reference's sheer "size" and warmth.

Last up was a hard rock band. I used the Reference on kick drum in Cardioid mode with the supplied foam windscreen, this time through a Manley 40dB tube mic preamp. The Reference was incredibly fat though, like many mics in a hard rock setting, it needed a bit of top end boost to bring out the beater click. This was with a very loud drummer, and the Reference handled the high SPLs without batting an eye.

#### CONCLUSIONS

At \$5,500 list, the Manley Reference Gold will not make it onto everyone's shopping list. However, this is an excellent-sounding, versatile and beautifully crafted microphone. If you can afford the investment, you'll find the Reference Gold to be a real crowd-pleaser.

Manley Laboratories, 13880 Magnolia Ave., Chino, CA 91710; 909/627-4256; Fax 909/628-2482. ■

*Michael Cooper is a producer, engineer and owner of Michael Cooper Recording in Eugene, Ore.*

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by George Petersen

# STUDIO TECHNIQUES' THE POSITIONER

Once upon a time, the first microphones were born. And some 100 years ago, as this boomlet market unfolded, third-party mic accessories started to emerge. Beginning with desk stands, the genre expanded with floor stands, shock mounts and—as talking motion pictures arrived in the late 1920's—boom stands, which became the tool of choice for suspending a microphone over the heads of performers and out of camera range. Lightweight portable recorders simplified location

high-performance shotgun mics coming to market. Other than a fairly recent (and seemingly endless) influx of nylon stocking-style studio windcreens, the number of innovative new microphone accessories over the past decade has been rather limited. With one exception.

Enter The Positioner, a motor-driven, microphone orientation device that allows an engineer to make small (or substantial) changes in the position of any stand-mounted microphone using a simple handheld remote control. The unit provides a maximum tilt of 180° ( $\pm 90^\circ$  on two axes) and a maximum rotation of 350° ( $\pm 175^\circ$  on two axes). Combined, the tilt and rotation controls offer nearly unrestricted mobility, with the ability to point a microphone in almost any direction.

This same feat could be accomplished by swiveling a standard mic clip and turning a mic stand. So what's the big deal? The answer of course, is remote access. In many cases, the most subtle change in a microphone's position—by even a few inches—can make a startling difference in the sound of an instrument. Consider the simple act of miking a guitar cabinet. The sound of a guitar speaker is the smoothest and most mellow when the mic is pointed directly at the center of the cone. As the mic positioning moves outward toward the cone's outer surround, the sound character changes, adding more "edge" and "bite." Using The Positioner, the optimal mic placement to match the needs of any particular player/cabinet/guitar/song combination can be achieved in a matter of seconds, without having to



production in the '60s, spurring the development of other paraphernalia, such as fishpoles and improved windcreens for the new breed of

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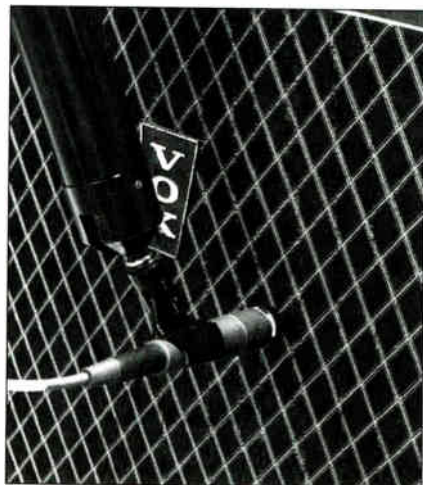
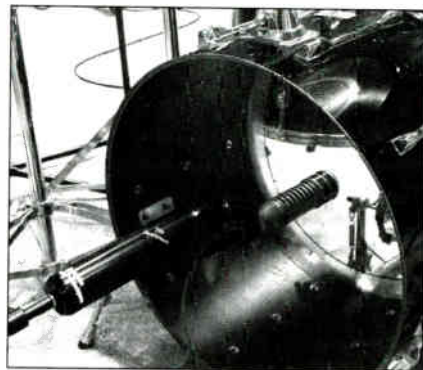


resort to the lame excuse of adding equalization later.

The same applies to miking kick drums, which—although fairly straightforward in theory—is difficult to master. In practice, properly miking a kick drum requires a combination of the right microphone, the right mic position and a lightly damped, well-tuned bass drum. Depending on the sound of the drum and the desired effect, I tend to stick to a few favorite mics (AKG D-112, EV RE20 and Sennheiser MD-421), but there is no single mic position

that works every time. Sometimes, I angle the mics toward the beater (for extra “snap”); pointing the mic in the direction of the shell offers a more rounded, fuller sound; but more often than not, I spend a fair amount of time experimenting to find the magic combination of the two. If you have the luxury of working with a sharp assistant engineer, this process is simpler; however, in this situation, The Positioner is ideally suited to the task.

The operation of The Positioner is simple. The motor drive unit is a 37-ounce, foot-long affair with standard  $\frac{1}{8}$ -inch stand mounting threads inset



## THANK YOU MIX READERS!

An open letter from Morris Ballen, Disc Makers Chairman

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MIX



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tions is smooth and precise. Amazingly, all the power for operating The Positioner comes from a single 9V DC battery inside the remote; under normal use, the battery should last several months, depending on usage and/or weight of the mics used. The Positioner successfully handled heavy studio mics, such as RE20s and U87s, without straining. However, when The Positioner is extended horizontally on a boom arm (such as into a kick drum) you'll need a fairly substantial counterweight on the stand to prevent it from tipping. In my studio, I place five to 20 pounds of barbell weights around the tubes of all the mic stands—including half-height models and desk stands—so this was not a problem.

Over a period of months in the studio, The Positioner proved useful on miking acoustic instruments, such as 6- and 12-string guitars, banjo, dulcimer and lute. It's amazing how moving a mic a couple of inches can make a major improvement in reproduction. And I soon grew to appreciate The Positioner's ability to

unobtrusively make minor adjustments in mic placement, homing in on a particular player's sweet spot during run-throughs or rehearsals, without the interruption of sending an assistant in to adjust the mic.

The Positioner would also be a valuable asset in live audio applications. In permanent installs (or long-running shows) shotgun spot mics can be mounted from battens. With The Positioner in place, the exact angle required for optimal reproduction can be quickly determined; later, if necessary, the batten can be lowered and The Positioner removed, with the mic re-aimed at the same angle. And whether at a stadium sports event or intimate club, when using shotgun mics to capture audience ambience, The Positioner simplifies moving the mic away from "problem areas"—such as fans shouting obscenities or other non-complimentary walla.

An inexpensive (and highly recommended) accessory for The Positioner is a video adapter, a threaded 5/8-inch mic stand inset with male 1/2x20 (standard camera tripod) threads at the other end. The video

adapter allows using The Positioner as an automatic pan/tilt control for a camcorder or other lightweight video camera. This could be a real lifesaver for monitoring the stage action during remote-recording sessions.

The Positioner does have a few drawbacks. While not objectionably loud, the action of the motors makes a slight—but noticeable—whirring, so the unit would be unsuitable for creating groovy spinning microphone effects. I also advise against using the device during quiet passages at a symphony, or as an automated panner for dialog recording. From a price standpoint, The Positioner is definitely a bit more than picking up a couple of goosenecks at your local Radio Shack; and at a retail of \$679, The Positioner is not likely to be found in the small project studio. However, to those who appreciate the versatility and flexibility of The Positioner, this unit would be an ideal adjunct for the creative studio, theatrical or remote-recording engineer.

Studio Techniques, 100 Mill Plain Road, Danbury, CT 06811; phone: 203/791-3919; fax: 203/791-3918. ■

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# NEW PRODUCTS



## AMPEX CD-R BLANKS

Ampex Media (Redwood City, CA) has introduced CD-Rs with 63- and 74-minute configurations. The Ampex CDR Series products are fully compatible with the Orange Book Standard and ISO 9660 technical specification, ensuring compatibility with CD-Audio, CD-ROM, CD-ROM XA, and CD-I formats.

Circle #226 on Reader Service Card

## WAVECONVERT FOR WINDOWS

Waves (Knoxville, TN) announces WaveConvert for Windows, an audio format converter suitable for multimedia audio preparation and multitrack processing. Featuring low truncation noise and super-low-aliasing conversion, the WaveConvert software allows batch processing for multimedia, including 16- to 8-bit conversion.

Circle #227 on Reader Service Card

## PINNACLE MICRO 4.6GB DRIVE

Pinnacle Micro Inc., (Irvine, CA) introduces the Apex 4.6-Gigabyte rewritable optical drive, offering data storage and retrieval performance equal to that of 6MB/second hard-disk drives. Street pricing is said to be in the \$1,500 range; blank disks retail at \$199.

Circle #228 on Reader Service Card

## SPENDOR MONITOR SERIES

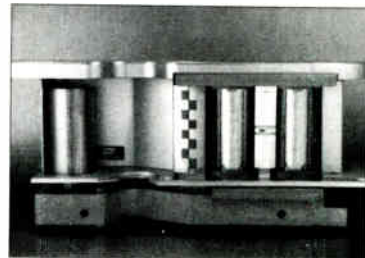
Audiomation Inc. (Ashland, MA) will represent renowned UK loudspeaker manufacturer Spendor in the U.S. Founded by the designer of the BBC's famed LS3/5A compact reference speaker, Spendor has long been established in Europe's radio, television, and video post markets and is widely respected in audiophile circles. The new Monitor Series, including passive and powered designs, is aimed at pro studio monitoring environments.

Circle #229 on Reader Service Card

## SOUNDSCAPE SSHDR1 UPDATES

Soundscape Digital Technology (Westlake Village, CA) releases Version 1.17 of its SSHDR1 multitrack hard-disk recording system. The Windows-based, modular 8-track configuration enables linking 16 units for up to 128 tracks. The rackmount system hardware provides 2-track recording and 8-track playback. Connections include two analog ins, XLR and RCA analog outs, AES/EBU and S/PDIF digital I/O and MIDI. New features include EDL compatibility, intelligent de-glitching, MMC control (with CS-10/MM16 support) and autoconform for post. Prices start at \$3,250; due out soon are optional plug-ins providing time stretching/compression/pitchshift and reverb/chorus/delay/flanging capabilities.

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## JRF 2-INCH 8-TRACK

JRF Magnetic Sciences (Greendell, NY) has a 2-inch, 8-track conversion kit for Studer A-800 analog multitracks. The 8-track record, replay and erase assembly includes a fourth head for timecode, recorded between tracks four and five. The system retrofits on any Studer A-800 2-inch recorder without modification and all necessary timecode electronics are included. The format is said to provide near-digital dynamic range and S/N ratios, with 9dB higher output per track than the standard 24-tracks.

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**ARGOSY LONG-FRAME FOR THE MACKIE 8-BUS**

Argosy Console Inc. (Osage Beach, MO) offers a simple, convenient way to mount Mackie 8-bus mixers in a large-frame console format. Available in frame sizes from 81.5 inches to 120 inches long, the ACI 90 Series console can be configured to house 24 to 72 Mackie 8-Bus mixer channels, and it features a padded armrest, concealed cabling troughs, and optional rack unit inserts for signal processing, patch bays, etc. Prices start at \$2,599.

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**DEMETER "H" SERIES TUBE GEAR**

Demeter Amplification's (Santa Monica, CA) new "H" series of pro audio equipment includes an equalizer, a compressor/limiter, a microphone pre-amp, and a combined compressor/limiter/mic pre-amp. All "H" series units use vacuum tubes in an innovative hybrid technology for superior performance at half the usual cost.

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**ENSONIQ DP/2**

Ensoniq's (Malvern, PA) DP/2 digital effects processor is a single-rack-space unit with 600 preset effects, including all of the DP/4+ algorithms. Using custom 24-bit DSP chips, the DP/2 offers reverb, delay, phase, flange, distortion, pitch shift, chorus, pan, tremolo and vibrato effects, as well as compression, gating, expander, de-esser and EQ functions. Inputs are balanced TRS 1/4-inch, and the DP/2 can process stereo or mono inputs; MIDI control is standard. Retail is \$995.

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**DIGITECH ROTARY SPEAKER EMULATOR**

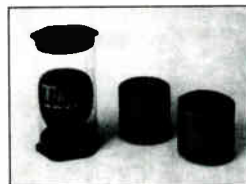
DigiTech (Sandy, UT) introduces a device that emulates the sound of the famed Leslie rotary speaker cabinet. Designed primarily for keyboard and guitar players, the RPM-1 uses vacuum-tube technology for selective distortion. Front panel controls vary the apparent rotation speed and acceleration of the horn and rotor speakers, widen and narrow the stereo image, and vary the input level for ideal distortion characteristics. Retail is \$569.95.

Circle #235 on Reader Service Card

**ANATEK SR-7 DIGITAL CONVERTER**

The SR-7 digital converter from Anatek by Creation Technologies of Burnaby, B.C., provides a solution to the conversion problems associated with multiple digital formats. The 1-rackspace unit supports AES/EBU, S/PDIF and optical formats, and outputs at sample rates of 32, 44.1 and 48 kHz with 20-bit resolution. And using external sync, sample rates from 25 to 55 kHz are possible. Front-panel LEDs indicate the sample rate of incoming digital audio. List is \$599.

Circle #236 on Reader Service Card



**MDI REPLACEMENT ROLLERS**

MDI Precision Motor Works (Hudson, MA) offers T/REDS™ replacement capstan and tacho rollers for the Otari MTR-90 Series multitracks, and will be offering similar retrofit rollers for the Ampex ATR-100 and other analog and digital tape recorders. The U.S.-made, proprietary formula rollers are said to provide improved traction, longer wear and require less maintenance than competitive products.

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**EQUI-TECH SUPER ISOLATOR SERIES**

Equi-Tech's (Selma, OR) "Super Isolator Series" balanced AC power system provides 100 dB of common-mode noise isolation for electronics and eliminates hum and noise from sensitive audio and video circuits. The 3-rackspace unit plugs into any 120-volt AC outlet and has eight outlets on its rear panel. The systems are available in 1.5- and 2-KVA models, are ETL listed, and meet UL/ANSI standard #1049 for power distribution.

Circle #238 on Reader Service Card

**Z-SYSTEMS DIGITAL PARAMETRIC**

The z-1peq from Z-Systems (Gainesville, FL) is a 4-band stereo digital parametric equalizer. The 2U rackmount device has rotary controls for center frequency, Q, gain and high-/lowpass shelving. Built-in Apogee UV-22 encoding can capture 20-bits on 16-bit formats, and the unit offers 24/20/26-bit dithered or undithered output. A SMPTE reader allows frame-accurate recall of 80 different EQ settings; and automation control is available on Windows or Macintosh PCs via RS232 and RS422.

Circle #239 on Reader Service Card





**YORKVILLE SR-300 AMP**

Designed for studio or live use, the SR-300 Studio Reference Amplifier from Yorkville Sound (Niagara Falls, NY) has individual front-mounted rotary channel level controls, switchable peak and average limiter and HP filter, clip and limiter activity LEDs. Retail is \$479, with a two-year warranty.

Circle #240 on Reader Service Card

**SONY DPS-V77**

The DPS-V77 multi-effects processor from Sony (Montvale, NJ) is a single-rackspace unit combining the popular effects of its DPS-R7, -D7, -F7, and -M7 processors in one unit, including reverbs, delays, pitch shifting, filters, modulation and dynamic effects, and "morphing" between effects. The device is designed as two 50-ef-

fect blocks, allowing for seamless transition between effects. The DPS-V77 has 198 factory presets; 198 user-memories are also available. Balanced/unbalanced digital and analog I/Os and MIDI control are standard. Retail is \$1,695.

**IQS SAW PLUS**

Innovative Quality Software (Las Vegas, NV) intros SAW Plus DAW software for Windows. Installed in a 486 (or higher) PC with 16 MB of RAM, the system plays up to 16 stereo tracks of real-

time audio through any Windows-compatible sound card, with no additional hardware. The system offers automatic blending of multiple file formats, drag/drop non-destructive editing, and control of all sound and mix parameters, including pan, fade, mute, EQ, dynamics and effects. SAW Plus supports PC.WAV and SND formats, offers SMPTE sync/generation, MIDI triggering and supports up to four stereo sound cards. Retail is \$999.

Circle #241 on Reader Service Card

**HOT OFF THE SHELF**

Sescom is offering sale prices on selected audio hardware through November 30; featured items include mic/line drivers, adapters, DIs, cable testers, mic splitters. Call 800/634-3457...**Music Bakery** has added five new categories to its 20-plus CD catalog of "buy-out" production music. CDs are \$48 each with no renewal fees. For a free demo CD, call 800/229-0313...**Steady Systems** carries an extensive inventory of film and video/audio recording media, with fast delivery from eight locations nationwide. Call 800/451-6920 for a free catalog...**Manhattan Production Music** has added three new CDs to its **Apple Trax** library of buy-out production music. For the new *FM Jazz*, *Planet Vision*, or *Urban Feature* CDs and blanket license information, call 800/227-1954 or 212/333-5766...A new directory from **Solid State Logic** lists SSL-equipped studios worldwide, with console speci-

fications and studio contacts. For a copy, call 212/315-1111...The **Rogan Corporation catalog** presents a broad selection of knobs with descriptions, styles, markings, colors, decorative options and mountings. Call 800/423-1543...The new 6,000-item catalog from **Jameco Electronics** features over 150 new products—ICs, connectors, cables, test equipment, computer products and more. Call 800/831-4242...**Gene Michael Productions** announces six new additions to its production music library. The latest volumes of music cover New Age, Fortysomething, Bluegrass, Industrial Pop, and Dramatic Underscores. Call 800/955-0619...**Sonic Foundry's** \$249 noise-reduction plug-in for the Windows-based Sound Forge 3.0 sound editor reduces tape hiss, noise, hum and rumble, and can remove clicks and pops for vinyl restoration. Call 800/577-6642...Written by engineer/teacher José Valenzuela, *Descubriendo*

*MIDI* (\$19.95) is a Spanish-language guide to MIDI—with practical explanations of MIDI technology and English/Spanish equivalents for MIDI terms. 800/848-5594...**Drum Doctors** offer "The Cure," a personalized drum kit tune-up service to improve sound and performance. Priced at \$95 for a snare drum, \$395 for a 5-piece kit, "The Cure" includes inspection and diagnosis, followed by alignment of all bearing edges, new heads, and tuning. Drum Doctors will ship anywhere. Call 818/506-8123...**CDStudio 1.7**, the latest version of Gallery Software's audio transfer tool, allows digital transfer of audio from CD direct to a Macintosh sound file. Price is \$149. Call 800/468-5530...Owners of **Otari's RADAR** can view all essential session information at a glance with the **RADAR VIEW**, a graphics software package that displays the status of all functions of the RE-8 session controller in one window, including 24

I/O meters, SMPTE, audio display of up to 24 tracks, routing to AES/EBU, S/PDIF and ADATLink ports. Project names, locate markers, sample rate, clock source, vari-speed value, crossfade settings are also displayed. Software is free to current and future RADAR owners. Call 415/341-7200...Just out: Version 3.0 of the **Opcode MAX** multimedia development tool for the Mac, which allows non-programmers to create customized applications to control MIDI instruments, serial devices, and other devices such as audio mixers, CD-ROM drives, videodisc players and slide projectors. Price is \$495, upgrade price \$99.95. Call 415/856-3333...**Burlington A/V Recording Media** offers storage cases for DA-88 and PCM-800 tapes. Each \$9.95 tape box can store four Hi8 tapes, or three Hi8 and one DAT, or two Hi8 and two DATs, and comes with removable outer reference sheet for logging. Call 800/331-3191 or 516/678-4414. ■



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## SOUND FOR FILM

## WHITHER THX

by Larry Blake

I was minding my own business, driving down Canal Boulevard in New Orleans, near the area us locals call "Da Cemeteries," when I saw the sign. Although it was not The Sign or even A Sign (in point of fact, it was a billboard), it almost caused me to drive my '83 Olds Cutlass off the road and into the grave-

yard. "Experience the Force in THX One Last Time: August 29." Without knowing exactly what the billboard, er, sign meant (which I'll get to later), one thing was immediately clear to me: It's time to talk about THX—what it is, what it isn't and what it never will be.

For those of you who don't know what THX really is, let me give some basics: Back in the early '80s, Tomlinson Holman, chief engineer at Lucasfilm Ltd.,

had the task of building a re-recording stage for the company's new facility on Kerner Boulevard in San Rafael, Calif., next to the visual effects wing, Industrial Light and Magic. (As good as this facility was, it was an out-of-town tryout for the 150,000-square-foot Technical Building that went online at Skywalker Ranch in 1987.)

After a thorough investigation of what made film sound reproduction systems inadequate in many

room acoustics. Not since Dolby Laboratories had put the world of optical sound recording under a microscope in the early '70s had anyone shot such a critical eye to matters that had been taken for granted in the inertia-driven world of film sound.

The result was the THX sound system, which has been licensed to commercial and professional theaters since the 1983 release of *Return of the Jedi*. The acronym is a double entendre referring to both George Lucas' first feature film, *THX-1138*, and, more importantly, to the research itself: Tomlinson Holman's eXperiment. (The original spelling in Lucasfilm literature was TH-X.)

In order to make the cut in a THX system, components such as amplifiers, speakers and cinema processors have to meet rigid specifications set down by Lucasfilm. The system is both installed and maintained to their specifications, with periodic recertification by trained theater service personnel.

All of the components that make up a THX system are off-the-shelf, with the lone exception of the active electronic crossover. For example, the original THX-certified speakers (the list has since grown extensively) were direct-radiator JBL 4675s, which had been introduced to the Hollywood sound community at the AES convention in May 1981. Furthermore, many of the fundamental principles put to good use in THX, such as the advantages to mounting speakers in a wall, have been known for decades in Hol-

—CONTINUED ON PAGE 166

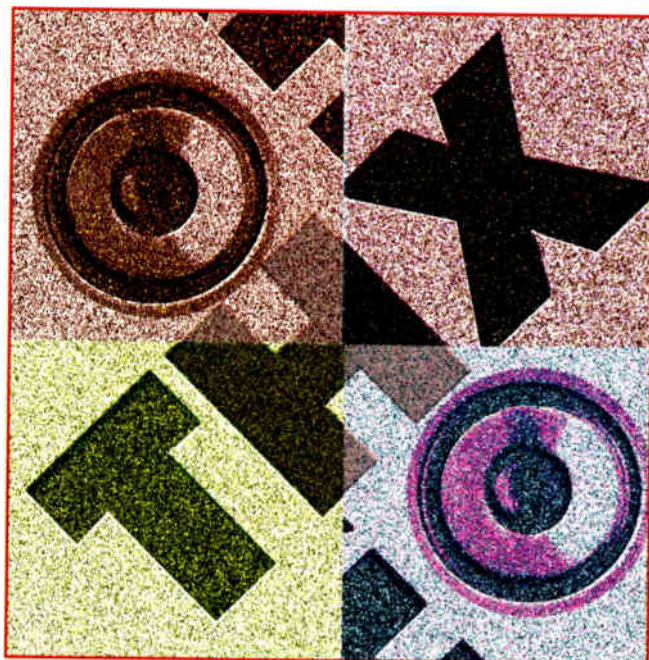


ILLUSTRATION: TIM GLEASON

respects when compared to the best that could be had in stereo systems at home (home theater itself was still almost ten years away), Holman started to investigate the right way to do things. He eventually arrived at a set of specifications that dealt with everything from acceptable noise levels to speaker mounting to amplifier requirements to the more familiar (even if equally less understood) issues such as speaker selection and

## FACILITY SPOTLIGHT

# CENTURY III SOUND STUDIOS

by Rick Clark

Since 1989, Century III at Universal Studios in Orlando, Fla., has garnered praise as one of the finest production and post-production facilities in the world. The company's lengthy client list includes all three networks, Universal, MCA, Paramount, Fox, Sony, Columbia Television, MTV, HBO, ESPN, and commercial and corporate clients like AT&T, Coca-Cola, Disney, IBM, NASA, McDonald's, Reebok, Philips, Ford and many others.

Part of Century III's success can be attributed to the finely tuned instincts of company President Ross Cibella, particularly in his ability to wisely manage growth in times of heady opportunities.

Cibella and Century III's latest development concerns the creation of Century III Sound Studios, a full-service audio post division that includes a fully automated Otari Concept I console, four digital audio suites with NED PostPros, a Synclavier 9600 32-voice system, a 200,000-sample sound effects library, a new ADR and Foley stage, and a staff for sound design, composing, production and mixing.

To run Century III Sound Studios, Cibella hired J.R. Krisanda as director of sales and marketing. Krisanada, who has extensive management expertise, along with many



years of experience as a successful musician and songwriter, had previously held the same position at Soundelux Florida. One of Krisanda's first hires was Charlie Camorata, a highly regarded sound designer and composer with extensive credits in theme park audio. Like Krisanda, Camorata has a journeyman's background as a musician, having played in and produced for the critically praised jazz group Crystal during the 1980s. His theme park credits include Disneyworld and Torta Europa in Japan. His sound design work includes the recent Fox series *Fortune Hunter*.

"Century III is a turnkey operation offering video, film, CGI, Silicon Graphics, 2D and 3D animation, as well as production," Krisanada explains. "As this company has grown, including audio, it became increasingly apparent to

management that they needed to expand.

"We have three New England Digital PostPros and a Synclavier system. The Synclavier is our main sound-design instrument there. It is a wonderful system for sound design, but here are other systems out there that are really close," says Camorata. "We are looking at a couple of other systems, not to replace the Synclavier, but in addition to it, so we can have a few designers working at one time. We are considering Pro Tools and SampleCell. We are also looking at Dyaxis. One thing that I have noticed is the Digidesign system has been embraced by so many different markets. We just had an extensive run-through with Pro Tools III, and it is very impressive."

One of the first big projects to come out of the John Storyk-designed rooms was a sound de-

**Audio studio at Century III, with the Otari Concept I mixing console**

sign-intensive feature film to be marketed in Latin America called *Power of the Shakti*. The film is produced and directed by Joseph Lando for New Vision Film Inc.

"We are investing heavily in this project, not only from the standpoint of talent, but due to its great potential in the Latin American marketplace," says Krisanada. "Shakti isn't just a plug-and-play situation, where you just grab sounds and music and plug it in. We pride ourselves on having very good talent. Plug-and-play is one thing, but design-oriented projects are what all the engineers and artists love to get their teeth into, because they can really make a name for themselves."

—CONTINUED ON PAGE 173



## PART TWO

# A Tale of Four Workstations

by Loren Aldrin

Last month, we began a workstation series where the users themselves give you their hands-on, working impressions of four popular systems. This month, we continue with four more DAW systems.

### SOUNDSCAPE SSHDR1 DIMENSION SOUND BURBANK, CALIF.

The SoundScape SSHDR1 is a recent entrant into the hard disk recorder market. Designed in the UK, this Windows-based system offers eight tracks of 16-bit recording with a timeline-style edit window, real-time parametric equalization, volume contouring and nondestructive noise gating. The SSHDR1 system is expandable, with each two-rackspace unit offering four digital and analog I/Os. The Windows software acts as a simple front end for SoundScape's



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dedicated processors, which minimizes load on the host computer, allowing SoundScape to co-exist well with other software.

A SMPTE-to-MIDI timecode converter allows the SSHDR1 to chase-lock to video or film. Priced at around \$3,000 per 8-track module, the SoundScape system is one of the most affordable hard disk recorders available for music production or video/film audio post.

Dimension Sound in Burbank, Calif., uses both Pro Tools and SoundScape systems to perform post-production editing on feature films. Past projects include *Ace Ventura*, *My Cousin Vinny*, *Pretty Woman* and *Greedy*. Current work includes audio post for *Ace Ventura II*, *The Nutty Professor* and *Two if by Sea*.

Dimension sound editor Odin Benitez introduced the facility to SoundScape by buying a system

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himself. "I cut a show with it, then Michael (Hilkene, Dimension owner) saw the system in action and ended up renting it from me. We're mainly a Pro Tools operation, but because of the cost-effectiveness of SoundScape, I think we'll be going more in its direction. SoundScape is about half the price of Pro Tools—even the computer is a lot cheaper.

"We began cutting background ambience only on SoundScape," Benitez adds. "After I learned the system, I started really liking it. It has some great features, especially when it comes to scrubbing audio. Auto-deglitch is also great. It performs an automatic one-frame crossfade when you butt-up parts, meaning you never hear pops or glitches. Now we're using SoundScape for effects



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as well as backgrounds."

According to Benitez, SoundScape's dedicated internal processors make for a fast, stable system. "With the new software, waveform redraws when zooming in and out are instantaneous," he says. "They're lightning-quick, even if I've got a lot of tracks running. Fades are instantaneous as well, and the system offers a good selection of fade types. Because of the speed of the fades and redraws, SoundScape feels less cumbersome than some other systems. And SoundScape has never crashed in the four pictures we've used it on—the thing is just rock-solid.

"SoundScape is a very easy program to use. I think it's still in its infancy, in terms of being a real professional tool, but it's moving fast," he says. Benitez's wish list for SoundScape includes a cue sheet-printing feature, the ability to use SCSI drives, more flexible output routing and a better archiving system.

**SONIC SOLUTIONS SONIC SYSTEM  
PACIFIC COAST SOUND WORKS  
WEST HOLLYWOOD, CALIF.**

Although often first associated with their world-renowned NoNOISE system, Sonic Solutions now offers a full range of DAW packages suitable for music editing, CD-ROM premastering and audio/video post. Built around dedicated DSP on Macintosh NuBus cards, the Sonic system is expandable to 32 tracks of hard disk playback, 32 real-time EQ/filter sections and 16 channels of digital I/O.

Prices range from \$3,000 for a basic 8-track system to \$34,000 for a fully loaded audio post workstation. Options are numerous, including machine control, EDL translator, synchronized digital video playback, various sync interfaces, bit-mapping algorithms and, of course, NoNOISE noise reduction.

Pacific Coast Sound Works is an audio production house built around a network of four Sonic Systems. The facility handles an eclectic mix of jobs, including CD mastering, CD-ROM production, books on tape, restoration, forensics, multimedia projects and audio post for video. Notable noise removal clients include *Rescue 911*, *Code 3* and *Dr. Quinn, Medicine Woman*. PCSW is credited with audio production for Spectrum Holobyte's popular *Star Trek: The Next Generation* CD-ROM game.

Owner and founder Mark Waldrep cites the versatility of the Sonic System as one of the keys to his facility's success. "We haven't specialized to the degree that some places are forced to because of their choice of a system," Waldrep says. "On any given day, I can have someone reading a book on tape followed by a multimedia project or a last-minute call to remove noise from an episode of *Dr. Quinn*. The Sonic System allows me a 'Swiss army knife' approach to my own studio. Anyone who calls up that has something to do with audio, chances are, I can help them out.

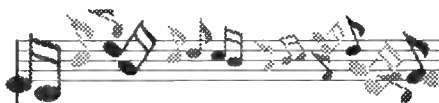
"The first and foremost element that sets the Sonic System apart from most others is its real-time DSP," Waldrep adds. "It has enough DSP horsepower so you can load and dump in the background. If I have to spend my day watching the system pulling audio onto the drive before I can get started, my efficiency is reduced severely. With Sonic, I can put a DAT on, let it get a five-minute head start on me, and then go in and edit right behind it. I can have the whole project cut before someone on another system would even get going."

The restoration capabilities of the Sonic System actually spawned the idea for a radio show—*Captain Geo and the Radio Rangers*—that Waldrep's facility now markets. In this show, space travelers listen in on old-time radio broadcasts, which are processed and heard in enhanced, high-fidelity stereo. The radio segments, pulled mostly from LPs, get the full treatment from Sonic's noise reduction and click-removal algorithms. "The tools we use have actually driven us into a position where we're producing the content," he says.

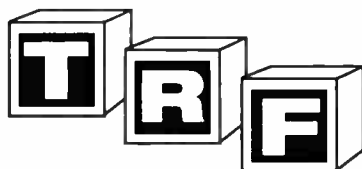
So why Sonic Solutions? "The quality is there—it's designed for high-end audiophile mastering—and the DSP operations are exemplary," Waldrep says. "Sonic was more than an overwhelming choice when it came time for me to make my purchasing decision."

**DIGIDESIGN PRO TOOLS III  
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One of the most recognizable names in mid-priced DAWs, the Mac-based Pro Tools system has evolved from its modest Sound Tools beginnings into a full-featured digital audio



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workstation. The latest incarnation, Pro Tools III, will support up to 48 hard disk tracks with 64 channels of digital I/O. Features include automated volume and pan, varispeed scrubbing, 24-bit virtual digital mixing/effects and MIDI support.

The Digidesign Audio Engine (DAE) allows third-party vendors to create software "plug-ins" for nearly limitless 24-bit audio processing functions such as reverb, modulation and time-domain effects. The Pro Tools III Core system lists at \$6,995, with a dizzying array of options and expansion products available.

earwax productions currently uses four Pro Tools systems for posting television spots, feature films, CD-ROM titles and radio dramas. Notable projects include *Judge Dredd* and *Lazarus Laughed*, a two-hour National Public Radio drama. earwax also got the call to do audio post for the IMAX film *Yellowstone*, which turned out to be the largest IMAX release to date.

earwax partner Jim McKee leans heavily on Pro Tools' ability to integrate with other software, sometimes using StudioVision, SampleCell, Sound Designer and Pro Tools simultaneously. "You can do a lot of straight-ahead digital tracking, recording and design, and practical effects with Pro Tools," McKee says. "It's an excellent tool for getting things very precise. But when we get the call to do creative sound design—when a client is after something 'new and original'—integrating a sampler and sequencer is the way to go.

"Pro Tools may look pretty simple on the surface, even elegant. But it's a very basic machine that's capable of doing a lot of different things. It allows you to get to the most basic elements of the sound; it's up to the operator to use the thing creatively. You'll find you can keep going to the next level with Pro Tools. Even with years on the system, I keep saying, 'Oh, wow—I can do that too.'"

McKee sees a day coming where the DAW reigns supreme for film work, from initial tracking to final mix. "People aren't going to be putting stuff on tape anymore," he says. "I just purchased a Pro Tools III system exclusively for transporting film projects. When it's time to go mix, rather than arriving on the stage with 2-inch or ADAT tapes, I just bring my Quadra 650 and plug it

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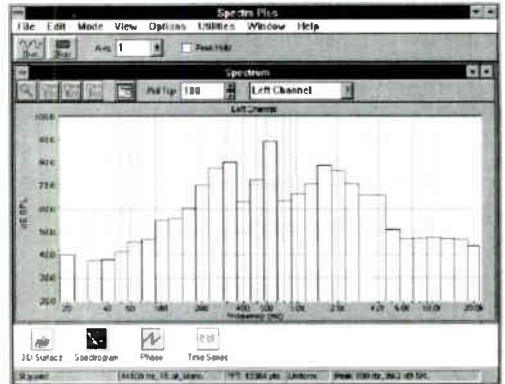
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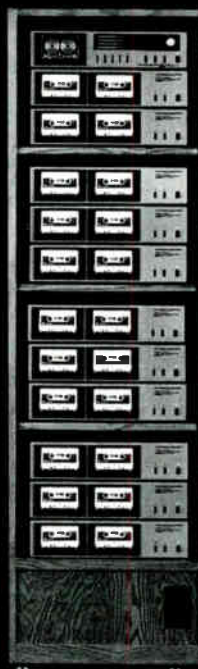
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into the patchbay. I'm there with the engineer and the director, submixing right from the Mac. If they want a change, it goes real fast. To me, that's the beauty of it, the direction things are going.

"I chose Pro Tools primarily because of economics and because the system is so widely used," McKee says. "When I needed to do a fix on *Yellowstone*, I was able to load the project onto a removable drive and walk onto the stage with everything I needed in my briefcase. They had Pro Tools there already, and we were able to complete the fix in an afternoon. The likelihood of that happening with another system, at least in this town, is much less."

#### **AMS AUDIOFILE PHOTOMAG NEW YORK CITY**

Launched more than ten years ago, the AMS AudioFile is a British-made digital audio workstation with a custom user interface and dedicated high-resolution display. AudioFile's multiprocessor architecture allows for real-time, nondestructive edits or effects at up to 24-bit resolution. The system offers several high-speed archive methods, as well as advanced removable media support. Network support will be available later this year.

Other AudioFile features include full-bandwidth reel rock/scrub, time compression/expansion, automatic ADR recording, serial machine control and EDL conform. AudioFile systems start at around \$60,000, with various configurations available up to 16 tracks and 24 outputs.

Photomag currently uses a trio of identical 24-track, 16-bit AMS AudioFile systems. Specializing in audio post for television commercials, Photomag's client list includes such big-name accounts as UPS, Coke, Ford, L'oreal and Little Caesar's Pizza.

According to Photomag engineer Peter Holcomb, a typical audio post session starts with a client bringing in D-1 or D-2 video and "a mess of DATs." Video is digitized onto a hard drive-based ASC Virtual Recorder; all music, dialog and sound effects are loaded into the AudioFile. With everything on the hard drive, Holcomb is free to work in true random-access fashion.

"There's no tape, and with our automated AMS Logic console,

everything is instant-locate," Holcomb says. "I never print anything to tape until the session's over. I go out to a DA-88 at the end of a session, and that's it."

"We've had the AudioFile systems for about three years," he continues. "Before that, we didn't even have workstations. When it came time to buy a DAW, we tried each and every system out there. For the work that we do, which is basically editing, recording, cutting and placing, we all agreed that this was the way to go."

Holcomb cites the ease of working with the AMS system as a major plus. "There just wasn't a huge ramp-up time with AudioFile. We were worried when it first arrived, thinking it would take months to learn. It took us just three days to get to where we were doing sessions very confidently."

According to Holcomb, clients are frequently impressed with the system's speed. "People are often amazed, saying, 'What system is this?' For some reason, there aren't that many big AMS systems in New York, so they may not be familiar with AudioFile. But they're always happy with it.

"Each box has its faults and its good points; if I were a sound designer, I wouldn't be running an AudioFile. But what we do—all day—is edit and place audio. For us," Holcomb says, "there's nothing better than AudioFile." ■

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#### **—FROM PAGE 160. SOUND FOR FILM**

lywood. What THX did, then (as Holman himself has often stated), was to compile ideas and then license the fruits of their labor to theaters. Later, THX turned its attention to the home, with certification of both components and laserdiscs.

I don't want all of this to sound like a backhanded compliment, because I believe that Holman's work puts him squarely on the second level of the Film Sound Engineering Hall of Fame. Residents of the first level include Alan Blumlein, Ray Dolby, Harvey Fletcher (and the rest of the Bell Labs gang), John Frayne, Stefan Kudelski and Harry Olson—people who have done the Star Trek where-no-one's-gone-before number. With Holman are guys such as Ioan Allen, John Hilliard, Fred Hynes and Gordon Sawyer, all of whom have

applied imaginative and rigorous engineering practices in raising the state of the art of film sound.

This is all well and good, but what is it about THX, you're probably asking, that nearly caused me to drive myself to a convenient death in a cemetery? Virtually since the beginning of THX theatrical systems, continuing on to home theaters, there has been the *appearance* that THX is not just a reproduction system or quality-control measure, but a *process*. I use these italics advisedly, because the good folks at Lucasfilm take care in all literature and interviews to clarify the situation. Yet I keep hearing, "Boy, that THX mix was great!" "I'll never see a Dolby Stereo film again after that." Give me strength!

Although it's true that the people at Lucasfilm try to disabuse the public of the notion that THX is a process or a format, I strongly question other actions that fly in the face of those disclaimers, making them sound just a tad perfunctory. The situation started to get really bad in 1991 when the end-title crawls of films started to read: "This Film Was Mixed and Recorded in a THX Theater." This credit is absolutely meaningless. The quality of a stereo film mix is totally a function of the skills and tastes of sound editors and mixers, and the taste, or lack thereof, of the director.

We all mix to the same level and to the same room EQ curve. We use our experience to translate what we're hearing on the mix stage (be it large or small, THX or non-THX) to what will happen in a real theater, and, in the movie afterlife, in home theaters. Because I've heard really bad and really good mixes come out of the same THX room, I'll give THX a choice because they can't have it both ways. I would say that the creative team always gets both the credit and the blame, but I'll be willing to give THX credit for certain films if they'll take the blame for the ones with horrible-sounding dialog and obnoxiously loud music and effects. The worst mix can be produced in a THX room and the best mix can be produced in the most humble of circumstances—or vice versa. A THX room can just as easily not reflect how the film will sound in the real world as a non-THX room (both in terms of acoustics and in terms of room EQ). And so on and so on—it

# Soundscape

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Soundscape seems to be a remarkably stable system in that I didn't experience a single glitch, crash, or hiccup during the entire review period. It's a credit to the developers that every operation worked smoothly and as advertised. That is not something you can take for granted."  
Dennis Miller. *Electronic Musician* Nov '94

"Soundscape is one of the few digital recorders that permits recording while chase locking without an expensive hardware add on to control it's sampling rate. The SSHDR1 currently provides the most cost effective solution for this application."  
Jim Aikin. *Keyboard* Nov '94

"The quality of the converters seems particularly high; I couldn't detect any coloration when comparing recorded material with the original. A lot of effort and care has been devoted to this crucial side of the system."  
Dennis Miller. *Electronic Musician* Nov '94

Ever since the introduction of the DAT format, the world has looked for a replacement for the razorblade. Soundscape is a sharp, affordable replacement with extras."  
Eddie Ciletti. *EQ* Feb '95

"Everybody reported that their system had never crashed and that they had never found any bugs, not even on preliminary alpha or beta versions ..."  
Paul Tingen. *User review for Audio Media* Dec '94

"Soundscape does offer everything that you could want from a professional quality hard disk recording system ... it is cheaper, more powerful and more stable than many similar systems. But most of all it is so easy to use, allowing you to concentrate on the music."  
Philip Moore. *Australian Digital* Mar '95

"Having used Soundscape for three months in post producing audio for corporate programmes mastered on Metacam SP, it is now unthinkable to return to the old way working ... Soundscape is reliable, simple to learn, easy to use and produces very high quality results."  
Nic Blinston. *Business Video* Mar '95

"Soundscape could well find it's way replacing the analog tape recorder up and down the country ... a welcome addition to any studio set up for the sheer freedom it offers when it comes to laying tracks down quickly and easily in order to make the most of that creative muse."  
Bob Walder. *Music Technology* Jul '93

"I've been playing around with Soundscape's hard disk recorder this week and feel almost as though I've had a religious experience."  
Brian Heywood. *MIDI Monitor* Issue 11

"I wanted to really check out the vari sync mode. I slowed the video down to a crawl, Cubase locked in and the sequenced music was playing slowly ... a bit faster ... and ... yes the Soundscape synced up and was recording. The SSHDR1 has lots of features, creative usage of available power, sounds great, syncs great, straightforward, easy to use and expandable."  
John Zulaikha. *Connections* Feb '95

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- They each carry a 5 year warranty on parts and labor.

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• The M-2600 accepts balanced or unbalanced 1/4" inputs, and low-impedance XLR jacks. Better still, the TRIM controls operate over a 51dB input range. For the hottest incoming signals, all it takes is a press of the -20dB PAD button atop each channel strip to bring any signal down to manageable levels. Plug anything into it - keyboards, guitars, basses, active or passive microphones, samplers, and more. No matter what you put into it, you can be confident that signal can be placed at optimum levels without a lot of fuss.

**THE BEST AUX SECTION IN THE BUSINESS**  
The most versatile AUX section in its class, rivaling expensive high-end consoles. 8 sends total. 2 in stereo. Send signal in stereo or mono, pre- or post-fader. Available all at once. Return signal through any of 6 stereo paths.



**FLEXIBLE EQ SECTION**  
You'll find both shelving and split-EQ sections or some mid-level consoles. But that's where the similarities with the M-2600 end. The M-2600's bi-directional split EQ means you can use either or both EQ sections in the Monitor or Channel path... or defeat the effect altogether with one bypass button. Most other comparably-priced mixers will lock the shelving mix into the Monitor path only, limiting your EQ application.

**ADVANCED SIGNAL ROUTING OPTIONS**  
Direct channel input switching. Assign to one of eight buses, or direct to tape or disk, or to the master stereo bus. Because the group and direct-out jacks are one and the same, you can select either without repatching. You won't find this kind of speed or flexibility in a "one-size-fits-all" board.

**ERGONOMIC DESIGN**  
The M-2600 has a big studio feel. All buttons are tightly spring loaded, lock into place with confidence and are large enough to accommodate even the biggest fingers. The faders and knobs have a light, smooth "expensive" feel and are easy to see, easy to reach and a pleasure to manipulate. Control detents assure zero positions for EQ and PAN knobs. Smooth long travel 190mm faders glide nicely yet still confidently allow you to position them securely without fear of accidentally slipping to another position.

## MAKIE MICRO SERIES 1202

### 12-Channel Ultra-Compact Mic/Line Mixer

Usually the performance and durability of smaller mixers drops in direct proportion to their price. Fortunately, Makie's fanatical approach to pro sound engineering has resulted in the Micro Series 1202, an affordable small mixer with studio specifications and rugged construction. The 1202 is a no-compromise, professional quality ultra-compact mixer designed for professional duty in broadcast studios, permanent PA applications and editing suites where nothing must ever go wrong.

- Working S/N ratio of 90dB, distortion below 0.025% across the entire audio spectrum, switchable +48 volt phantom power and +28 dBu balanced line drivers.
- Real switchable phantom-powered mic inputs with discrete, balanced mic preamps as good as those found in big consoles.
- Has 4 mono channels, each with discrete front end mic pre-amplifier input and four stereo channels, each with separate left and right line inputs.
- Every input channel has a gain control with unity at the center detent for easy setup. Also a pan pot, low frequency EQ at 80Hz, high frequency EQ at 12.5 KHz, and two aux sends with up to 20dB available gain.
- Main outputs operate either balanced/unbalanced, as required.
- Switchable three-way 12-LED peak meter displays.

- Master section includes two stereo aux returns, a separate headphone level control, metering and two stereo aux returns.
- Line inputs and outputs are designed to work with any line level, from instrument level, to semi-pro -10dB, to professional +4dB.

- Designed for non-stop, 24-hour-a-day professional duty in permanent PA applications, TV and radio station, etc.
- Sealed rotary controls instead of open frame phenolic potentiometers that suffer from dust and contamination.
- Has steel chassis, rugged fiberglass circuit boards and a built-in power supply. Also has exceptional RF protection.

- Multiple applications:
  - Ideal "entry level" mixer for those just starting a MIDI suite
  - Ideal as headphone or cue mixer, level matching pro audio "tool kit", drum or effects sends submixer, 8-track monitor mixer.

## CR-1604 16-Channel Mic-Line Mixer

The hands-down choice for major touring groups and studio session players, as well as for broadcast, sound contracting and recording studio users, the Makie CR-1604 is the industry standard for compact 16-channel mixers. The CR-1604 offers features, specs, and day-in/day-out reliability that rival larger boards. It features 24 usable line inputs with standard headroom/ultra-low noise Uniluxplus circuitry, seven AUX sends, 3-band equalization, constant power pan controls, 10-segment LED output metering, discrete front end phantom-powered mic inputs and much more.

- **LOWEST NOISE, HIGHEST HEADROOM**  
With the CR-1604, having the lowest noise and highest headroom (90 dB working S/N and 108 dB dynamic range) at the same time are not mutually exclusive. It is free of commonly encountered headroom restrictions, and is able to handle the occasional pegged input with ease. In fact, many drummers consider it the only mixer capable of handling the attack and transients of acoustic and electronic drums.

- **CONSTANT POWER PAN POT**  
Only with constant power pan pots will a source panned hard left or hard right have the same loudness as when it is sitting dead center. While most small mixers pass simple balance control pan pots, the CR-1604's carefully optimized constant power pan circuitry make it a professional tool with the kind of performance necessary for CD mastering, video posting and other critical audio production.

- **IN-PLACE STEREO SOLO**  
Stereo "in place" solo allows not only the monitoring of level and EQ, but also stereo perspective. Usually found in very expensive mixers, stereo solo allows you to critically scrutinize and carefully build a mix using all the channels with their respective sends and AUX returns.

- **UNITYPLUS GAIN STRUCTURE**  
Proper gain settings are facilitated by proper gain labeling, along with center-click detents on the faders, clearly under-standable input trim controls and output meters that read channel levels in solo mode. With properly set levels you achieve very high headroom and low noise at the same time.

- **EFFECTS SEND WITH GAIN**  
Unusual circuit design that provides two different "zones" that reflect real world use: send from each channel can vary in level from off to unity gain, which is the normal range of effects sends in other mixers. Since you also get another whole zone from the center detent to +15 dB of gain, the channel fader can be pulled down and the effects send can be boosted above unity when more effect is needed.

- **INTELLIGENT EQ POINTS**  
Low frequency EQ is at 80 Hz where it has more depth and less hollow midbass "bark". Midrange is centered at 2.5 KHz, providing more control of vocal and instrumental harmonics. A specially-shaped HF curve that shelves at 12 KHz creates more sizzle and less larval falgufe.

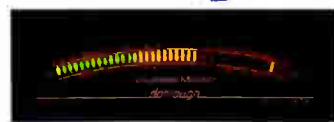
- **REAL MIC PREAMPS**  
The CR-1604 has genuine studio-grade phantom powered, balanced input mic preamps on channels 1 through 6. All CR-1604 (and XLR10) discrete input mic preamp stages incorporate four conjugate pair, large-emitter geometry transistors just like the big mixers use. So, when recording nature sound effects in heavy metal or miking turtles or kick drums, you get the quietest, cleanest results possible.

- **BUILT TO LAST**  
The CR-1604 is designed for non-stop, 24-hours-a-day professional duty - even for tours that log 100,000 miles in three months. It has sealed rotary potentiometers that are resistant to airborne contamination like dust, smoke, liquids, and even the oxidizing effects of air itself.

**Optional Accessories**  
**DT10-1604**  
Add sophisticated computer controlled automation to your CR-1604. When connected to the MIDI port of your computer (PC, Mac, Amiga or Atari), each one of the 16 input channels can be programmed to change gain or to mute, just as you would program a sequencer. Master levels can be programmed as well along with all bus channels.

**XLR10**  
While the standard CR-1604 comes with 6 high performance mic inputs, there are times when you need more. Enter the XLR10. This simple-to-install accessory adds 10 more (for a total of 16) mic inputs, with the same quality, performance and features as those in the CR-1604.

## dorrough



With today's audio systems stretching the limits of program dynamics it's become critical for engineers to obtain maximum loudness with the minimum of distortion components, to fully utilize the dynamic range available. It is of equal importance that they have a method of monitoring and establishing the maximum safe level at which a system can operate. That's why every Dorrough Audio Level Meter simultaneously shows three dimensions of program material content: Peak, Average Power and Compression are displayed on a color-coded 40-segment LED scale. The meters are easily viewed while providing high precision indicators of program energy content.

**Loudness Meter Model 40-A**  
The model 40-A has a scale including 14dB of headroom in 1dB steps. A stand-alone unit, it measures 8" x 24" x 6" and has an internal power supply. Model 40-AP has a peak-hold option as well.

**Loudness Meter Model 40-B**  
The Model 40-B provides metering of relative loudness to peak modulation. The 40-B is a scale differentiation of the 40-A and is calibrated in percent (%) modulation, with the lower scale in dB from +3 dB to -3 dB. Model 40-8P has a peak-hold option as well.

## BEHRINGER

### MDX 1000 Autocompressor/Limiter



- Incorporates an interactive auto processor for intelligent program detection. With the auto processor, the attack and release times are derived automatically from the respective program material - preventing common adjustment errors.
- The auto processor also allows you to compress the signal heavily and "musically" in a dynamic range without any audible "pumping" or "breathers" or other side effects.
- Provides both Attack and Release controls allowing for deliberate and variable sound processing.
- Switchable soft knee/hard knee characteristics. Soft knee is the basis of the "inaudible" and "musical" compression of the master. Hard knee is a prerequisite for creative and effective dynamic processing and for limiting signal peaks reliably and precisely.

### MDX2000 Composer Interactive Dynamics Processor



- Powerful and versatile signal processing tool provides 4 most commonly dynamic control sections, fully automatic compressor, manually controlled compressor, expander and peak limiter.
- Innovative IKA (Interactive Knee Adaptation) circuit combines the "musicality" of the "soft knee" function with the precision of the "hard knee" characteristics. Provides subtle and "inaudible" compression of the sound allows creative dynamics processing.
- Auto processor provides fully automatic control of attack and release times. There is also manual control.
- Interactive Ratio Control (IRC) expander eliminates "chatter" on or around the threshold point.
- Interactive Gain Control (IGC) peak limiter combines a clipper and program limiter. This allows for "zero" attack, distortion-free limitation of signal peaks.
- IGC is invaluable in live applications. Servocontrolled inputs and outputs. Operating level switchable from -10dB to +4dB.

### PEQ305 Studio Parametric The Musical Equalizer

- Five independent, switchable bands. The quality of each band can be modified gradually from notch to broadband characteristics. This offers more flexibility than any graphic equalizer can provide.
- Bands 1 and 5 are switchable between shelf and peak. This is extremely useful, since acoustic problems usually occur in the upper and lower frequencies.
- Utilizes the "Consistent Q" principle to eliminate interaction of the parametrics frequency, bandwidth and amplitude. The same applies to interaction between the individual frequency bands.
- Parallel arrangement of the individual filters reduces phase shifting and associated delays to a minimum.
- Potentiometer response follows human hearing characteristics.
- Relay-controlled hard bypass with auto-bypass function during power failure.

## TASCAM

### 103 Mastering Cassette Deck

Cost effective three head stereo midrange cassette deck, appropriate for audio and video production facilities. With its three head design you can hear what is actually on the tape as it is recorded. Auto Monitor Function switches from playback to input automatically while in record/pause mode, allowing you to set record levels or match tape levels. Dolby HX PRO circuitry provides extended high frequency performance while keeping distortion and noise to a minimum. Tape type is automatically sensed and adjusted for by the Auto Tape Selection feature.



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## SENNHEISER

### RF CONDENSER MICROPHONES

Unlike traditional condenser mics, the capacitive transducer in Sennheiser condenser mics is part of a tuned RF-discriminator circuit. Its output is a relatively low-impedance audio signal which allows further processing by conventional bipolar low noise solid state circuits. They achieve a balanced floating output without the need for audio transformers, and ensure a fast, distortion-free response to audio transients over an extended frequency range.

**MKH 20 P48U3 Omnidirectional**  
Low distortion push-pull element, transformerless RF condenser, flat frequency response, diffuse near-field response switch (6 dB boost at 10 kHz), switchable 10 dB pad to prevent overmodulation. Handles 142 dB SPL. High output level. Ideal for concert, Mid-Side (M-S), acoustic strings, brass and wind instrument recording.

**MKH 40 P48U3 Cardioid**  
Highly versatile, low distortion push-pull element, transformerless RF condenser, high output level, transparent response, switchable proximity equalization (4 dB at 50 Hz) and pre-attenuation of 10 dB to prevent overmodulation. In vocal applications excellent results have been achieved with the use of a pop screen. Recommended for most situations, including digital recording, overblowing vocals, percussive sound, acoustic guitars, piano, brass and string instruments, Mid-Side (M-S) stereo, and conventional X-Y stereo.

**MKH 60 P48U3 Short Shotgun**  
Short interference tube RF condenser, lightweight metal alloy, transformerless low noise symmetrical capsule design, smooth off-axis frequency response, switchable low cut filter (-5 dB at 100 Hz), high frequency boost (+5 dB at 10 kHz) and 10 dB attenuation. Handles extremely high SPL (135 dB), ideal for broadcasting, film, video, sports recording, interviewing in crowded or noisy environments. Excellent for studio voiceovers.

**MKH 70 P48U3 Shotgun**  
Extremely lightweight RF condenser, rugged, long shotgun, low distortion push-pull element, transformerless, low noise, switchable presence (+5 dB at 10 kHz), low cut filter (-5 dB at 50 Hz), and 10 dB preattenuation. Handles 133 dB SPL with excellent sensitivity and high output level. Ideal for video/film studios, theater, sporting events, and nature recordings.

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**Electro-Voice**

## Symetrix

### Signal Processing Products

#### 601 Digital Voice Processor

- Accepts mic or line level analog signals, converts them to digital (18 bits) and then performs 24-bit digital domain signal processing.
- Processing includes fully parametric EQ, shelving EQ, notch filtering, dynamic filtering (noise reduction), de-essing, delay, chorusing, expansion, compression, AGC and DC removal.
- Combination of 128 factory presets and 128 non-volatile user programs guarantee predictable and repeatable effects from session to session, performance to performance.
- Has XLR-balanced (analog) monoaural mic and line inputs and XLR-balanced stereo output. XLR-balanced and S/PDIF (RCA) inputs and outputs. MIDI input/output supports connection to virtually any type of MIDI control device for programming or controlling the 601 in real time.
- Ideal for a variety of recording, broadcast, live sound, and post production applications.

**488 Dyna-Squeeze**  
**8-Channel Compressor/Interface**

- Can easily increase average recording levels on your digital or analog tape recorder by 10dB with no side effects.
- Tracks processed by Dyna-Squeeze have presence and increased articulation. Subtle sounds become more up front.
- Many professional mixing consoles have output levels that are much hotter than digital recorder inputs. The 488 matches any console to most any digital recorder.

We are a full stocking dealer for the entire Symetrix line

## TASCAM

### DA-88 Digital Multi-Track Recorder

The first thing you notice about the eight channel DA-88 is the size of the cassette - it's a small Hi-8mm video cassette. You'll also notice the recording time - up to 120 minutes. These are just two of the advantages of the DA-88's innovative use of 8mm technology.

- The ATF system ensures that there will be no tracking errors or loss of synchronization. The DA-88 doesn't even have (or need) a tracking adjustment! All eight tracks of audio are perfectly synchronized. What's more, this system guarantees perfect tracking and synchronization between all audio tracks on all cascaded decks - whether you have one deck or sixteen (up to 128 tracks!).
- Incoming audio is digitized by the on-board 16-bit D/A at either 44.1 or 48kHz (user selectable). The frequency response is flat from 20Hz to 20kHz while the dynamic range exceeds 92dB. As you would expect from a CD-quality recorder, the wow and flutter is unmeasurable.



- One of the best features of the DA-88 is the ability to execute seamless Punch-ins and Punch-outs. This feature offers programmable digital crossfades, as well as - the ability to insert new material accurately into tight spots. You can even delay individual tracks - whether you want to generally - special effects or compensate for poor timing. All of this can be performed easily on a deck that is simple and intuitive to use.

## Fostex RD-8 Multi-Track Recorder

Fostex has long been a leader in synchronization, and the RD-8 redefines that commitment. With its built-in SMPTE / EBU reader/generator, the RD-8 can stripe, read and jam sync time code - even convert to MIDI time code. In a sync environment the RD-8 can be either Master or Slave. In a MIDI environment it will integrate seamlessly into the most complex project studio, allowing you complete transport control from within your MMC (MIDI Machine Control) compatible sequencer.

Full transport control is available via the unit's industry-standard RS-422 port, providing full control right from your video bay. The RD-8 records at either 44.1 or 48kHz and will perform Pull-Up and Pull-Down functions for film/video transfers. The Track Slip feature helps maintain perfect sound-to-picture sync and the 8-Channel Optical Digital Interface keeps you in the digital domain.

All of this contributes to the superb sound quality of the RD-8. The audio itself is processed by 16-bit digital-to-analog (D/A) converters at either 44.1 or 48kHz (user selectable) sampling rates, with 64X oversampling. Playback is accomplished with 18-bit analog-to-digital (A/D's) and 64X oversampling, thus delivering CD-quality audio.

The S-VHS transport in the RD-8 was selected because of its proven reliability, rugged construction and superb tape handling capabilities. Eight tracks on S-VHS tape allow much wider track widths than is possible on other digital tape recording formats.

With its LCD and 10-digit display panel, the RD-8 is remarkably easy to control. You can readily access 110 locate points, and cross-fade time is fully controllable from machine to machine editing. Table of Contents data is recorded on tape. When the next session begins, whether on your RD-8 or another, you just load the set-up information from your tape and - begin working. Since the RD-8 is fully ADAT compliant, your machine can tape on other compatible machines, and can be controlled by other manufacturers ADAT controllers. Your tapes will also be playable on any other ADAT deck.



## Panasonic

### SV-3700/SV-4100 Professional DAT Player/Recorders

Panasonic's SV-3700 and SV-4100 are designed for professional applications. They feature highly accurate and reliable transport systems with search speeds up to 400 times normal play speed. They also feature advanced, high-quality analog-to-digital (A-D) and digital-to-analog (D-A) converters and input/output circuitry designed to interface with the widest variety of devices.



- When recording via the analog inputs, a front panel switch permits selection of the sampling rate (44.1kHz or 48kHz). When recording through the digital inputs, it automatically clocks to incoming frequencies of 32kHz, 44.1kHz or 48kHz.
- Ramped record mute and unmute with three seconds fade-in and five seconds fade-out provides automatic level changes at the start and end of a recording.
- High speed transport enables searching up to 250x normal speed. High-speed search up to 400x normal speed is possible once the tape has been scanned in Play. Fast-Forward or Reverse mode.

- Built-in shuttle wheel has two variable-speed ranges: 3 to 15x normal speed in Play mode and 1/2 to 3x normal speed in Pause mode - an ideal way to find tape locations.
- Comprehensive display includes program numbers, absolute time, program time, remaining time and Table of Contents, which displays total recorded time and total PNO count for commercial prerecorded DAT tapes.
- Has XLR-balanced and unbalanced (phono) digital inputs and outputs. Also has XLR-balanced analog stereo inputs and outputs. Output level is selectable between +4dB and -10dB. The input level is +4dB.

#### SV-4100 Has All The Features of SV-3700 PLUS:

Offers enhanced performance required for professional production, broadcast and live-sound systems. Features instant start, external sync capability, additional digital interfaces and exceptional 20-bit audio.

**QUICK START WITH TRIM AND REHEARSAL**

- With 8MB of memory holding five seconds of audio data, the Quick Start function provides sound almost instantly after a play command is executed. Other DAT recorders lag about 7 seconds, making them unusable for professional applications.
- Easily adjust the Quick Start position and specify it by A-Time, Start ID or PNO. Recording via Quick Start is also possible, allowing two SV-4100s to be used for frame-accurate punch-in/punch-out and assemble editing.
- You can adjust the Quick Start position with 1-Frame resolution over a range of 250 Frames.
- Without playing the tape, you can monitor the level of stored data to check your Quick Start position. This preview capability is handy before actual editing or on-air play. Repeated play is also possible, using about 1.5 seconds of the data to create a kind of sampler effect.

**FRAME ACCURATE INDEXING AND EDITING**

- Using the trim and rehearsal functions, you can accurately determine points to write, start and skip IDs. These IDs can be written, rewritten or erased at any point in the recording and automatically renumbered.
- With two SV-4100s connected via the 8-pin parallel remote terminal, synchronized frame-accurate editing can be performed. Continuity of editing points can be checked by rehearsal playback. By entering and editing position in one of the Locate buttons, you can determine a punch-out point as well.

**FLEXIBLE SEARCH**

- Easily and accurately access your A-Time. You can specify hour, minute, second and frame.
- In most modes, the currently displayed A-Time can be assigned to one of the Locate buttons. Then from Stop/Pause or Play you can rapidly cue to any of these four addresses by pressing its Locate key. In addition, Locate Last takes you to the most recent Quick Start A-Time position.
- Search is also possible by Start ID or program number.

**5-MODE EXTERNAL SYNC**

External sync is essential for applications such as video post-production and stereo submix recording. It assures uniformity of timing between different equipment so the audio data consistently matches up with the target media. Select from 5 video external sync modes (25, 29.97 and 30 frames per second) or use the word sync and Digital Data modes (which lock to the input sampling frequency).

**MULTIPLE DIGITAL INTERFACES**

- Has XLR-balanced digital input and output plus unbalanced digital coaxial and optical inputs and outputs. Analog inputs/outputs are XLR-balanced and output level is switchable between +4dB and -10dB, providing compatibility with other equipment.

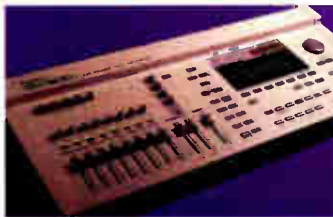
**3-WAY REMOTE CONTROL**

- GPI input allows simple triggering of Quick-Start Play. 8-pin parallel remote terminal connects to another DAT deck, computer or wired remote. Includes wireless remote control.

## Roland DM-800

### Digital Audio Workstation

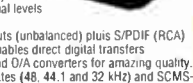
The DM-800 is a compact, stand-alone multi-track disk recorder that provides an amazing array of features at an unbelievably low price. Whether for music production, post production or broadcast, the DM-800 will make your work simpler, faster, more productive and more profitable. A full function workstation, the DM-800 performs all digital mixing operations from audio recording, to editing, to track-bouncing, to final mixdown. It fully supports SMPTE and MIDI time codes and also features a built-in Sample Rate Resolver to synchronously lock to any time code.



## TASCAM

### DA-P1 Portable DAT Recorder

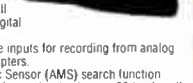
- With rotary two head design and two direct drive motors the DA-P1 offers one of the best transports in its class.
- XLR-balanced mic/line inputs (with phantom power) accept a broad range of signal levels from -60dB to +4dB.
- Analog line inputs and outputs (unbalanced) plus S/PDIF (RCA) digital inputs and outputs enables direct digital transfers.
- Uses next generation A/D and D/A converters for amazing quality.
- Supports multiple sample rates (48, 44.1 and 32 kHz) and SCMS-free recording.
- Included in its design is a MIC limiter and 20dB pad to achieve the best possible sound without outside disturbances.
- To monitor your sound there is a TRS jack and level control for use with any headphones.
- Built tough, the DA-P1 is housed in a solid, well-constructed hard case. It includes a shoulder belt, AC adapter and one battery.



## SONY

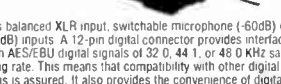
### TCD-D7 DAT Walkman Player/Recorder

- Long Play (LP) mode allows up to 4 hours of recording/playback 12-bit audio on a single DAT Cassette.
- Equipped with digital coaxial and optical input connector. Maintains the highest signal purity for recording and playback of digital sources with all information retained in the digital domain.
- Also has analog Mic and Line inputs for recording from analog sources without external adapters.
- High-speed Automatic Music Sensor (AMS) search function finds and plays tracks, skips forward or back up to 99 tracks, all at 100x normal speed.
- Has a Digital Volume Limiter System (DVLS) that increases listening comfort and sound quality by automatically adjusting sound level changes of the recording. It also helps prevent sound leaks through headphones.
- Two-speed cue-review lets you hear sound while player is in fast-wind modes up to 3x or 25x normal speed.
- Compact and portable, it has an anti-shock mechanism that permits accurate recording and playback even while in motion.
- LCD display with backlit windows clearly shows recording level, track number, operating status and 4-segment battery indicator, even in low ambient light conditions.
- Optional RM-D3K System Adapter Kit for complete digital interface. The kit is equipped with the input/output connectors for both the optical cable and the coaxial cable. Therefore you can use it as a relay between the TCD-D7 and other digital equipment.



### TCD-D10 PRO II Portable DAT Recorder

- Has balanced XLR input, switchable microphones (-60dB or line +4dB) inputs. A 12-pin digital connector provides interfacing with AES/EBU digital signals of 32.0, 44.1, or 48.0 kHz sampling rate. This means that compatibility with other digital systems is assured. It also provides the convenience of digital dubbing and editing without any degradation.
- Equipped with a comprehensive self-diagnostics function that constantly monitors the rotation of the head drum, capstan and reels. The tape transport mode and load/unload time are continuously checked as well. Upon detection of trouble, the tape is brought to a forced stop and unloaded automatically to protect the tape and the recorder.
- Up to 99 start IDs can be recorded in the subcode area. When the record button is pressed, the start ID is recorded automatically for 9 seconds. During recording, it can also be added manually to any position of the tape. Search for these start IDs is performed in two modes at 100 times normal speed.
- Offers a maximum spooling time of 140 x normal speed. A two hour tape can be rewound or fast forwarded in under a minute.
- 20-segment digital peak level meters include overload indicators. Closely tracks input signal for accurate level indications.
- During playback, the date and time of recording is displayed.
- Has a 5-segment battery indicator. The last segment blinks on and off, notifying you to change batteries.
- To eliminate distortion caused by unexpected peaks, the TCD-D10 PRO II incorporates a record-level limiter with a fast attack time of 300ms. The microphone attenuator prevents distortion by suppressing the signal level to 20 dB.
- Immediate playback is possible through a built-in speaker.
- A wired remote controller is supplied to control the record, play, stop, and pause functions of the recorder. The top end of the controller is designed to accept a microphone holder. Two microphone stand screw adapters are also supplied.
- The supplied NP-22H rechargeable battery pack provides 1.5 hours of continuous operation. The optional NPA-D10 battery adapter enables 1 hour of continuous operation on AA-size batteries. With the use of the supplied ACP-88 AC power adapter, it can also be operated on 100-240 VAC, 50-60 Hz.



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# Demeter amplification

## Tube Compressor/Limiter



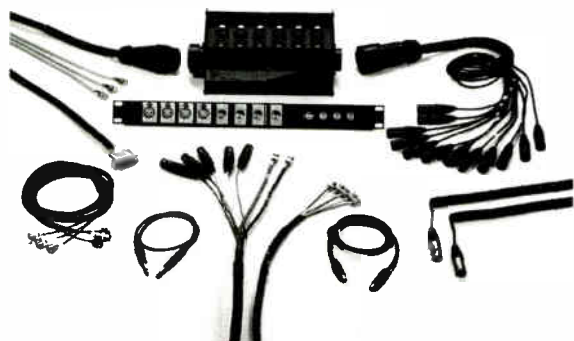
Introducing the VTCL-2a with new input indicators (LED's) and improved graphics. The most advanced tube stereo optical compressor/limiter just got easier to operate. Ask for a demo at a Demeter Pro Audio dealer and hear what Demeter Tube sound and innovative design is all about. (Call the factory for the Demeter dealer nearest you). Now available with Jensen Transformer balanced inputs and outputs.

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all cancels out until you are back to square one: Did the crew that recorded, edited and mixed the track know what they were doing?

And yet people think that mixing in a THX theater or releasing a laserdisc with THX certification imbues the track with a patina of quality. I think this type of irresponsible PR smoke-and-mirrors obscures the real work that Holman and others at Lucasfilm have done to improve film sound in theaters and at home. Yet the misunderstanding goes on and on, with seemingly knowledgeable writers in audiophile magazines stating that non-THX theaters are "likely to be limited by the usual variables: the electronics, the speakers, and the skill of the installer." Who do they think installs THX theaters—God? Though I agree that, on average, you can expect THX theaters to have proper equipment, you simply can't assume that they're set up properly.

I lived in L.A. for (too!) many years and saw a few dozen films, including some that I had mixed, in THX theaters. I'll give a buck to anybody who can tell me with a straight face that the original "deep note" THX intro trailer sounds the same in every THX theater. Sometimes it gives you a haircut and moves your pants cuffs, and sometimes it sounds like a pissed-off, castrated, 4-track bee. Although part of the initial intention behind the THX program was to provide an Underwriters Laboratories-like seal of approval, with THX, the approved toaster sometimes shoots flaming bread past your ear. Some examples:

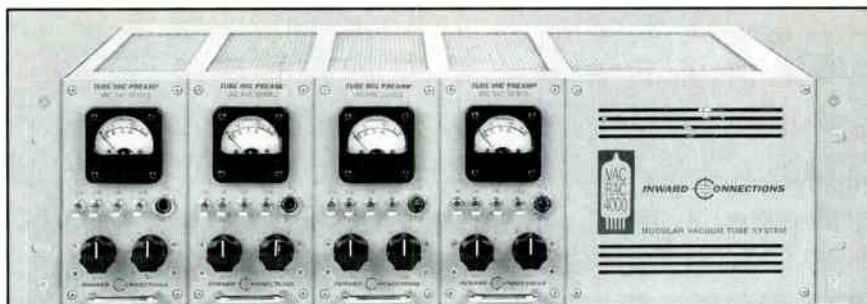
Preparing to line up a theater for a gala L.A. premiere, the Dolby consultant and I were greeted warily by the projectionist, who said: "I don't know why you're here. This is a THX theater, after all." Whereupon he pulled out the Cat. 64 EQ cards in the Dolby Cinema processor, each with a print-out indicating that the channel had been lined up to a Barbie-doll-perfect X curve. I'm sure you're ahead of me at this point: When we voiced the room, what we saw on the analyzer was more like camelback humps than the classic X-curve roll-off.

The Chinese Theater in Los Angeles is truly one of the best places in the world to see a film if you ignore that there is an aisle down the center and that you usually can't understand a word of dialog. I'm surprised that they don't get some ISDN lines set up

to try to compete with Capitol Records for the best live chamber in town. How the Chinese maintains its THX certification is beyond me. The same story goes for the UA Galaxy in San Francisco. In spite of the fact that this theater was one of the first to have a THX system installed in the mid-'80s, when I went there in 1992 to tune it, I heard some of the most bizarre echoes I've heard in an empty theater. (If it and the Chinese would both install ISDN lines, they would be a fearsome one-two echo/reverb punch.)

The amount of acclaim given to the laserdisc program is equally disproportionate to the "mixed and recorded in a THX theater" credit. Just as there are fewer than 15 top facilities that do mastering for records, there are probably even fewer places that the major studios use to master home video versions of films. These facilities have their telecine machines tweaked with TLC and are piloted by telecine colorists who have reputations not unlike those bestowed upon the luminaries of CD mastering. And for good reason. It's pretty tough to match color and make the panning and scanning look right while taking suggestions from the peanut gallery. In the final tally, the perceived visual quality is due largely to how the director and the DP shot the film, plus the experience of the colorist in adapting the film interpositive to the limited world of NTSC television. Not to mention the skill of the engineers in lining up the telecine machines.

Mastering soundtracks for home video, however, is much more of a no-brainer; as opposed to the contribution of the colorist, who always has two cents to offer, you aim to remove creativity from the audio-for-home-video mastering process. I try to adhere to the KISS motto and create four tracks of audio (on a DASH digital multitrack master) that correspond to the tracks on the eventual D-2 laserdisc master. Get it in sync, clone it across to the D-1 archival master and, except for making sure that the subsequent masters are cloned properly, you're done. Whether it sounds like buttah or like the wrath of God will depend on whether or not my colleagues and I knew what we were doing. That doesn't prevent me from trying to apply sound fundamentals of Quality Control every step of the way. But though I'll be the first to say that QC



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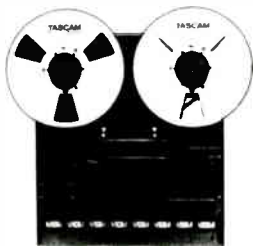
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is important, when it comes to judging the merits of the track, it's not in the same solar system as the original creative work.

So you must understand my resentment when I hear and read over and over how good THX discs sound. They certainly try to make you think that, as the first thing you see on a THX laserdisc is a card exhorting that this program was "Mastered and duplicated for optimal video and audio performance." Why not have that card indicate that the director, DP and audio post person personally supervised this transfer. A lot less sexy, for sure, but more to the point. And though I applaud the THX laserdisc certification program in seeking ways to keep tabs on the laserdisc mastering and manufacturing process, I feel real uncomfortable with them reaching for credit where no credit has gone before, or should ever go.

By the way, this is not a discussion of the economics: I am not arguing that the considerable cost of THX certification is money down the tubes, because I'm sure that a certain number of laser jocks out there do buy the discs primarily because they have been misled as to what the three letters on the disc mean. (The laserdisc press is of very little use in helping to clarify the situation because their rating of soundtracks is directly proportional to the amount of surround information present.)

Now, what about that sign? It was announcing the limited re-release of the Star Wars trilogy on THX-sanctioned videocassettes! I can see people threading up videotape in their ten-year-old mono VCRs, and looking at it on 13-inch glorified radios. "Dolores, listen to that THX sound! We don't need a home theater system after all." The press releases brag about the "digital mastering": Hello? Every film today is mastered to digital videotape. I don't care if George Lucas himself personally QC'd every tape; this is shamelessly misleading marketing.

I don't want to make it seem like I'm dumping on THX, the concept, because that wouldn't be fair or representative of what I think. I seek out THX theaters when going to the movies because I know that there is a much better chance that everything will be right. Not an absolute assurance, as we have seen, just a good shot at it because the right

components are in place and one has reason to hope that they have been aligned correctly at least once, and that it was recently! THX theaters in the real world end up ranging from okay to stupendous, with the Max Linder Theater in Paris, the El Capitan in Hollywood and the Westwood Village Theater in Los Angeles being probably the three best in my experience. (The latter sounded pretty darn magnificent back when it had Altec A-2s, which were placed in a baffle wall in December 1980! Don't tell anyone, but I'm a member of a cult of film sound dudes in L.A. who saw *Altered States* and *Pink Floyd the Wall* at the Village with that old system; our lives haven't been the same since.)

I should also note that I own a set of Snell Multimedia THX speakers and am quite pleased with them. I congratulate Kevin Voecks (of Snell) and Tom Holman on a superior speaker system that plays both film soundtracks and music accurately. So, if action is character, I'm a big fan of the THX program. Their methodology is sound, and they are virtually alone in trying to improve matters and increase awareness of high-quality sound and picture playback. I guess the problem is the transition between awareness of what they're doing and their selling it as something it isn't.

This is the second consecutive column that I know will generate a lot of yeas and nays. Prove me right and speak to me at PO Box 24609, New Orleans, LA 70184, fax (504) 488-5139, or via the Internet: swell-tone@aol.com. ■

*Larry Blake is a sound editor/re-recording mixer who lives in New Orleans for reasons too numerous to mention, although if you could hear my THX speakers blasting away the 1990 Led Zepplin compilation...*

exist in the real world."

"We are doing Foley and mixing entirely in-house, as well as all the film transfer and film colorization," Krisinada says. "This is a turnkey operation from top to bottom, from the production to the post-production."

"There is an interleaving to creative thinking here," offers Cibella. "An integrated company like ourselves has a leg up on others, in terms of assisting the producer. We are really looking at the project holistically. Surprisingly better than half of the projects in this country don't get done that way. Many of them go, 'Here's the picture. Write

some music!' The music is rarely thought of during the process. It is only at the end of the process.

"You should see what we call our Pre-production Post meetings. We will have 16 or 17 people from each discipline at a planning meeting to work with a client," Cibella continues. "You don't find duplication of effort. Everyone's task is specifically defined, because everyone defines those things at one table. It tremendously assuages their fears about working out-of-town. It is amazing how much they feel at home and have a much harder time wanting to go back to Los Angeles to work." ■

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A lower-cost addition to its SuperController line, the new SuperController/Machine Controller from Adams-Smith (Hudson, MA) provides remote control over all audio and video transports, digital workstations, film dubbers, MIDI devices and peripherals. The software-based system supports all popular industry protocols and features eight serial ports, two programmable time-code ports, bi-phase I/O for sprocketed drives, varispeed wordclock I/O and 12 GPI outputs. The system interfaces parallel transports using any of the popular synchronizers, including the Adams-Smith 2600 and Zeta, TimeLine Lynx, and Audio Kinetics ES Series.

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## PEAVEY CINEMACOUSTICS

Peavey Electronics (Meridian, MS) announces a line of equipment for the cinema industry. Representing the Peavey CinemAcoustics line will be Cinema Group, Ltd., formed by cinema sound veterans Clyde McKinney and Michael Karagosian, both of whom have been involved in technical development at Dolby Laboratories and Lucasfilm. CinemAcoustics products include the CA-DP300 digital cinema processor, the CA-M300 monitor controller, the CA-M100 monitor crossover, and a full range of amplifiers and loudspeaker systems, including the THX-approved CA-350 surround speaker.

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The Laser Boom Company (Playa Del Rey, CA) offers Laser Boom, a 3-inch, battery-powered laser weighing only two ounces that can be attached to any mic boom with supplied swivel mounting clip. With a range of up to 700 yards and a battery life of up to 20 hours, Laser Boom allows boom operators to pick a precise, out-of-shot reference point and maintain exactly the same mark for every take. Available directly from the company (800/615-1544), the retail is \$295.

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The Series 1240SB system from Fiber Options (Bohemia, NY) is a modular transmitter and receiver for sending broadcast-grade video and 18-bit stereo digital audio over a single fiber-optic link for distances up to 20 kilometers. Featuring an 18-bit delta-sigma converter with a sampling rate of 48 kHz, the Series 1240SB system features a 90dB audio S/N ratio and a video S/N ratio of >60 dB. The system's plug-in card type units provide front-panel indicators for audio and video signal presence and audio input levels.

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# 2 Producer Roy Rogers



## SHADES OF THE BLUES

### PART ONE: AN INTERVIEW WITH ROY ROGERS

In only a decade of performing as a solo blues artist, Roy Rogers has burned a place in the music world with his masterful slide guitar playing, creating some sonic fire that has consumed the imaginations of listeners. Starting with his self-produced *Chops Not Chaps*, Rogers garnered attention from the music-listening public as well as record companies.

After selling more than 10,000 copies of *Chops* at his concerts, Rogers was picked up by Blind Pig Records. They re-released the album, and Rogers' blues career

BY JOHN KOETZNER

was well under way. He went on to produce *Blues on the Range* and *Sliderwinder* as solo projects, as well as collaborating with longtime friend and harmonica player Norton Buffalo on *R&B*, and a live album titled *Travelin' Tracks*. He later moved to Liberty Records,

where he produced two albums, *Slide of Hand*, and his most current release, 1994's *Slide Zone*.

Most recently, he's performed on Linda Ronstadt's new album, and he has completed yet another world tour that took him to Australia with Norton Buffalo, to Norway and Denmark, and even to Istanbul with Buddy Guy. Spending half his time on the road abroad has further enhanced his reputation as a world-class blues player.

Yet, more fantastic than his own meteoric rise as a solo artist is that Rogers, who grew up in Vallejo, Calif., has had the opportunity to produce the last four albums for blues legend John Lee Hooker. Starting with

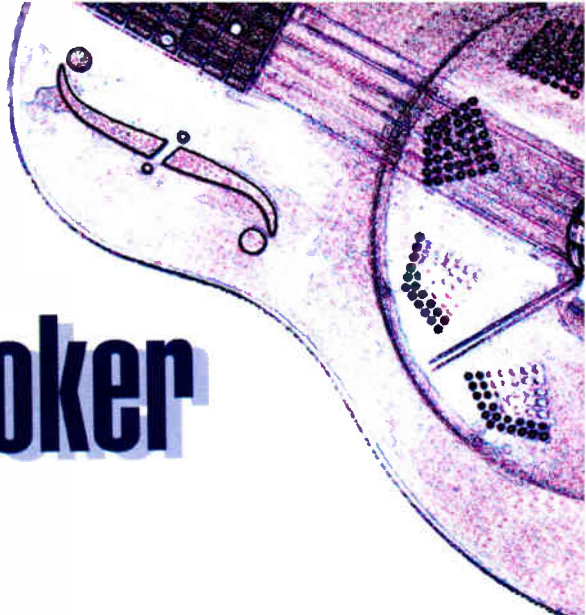
—CONTINUED ON PAGE 178



PHOTO BY JAY BLAKESBERG



# John Lee Hooker



## PART TWO: AN INTERVIEW WITH JOHN LEE AND ZAKIYA HOOKER

Coming out of the Mississippi delta in the late 1940s, John Lee Hooker's piercing guitar and hypnotic voice set the stage for rock 'n' roll. Hooker's two-chord boogie shuffle and symbolic lyrics have been copied by countless rock performers. He first gained notoriety with songs like "Boogie Chillen," and "One Bourbon, One Scotch, One Beer" in the early '50s and made a comeback in the late '80s by recording songs

BY JEFF FORLENZA

with a younger generation of musicians—Van Morrison, Bonnie Raitt and Carlos Santana—who idolized the man who preached the healing power of the blues. Today, at 75, the "Crawling Kingsnake" is humble and gracious—grateful to his fans, who put him where he is; grateful to his fellow musicians, who spread his music to new listeners; and grateful to God for keeping him alive all these years.

Hooker is also grateful that his name will be carried on in the music world by his daughter Zakiya, who recently signed a deal with PointBlank Records (distributed by Virgin), just like her dad. The younger generation of Hooker has a warm, friendly personality and a strong, sincere voice. Zakiya's new album will feature duets with her father and will showcase the different musical styles and settings of the blues—hence the title for her album, *Flavors*. Zakiya's manager and producer Ollan Christopher engineered her latest release with the help of a Mackie 32x8 mixer and 32 tracks of Alesis ADAT digital recording at Boom Boom Studios in Oakland. We caught up with the father and daughter and talked about the blues—past, present and future.

*John, tell me about your daughter Zakiya's music.*

John Lee Hooker: She's got a tremendous voice and a tremendous sound. Her style is not my style, but it's a style for a different generation.

*What do you think of blues today, since you're the roots?*

JLH: I started out as a very young kid. I never thought that I'd get this far. It's something that I was born with, as a gift from God. I believe in him. He's kept me going all these years. So many different people know about John Lee Hooker—all the European people, the young, the white, the black, everybody—and I'm very proud of that. I'm proud to see my daughter doing her thing. She's gonna to be on PointBlank, the same label I'm on now, with Virgin. I'm very proud of her. When I'm gone, she's gonna carry the light, I know that. I'm gonna do it myself as long as I can. Although, I don't travel much any more, just little gigs once in a while.

*Zakiya, how was it growing up with John Lee as a father?* —CONTINUED ON PAGE 180



PHOTO BY JAY BLAKESBERG



—FROM PAGE 176, ROY ROGERS

1988's *The Healer*, he then went on to produce *Mr. Lucky*, *Boom Boom*, and this year's release, *Chill Out*. Twice he's been nominated for Grammy Awards, and he did receive a plaque for producing the Grammy Award-winning cut "I'm in the Mood" from *The Healer*. In addition, Rogers appeared in Dennis Hopper's film *The Hot Spot* with Hooker and Miles Davis. Clearly, Rogers' career is still in its ascendancy.

*Over the years, you've continued to play and to produce yourself. What are the advantages of being a play-*

*er and producer? Are there still some disadvantages to wearing two hats on a project?*

As long as I have a pretty firm idea and I go in rehearsed with my band, it's never been a problem for me to wear both hats. I can see where it would be a problem for some people, because I think it would be hard in some cases to make a decision if you have to bump something on another track or wipe something. Or, this lead you like, and then you took another lead if you're overdubbing, and you've got to make a decision. It's very difficult for some people to do without another set of ears pre-

sent. I'm not saying it's easy, but it just kind of happened that way for me. *Chops Not Chaps*, from the start, was a self-produced project only because it had to be. We did it ourselves, we financed it ourselves. I put it out on my own label to begin with, so it was really a self-contained project, and I suppose starting that way got me off on that foot. I'm very comfortable with that.



I have done projects with other co-producers; for example, *Slide of Hand* was with Scott Matthews. It just depends on the situation for me. If I think I need a concentration factor or I want to try some new ideas, and I think somebody else would be better to interject some of those, certainly you have to be smart enough to know that you don't know everything about what's going on. So, somebody else could have a new fresh approach. It's a question of having a similar musical vision for what's going on. In Scott's case, he's a very talented producer and musician, and he's a friend that I've known for 20 years. Scott is always great to work with, whether you're playing with him in a band or working in a studio, because he always has fresh ideas. He's always looking to stretch the music. That's exciting to do, to get that kind of input from people. Most important with Scott, he's got great energy, which is so important in a studio. He's very much a "feel" kind of person when it comes to music, to get the right groove.

On *Slide Zone*, I went back to producing myself because I wanted to stretch it in other directions. I had a firm idea of where I wanted to go. *How did you get connected with John Lee Hooker?*

I got the call from John Lee in 1982, to go on tour, through a bass player who had played with me. I toured with him until 1986, when I really got my solo career going. I started taking care of a lot of business, and I became de facto tour manager. It's easy for me to converse with people and wear a lot of hats. That relationship eventually led to the opportunity to produce.

*What was it like to work with such a large cast of artists on John Lee's The Healer? How did you adjust to the different artists' expectations?*

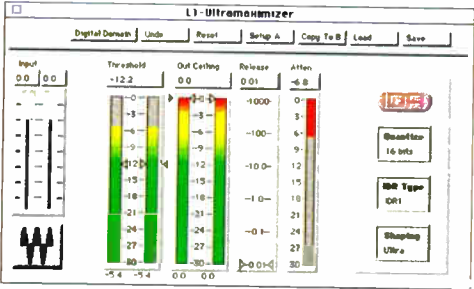
Having known John before, we had fun. With the sessions involving other artists, everyone was so looking forward to these sessions it


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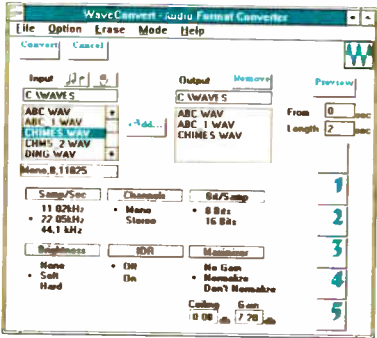
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**John Lee Hooker, Keith Richards and Roy Rogers at Russian Hill Recording, 1991**

wasn't like we had to create a situation. Everyone was up for it. The environment is such that you want it to be up, so you try to be ready for people and know their setup. For example, you know how the miking situation is with Robert Cray's amp and all that kind of stuff. You have all this done before people hit the studio. You're ready to go when they walk in. That's crucial.

I must mention the track with Santana: "The Healer" was really a landmark track because it was such a combination of styles, putting John's vocal with Santana and his band. We didn't know if that was going to work, but it worked. That was really a departure. John Lee Hooker and Carlos Santana have such respect for each other, and that really comes through the music.

I've been real fortunate to have the trust of John Lee. Initially, they were actually trying to organize a project like *The Healer* with Van Morrison producing John Lee. That never came about. Then I came on board. It boils down to trying to create a situation where the musicians are, first and foremost, comfortable. **What kind of reactions did artists have to you, since you were a new producer?**

There were absolutely no problems. People were coming, and they were being asked to play with John Lee Hooker, who is one of everybody's all-time favorites. Even though I was more unknown at the time, I had John's respect and confidence going

into the project, so that maybe worked to my advantage. I wasn't shy about my role, and it just worked. I was always confident in feeling that I could do a good job for whoever came.

**What about the second time around with John Lee? How did the Mr. Lucky sessions compare?**

All sessions have their memorable moments. Certainly "I'm in the Mood" with Bonnie Raitt was great. We set up the session where both of them were seated, staring in each other's faces, as close as we could do it to get that interaction. That worked great. The same was true with Van Morrison in the second sessions. Both were seated very close together. You really feel the intensity of their vocals. They were looking right across at each other, and that makes for some great moments which we got. Keith Richards' session on "Crawling King Snake" was great because he was supportive in every way. He was very nice to work with. We just had a great time. In passing, he mentioned a parallel as far as seeing my relationship with John Lee to the one he had with Chuck Berry. We were both relating to them in a way which is respectful, but pushing them at the same time. It's whatever it takes. Albert Collins was especially delighted to be there. John Lee Hooker had been one of his musical heroes ever since his early playing days, and it was just a delight to have Albert in there.

**Since Van Morrison and John Lee have a long history of recording with each other, were Morrison's sessions easier?**

They get along famously. Van and John were laughing it up. You just let that happen, because their relating how they relate to each other is the magic. It really has a flow to it. By choice, I kept the background musicians to a minimum. I felt it would be better to have John and Van relating. Then I had Booker T. do his organ as an overdub later.

**Once you had produced John Lee a couple times, what did you feel you could bring to his successive projects?**

My role with John is that I'm close enough to him that I can get him to try new songs or go through his song catalog and make a suggestion about something he hasn't played in a long time or something he's forgotten about. So, it's really doing that, bringing new song ideas, as well as new recording situations. Obviously we had the people sitting in, which was a major concept throughout all the records. However, getting John to record on a National steel guitar, which I thought was a great idea, was something John didn't want to do. He finally agreed to try it, and he ended up just loving it, and we got some great stuff.

**Since John Lee's latest album, *Chill Out*, is more austere and roots-oriented, did it pose any particular challenges to you as a producer?**

That's kind of the role of the producer to say, "Well, let's try it this way," and making it or presenting it in a comfortable way. Not to say that it didn't take some convincing. It wasn't automatic with John. The acoustic stuff, which he hasn't done as much these days, was what I thought was real important to get on there. I always lobbied hard for that. I convinced John that he should try it, and he agreed. Ultimately, it's his decision though. He's got to be comfortable with it. It's not like I'm going to get him to do something that he doesn't want to do.

The other thing is that I've played with him acoustically, doing some duet gigs, and we've had a great time. They're some of my most memorable playing performances with John. But, he really has to be in the mood to do acoustic stuff, and



I'm so happy he was in the mood for this. When you hear "Tupelo," it is just a stunning version. It did take some talking because he's used to the band being behind him now.

***Can you elaborate on some of your production techniques?***

We mike amps close-up and far away. In most cases, we go for distinct sound, to where we have the least amount of leakage from instrument to instrument. We've done a good job of preserving that on the Hooker records, as well as my own stuff. The more I produce, the more I have respect for the guys in the old days that used to have two mics and record the band, and it sounded just great. That's the real art to me. We have the luxury with modern recording of miking everything almost to death. Most of the Hooker stuff has been live recording, by the way; very few overdubs with John Lee. My albums, not so: I overdub and lay down the rhythm tracks and then overdub guitars. But with John Lee, sometimes we've fixed up things technically speaking, but for the most part, I'm talking live recording. That's what we're going for. Most people, frankly, don't do that these days.

From a production standpoint, I would say the overall thing I'm going for is creating the feel of the session. It's the flow of what you're going to do and being up, and not getting bogged down in the process of recording. That really is a death knell to music. I hear these stories about people with drum machines and isolating things and going after sounds, trying to get it so perfect that it doesn't have the flow. I think we can sum up in a nutshell that the techniques of producing should support the music and not the other way around. There's so much at your disposal in a studio, and you can try so many different sounds. As long as it supports the music, certainly you want to make it the best possible. But, if it becomes a belaboring thing, I don't see the value of supreme technology if it's not appropriate to the music.

***For John Lee Hooker's albums that you've produced, you've used Russian Hill Recording in San Francisco. Why there, as opposed to The Plant, where you've recorded your own most recent albums?***

For the early records, I had recorded at Russian Hill. I was familiar with Russian Hill. I had used the engineer

there, Sam Lehmer, who is a very good friend of mine, and who's been the engineer on all the Hooker records. When you work with somebody and it works, why change? Sam has done a great job and understands what it takes in the setup for John. We work well and very quickly together. As far as Russian Hill, it's a smaller room, and we didn't need a larger room like The Plant or somewhere else. They have a nice drum booth to put the drums in. It's necessary in a small room sometimes. You can close the glass doors and get less leakage. They have an SSL board there, which is fine, and I think it's really a comfort zone. John was very comfortable there. It wasn't overwhelming.

***If you were to rate the discs that you produced for John Lee Hooker, which is your favorite one?***

Oh that's a loaded question. How could I do that? They're all like children. They're all special in their own ways. You can't pick a favorite child.

***Is there a reason why you've recorded at The Plant in Sausalito so often with your newer albums?***

I like Studio B a lot. It's a warm room, and everyone likes it. It's been around since the '60s. I believe Sly Stone used it. Another reason is the selection of old mics. It's always nice to have old mics. It's not a necessity, but it's nice to have a choice.

***Do you prefer analog recording or digital?***

I've always recorded analog with Dolby SR noise reduction. It's real quiet, and it works well. I believe you need a certain amount of tape saturation for blues and rock 'n' roll. It's nice to see those meters being pressed, and a certain amount of distortion, if you will. I was raised on music like that from before digital. I suppose at some point I'll try digital, I haven't yet, so it's not a question of being against it for any reason. It's just that I've always used analog, and it's worked well. Like I said about saturated tape, and that whole thing with blues, you're not necessarily going for recording it as cleanly as possible. It's not always the most important factor.

***What have you learned about producing on successive projects?***

You're always learning, number one. Every project is different. You're always going to explore new things, and that's the way it should be and, certainly, always will be for me. I'm

not the most technical-minded person in the studio. I like to work with a good engineer who knows his board and his studio. I understand what's going on, and the importance of working with someone who is more technical-minded than myself. I don't usually like to work on the board, and I don't consider myself a mixer, by any means. But I have the ears, and I want to hear it, and I strive for it. Like I've worked with certain miking situations that will work well for acoustic and electric. I always like to think I'm getting better.

***What new plans do you have for recording this year?***

I'll be recording my next record probably in the fall, to be released in early '96. I've just changed labels, and it will appear on the Virgin/PointBlank label. I have a backlog of songs, but I'm always working on new stuff. Whenever I have a new project coming up, I keep all the pencils and pads by the tape recorder or piano. Sometimes I find myself running from room to room, trying to catch the recorder to get some idea down.

***What are the rewards of producing others as well as yourself?***

If the end result is good music, that's enough. Period. End of subject. You got good music, that's all the reward you ever need. ■

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—FROM PAGE 177, ZAKIYA & JOHN LEE HOOKER

Zakiya Hooker: It was very interesting, very unorthodox. Because we were always surrounded by musicians. And as everyone knows, musicians are a unique entity within themselves. I think about all the legends that I have met and that some people would never get to see these people, and I actually got to meet them. The one that sticks in my mind the most is Jimmy Reed. He was such a flamboyant man. He was the personification of Hollywood and fame. Whenever he came, he'd be in a big white Cadillac and dressed in this white suit. It was exciting. When I think back on it, I get chills from what I have experienced.

***What singers influenced you?***

ZH: I love Sarah Vaughan. Ella Fitzgerald, Dinah Washington. I love Aretha Franklin. When I'm doing a show, I do a lot of Bonnie Raitt songs, because I like her voice; it's very real. In her voice, you can hear where she's coming from and what

she's been through.

*Tell me a little bit about your new album.*

ZH: The name of our new album is *Flavors*. You know, flavors of the blues, there's all different kinds. My dad's a very traditional blues artist. I think when people think of him, they think of one genre of the blues.

The blues were here when man and woman were born, when God put them on this planet. When you put them together, you get sadness and loneliness, and that's the blues, no matter what song you sing.

—John Lee Hooker

They have a tendency to put every type of blues in there. But the blues, to me, is very, very broad. Everything out there is not like what my father is doing. Originally, that was the very first blues, that was the traditional. And that's what B.B. and Muddy and Robert and all those other guys were about. It has grown and expanded; young people have picked it up. They're not gonna play it like the old traditional guys play it. *John, how far back does traditional blues go?*

JLH: Well, the blues have been here since the world began, and the world's been here forever and ever. The blues were here when man and woman were born, when God put them on this planet. When you put them together, you get sadness and loneliness, and that's the blues, no matter what song you sing. They call it what they want to, but it's the blues. The same thing that I'm singing and that Zakiya's singing is about a man and a woman.

*Your songs have affected rock 'n' roll. Do think the blues were the*

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roots for rock 'n' roll? Like your song "Boogie Chillen"...

JLH: Oh, definitely. That's where it comes from. My songs were rock 'n' roll. ZZ Top and everybody copied it. And I'm proud. They get listeners who don't know me through so-called rock 'n' roll. Like Thorogood [who did "One bourbon, One scotch, One beer"].

*And you're not bitter that some people copied your songs?*

JLH: Whoaaa! Have mercy. I was for a while. I sued a few of them and got some money back. Record companies are really ripoffs—VeeJay, Modern, Chess—all of them. But it

was meant to be, and I can't change it. I can't change the past. I ain't singing for the money. I'm singing 'cause people appreciate what I do. They love it, and I love them.

*How about some of your other fans like Van Morrison, Carlos Santana and Bonnie Raitt?*

JLH: Whoaaa boy! They love John Lee Hooker. You know what? I love them, too. Boy that Van, he loves the tracks I walk in. Me and him are just dead buddies, me and Van Morrison. We talk to each other once a month. He can sing the blues.

*What type of songs are you going to do on your daughter's record?*

JLH: Me and Zakiya are just gonna sit down and have a good time. I am so proud of her, I repeat myself. She's got no ego. That's how you gotta be in this industry. You gotta love people, which she does, like her dad.

*Zakiya, are you hoping to introduce a younger generation to the blues?*

ZH: Oh, yeah. I want them to realize that it's not just that sit-around-and-cry music. [Laughs]

*Some of your songs are more up-tempo than your father's.*

ZH: Yeah. Some of my songs are kind of even funny little songs. A lot of them are gonna be originals. I'm gonna do a few covers.

*What are some of the covers?*

ZH: We're gonna cover Robert Johnson's "Stones in My Pathway"—you can still hear that blues cut in it, but it's more of a get-up-and-dance tune.

*When will the album will come out?*

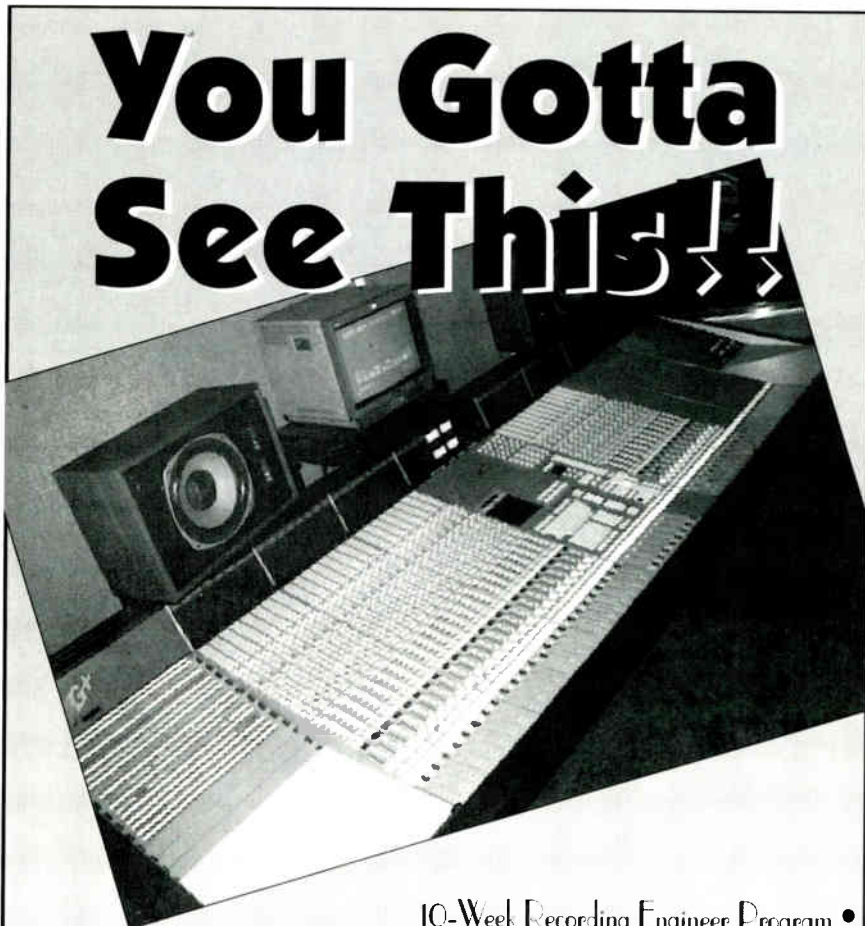
ZH: Probably won't be till next year sometime. We have to be finished by November. We give it to them, and they decide when to put it out.

*John, what about the future? Where are the blues going?*

JLH: Well, that's a good question. The blues were here when the world was born, and they gonna be here forever. And it's gonna get bigger with more young people loving the blues. For years, they kept it under the carpet, but it's out there now. Blues is not a downer. Blues picks you up—it's a healer. Blues will heal your feelings. People think you're gonna be broke and hungry, down and out, singing the blues—that's not true. I'm not broke; I'm not hungry; I'm not down and out. I'm well-off, and the blues put me in this position. If you can't do some blues, you don't eat too good. Jazz is all right, but if you want to eat and be known you better do some blues, 'cause everybody loves the blues.

Everywhere I go, they love John Lee Hooker, and I love them, too. I love my fans, and I love little small clubs. That's where I come from, that's the roots. Oh, I play fancy clubs also because of the money. But what I really love is the little clubs—I walk in, get myself a beer and sit down, sign autographs, and get up and grab the microphone and start singing. I'm never too big for my fans. My fans are bigger than me 'cause they're the ones that put me there. I tell Zakiya that, too. I tell her, "Don't never think you're bigger than your fans, 'cause they pay the rent."

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## Bela Fleck: INSPIRATION AMONG FRIENDS

by Robin Tolleson

"I always enjoy working with Bela. He's very creative and knows exactly what he wants," says Bil VornDick, who engineered banjo master Bela Fleck's acoustic Rounder Records albums *Deviation*, *Drive* and *Places*, as well as the more electric Flecktones recordings like *Flight of the Cosmic Hippo*, *UFO Tofu*, and *Three Flew Over the Cuckoo's Nest*. Fleck's latest recording, *Tales From the Acoustic Planet*, brings together many of the people that Fleck and VornDick have worked with in the past—Tony Rice, Jerry Douglas, Bruce Hornsby, Stuart Duncan, Branford Marsalis, the Wootens and others—as well as a seminal influence, Chick Corea.

Perhaps what VornDick has learned best about working with Fleck is when to slide over and let Bela drive. "Bil's got a great ear for acoustic instruments, and he's totally comfortable with allowing me to be abusive," says Fleck, only half-kidding about the second part. "He doesn't get insulted that I have ideas and want to try it myself and sit behind the board when it's mix time and do levels. And then he bails me out of every trouble situation I get into. I can describe the sound I'm looking for with a reverb, and he can help get my ideas into reality."

VornDick specializes in acoustic music—folk, new acoustic and jazz—and has



PHOTO JIM HARRINGTON

worked with artists such as Mark O'Connor, Edgar Meyer, James Taylor, Jack Douglas, Allison Krause and Jack Jezzro. "I had a background in acoustic music before I moved to Nashville, so I started concentrating more on the acoustic side. I don't have to listen to anything at extreme volumes, and the musicianship is so much better. They've got to put it all out there, instrumentally and vocal-wise."

VornDick and Fleck recorded most of *Tales From the Acoustic Planet* at VornDick's Music Row Audio in Nashville. The Bruce Hornsby piano tracks were recorded at Nightengale in Nashville, and Corea's contribution was recorded at the artist's own Mad Hatter Studios in Los Angeles. "We recorded on an Otari 100 with Dolby SR, and it had the big remote for auto-punching. It's

a super machine. Everything was pretty much recorded live. The album's got more warmth [without] the normal digital high-end dither," says VornDick.

"I wanted the quiet of Dolby SR and wanted to go back to an analog sound," Fleck says. "We did editing on a digital Otari 32-track system and did mixes from a digital machine. I mixed back to analog half-inch tape and immediately dumped that off onto a 20-bit optical disc so that I'd have that analog sound. I was worried about losing some highs if we left the analog tape alone for a long time, so I backed it up on the 20-bit. We did some testing between the analog-to-20-bit and analog-to-DAT, and decided the 20-bit gave us the warmest, clearest sound. It had body. At one point we found that 'Cheeseballs and Cowtowns' sounded

—CONTINUED ON PAGE 187

## Ziggy Marley And the Return Of Tuff Gong

by Blair Jackson

"When I was little, I used to sleep underneath the mixing board at Tuff Gong [Studio]," Ziggy Marley says of his childhood growing up as the son of reggae superstar Bob Marley. "All the children would be in and out, in and out all the time, and that was cool. I grew up in studios."

"That was once home to us," agrees Ziggy's sister Cedella, who with brother Stephen and sister Sharon Prendergast, comprise the Marley contingent in Ziggy's group, the Melody Makers. "I remember on weekends the place would just come alive with music. We were just kids, but even



PHOTO: WILLIAM RICHARDS

we would have shows there for our family. It's great that we were able to make it come alive again."

Tuff Gong was the studio where Bob Marley

recorded most of his later material, but some time after his death, the studio closed, the equipment moved to another facility, and the

building lay vacant. Then, last year, the Marley children decided to re-open Tuff Gong in its old location, hiring designer Steve Koons to supervise the operation and turning it into a modern, professional studio. The first product to come out of the studio was Ziggy Marley & the Melody Makers' excellent summer album *Free Like We Want 2B*, produced by the band and engineered by Errol Brown, who also acts as the band's FOH mixer on the road. Helping out on a couple of tracks, too, were producer Paul Fox and engineer Ed Thacker.

*Free Like We Want 2B* is  
—CONTINUED ON PAGE 188

### CLASSIC TRACKS

## Howlin' Wolf's "Wang Dang Doodle"

by Blair Jackson

The incredible output of the Chicago-based Chess Records label in the 1950s and '60s easily stands with the greatest music produced in America during this century. Great urban blues/R&B titans like Muddy Waters, Howlin' Wolf, Sonny Boy Williamson, Little Walter, Etta James and Little Milton all cut their finest sides for Chess (and its subsidiaries), and of course, the company did pretty well with that burgeoning mid-'50s music form known as rock 'n'

roll, too: It signed two of the best, Chuck Berry and Bo Diddley.

Looking back from our contemporary vantage point, it's difficult to remember that in the '50s and early '60s particularly, the top blues artists were true regional stars who sold a lot of records—proportionally much more than blues players have since that time. They weren't exactly getting rich, of course—especially by modern standards—but as Muddy Waters told me in an interview in 1977, "When I could go out and buy a steak when I wanted one, I knew I was doin' all right," and for Muddy and the other top musicians at Chess, that hap-

pened relatively early. Howlin' Wolf probably wouldn't have liked me quoting his arch-rival Muddy Waters in an article about *him*, but I never got a chance to interview the Wolf (though I did manage to see him play a couple of times in Chicago in the early '70s).

Like Muddy Waters, Howlin' Wolf had deep roots in the Mississippi Delta. He was born Chester

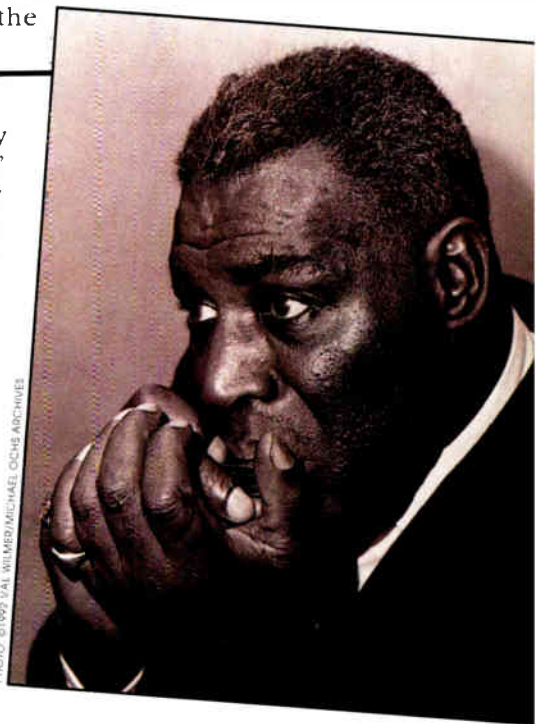


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Burnett in West Point, Mississippi, in 1910, to parents who worked on a  
—CONTINUED ON PAGE 189



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—FROM PAGE 184. BELA FLECK

muffled, so we had to go to the digital version of that, as opposed to the analog, to get it to cut through like the other songs. But there are no hard-and-fast rules, other than get it right."

VornDick and Fleck both prefer recording analog, whenever feasible, because of the warmth of the sound. "I think the best way to describe the thing between digital and analog is like the difference between videotape and film," the banjoist says. "Analog has more of a film quality. Although the digital is perfect and clear, it doesn't have that mystery. I want to leave it a little murky here and there and let these warm acoustic instruments be huge."

Fleck uses only one instrument on *Tales From the Acoustic Planet*, his 1937 Gibson tenor banjo, a TB-75 with custom five-string neck. "This banjo is very rich, and I have to mike it as bright as possible to get it to cut through, especially when I'm playing with drums or a lot of other acoustic instruments," says Fleck. "I usually double-mike it, and sometimes use three." VornDick adds, "On this album I used a C-24 stereo tube, about a '62 era. And I used a Milab 96, and they went through Soundtech mic pre's. The Milab was on the neck, and the C-24 was catching the low end."

"I like to use a Milab over the strings where the neck meets the body to get a bright sound and another mic down under my right hand below the bridge, which is a real rich and fat sound," Fleck says. "It's all what naturally comes out of the instrument onto the mics, and I just play with faders, not EQ. On this record, the reverbs are just there to fill things out and create space when somebody was baffled into a corner for separation but not be noticed in particular. I didn't go for different reverbs on every instrument, like I have in the past. A lot of people put every instrument in a separate reverb to keep a lot of integrity, but sometimes it's nice to just let them swim around together."

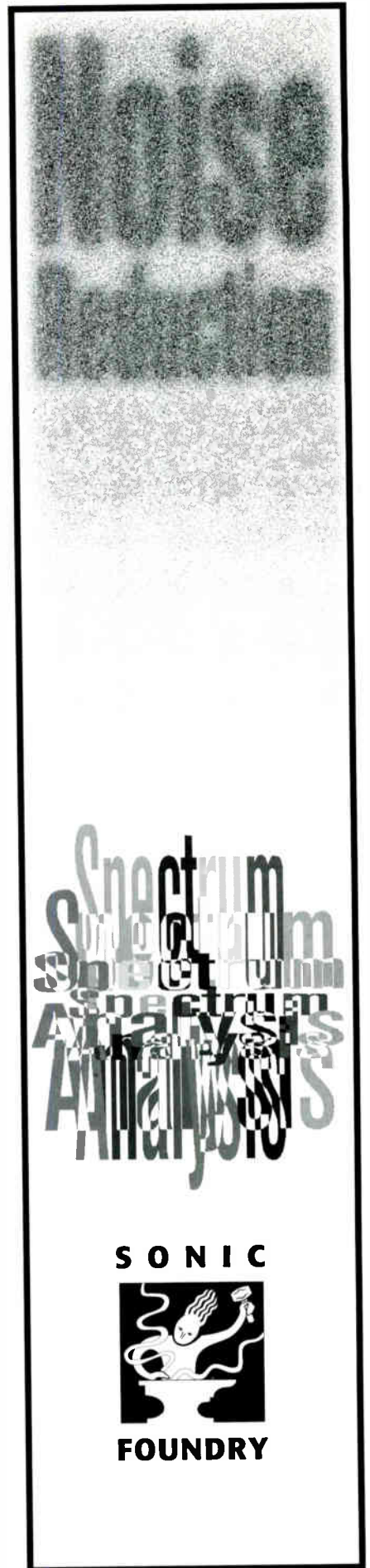
Paul McCandless (from the group Oregon) gets sweet, emotion-filled sounds with his oboe and English horn, bringing back memories of the original Flecktones group with chromatic harpist Howard Levy. "Paul and [bassist] Edgar Meyer seemed like a natural fit, because the oboe

has that classical quality," Fleck says. "They really hit it off. Paul's a great jazz player, too. It's a wonderful sound and adds so much. It's a unique, high voice, but it's very soulful." VornDick used a Neumann tube 64 on the oboe, and ran it through a Drawmer 1960 mic pre-amp straight to tape.

Flecktone bassist Victor Wooten shares duties with classical modernist Edgar Meyer. "Often, the electric bass is going simultaneously with acoustic bass, Edgar and Victor together. I just wanted them both to be involved," Fleck says. Wooten played several electric basses, a four-string fretless, five-string fretless and six-string. "He gives me a signal from his ADA, and I usually have an amp and a direct box. I use Stewart direct boxes," VornDick says. "With Edgar's acoustic bass I used one of my 247s, a reconditioned Cameron mic. I used that and a KM86—two mics—and ran him through a '60s vintage Langevin mic preamp. That got the warmth, and I hope the percussiveness, too."


Nashville session drummer Kenny Malone and Flecktones electronic drummer Future Man handled the percussion chores. "We wanted Future Man to play acoustic on a lot of stuff," recalls Fleck, "but he didn't want to play a conventional kit. One day he came with me to pick up a banjo that was being repaired, and while sitting around waiting he noticed a big banjo with a huge head on it. He started jamming away with his fingers on the top, and it sounded like tablas. Those drums you hear starting the first song like high-pitched timbales—those are banjos. It was just weird enough for him and for me." VornDick adds, "Future Man built a nest of his toys. We recorded him with a stereo pair of SM81s. He was tapping on two or three banjo heads at a time, depending on the song. He's always going to try something." Future also plays his Flecktone's axe, the custom Synthaxe Drumitar, on the Corea jam "Backwoods Galaxy."

Wet weather in the southern U.S. caused one snag in the recording. "Tony Rice's guitar had been under water and when he came in, it just sounded like mud," Fleck says. "We spent the next couple hours trying mics, and none of the usual positions seemed to work. We ended up miking the high side with two differ-



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ent mics, from below and above, and found the magic spot. I think it's one of his best guitar sounds ever, but we sure had to fight for it."

"I used two Sankens on him, a 31 and a 32," VornDick says. "The instrument was quite dull because it had just been in a flood, and I used the Sankens to try to increase the high-end part of it, give it a little more definition."

The entire album was mixed at Sound Emporium in Nashville. "By mixing at one place, we were able to provide some continuity," says Fleck. "We were mixing Chick's piano, the dobros, fiddles and the banjos flat anyway, so the continuity was there in the music. But it does help tie it all together by using the same reverbs on the songs that are recorded in different places."

Bernie Kirsh, Corea's longtime engineer, recorded the three songs at Mad Hatter. "He had never really recorded banjo before," Fleck laughs. "I just told him that I was after a big, warm sound and not a bright, topky sound. I thought he got a real good sound, different from what I was used to, and that was good too."

Fleck is a somewhat complex character in the studio—a perfectionist who doesn't believe in practicing too much. He wants live playing but is willing to use the studio to edit the best product for the market. He's a bit of a board hog but takes responsibility for the results. "It's possible to prepare too much, because a lot of what really sounds good to me is the excitement of somebody finding their way on the spot," Fleck says. "On the first take of 'In Your Eyes,' Chick started playing the four-chord pattern I had written as a vamp, injecting more harmony than I had even known was available on those chords. I became petrified I wouldn't be able to play anything over them, on his level. But as we kept playing the song, I found my own path through the changes that might not be the jazz way, but it was honest and was the best I could do. And some great, natural, spontaneous moments happened."

The Flecktones play a version of Corea's "Spain" in concert that shows the great reverence they feel toward his music. "Chick changed the way I thought about playing music," Fleck says. "When you get to play with somebody like that, it can be kind of a shock. Many people

don't live up to your expectations, but he exceeded them by a lot. I was pretty stoked.

"It was gratifying watching Sam Bush and Paul McCandless become buddies, or hearing McCandless jam with Future Man, or listening to the musical conversation going on between Branford and Chick, when they had never played together before. I just feel proud to be on a record with these people." ■

—FROM PAGE 185, ZIGGY MARLEY

an apt title for an album by this group who have managed to both successfully evoke and build on their distinguished lineage, while exploring numerous other genres outside of reggae. This is no Bob Marley-clone band: Ziggy Marley & the Melody Makers are clearly tuned into a whole world of interesting rhythms and sounds, from hip hop to American soul. The album is a hodge-podge of styles that range from hard Trenchtown reggae to folk balladry. Ziggy has inherited his father's smooth, pleasing vocal delivery and his concern for spiritual and political issues, but his musical palette is much more expansive than Bob's ever was. And on this new album in particular, Ziggy has reached out to his siblings more, letting Stephen and his sisters handle lead vocals on a couple of tracks, which adds more to the overall depth of the work. "I think in the beginning, when we started out, people could only see us in my father's shadow," Ziggy says. "I think with each album, they sensed that we had something unique to say, that we continue to grow."

Ziggy and Stephen have become more involved with the production of each of their last three albums, as their studio chops have sharpened and their own ideas about music have matured. Usually their demos, done on small home setups, are relatively simple, consisting of just a guitar or keyboard line, a drum machine pattern and a rough vocal. Once they get into a more formal recording situation, they tend to work up a rhythm track first, sometimes with just bass and drums (and/or a drum machine), but occasionally trying to also capture guitar, keyboards and even lead vocals, to seize upon the energy of the band playing together live.

"One thing I've learned over the years," Ziggy says, "is the importance of working on sounds first and getting that right, because if you get a good sound on the basic, when it comes to mixing it's much easier; you have less work. So the work you put in at the beginning is important. Also, I learned if it sounds good dry, then you can put things on it later and make it sound even better, but you can't take a track that's no good and say, 'Well, when we put reverb on that later it will sound good.'"

Working again at Tuff Gong has afforded the Melody Makers the luxury of working at their own pace for a change, and Ziggy says that is one reason the new album came out as well as it did. "It's because we weren't rushing. Usually, at a studio, you have to be there at a certain time and get out at a certain time, but we don't want to do that anymore. You play better if you're more relaxed. Plus, since it's our place, I can go out there and touch the board and try different things, experiment, and not worry about it." Ziggy says that Errol Brown is "a great engineer, with good ears, easy to work with. We depend on each other in the studio. Sometimes I hear things, sometimes he hears things; we work as a team."

It took Ziggy and the band four months to record *Free Like We Want 2B*, and Ziggy declares that it was his best experience yet making an album. "It was relaxed," he says. "We'd work on a song for a couple of days, try out different things and then we might say, 'Okay, that's fine for now. We come back to it later,' and we'd go onto something else." Although he insists that the production decisions were dictated by the music ("When the music want some percussion, we try some percussion," he says), he acknowledges that "ultimately it's up to what Steve or I like. But we always listen to every idea."

Marley says that even though the Melody Makers play a broad range of styles, he doesn't spend much time listening to other music. "We sometimes check out records to hear the sound of them—but not to copy the music. We listen to the mix. The mix is very important when it comes to being played on the radio in America, so we consider that." Beyond that, though, Ziggy, his broth-

er and sisters, and their crack band are just out to have fun and make good music. "For us, music is unlimited," he says. "We're not programmed to one way of thinking. We have the ability to play any kind of beat. We just try a bunch of different things, and whatever sound good, sound good. And so far that's workin'." ■

—FROM PAGE 185, *HOWLIN' WOLF*

plantation in nearby Ruleville. Wolf, who said he got his nickname from his father at the age of three, grew up working the plantation, but in his spare time, he learned the rudiments of guitar from the seminal blues legend Charley Patton, who worked at another plantation, Dockery Farms. Wolf got his first guitar when he was 18; shortly after that Rice Miller, who became the second "Sonny Boy Williamson," married Wolf's half-sister, and he taught Wolf how to play blues harmonica. During the '30s, Wolf toiled away on the farm by day and played juke joints and parties at night. After serving in the Army from 1941 to '45, he moved to West Memphis and became a fixture on local radio and in the clubs, where his raw, hard electric blues caused quite a stir. His first recording was made in 1951 with Sam Phillips (who would later start Sun Records in Memphis), producing for the up-and-coming Chess label. "Moanin' at Midnight" and "How Many More Years" were instant hits for Wolf, and by 1953, brothers Marshall and Leonard Chess had lured Wolf to Chicago, where he lived until his death from cancer in 1976.

From 1953 until the middle of 1957, Wolf and most of the other Chess blues artists cut their sides at Chicago's Universal Recording, using an ever-changing (but always reliable) stable of musicians, including bassist/songwriter Willie Dixon, guitarists Willie Johnson and Hubert Sumlin, drummers Earl Phillips and Fred Below, the extraordinary pianist Otis Spann and several others. Typically, sessions took place late at night or in the wee hours of the morning, after the band had gigged at some club. (The Zanzibar was Wolf's favorite.) Everything was cut live, with no overdubs, in three or four takes at the most.

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In 1957, Jack Weiner, who'd been working at Universal, built a new studio on the second floor of a building at 2120 South Michigan Avenue in Chicago, and for several years, this was where most of Chess' acts did their recording. "That studio had the first piece of UREI equipment ever built," remembers Malcolm Chisholm, who worked as an engineer and "chief cook and bottle washer" at 2120 from 1957 to 1960. "Bill Putnam [the pioneering engineer who worked with Duke Ellington, Count Basie and others] contacted an audio designer named Roy Rogers—and yes, he called his Studebaker 'Trigger'—to do most of the design work and implementation on this [custom console]. It was a Casco'd-input 12AY7; that and a 12AX output, and he had tertiary winding in the output transformer—in other words, a separate feedback winding—and this thing was not a Langevin. It had extraordinarily low inherent distortion, which made it possible to use very low feedback, which made it wonderfully stable. All the metal work was custom, and they actually went into production

on this console, though only a few were ever made.

"That UREI console was a 12-input console, so that was plenty for someone like Howlin' Wolf. After all, we weren't using four or five mics for drums in those days. You'd use a single mic on everybody, and if the singer played harmonica you'd still just use the same mic, usually a [RCA] 77. We didn't need to economize on channels particularly. And the panpots were very simple—click-left, click-middle, click-right."

"The tape machines were Ampex 350-2 stereo recorders," Chisholm continues. "We had a traditional mic selection. We had a few condensers, because they're not much use in a small studio, and bags of [RCA] 44s and 77s and a collection of Beyer 160s, that double-ribbon mic with the incredible isolation. This was still before Bill [Putnam] built the modern limiter, which was a UREI product."

The studio could comfortably accommodate most blues and R&B bands, but the control room, which was set six or seven feet above the studio floor, was very small, with its two speakers "awkwardly placed,"

Chisholm says. "The [tracking] room had a treated ceiling, but it was still a little boomy. We had variable acoustic panels that could be swung flat and went about 50 percent dead, but they were always operated open. It was an odd place. We tried to do good work there, but the tools weren't that great. We managed, obviously. Look what came out of there!" The studio also had two echo chambers in the basement, "and every once in a while, crickets would get in there—these tiny things—and we'd have to go down and kill them," Chisholm notes with a laugh. Those chambers were an integral part of the "Chess sound."

Wolf worked with a few different engineers and producers through the years, including Chisholm, Ron Malo, Ralph Bass and Willie Dixon, who Chisholm says, "became the real producer on most of those [Howlin' Wolf] sessions. "The Chess brothers were businessmen, with the interesting idea that people who know about music are musicians, so they rarely came around. Leonard occasionally walked in and had conversations about the music, but his

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suggestions usually didn't work out very well, so he'd go back to running the business." It was Leonard Chess who had complained to Muddy Waters in the late '40s that he slurred his words too much (!), and according to Wolf's guitarist for a quarter-century, Hubert Sumlin, "Leonard would holler at me, 'This is a studio! Turn that thing *down!*' Wolf would say, 'Hey man, if you want him to play—and I want him to play—leave him alone.' And [he] left me alone. Every time Leonard got ready to get on me, man, I'd go sit by Wolf." At six-and-a-half feet and more than 250 pounds, Wolf was a more than adequate shield for his handmate.

Ralph Bass, now 84, recalls that when he worked with Wolf in the studio, "I tried to imagine that we were still in some club and the band was playing. If you ever went to any of those clubs, you'd see people there who were really spooked out listening to him; they'd be going crazy. So that's what I'd do—I'd act like a crazy mother, sayin' 'Come on, baby! Come on!' I'd be trying to whip up the band, and then they'd sing their butts off. Wolf wanted to know that you were knocked out with him, so that's how I'd produce him."

"Wang Dang Doodle," which was recorded at 2120 in June of 1960, was actually not one of Wolf's big hits, but to me it's always represented the apex of Willie Dixon's writing, and it shows how incendiary those Chess musicians could be when they really hit a groove. The players were Wolf, Dixon on bass, Hubert Sumlin and (perhaps) Freddy King on guitars, Otis Spann on piano and Fred Below on drums. The tempo was all over the place on the track, but the fire was definitely there, as Wolf growled out Dixon's colorful litany of strange characters—Automatic Slim, Boxcar Joe, Chickenhead, Fats, Washboard Sam, Pistol Pete, etc.—over a rough, rocking beat. According to Dixon's autobiography, *I Am the Blues*, he wrote "Wang Dang Doodle" "when I first heard Wolf back in 1951 or '52, but there's a time for these things. [He recorded his own version in 1954.] A lot of times you're too far in advance for the people or ideas you're dealing with, so maybe a guy can see it another time." Or maybe not. Wolf often said he preferred to sing his own songs, rather than Dixon's

(mainly because he'd make publishing money, too), and Dixon wrote in his book, "The one Wolf hated most of all was 'Wang Dang Doodle.' He hated that 'Tell Automatic Slim and Razor-Totin' Jim.' He'd say, 'Man, that's too old-timey; sounds like some old levee camp number.'"

That's not too far off. When I interviewed Dixon in 1983, he told me, "In the South, everybody knew that when you said you were gonna 'pitch a wang dang doodle,' that meant you were gonna have a ball, have a party. I knew guys who had every name in that song. Automatic Slim was a guy who was supposedly great with a pistol. Razor Totin' Jim and a whole lot of people carried razors. You see, in Mississippi where I grew up, people had nicknames according to what they were involved in." I asked Dixon if he had attended parties that qualified as "wang dang doodles." "Oh, all the time," he laughed. "There was a place called the Rock House, north of Vicksburg in a place called Watersville. People would go out there and have these dances. Everybody'd be stompin' their feet and jumpin' up and down, and this house would actually rock! One night we was out there singin' and dancin' and carryin' on and BAM! The floor fell in! The front part of the floor collapsed, so everybody just went to the back, and then that fell in, too. Nobody paid it no mind. Everybody just kept playin' and dancin'."

"Wang Dang Doodle" was the first in a long series of great Dixon songs Wolf recorded in the early '60s. (He had a hit with Dixon's "Evil" back in 1954.) The same month he cut "Wang Dang" he also recorded "Back Door Man" and "Spoonful," and over the next two years he cut the classics "The Red Rooster," "Down in the Bottom," "I Ain't Superstitious," "Three Hundred Pounds of Joy" and "Built for Comfort," among other Dixon songs. Quite a legacy.

The powerhouse singer Koko Taylor cut "Wang Dang Doodle" for Chess in 1966, and it made it all the way to Number 4 on the R&B charts. It remains her signature tune to this day, and the song has also been covered by everyone from the Pointer Sisters to the Grateful Dead. But for me, the tune will always belong to the Wolf—whether he liked it or not.

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# C O A S T

## L.A. GRAPEVINE

by Maureen Droney

Over in North Hollywood, Royaltone Studios had planned on making a big splash with their grand opening. Instead, things started off quietly, and almost nobody noticed. Laughs chief engineer Gary Myerberg, "We were going to have a big party, but instead we just got booked!" Among the studio's first few clients were Melissa Etheridge mixing with producer/engineer Hugh Padgham and engineer Greg Goldman in Studio B, and Don Henley cutting tracks with engineer Robbie Jacobs in A.

Royaltone definitely has a unique look, combining spacious high ceilings and skylights with slate floors, antique wood furniture, cozy lighting and heavy velvet draperies. The overall ambience evokes the feeling of an English manor house. Owner Delight Jenkins, who also operates Alias Records, chose the furnishings and collaborated with the designers to create the complex. Says Myerberg, "Delight is very hands-on—everything is definitely filtered through her sieve." Royaltone was three years in the making: It took one year to find the site and two more for construction. Now,

—CONTINUED ON PAGE 196

At Royaltone Studios in North Hollywood, chief engineer Gary Myerberg and operations manager Nicole McGalliard pose amid the funky decor.



PHOTO: MAUREEN DRONEY

## SESSIONS & STUDIO NEWS

### SOUTHERN CALIFORNIA

Producer Don Was presided over the mix sessions at L.A.'s Brooklyn Recording Studio for the Rolling Stones' live album, recorded on the "Voodoo Lounge" tour. Ed Cherney engineered, and Ronnie Rivera assisted...At Scream Studios in Studio City producer/engineer Don Gehman mixed the Ugly



PHOTO: MARK HAINES

Producer and jazz artist Ben Sidran and a cast of top-flight players tracked songs for Sidran's next *Go Jazz* album in Studio A at Smart Studios in Madison, Wis. Pictured (L to R) are guitarist Phil Upchurch, original funky drummer Clyde Stubblefield, Sidran, engineer Brian Anderson and Sidran's son and drummer, Leo. The album is due out in April '96.

Americans' debut for Giant, assisted by Douglas Trantow III...Recent mix sessions at Burbank's Encore Studios included Dwight Yoakam for a Capitol release with producer Pete Anderson and engineer Judy Clapp. David Betancourt assisted...Wes Kidd produced the Capitol debut of Blindfish at Sound City in Van Nuys with assistants Mark Trombino and Jeff Sheehan...Canadian popster Alanah Myles mixed her new Atlantic release with producer/engineer Pat Moran at Andora Studios in Hollywood...Metal survivors Def Leppard were in Skip Saylor Recording in L.A. mixing a new track for their upcoming greatest hits package on PolyGram. Pete Woodroffe engineered with Erin McInnes assisting...Boxing Gandhis tracked their Mesa Blue Moon/Atlantic single "If You Love Me (Why Am I

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PHOTO: SANDY SAGER

**James Woolley (L) of Nine Inch Nails and Van Christie of Die Warzau were in Chicago's WarZone Recorders working on a new project with Louis Svitek of Ministry. Jason McNinch engineered.**

Dyin')" at Weir Brothers Studio in North Hollywood with producer David Darling and producer/engineer Tom Weir... Natalie Archangel mixed her Coyote Records debut at Walden II Recording in Hollywood with mixers Frank Roszak and Justin Walden...

#### NORTHEAST

In celebration of his 75th birthday, legendary jazz pianist Dave Brubeck recorded an all-star duets album for Telarc Jazz at New York's Clinton Recording Studios, entitled *Young Lions and Old Tigers*. Youthful hepcats from Roy Hargrove to Christian McBride and Joshua Redmond cut tracks with Brubeck, who was also joined by saxophone greats Michael Brecker, Joe Lovano and Gerry Mulligan. Mulligan also cut his own new Telarc LP at Clinton. Both sessions were produced by John Snyder and engineered by Jack Renner, with Adam Blackburn assisting... Stoned hip hop sensations Soul Coughing were at Baby Monster Studios in NYC tracking cuts for their second album, to be released on Warner Bros. Ian Bryan engineered... Re-

—CONTINUED ON PAGE 199

## NY METRO REPORT

by Dan Daley

Phoenix from the ashes: At least part of the **former Skyline Studios site** on West 37th Street will be a studio again. The studio on the third floor of what was once the two-floor, five-room Skyline (which closed in 1994) is being renovated and will open as **Alien Flyers**, a two-room facility. According to Fran Manzella, who has done consulting work for the company, the studio and control room are being left relatively untouched, with more extensive remodeling being done to the lounge area. The studio purchased an SSL 56-input G Plus console and at press time was considering a second board purchase, which owner Robert Rubeni said would happen in time for an October opening.

One of the new studios will be the existing Skyline room; the second is being created out of an adjoining space that was previously used as a rehearsal hall. One room will be a dedicated mix room, the other a tracking room. "This will be the first major recording facility in Manhattan that will be owned by Russian emigrés," says Rubeni. He said Alien Flyers would be a for-hire facility available to the larger market but would also be marketed directly to New York's large Russian community. "But what we're counting on is that producers are familiar with the Skyline room," he says. "That's why we haven't changed it."

Several New York studios saw something a bit different in the last few months. Producer Michael

—CONTINUED ON PAGE 201

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# NASHVILLE SKYLINE

by Dan Daley

Nashville has a lot of great studios. More to the point, it simply has a lot of studios. The focus has tended to be on the well-known rooms, major expansions and new facilities (like Masterfonics' Tracking Room, Starstruck Entertainment's two studios and the long-awaited tracking room at the Alamo Church). But Nashville also has a small, decidedly eccentric and worthwhile supply of oddball facilities.

One is Dave Perkins' **Garden of Eden**, a pastoral name he's given to a 1948 Flxible touring bus that once hauled a Texas swing band and now holds a vintage MCI 400 Series 28-input console and JH-116 24-track deck. Located in Perkins' backyard in Green Hills, the gray-on-gray bus/studio is used mostly by his Sky South production company for his own productions and a few independent-label records. It was originally owned by Malcolm Harper as a remote recording truck in Austin, from which he recorded performances for ZZ Top and Ted Nugent, among others. Perkins went into partnership with Harper in the mid-'80s and bought him out several years later, adding a new partner. Perkins has done what he calls "tons of gospel artists," such as Steve Taylor, as well as parts of records for his own band, Chagall Guevera.

The bus is the control room for a catacomb of basement rooms—littered with Perkins' yard-sale electronics finds and vintage amps—that make up the studio. Inside the Flxible, it's a bit cramped, and the pegboard walls seem to close in on you at first. But after your eyes adjust to the light (some of which comes from the original Bakelite-covered wall fixtures, which melt if left on too long), the bus' charm becomes apparent. Claustrophobia gives way to coziness and an enhanced ability to concentrate on the NS-10 monitors. "When you sit at this desk, you find that there's very little air to move between you and the speaker cones," Perkins says with a smile. Outside, the bus is an obvious road warrior, nicked and scratched from countless miles. But it has those graceful, Art Deco lines that made their way in the 1950s from skyscrapers to the basic elements of the American Dream—personal trans-

portation and diners.

Eric Silver's **Club 703** is named after the grade of insulation that lines the walls of his blockhouse-like studio structure. A former one-car garage in his Sylvan Park backyard, the studio is an *Architectural Digest* version of the garage studio cliché. Silver, a session player and songwriter, recently installed a Mackie 32x8 console to complement the Postex B-16 deck, KEF C55 monitors and various outboard gear. The design, by Danny Hilley, calls for one of the upholstered panels on the rear wall to swing out to meet a free-standing gobo in the recording end of the room (which is not separated from the control room end by any acoustical divider) to form an iso booth. But the best isolation comes from his use of a nearby tool shed as a guitar amp room and the living room of the house, 30 feet away, as the drum room, complete with hardwood floor, high ceilings and a mic cable snake passing through the kitchen and back door. "Maybe I went a little crazy, but it was worth it," Silver says. "It was designed to be private and comfortable, but at the same time, to be as professional as possible, because I like to use engineers rather than play and engineer everything myself." Silver says he rarely rents the studio out, but on a few occasions, it's been used by Donna Summer, Diamond Rio and producer Monty Powell.

Less odd but considerably unique is the combination of old and new at **Studio C**, a hard disk-based recording studio in the old RCA Studios building on the Row. The studio is located at the other end of the structure from Javelina and is next to Disk Mastering. Owner Fred Bogert tried to strike a balance between old and new. "I restored the walls and ceiling to their original design with the bent wood acoustical treatment they used back then," he says. "So it basically looks as it did when Chet and Owen worked here. But at the same time, we've put in an all-digital facility, and we turned the old control room into an iso booth and have everyone recording out in the studio, with the Yamaha DMC1000 console there, as well. You can do a studio any way you want. You just need an imagination." Or a bus or blockhouse.

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—FROM PAGE 192, L.A. GRAPEVINE

although still not quite complete, two lounges, five bathrooms, three cozy, get-away-from-it-all private dens and a spa support the two studios.

Myerberg spent nine years at A&M studios and did the tech layout for Bob Clearmountain's Mix This studio. He told us a little about how the rooms evolved. "Joe Chicarelli was very instrumental in the audio design, and he also engineered our first project—working with Interscope's act Huffamoose. Joe and I go back 15 years, so I know that if he's satisfied with how the studio is working, I can feel confident that others will be, too."

Royaltone's operations manager, Nicole McGalliard, is also an A&M alumna. Part of her job is to squeeze in the alternative acts on Alias Records, who are so dear to owner Jenkins' heart, while keeping the more established clients happy. So far she's been successful with Alias artists Throneberry, a five-piece from Ohio who recorded and mixed for a January release.

It's obvious that a great deal of care went into both gear selection and room tuning. Studio A, the recording room, features a Pat Schneider-enhanced Neve 8078 with GML automation and a 48x31-foot tracking space with three iso booths and two amp closets. The large recording area has already gone through several live/dead arrangements, with Myerberg finally satisfied that the present setup of curtains and hanging tapestries gives the room the best sound and the most flexibility. In the outboard rack are Avalon mic pres and EQ, and API, Pultec and Massenburg EQs, among others.

Studio B, designated the mix room, contains an SSL 4064 G Plus with Ultimotion and, with an eye toward film projects, a Dolby Surround insert. There are two iso booths along with a 21x14-foot studio area. "Sonically, to me," Myerberg comments, "the G Plus console makes all the difference in the world." Also in B, along with a selection of outboard gear from Summit, Neve, API and dbx, are FM Acoustic power amps for the small speakers, a TC Electronic processor, enhanced with the new 20-bit converters and a remote, and an Ursa Major Space Station.

Both rooms have house sync generated by an NVision system and

control room speakers and tuning by Allen Sides. Myerberg says Sides was great. "I thought he'd just install his speakers and leave, but he was here with me and Joe [Chicarelli] till all hours of the morning, making sure that everything was right." Look for Royaltone's signature candlelit music stands in an upcoming Etheridge video that was filmed in the B recording area.

### Cherokee is gearing up to celebrate its 25th year in business.

That landmark falls in 1996, although 1995 marks year 20 at the North Fairfax location. The Robbs (Bruce, Dee, Joe and Susan) showed me around and provided some insight into that 25-year history.

It's always impressive to meet with people who have been through so many changes in the industry and who still get excited about their work. Between them, the Robb brothers have done projects with artists from the Blues Brothers to Jeff Beck, Rod Stewart, Art Garfunkel, Cher and The Runaways. It's been up and down, but lately the diehard Robb philosophy of "less electronics is more music" has brought them success with Evan Dando's Lemonheads and a revitalized career working with live bands and alternative music.

Originally a band who survived deals with Mercury, Atlantic, ABC Dunhill and Chess Records, the Robb brothers started Cherokee as a home demo studio in 1971. Says Dee Robb, "One thing led to another. We acquired more equipment, then one of the demos that sounded good was released as a single. And then we did Steely Dan's *Pretzel Logic* with Roger Nichols engineering. Suddenly, we had a major act with a Gold record, and we had certainly never had a Gold record as the Robbs! So it looked like time to change horses."

Brother Joe adds, with a laugh, "Roger Nichols had been our assistant when we recorded at ABC. The next minute, we looked up and he was Steely Dan's engineer!" Asked if Nichols had been a good second engineer, the unanimous response from the Robbs was, "Yes, great! But eccentric!" followed by a classic anecdote about assistant Nichols: Needing an empty 2-inch reel for a project, he had sliced the tape off an apparently abandoned reel, only to end up splicing all those pieces back

together when the tape proved to be a mislabeled master. (So that's how he got to be such a detail guy.)

"We had always been, for those days, relatively technically oriented musicians," Dee Robb continues, "but we began to get obsessed by it. We were buying vintage equipment because, in those days, vintage was synonymous with 'cheap.' Then came the first big boom in Japanese audio—there was a new generation, a new breed of condenser microphones. And we'd compare them with the old stuff and wonder why the new didn't sound nearly as good as the old. So we have all that stuff—like keeping the first dollar we made, we kept all that early equipment. The trend was state-of-the-art, but we judged everything by what we heard, and we weren't convinced.

"In '76, we bought the first Trident A-range on the American continent," he adds. "We had noticed that records recorded at Trident Studios in London had a real signature sound that we loved—that open sonic approach to electronics that avoided balanced circuits and transformers. Admittedly, Tridents were hard to install and ground, but knowing what we were getting into, we went in that direction. Since then, we've owned most kinds of consoles, but we still love that direction."

"When you have a large, globally attractive, does-everything board," Joe Robb says, "in a single channel you may have 18 solid-state amps that the signal passes through, with the same amp being used no matter what job it's doing. So if you have a mic pre with 80 dB of gain, and downstream a buffer amp at unity gain with the same amp doing both those jobs, well, to us that means a compromise. One of the things we loved about the Trident, and now the modules that we build ourselves [Cherokee makes limited runs of modules that are virtually copies of the A-range input modules], is that the amp that's in the mic pre, with all that gain, is designed to do exactly that job. It doesn't make sense for production consoles. It's just too expensive, but it really makes a difference."

"In the '80s," Dee Robb says, "all pro audio design was by electronic music—it drove both the sonic and functional aspects. All the equipment became so multifunction-

al. So our point was that we can do that with a couple of patch cords! Do you really want your signal going through all those electronics all the time, for the one time that you need to perform that function?"

"At the time, we felt like old curmudgeons," Joe Robb says, "but we just don't understand putting function over sonics. We've all worked in a lot of studios, and we've incorporated the good ideas from them, and we've always really believed in the sound of our studios. But for a time, it seemed like the business was moving the goal posts in the middle of the game—the value system

seemed to completely change. So for a while, we pretty much stopped doing straight music work and got into film. In the mid-'80s it seemed that the guys making records were in there with the machines, and everything sounded the same, and the guys making film music were doing the live drums and the orchestras.

"But we kept our hand in. There were bands in Los Angeles playing live—good bands—and we'd bring them in and record them even though there was no outlet for it. It got to the point where we gave up shopping the stuff; no one was in-

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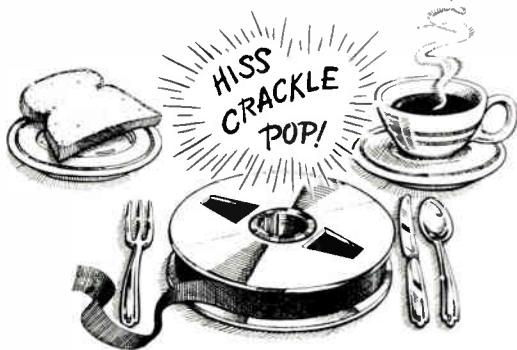
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terested. But we just loved doing it. We'd invite friends from the labels down, and they'd enjoy it even if they thought there was no market for it."

"Then, in 1991, we got a call from a friend at Atlantic records," Joe Robb continues. "She said, 'I've got a project you might like,' and she gave us some early CDs of the Lemonheads. They were pretty thrashy, and they sounded awful, and we kind of thought we weren't the right guys for the project and almost turned it down. Then they shipped us over a cassette with four songs that Evan had made in his kitchen with acoustic guitar, and that sparked something. There were actually only ten days between when we first heard their music and when we went in and started recording. No pre-production—all of a sudden, Evan and Juliana and Dave arrived here. And they had no equipment with them, so we were running around to the rental places. But it was the most wonderful experience, almost like being reborn. And since then, we've been back in the studio and producing records constantly. And now there seem to be a lot of people who subscribe to our philosophy of recording."

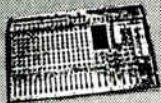
Cherokee now has three rooms online. One of the five rooms in the facility has been leased to a producer on a long-term basis, and one of the rooms is in development for the future. Studio One is a large tracking room with Cherokee's custom 48-in console. (Joe Robb says the board "was commercially obsolete from its inception, and I'm proud of that—it would just be too expensive to manufacture!") Studio Three is a medium-sized tracking and mix room featuring a re-designed Trident A-range with Flying Faders automation, and Studio Four is designed for overdub and mixing with a 48-in Neve 8128 and GML automation. Recent sessions include Motorhead with producer Howard Benson, Michael Bolton for Sony, Geffen's Maria McKee, Ricky Ross from the UK's Deacon Blue working on a solo project, composer/director John Carpenter scoring Universal's *Village of the Damned*, and Saul Davis and Barry Goldberg working on the new Percy Sledge album.

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**Fiery guitarist Reeves Gabrels recorded his new Upstart Records release, *The Sacred Squall of Now*, at Playtime Studios in Boston, with Tom Dube. For the sessions, Gabrels got a little help from friends including David Bowie, Frank Black, Charlie Sexton and actor/musician Gary Oldman. Pictured (L to R) are Gabrels, Isabella Rossellini, Oldman and Dube.**

—FROM PAGE 193. SESSIONS & STUDIO NEWS  
cent sessions at The Looking Glass Studios in NYC included Toronto pop artist Spookey Ruben recording his *Modes of Transportation, Vol. 1* LP for TVT Records with co-producer/engineer Mark Plati and assistant Dante Desole... Matador artists Kustomized were working on songs for their third LP at Zippah Recording in Brookline, MA, with Pete Weiss engineering and Brian Charles assisting... Sasha recorded his upcoming CD at Savebone Music in New York, joined by Mick Taylor and Carlos Alomar and saxophonist Lenny Pickett... Blue Note/Capitol artist Cassandra Wilson mixed her latest album at BearTracks in Suffern, NY, with producer Craig Street, engineer Dan Kopelson and assistant Steve Regina... Dr. Dre was in at the Music Palace in W. Hempstead, NY, working on a new project with Ivan "Doc" Rodriguez engineering...

#### **NORTHWEST**

Moody hipsters Mazzy Star were working on their next Capitol release at Berkeley, CA's Live Oak Studio. Guitarist David Roback produced; engineering was shared by Dale Everingham and Will Cooper... Recent sessions at Bad Animals in Seattle included The Posies mixing with Adam Kasper and assistant John Burton for a Geffen release...

#### **NORTH CENTRAL**

At Flyte Tyme in Minneapolis, producer Alex Richbourgh and engineer Jeff "Madjef" Taylor recorded tracks

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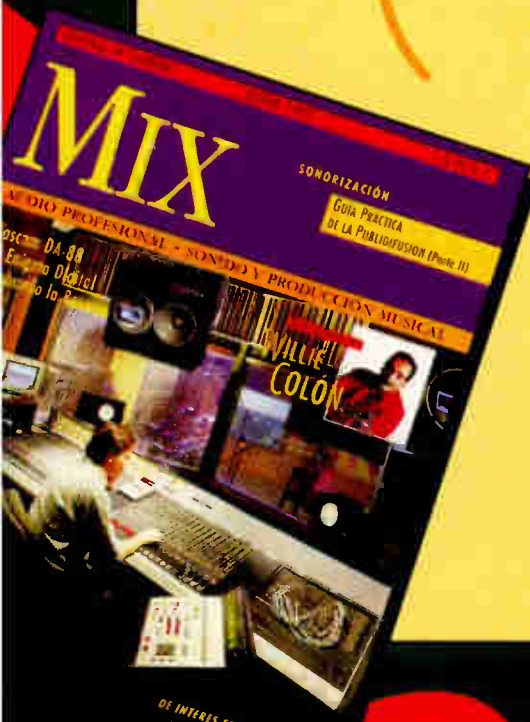
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for Johnny Gill's forthcoming Motown LP... Eddie Ashworth produced tracks with 510/MCA artists Pink Noise Test at Chicago's WarZone Recorders. Van Christie engineered the mix with Jason McNinch and Aaron O'Mara assisting...

#### SOUTHEAST

Recent sessions at Nashville's Sound Emporium Studios included Ricky Skaggs with co-producer Mac McAnally and engineers Alan Schulman and Ken Hutton mixing an Atlantic release; guitarist Bill Frisell with producer Wayne Horowitz and engineer Roger Moutenot tracking for None-such; and Hank Williams Jr. with producer Chuck Howard and engineers Bob Campbell Smith and Craig White working on a Curb Records project... Atlantic recording artist Mary Karlen camped out at Criteria Recording Studios in Miami to record two songs for a Christmas compilation release. The dates were produced by Karlen and engineered by Ron Taylor. ■

—FROM PAGE 193, NY METRO

Beinhorn (Aerosmith, Soundgarden, Soul Asylum) came into Bearsville and Right Track for overdubs and Room With a View for mixing on the new Ozzy Osbourne album, using a pair of custom-built Studer 2-inch, 8-track decks. The A800's electronics modifications were by Mercenary Audio of Boston; the headstacs were designed and built by JRF Magnetics of Greendell, N.J. Three machines have been built thus far, according to Mercenary owner Fletcher. The third, like the others owned by Beinhorn, features center-track timecode and can flip to 16-track heads. System conversion cost is \$15,000. A conversion for Otari MTR-90 decks is under development. Fletcher further noted that BASF Maxima 900, at +4/250nw, worked best on the head-stack configuration.

Chung King has finalized its console choices for the new facility, including for those rooms that are still in the planning and development stages. The upstairs section—which comprises half of the facility's 10,000 square feet—is the first to open, with four studios featuring a pair of Neve VR 72 boards, an SSL G Plus with frame extension to 80 inputs by UK manufacturer Shep Associates, and a Euphonix 2000 in the

production room. For the lower floor, where construction will begin after Christmas, Shep is building a fully discrete Class A console, a special version of the company's Lionheart, which is based on the original Neve discrete designs of the '70s. It will include Neve Flying Faders. An Avalon-built console will go in a dedicated mastering/post room. A seventh console—an AMS Logic 3—is expected to serve as a floating piece of equipment. Two new Studer D827 digital 48-track decks have been purchased to complement the A827 analog decks. Finally, an Avid-based post room is under consideration for the lower floor, which also will serve as home to a new division of Chung King called World Wide Audio Video, handling music multimedia and post work.

The newly opened music house/studio **Warp Sound** takes commercials into a virtual realm. Partners Fred Szymanski and Jun Mizumachi are pursuing sound design and scoring for commercials using some specially designed sound analysis tools, including software developed at IRCAM and GRM Tools in Paris. Using linear prediction filters, FFT algorithms and a spectral analysis system based on a phase vocoder model of sound transformation, Warp's approach is to break sound down in a sort of Richean manner and then resynthesize it into new sounds (just when you thought you could pick out the M1 on that spot!). Other equipment includes Pro Tools III, Kurzweil K2000RS, Morpheus Z-Plane synth, Wavestation A/D, a Yamaha Pro 01 console and a Waldorf Microwave Wavetable synth. The former Lavsky Music composers say that the equipment choices out there are wider than many people realize. "We researched ours through European studios," said Szymanski, "and it works as well for music as for sound design."

Another new studio, **Reel Tyme Recording** on Ninth Avenue, is a joint venture between producer/composers Bobby Guy Graziop and Ernie Lake. The studio's Soundtracs Quartz automated console, JH-24 tape deck and extensive MIDI gear are proving to be popular with remixers such as Jellybean Benitez, Hex Hector and Soul Solution.

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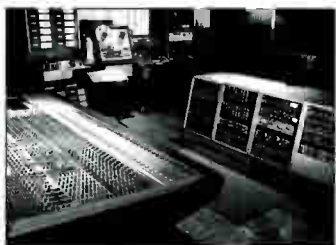
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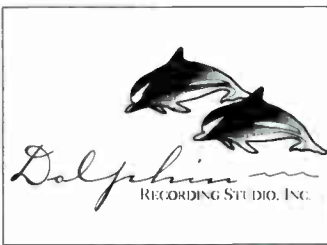
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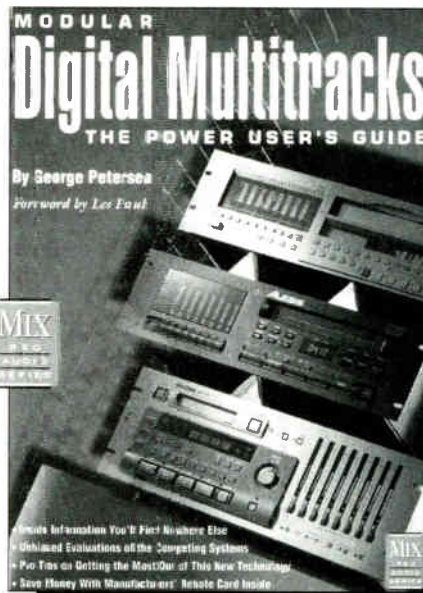
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—FROM PAGE 26, CD MOVIE

aging will mess up phthalocyanines! By the way, Evan pointed out that this power calibration area is big enough for 100 of these entire tests, so that the test can be done every time you add data to a multisession CD. Pretty amazing. That is news to me, but it certainly makes sense.

I have never had a writer reject a phthalocyanine disk, and Mitsui, for example, has zero media returns. I use them as an example, because they are in fact one of the world's largest suppliers of CD-R media, and they, of course, use phthalocyanine. Anyway, as far as power windows, see Fig. 2, courtesy of Mitsui (MTC) to see phthalocyanine vs. four different cyanines.

Another piece of emerging data that falls into this "versatility" of media category is that it turns out that cyanine disks do not write reliably at the new 6x speeds! It is no accident that Kodak, the leader in 6x CD-R duplication stations, makes and sells only phthalocyanine media.

By the way, my only reference to TDK in my previous CD-R article is that they and Taiyo Yuden were actively competing as OEM suppliers of media for other brand names, with TDK stealing business from Taiyo Yuden simply by offering significantly cheaper media.

BLER. Wordadaweek. Block Error Rate. TDK's Table 1 shows that their media falls well below the Orange Book standard of <220, even after their famous "two years of sunlight." The fact is that it goes from 3.3 before the exposure, to 9.8 after the exposure. That's an alarming degeneration factor of 2.96! It's three times worse after the test! The same table shows phthalocyanine starting at 1.3 and ending up at 1.4; a barely noticeable degeneration factor of only 1.07. The phthalocyanine curve is essentially flat. The cyanine/phthalocyanine difference is almost 3:1 at this point, and it gets rapidly worse! For a more extended view, see Figs. 3 and 4, again courtesy of Mitsui.

So who cares? They are *all* well under 220. The way I see it, there are two reasons to care. First of all, the cyanines *do* exceed 220 if you look a bit further on, as Charts 3 and 4 show (simply put, they fail; end of life), while the phthalocyanine never even gets near it! In fact, it really works

out to 1000+ years with that tiny 1.07 curve. Okay, reason two. Let's say you are driving across a steel bridge, 500 feet above a rocky gorge. There is a severe wind, the bridge is two years old, and every other vehicle on the bridge is an 18-wheeler loaded with granite. It's 6:00 p.m., and traffic isn't moving; you are packed in. Let's say the safety spec for the average number of micro-fractures per cubic centimeter in the structural steel used in bridges is a maximum of 220. Would you feel just as comfortable if

I happen to know that the real goal with all this—the Holy Grail—is to translate CD-R into the consumer market in a way that will astound you.

the original micro-fractures density of the steel used to build this bridge two years ago was 3.3 and is now 9.8 (already three times worse), or if it was 1.3, and is now 1.4? What really matters here—that neither one has actually hit the fatal number, or that one is three times worse than the other, and that one eventually *will* hit the number, while the other basically *never* will? How important is your life? How important is your data?

Why is this typical St.Croix analogy valid? Because this is all about averaged odds. All of these numbers are averaged projections, and any single case may spike considerably outside that averaged window. Do you want that spike to be on the CD with your data? Or do you want as much headroom, as much safety margin, as possible? Because the price difference is mere pennies, with phthalocyanine costing a tiny bit more than cyanine, I know what I want!

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## FAST LANE

very respected mastering house, says that Mitsui CD-Rs actually *sound* better, and he may be right. By now, we all know that jitter plays a very important role in how digital data sounds, and according to TDK's own Table 1 again, their cyanine media has 1.4 times more land jitter (right out of the box) than the phthalocyanine media. Then there is that issue of micro-holes in the reflective gold layer: how many there have to be before your player begins to interpolate data, and how much physical protection the top coating provides.

### END OF THE LINE

In TDK's rebuttal, you are reading copy written by an obviously agitated manufacturer who has a bone to pick and a profit to protect. On the other hand, I have no bone to pick. I get paid the same to the penny (and that's about how much we get, too), whether I write a nice, friendly story about baby ducks and flowers, or blow open tripe like this. And believe me, the baby duck story is one

because TDK kept calling Mitsui, my initial and primary source of data, and—how shall I say this—strongly expressed their concern over my voicing my discoveries concerning dye technologies and the long-term financial ramifications of same. TDK called Kodak, too. Yet, they never called me. I wonder why?

### AND THE FUTURE?

Here is an interesting point to ponder: Remember that raw cyanine can't survive even short exposure to ultraviolet. Today's CDs and CD recorders read and write with infra-red, just under the low-frequency end of the visible light spectrum. This is because lower-frequency light has a longer wavelength; simply put, it's *bigger*, and therefore, it is much easier to align optics, and looser tolerances can be used. This translates to easier to manufacture. That is the *only* reason we use infra-red. Because the wavelength is so long, infra-red severely limits the amount of data one can store on a CD. Well, things have advanced somewhat in the last year, and we already have a

visible red light M.O. system on the market (Pinnacle Micro) that can read and write more than 2 gig per side, using the same physical size disk! Shorter wavelength, more precision optics: higher data density.

Further, I happen to know that the real goal with all this—the Holy Grail—is to translate CD-R into the consumer market in a way that will astound you. Listen to this: It has been determined that the average videotape consumer doesn't even bother to erase and reuse tapes if they cost less than four to six bucks each, depending on the region polled. He

just keeps buying new ones, telling his wife that he may need to watch *The Making of the 1991 Sports Illustrated Swimsuit Issue Special* someday to check some obscure Christie Brinkley fact to win a bar bet. This means that the major stumbling block to introducing a non-erasable, write-once media to the market to replace a rewritable media standard (video tape) can be totally eliminated by setting the price point

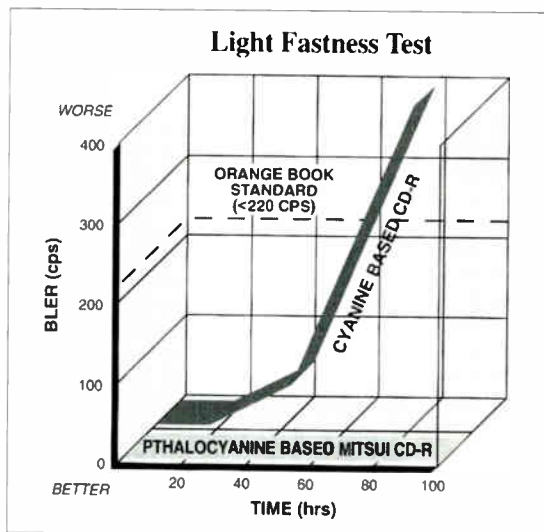


Figure 3: This light fastness test compares the block error rates of phthalocyanine and cyanine media.

hell of a lot easier—it requires no research (they live right outside my window), and if they waddle over to check out the oil under my Harley and then react in an interesting way to the creaking sounds as the engine cools, it's *perfect!* A new column title is born: "Hardly a Davidson Leaks Without Ducks at the Creek." On the other hand, the CD-R series literally took a year to research, and this month's installment was the worst,

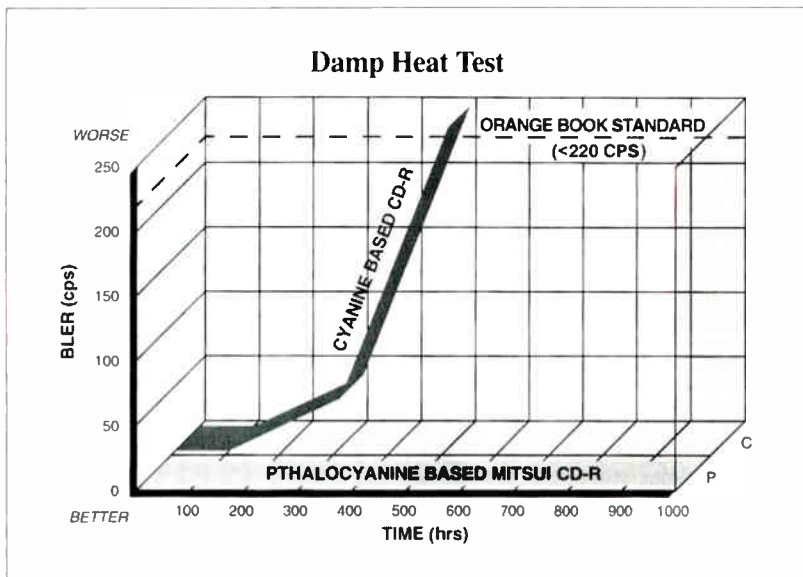


Figure 4: Comparison of block error rates of cyanine vs. phthalocyanine media in damp heat testing.

under six bucks! This will be done simply by announcing the six-dollar price and losing money for a year or so, until volume actually does make it profitable to manufacture and sell at that price. A combination of real-time hardware compression and *blue light* technology: yielding enough data storage to fit a full-length movie along with all kinds of wonderful digital audio tracks to boot. Add to that the convenience of the size of a disk compared to a VHS tape, the simplicity, true random access compared to the frustrating serial nature of tape, perfect digital freezing, the fact that you will never again have to be kind and rewind, the fact that a million plays won't produce any wear at all, and that the data will be *digital*, and who can resist? Reader-writer decks will retail for less than \$600! Changers will follow. These decks will read and write *anything*—movies, music, data. Blue light. Blue has always been my favorite color.

#### FIX IT IN THE MIX

What is TDK really adding to cyanine? High-frequency roll-off. They want to pass the low-frequency infrared but block the killer high-frequency ultraviolet, so they scramble to design the sharpest chemically implemented optical lowpass filter, so that the maximum amount of HF UV can be rejected with the minimum amount of LF IR attenuation. Well, as the *desired* read/write wavelength crosses the visible spectrum from infra-red into blue in the next year or two, metal doped cyanine will cer-

tainly go the way of 8-track and Beta, because it will be impossible to build a chemical lowpass filter steep enough to protect it from UV while not affecting blue light. Phthalocyanine on the other hand...

So why is Giant TDK freaking out over a column by little ol' homeboy St.Croix? They say that the pro audio community is statistically insignificant to them, an invisible drop in the bucket. Yet, they have gone ballistic over my column. I can't possibly be influencing their sales. Can I? Can you? Japanese megacompanies tend to look very far ahead, and they tend to plan well. The real money in CD-R is that universal six-buck consumer CD-R. My guess is that all these companies realize that the one who is best positioned, has the lion's share of the market and is most visible at the time of the appearance of the Holy Grail wins a huge edge.

#### FINI

I'm done with this. I have told you what I have learned, and I'm moving on to other topics. And I didn't even go into what happened to the CD-Rs that I left in the *car* for a week at Laguna Beach. As for the pile of hard data I have? I think I'll keep it around just in case. Besides, it got a bit thicker this month with the help of Kodak and HHb. Next? ■

*SSC never bluffs. He might say he has bluffed to let someone else off the hook, but because he expects to be challenged on some of his more extreme statements, he never bluffs.*

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—FROM PAGE 90, DAVE ALVIN

Sandy, when they came in, they'd already learned the songs fairly well.

I help with arrangements, meaning anything from guitar and steel lines to drum figures. But really, in a way, I feel more like their Sam Phillips—it's kind of to create a mood in the studio. On the first album, especially, they were very timid. They were kind of in awe of being in Capitol Studio B, because it's a legendary studio. One thing The Blasters wouldn't have copped to was we were frightened to death in there. A studio can be a very intimidating place for live bands, and none of us had had a lot of studio experience, so we would argue and fight about the smallest, most ridiculous thing. I wanted to make sure that kind of thing didn't screw Big Sandy up.

The years that I've spent since The Blasters, doing sessions or producing or recording my own records, taught me that the best way to handle the studio is relax and try to make your natural sound appear on those big speakers in the control room. So with Big Sandy, that meant a lot of pep talks, just creating an atmosphere where they would feel comfortable. And then it was a lot of takes, deciding on the take, and maybe as a take developed, working on the arrangements. I viewed my role as interpretive, between them and Mark Linett, who engineered the records, to make it so the sound was fairly modern and yet reflected the way they wanted to be presented.

It really comes down to pulling some drama. Sometimes in older songs, or songs written to sound old, arrangements can be very monotone. Everyone hits a certain level and stays there, and especially with a band that's as quiet as Big Sandy, it's really just a matter of changing a bass part, or having the drummer going from a closed hi-hat to an open hi-hat, and we'd do a lot of things between the guitar and steel, maybe have the guitar do the solo first instead of the steel. *Sometimes what you bring to a production is your own music—like Sonny Burgess recording "Flat Top Joint" or Chris Gaffney recording "Help You Dream." The Gaffney version of "Help You Dream" has a similar honky tonk atmosphere to The Blasters' version, but it's a lot sweeter. How did you effect that?*

Of all the songs on that record, that

one went through the most versions—about four states of existence. Chris wanted to do "Help You Dream," and to me, the lyrics fit Chris' personality and fit the record, but I didn't want it to sound like The Blasters' version. And in a way, I felt that The Blasters' version was penultimate, because how can you top the Jordanaires? [Gene Vincent's backup vocalists, who appear on The Blasters' version]. So

we tried several different approaches. We tried a pseudo lounge-y jazz kind of approach. We tried a slow, slow, slow, slow country ballad approach, and none of it was working, so I got it kind of back into the honky tonk groove.

The Blasters were always more of an R&B band. So, when we would play country-ish, we would play coun-

—CONTINUED ON PAGE 223

## Big Sandy and His Fly-Rite Boys

SWINGIN' AT CAPITOL

Engineer Mark Linett has been working with Dave Alvin since 1987, when he recorded and produced Alvin's first solo record, *Romeo's Escape*. Since then, he's been the recording and/or mixing engineer on several of Alvin's releases and production projects, including the latest from Big Sandy and His Fly-Rite Boys, *Swingin' West*.

The recording was done in Capitol Studio B, which is equipped with a Neve 8068 console. But to achieve the optimum old-timey Big Sandy sound, which Linett describes as "Bob Wills, circa 1950," Linett brought in one of two 1962 Universal Audio tube consoles that he owns. "Almost everything went through that little 12-channel tube board," he says. "We recorded 16-track, 15 ips, and the record was cut live, including vocals, except for a couple of patches here and there, and we overdubbed the fiddle part, because the fiddler wasn't available for the sessions. But we did use automation; I admit it."

Linett says he used two tracks each on guitar and pedal steel, with one of each going to the UA, and the second track of each to the Neve. Another vintage touch: Big Sandy's vocal went to an old RCA 77 microphone, and then through a Neve preamp. Linett says that the RCA sounds good, gives them the old-fashioned sound they want and affords enough isolation to be able to record live.

For the recording, Linett brought in KRK 7000 monitors from his own studio, Your Place or Mine Location Recording, which was where

### Big Sandy and his Fly-Rite Boys



the record was mixed. Your Place or Mine is fitted with a modified API 2488 board with Flying Faders. Linett says he also prides himself on having "a tremendous amount of really vintage equipment, and I like to combine the two, both for Dave's records and a number of other clients, including Brian Wilson, who actually recorded in the '60s on some of the same equipment I now own." (One of Linett's UA consoles came out of United Western Studio 2.) "We kind of run the gamut between having a ½-inch, 3-track machine all the way up to a 48-track Sony digital."

Linett, whose client list also includes Randy Newman, Rickie Lee Jones, Los Lobos and others, says that he enjoys working with Alvin because "I appreciate the artist-as-producer approach. As a singer and player himself, and a songwriter, he has a good sense of those things, and to me the record is more about the music than about which mic you choose. And Dave is most often working in an idiom that I personally like to listen to, so it makes it very pleasurable." ■



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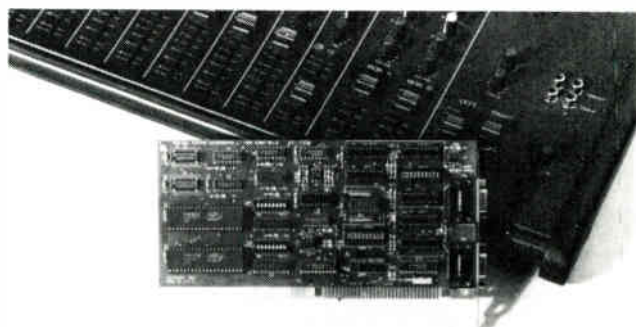
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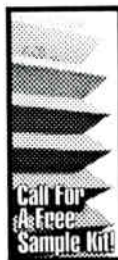
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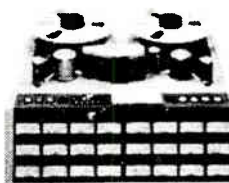
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—FROM PAGE 209, DAVE ALVIN

try like an R&B band would. With Chris, I decided to make it real country and real early '60s, kind of Winn Stewart-ish. Donald Lindley, the drummer, came up with the idea of putting bongos on it, because that would be such a late-'50s, early-'60s kind of country-Nashville way of being contemporary. Once we caught onto that groove, it was just the layering of things on top of it.

Chris' record was started with just him and me and acoustic guitars. I'm proud of that record, because I helped him on his songs: rewriting them with him, getting rid of verses, moving bridges here or there...So the whole record—though I don't mean to sound egotistical—is partly mine. I feel I'm an actual part, like I could not be removed from the record, or the record wouldn't exist the way it is.

**Did you bring this project to Hightone?** Yeah. They had done one record with him before. It was produced by a guy named Wyman Reese, who had done a great job, and they used Chris' band that he plays bar gigs with, but I knew

that there was something missing.

When I did *King of California*, Greg Leisz, who produced that and who had done sessions with everybody on earth, helped me on my vocal, and that was such an eye-opening experience that I wanted to get Gaffney, who's such a brilliant singer, in a position where his vocals could really shine.

**Do you have any plans for new projects, productionwise?**

Well, I just did produce, arrange and perform the theme for the *Mystery Science Theater 3000* movie. It'll be out in February. It's the theme from the show, but I arranged it to be kind of this rockabilly meets surf meets free jazz meets outer space meets The Byrds, meets The Turtles meets corny sci-fi guitar sounds. And I'm trying to back away from producing, because what happens is I tend not to write songs, but there are a couple of projects I'm interested in. One is this band from Austin called The Derailers. And I may be doing a record with Scott Kempner, who used to be in the Del Lords, but that one's still iffy, because he wants to do it in New York, and I want to do it in L.A.

The great thing about independent labels is you can do whatever you want, more or less, but you have budgetary limitations. And as a producer, it gets weird because you call in a lot of favors. I try to work with great engineers, and they, rightfully, want to get paid for their value. So, sometimes it comes down to "Well, man, I have to get a hotel room if you cut it there."

**I've heard you refer to Hightone as "the politically correct Hightone Records label." Why is that?**

Just because they let me do what I want. When Tom Russell and I had the idea to do *Tulare Dust*, we could have sold that to a bigger label, but I have a certain loyalty to them. The music they support is the kind of music that I like. If I was signed to Joe Schmo's Big-Time Boffo Major Label, I don't think I could go to them and say, "Hey, why don't you give me some money to do Sonny Burgess?" or Big Sandy or Chris Gaffney. Normally, no one would let these people make records, but there is a market out there for this stuff. So for me, as a novice little producer, it's like "What a workshop." ■

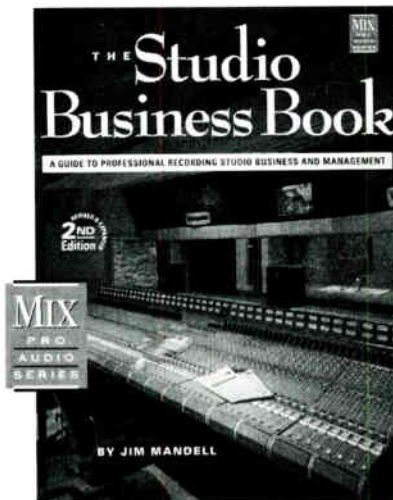
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# FEEDBACK

## A CALL TO ARMS

Both Stephen St.Croix's and Paul Lehrman's articles in the September *Mix* point out a common problem in this industry: Too often, we are no longer dealing with pro audio companies, we are dealing with computer companies. This is a major change in our industry. Computer companies do not care about pro audio! They do not depend on us for business.

As an example of this, when vendors come to our video facility trying to sell us "desktop video," I always ask them: If I call your company for tech support, do I get an engineer, or do I get voice mail? The answer always is, "Well...you get voice mail, but they call you right back!" I ask them if they have ever had a \$250/hour client pacing in their waiting room while the engineer has a computer card out, and the schematic doesn't match the card, and they need tech support, and they get voice mail? "Well..." they say, "everyone is using voice mail now." And I say, "No, they are not. Grass Valley isn't. Tektronix isn't," etc. etc. And voice mail is just a symptom of the greater problem. The root of the problem is that they're making money without having to provide even rudimentary support for the product and the user.

And it's the same for pro audio. Folks, we need to realize that we as audio professionals are no different to computer companies than a 14-year-old calling about his problems with "Mortal Kombat." We put up with neglect and corporate arrogance from computer companies that we would never tolerate from Otari, or from Mackie or from Apogee, etc.

My solution? I send the vendors away until they take this market seriously. Are we on the bleeding edge here? Nope...Do we sound great anyway? You betcha! Stop buying this junk until it works right, and watch things change.

*Don Cicchetti  
Sierra University  
Riverside, Calif.*

## EVER DOWNWARD

Many thanks to Paul D. Lehrman for saying what needed to be said about the sad state of affairs in techno-land. I encounter the "principles" he described ("the infinite upgrade spiral," "we can't test everything" and "we have to do it first") on a daily basis in the video industry, particularly now that software-based equipment is becoming so prevalent.

Even companies that were once hallmarks of sound design and commendable tech support are beginning to slip under the immense pressure of trying to outsell their competition. I continue to spec these companies' products because they are still better than the rest, but there is a sickening decline in the quality I used to depend on and the support I used to expect.

When it comes to new companies that are entering the hardware or software markets nowadays, look out! They don't even have the advantage of a well-earned reputation, so they start right in with Mr. Lehrman's three rules from the beginning, and it never gets better. They either go out of business, are bought up by some larger (equally irresponsible) entity, or muddle along playing the same games as their competitors.

To use one of Mr. Lehrman's own examples, when Apple Computer introduced the Macintosh, they created a product paradigm, not just a simple product. The Mac's underlying operating principles, the result of truly visionary work by dedicated designers, were revolutionary. Unfortunately, even the Mac's basic paradigms are slowly being compromised by the need to compete head to head on economic terms with PCs. The same is true all over: If it can be done almost as well for half the cost, you can sell boatloads to users who buy on price. And it forces the competition to do the same. Downward goes the spiral.

When did *marketing* become the strongest force in the audio and video industries? Some might say this is sim-

ply progress, and that the free market will take care of itself. But the situation is out of control, and I see no evidence that it will improve simply because of "market forces." We are headed for the realm of the lowest common denominator in American culture, and our professional values are following suit. All we can do, those of us that care, is try to maintain our personal standards and ally with others who still give a damn.

*Eric Wenocur  
Lab Tech Systems  
Silver Spring, Md.*

## MORE ON "LAYLA"

It was nice to see my name in *Mix* as one of the participating engineers on the "Layla" sessions. The track sheet was one of mine, also.

I must offer a note of correction: Karl Richardson [who also worked on the sessions] must have forgotten about "The Gazebo." Jim Gordon's drums were recorded in a booth that was circular, with walls about three feet high. It was open about 270 degrees around with a circular roof, and it allowed Gordon to see out into the room. There was no glass or Plexiglass. It was a semi-open contraption designed by Mack [Emermen] that contributed its own characteristic to the drum sound.

Eric and Bobby [Whitlock] did a lot of their vocals together on one EV-635 omni/dynamic; not a very exotic mic but a remarkably good-sounding one for rock 'n' roll vocals.

Also, during the vocals for "Keep on Growing," Eric and Bobby came in eight bars early during the guitar solo and sang one word, "lately." They asked me to erase it, but I said it sounded kinda neat. They left it—my one small contribution to production history.

*Chuck Kirkpatrick  
Cooper City, Fla.*

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