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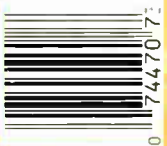
BRIAN WILSON INTERVIEW

Phil Ramone & Frank Filipetti On Digital Mixing

FILM SOUND Heat, Jumanji, Tom & Huck

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Congratulations Kenneth 'Babyface' Edmonds, Whitney Houston, Jon Gass, Brad Gilderman & 20th Century Fox



On the success of the hit movie and soundtrack 'Waiting to Exhale'

From the left: Loretta Devine, Whitney Houston, Angela Bassett and Lela Rochon. Photograph: Rande St. Nicholas

No.1 in 'Billboard' Magazine:

The Billboard 200, Top R&B Albums 'Waiting to Exhale' soundtrack
Hot 100 Singles, Hot R&B Singles 'Exhale (Shoop Shoop)' Whitney Houston



SL 9000

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PROFESSIONAL RECORDING • SOUND AND MUSIC PRODUCTION

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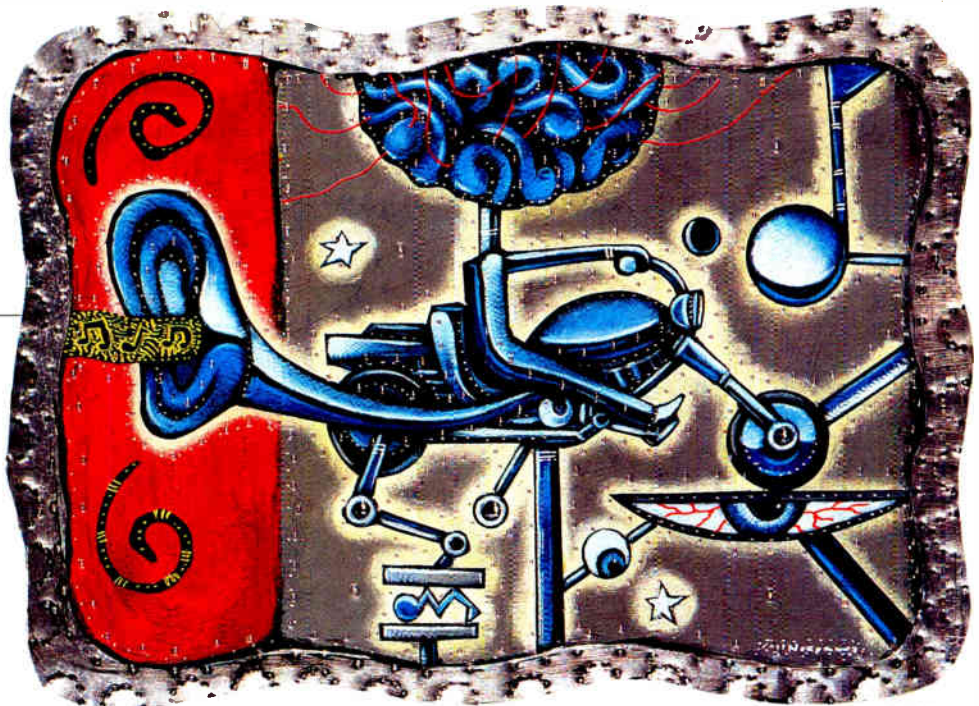
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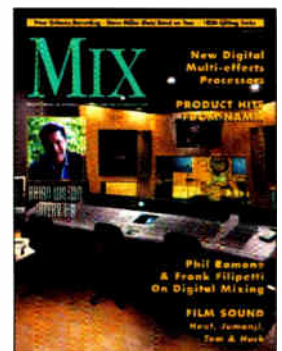
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Cover: Masterfonics' new The Tracking Room (Nashville) is equipped with an SSL 9000J console. For complete technical details about the studio, please see Rick Clark's article on page 103.

Photo: Rob Hoffman
Inset Photo: Mark Hanauer

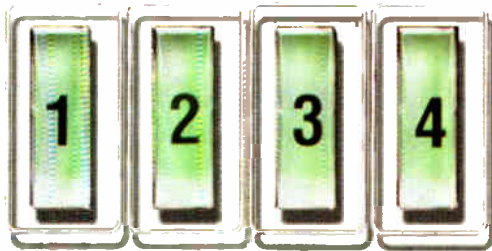


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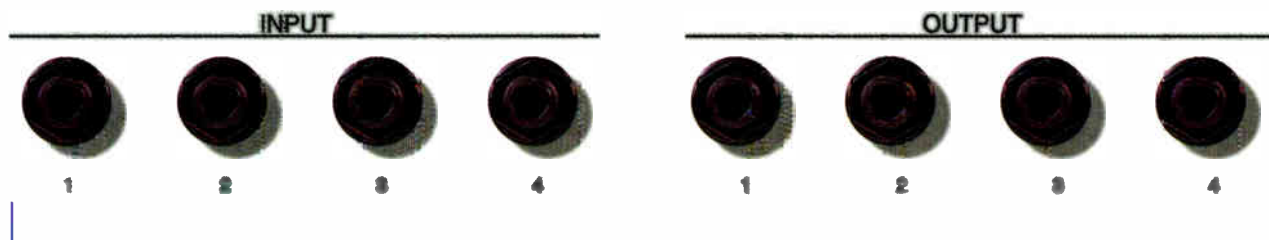
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FROM THE EDITOR

THE DANGERS OF TECHNOLOGY

I was recently invited to speak at a JBL dealer conference as part of a media panel, along with some esteemed colleagues from other audio and music magazines. The scheduled topic had something to do with where the industry is headed over the next couple of years. After the first few participants spoke out about the burgeoning project studio market, the slow-down in the touring industry, the threat to local dealers from mail-order and the promise of the Internet, I discarded my original speech and talked about the threat of technology.

Technology isn't dangerous in and of itself, but the misuse of technology can wreak havoc. Everybody likes to talk about future audio in terms of fiber-optic links to the Internet, but is a modem-activated system the best choice for a small elementary school auditorium? Probably not. In fact, what that particular installation needs is probably a simple system, preferably with a wall-mounted switch to turn it on and off. And no volume controls, please—we wanted this simple, remember?

Wireless microphones are a brilliant use of technology—in the right setting. But what scares me most about using wireless mics is the notion of using hundreds, thousands or tens of thousands of dollars of equipment to replace a \$15 mic cable. Ironically, the benchmark of quality in any wireless system is how it compares to...a piece of cable! The equipment is in perfect operating condition, yet the success of an entire show is often placed on the shoulders of a single 9V battery. And though we take appropriate cautions—using the best power source we can find and changing batteries during intermissions—we're still never sure how those batteries were stored once they left the factory, or which one is that proverbial one-in-a-million disaster in the making.

Unfortunately, we're all slaves to technology, in one form or another. Today, it's almost impossible to fathom how we all got along in the days before fax machines and Federal Express. And 30 years from now, when instantaneous matter transference arrives, we'll look back at 1996 in much the same way that we now regard Pony Express deliveries. It wasn't so long ago when 4-track recorders were the industry norm, and we craved eight. Once everybody had eight, we dreamed of 16, and so on. How many times have you heard, "The production would be perfect if I only had a couple more tracks..." Now, with unlimited tracks an affordable reality, who do we blame this time?

In this month's *Mix*, the focus turns to digital production. Chris Michie takes a look at what's new in digital multi-effects processors, and we examine assembly editing techniques using modular digital multitracks. Meanwhile, super-producer Phil Ramone and mix engineer Frank Filipetti talk about their experiences in 24-bit digital mixing on some recent projects. Here are two guys who understand technology and explain how its appropriate use has enriched their productions. As for me, I'm a fan of technology in the right setting, but as the old saying goes, "Sure, I'm willing to give up my workstation, but only after you pry my cold dead fingers off the mouse."

Technologically yours,



George Petersen



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CURRENT

EUPHONIX TO ACQUIRE SPECTRAL

Euphonix Inc. (Palo Alto, Calif.) recently announced an agreement to acquire Spectral Inc. of Woodinville, Wash. The acquisition, subject to shareholder approval at press time, evolved out of a "recognition that [Euphonix and Spectral] share a common vision of what the production studio of tomorrow is going to look like," says John Carey, vice president of marketing at Euphonix.

Under the agreement, the Spectral product line will continue to be marketed, and Euphonix will reinforce its research efforts with Spectral's hard-disk recording technology. The two companies plan to introduce combined solutions for supporting open-architecture media exchange across networks and storage devices.

Carey stresses, however, that integrated product development does not mean exclusion of other platforms. In the short term, he says, "Our ability to control, interconnect and interface with third-party digital audio workstations should be enhanced by having a 'dance partner,' a workstation we can work with. We hope [the acquisition] gives us the intensive training required to facilitate integration with stand-alone digital audio workstations."

MARK IV AUDIO FOR SALE

Mark IV Industries, headquartered in Amherst, N.Y., announced its decision to sell Buchanan, Mich.-based Mark IV Audio, a division that includes subsidiaries Altec, Electro Sound, Electro-Voice, DDA, Dynacord, Gauss, Klark-Teknik, Midas, University Sound and Vega. The reason for the sale, according to Mark IV Audio president Bob Pabst, is to allow the parent company to focus on its core business of fluid and power transfer. "While [Mark IV Audio] is profitable for them, managers at Mark IV [Industries] see that Wall Street is now looking for highly focused investments, as opposed to the diversified position that was popular in the 1980s. This situation holds great possibilities, coming at a time when Mark IV Audio is on the threshold of an exciting period."

The announcement coincides with a restructuring of Mark IV Audio to pro-

vide a smoother, more focused operation. "The increased effectiveness resulting from reorganization couples with the initial introductions from a stream of new products to make this an ideal time for a new owner," says Pabst.

GRASS VALLEY MERGES WITH TEKTRONIX

Tektronix Inc. of Beaverton, Ore., announced the merger of its subsidiary, The Grass Valley Group (Grass Valley, Calif.) with Tektronix. Grass Valley will continue as a development and manufacturing site for Tektronix, specializing in switchers, routers, effects and video communications products, while continuing to produce the Grass Valley line.

The merger has been developing for several years, beginning with Grass Valley's integration with Tektronix's Video and Networking Division (VND), in 1995. "The integration of The Grass Valley Group within VND allows us to streamline our operation, enabling us to further enhance our position as a leader in this market," says VND president Lucie J. Fjeldstad. Dan Castles, vice president of VND's Grass Valley operations, agrees. "The efficiencies of the integration will come from finalizing the merger of two separate but complementary markets into one," he says.

GENELEC FORMS U.S. SUBSIDIARY

Genelec Oy of Iisalmi, Finland, manufacturer of active monitoring loudspeakers, has created a new subsidiary. Effective January 1996, Genelec Inc. in Wayland, Mass., became responsible for marketing and distribution of the rapidly growing Genelec product line in the United States. Authorized service operations continue to be handled by Florida Electronics Services (North Miami, Fla.). Genelec Inc. will support the distributor in Canada, as well as distributors in Central and South American countries. For further information, contact Genelec Inc., 42 Peck Ave., Wayland, MA 01778.

HHB ANNOUNCES U.S. EXPANSION

HHB Communications Ltd. in London announced an expansion and name change of its U.S. operation. Portland,

Maine-based Independent Audio is now HHB Communications Inc.

The move solidifies HHB's growing commitment to the U.S. market. According to an HHB representative, the name change will help streamline the two operations. "The relationship has always been close, but now there's a bigger presence," the representative says.

The expansion and name change coincide with HHB's celebration of its 20th anniversary as manufacturer and distributor of audio products.

SPARS TO HOST BUSINESS AND TECHNICAL CONFERENCE

The Society of Professional Audio Recording Services (SPARS) is hosting a weekend-long business and technical conference in Los Angeles from May 17-19. Featuring keynote speaker Rupert Neve, the conference will focus on expanding business through technology. SPARS president John Fry, who is chairing the event, says, "As we approach the end of the decade it's essential that leaders in the audio industry develop new strategies for success in the 21st century. Previous conferences have focused on digital audio workstations and have been largely demo-oriented. This year the conference is information-oriented, with an emphasis on the implications of new audio technologies."

Topics to be addressed include strategic investment in evolving technology, electronic distribution, and ISDN for audio, video and data transmission. A variety of manufacturers will make presentations and hold panel discussions, and a tour of Walt Disney Studios' audio facilities is planned. Registration is limited. For more information, contact SPARS executive director Shirley Kaye at 800/771-7727.

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The Mix Foundation for Technical Excellence in Audio in Emeryville, Calif., is pleased to announce the distribution of proceeds from the Eleventh Annual TEC Awards, held October 6, 1995.

This year's total of \$30,000 was distributed to organizations specializing in

—CONTINUED ON PAGE 14

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INDUSTRY NOTES

In a restructuring move, **Apogee Electronics** named **Richard d'Abo** to the post of acting president, **Betty Bennett** to vice president of sales and marketing and **Brent Elder** to director of engineering...**The Harman dbx group** (Sandy, UT) promoted **Rob Urry** to the position of president; Urry was previously vice president of engineering for both the Harman DOI and dbx groups...Recent **Lexicon** (Waltham, MA) developments: **Gregg Perry**, formerly of **Kurzweil Music Systems**, was appointed to the position of marketing communications manager, and **Steve De Furia** was promoted to director of product management and will oversee the product development team, which includes newest members **Mike Dejadon**, **Craig Jackson** and **John Rotondo**...**Mike Papa**, previously of **Kawai Corp.**, was named vice president of professional product sales and marketing at **Kurzweil Music Systems** in Cerritos, CA...**Concept Technologies Group Inc.** recently sold its controlling interest in **Klipsch Professional** (Hope, AR) to New York-based **Consolidated Technology Group Ltd.** In other **Klipsch** news, the company recently promoted **Ginny Sanders** to marketing services manager and appointed **Bruce Marlin** to chief engineer...**KH America** (Holliston, MA) appointed **Ray Lepper**, managing director of **KEF Audio**, to the post of acting president during the company's ongoing search for a president...Ten-year company veteran **Howard Mullinack** was promoted to vice president of sales and marketing at **Orban**, a Harman International Company based in San Leandro, CA...**Calrec** (West Yorkshire, UK) appointed three U.S. product representatives. **Studio Consultants** of New York City represents console products in the Northeast; **Redwood Marketing** of Nashville represents console products in the Southeast, Central and

Western states; and **Audio Exchange International (AXI)** of Rockland, MA, represents rackmount processors in the U.S. and Canada...**Symetrix** (Lynnwood, WA) is celebrating its 20th year in business this year. The company recently named **Norwich, NY-based Innovative Marketing** as its sales representative firm for the upstate NY area...**Spirit by Soundcraft Inc.** moved its North American distribution center. The new address is 11820 Kemper Road, Auburn, CA 95603. Tel. 916/888-0488; fax 916/888-0488...**Ralph Goldheim**, previously of **Roland Corp.** U.S., was named vice president of sales and marketing of **Fast Forward Designs Inc.** (Los Angeles), and will manage sales and marketing of **Line 6**, its new division launched to manufacture and distribute its own product line...**Michael Creamer** was brought on board at **Telecast Fiber Systems** (Worcester, MA) and will serve as senior sales engineer...**Sellmark Electronics** has two new internet addresses. Reach its UK office at audiomation@sellmark.octacon.co.uk, and its U.S. sister company at audisel@audisel.ma.ultranet.com...**Pinnacle Micro** in Irvine, CA, received a 1995 Products of the Year Award from *Imaging* magazine for its recordable CD system...**Gainesville, FL-based Z Systems** appointed two international sales representatives, **The European Office** and **VW Marketing**, both headquartered in the UK. In other Z Systems news, look for its new Web site at <http://www.z-sys.com>...**CIS Technology Inc.** USA opened a new compact disc manufacturing plant in Milpitas, CA. For information, call 800/366-1020...**BSS Audio** announced OEM support from manufacturers **CRAY Acoustics** and **L'Acoustics**, and P.A. companies **Adlib Audio**, **Tourtech** and **MD Systems**. Also, **BSS** announced the launch of its Web site. The address is <http://www.bssaudio.co.uk/bss/>. ■

—FROM PAGE 12, CURRENT

treatment and prevention of hearing impairment, and to scholarship programs for students of the audio arts and sciences. Fifty percent of the funds was presented to Los Angeles-based **House Ear Institute's Hearing Is Priceless** campaign, which educates the public, especially children, about the dangers of noise-induced hearing loss. Fifteen percent was donated to the **SPARS** audio scholarship program; 10% was given to the **AES Educational Foundation**; and 5% percent went to **Hearing Education Awareness for Rockers (H.E.A.R.)** of San Francisco. Twenty percent of the proceeds was distributed to scholarship programs at **Berklee College of Music**, **Full Sail Center for the Recording Arts**, the **Institute of Audio Research**, **Middle Tennessee State University**, **University of Massachusetts at Lowell**, **University of Miami** and the **University of Southern California**.

The Twelfth Annual **TEC Awards** will return to Los Angeles' recently refurbished **Biltmore Hotel** on Saturday, November 9, 1996. Contact **Karen Dunn** at 510/939-6149 for more information.

CONVENTION NEWS

This year's **National Environment and Safety Conference** will be at the **Hyatt Regency** in **Oakbrook, Ill.** on April 1-2. The keynote speaker will be **Jerry Scannell**, president of the **National Safety Council** and former head of **OSHA**. For details, contact **Florence Queen** at 412/621-6941.

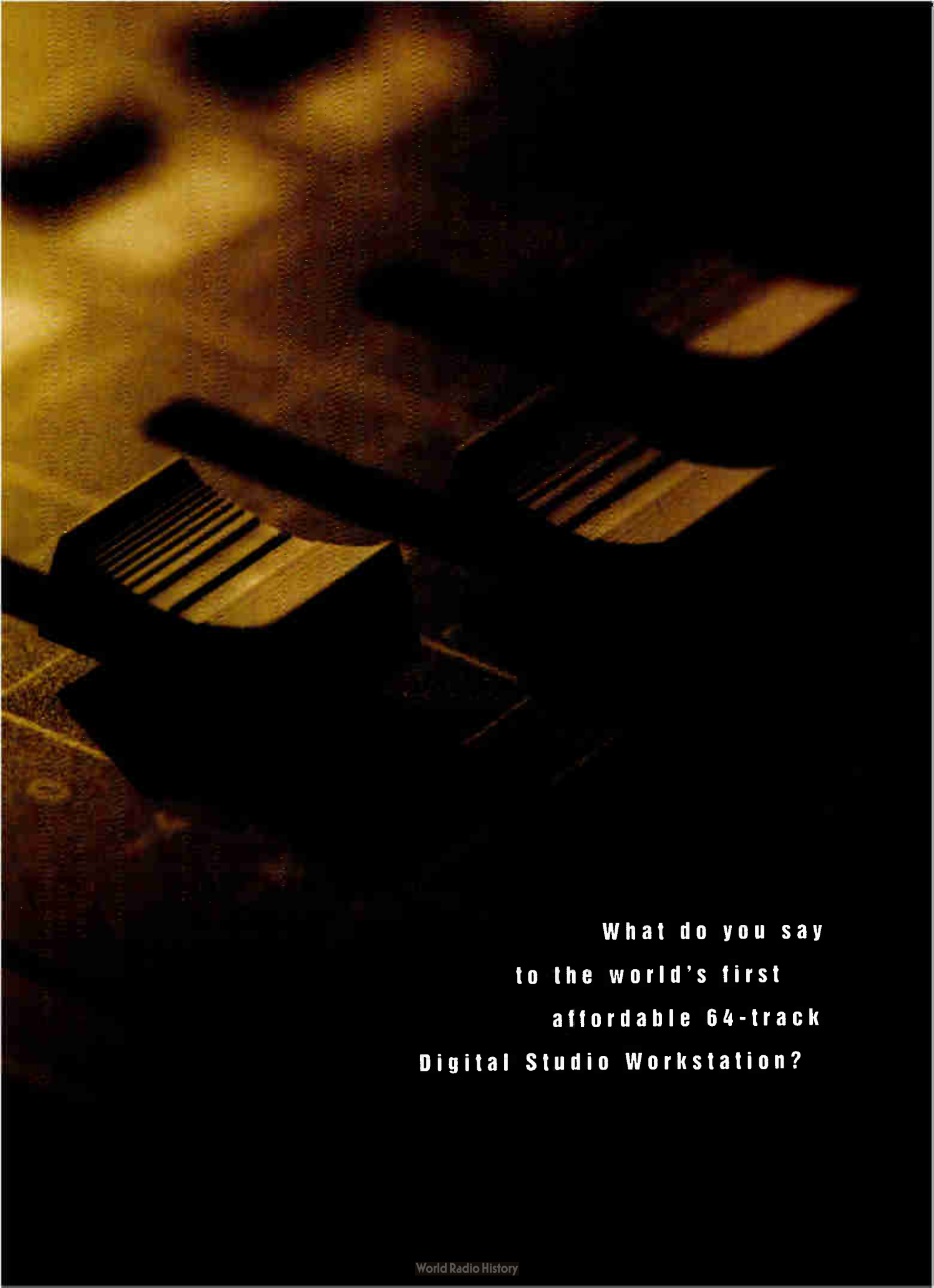
The **Orange County Convention Center** will host **CES Orlando**, to be held May 23-25. The latest in digital consumer products will be shown; seminars are also scheduled. Call 800/CES-5655.

The eighth annual **Pro Audio & Light Asia '96** will take place July 10-12 at the **World Trade Centre** in **Singapore**. This year's events include an audio engineering forum organized by the newly formed **AES Singapore** section, and the new **PALA Bookstore**. For more information, call (65) 227-0688.

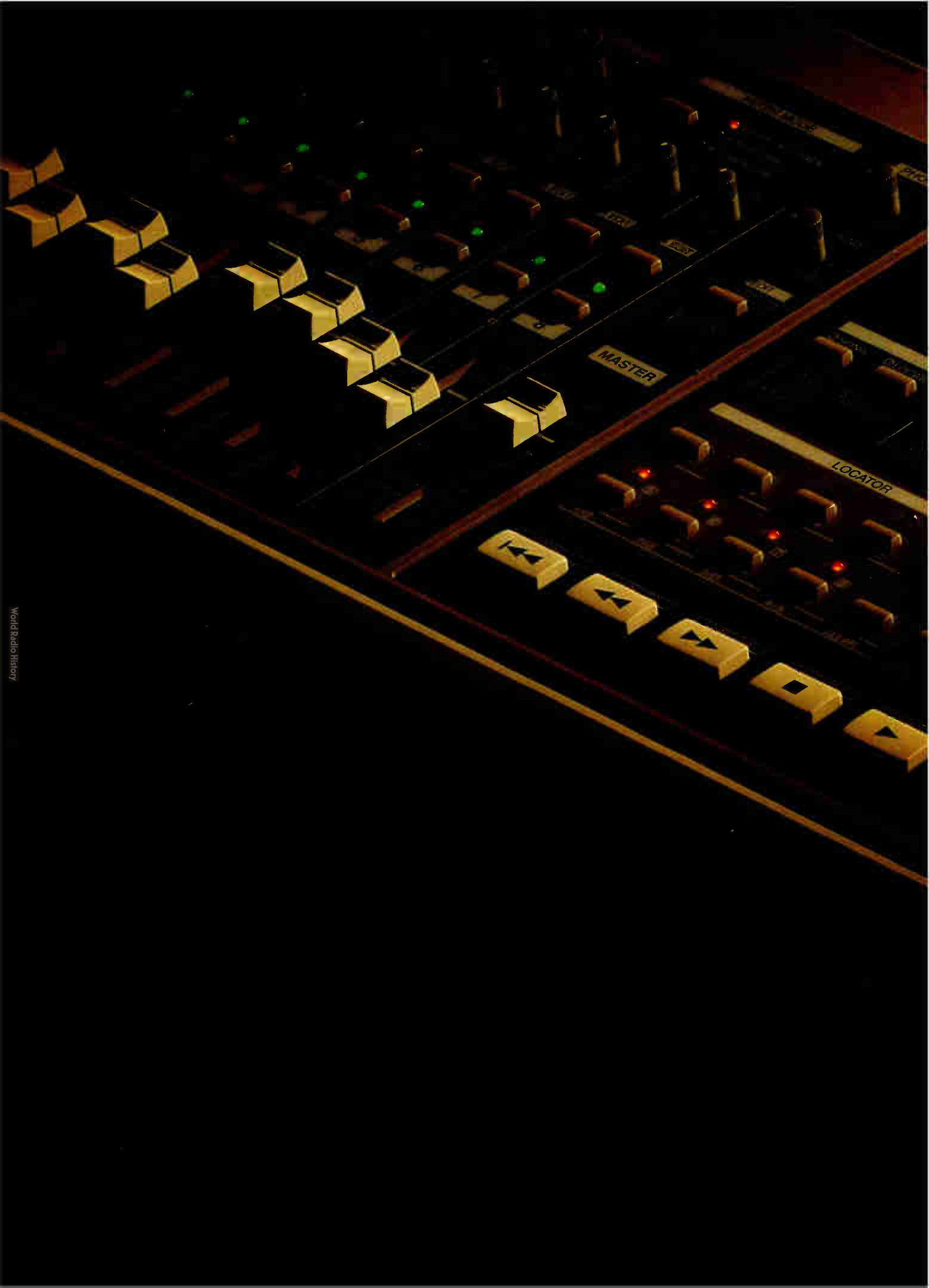
Audio 96, Technology & New Media is the title of this year's **APRS** exhibition, June 19-21, in **London**. Call (44) 1734 756218 for more information.

CORRECTION

In January, *Mix* listed an incorrect address for **Keith Hatschek and Associates**. The correct address is: 595 Market Street, Suite 1350; San Francisco, CA 94105. Tel. 415/227-0894; fax 415/543-1725. ■



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to the world's first
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Digital Studio Workstation?**





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VS-880

Welcome home

Say hello to the first fully integrated digital recording workstation practically anyone can afford. The VS-880 is for anyone who ever wanted more and more out of their home or studio recording environment.

It's a 14-channel digital mixer. It's an 8x8/64 virtual track digital recorder. It's two completely independent stereo multi-effects processors. And it's up to 500 minutes or more of random access recording time.

It's time to turn your home or workplace into the studio you've always wanted. Turn on to the VS-880 Digital Studio Workstation and discover just how easy recording, editing, mixing and mastering can be to help you create your best work.

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VStudio
VS-880

*With optional VS8F-1 Effect Expansion Board.



Who did you think would put it all together?

Only Roland could combine all the key components of studio recording
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The VS-880 is the first digital workstation of its kind.

A 14-Channel Digital Mixer

The VS-880 comes with a 14-channel digital mixer with digital EQ. Fader, pan and mixer parameters can be automated by MIDI control change messages. Internal snapshot automation is included.

An 8x8/64 Virtual Track Digital Recorder

Eight primary tracks with eight levels of virtual tracks give you the ultimate in recording flexibility. Record multiple takes, edit or undo edits and compile the best parts of various takes to create the perfect track without compromise. You can accumulate up to 64 instantly accessible tracks and choose eight for final mixdown.

Digital Editing

With the VS-880, you get fully non-destructive editing capabilities. You can copy, move, exchange, insert, cut and erase tracks. Because it functions like a word processor, you can select the perfect chorus of your song, copy it or move it somewhere else without re-recording it. Or cut out another section and have the remaining material slide over and fill the open space automatically. And if you're not satisfied with a particular edit, simply return to the previous performance. Instant locate points make editing on the VS-880 as user-friendly as it gets. For advanced applications, functions like Scrub Preview or Time Compression/Expansion are available.

Digital Mastering

The VS-880 is fully digital and has digital in and out. This makes it compatible with all your existing digital equipment, both linear tape-based and non-linear hard disk format.

Two Digital Effects Processors

A VS8F-1 Effect Expansion Board can be easily user-installed, giving you two totally independent multi-effects processors. Reverb, stereo delay, chorus, flanging, vocoder as well as distortion/overdrive and guitar amp simulation are a few of the effects that can be added during recording or during final mix in realtime. Three dimensional effects based on Roland's proprietary RSS[®] system are also included.

Digital Memory

You can choose the type of memory which best suits your needs. Select a 540 MB internal drive or an internal 1 Gigabyte removable Iomega[®] JAZ[®] drive capable of 500 minutes of recording time. A standard SCSI port allows for easy connection to external drives such as Iomega[®] ZIP[®], magnetic optical or other storage media.

Synchronization

The VS-880 is MIDI compatible for synchronization with MIDI Time Code (MTC) as both a master or slave. MIDI Machine Control (MMC) also allows automated transport control, putting playback, fast forward, rewind and more at your fingertips.

The VS-880 Digital Studio Workstation is ready and waiting for your valuable input at your nearest Roland dealer. Or call (213) 685-5141, ext. 798 to order a free demonstration video.

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World Radio History

PERSONAL THOUGHTS

(WHILE WAITING FOR THE MEDICATION TO KICK IN)

D Once I grew up, gave up and backed up. I stopped having heart failure every time my computer crashed. So—Back Up or Back Out. Or maybe it's Back Up or Give Up.

2) I learned this stuff from a CD-ROM: The magnitude of pressure changes in air caused by sound waves is really, really small: 261 Hz (middle C), traveling through air at the maximum level that the human ear can tolerate, generates air-density modulations of plus or minus a measly 0.02% deviation from dead air. That same middle C has a wavelength of about four feet. The human ear can detect sound with density fluctuations of less than one ten-millionth of 1%. A 10dB increase in a sound's level is perceived as twice as loud. Regular exposure to sounds of about 90 dB

will eventually cause hearing loss, and sounds of 130 dB can cause immediate and permanent hearing loss. I just found out from ABC Sports that the SPL on the playing field of a major football game can actually exceed that 130 dB.

They told us acid would scramble our genes, and the only scientific evidence of that turned out to be those stupid acid-washed pants hanging a foot too low off the rear ends of rappers—so we learned not to trust government warnings. On the other hand, I offer you this personal lesson: Trust the warnings about high SPLs tearing your ears apart forever. It's no joke. Get out that old SPL meter and see just how far above 90 you really mix. Come on, now...try it for me. I

don't want to have to yell in your ear when we finally meet someday.

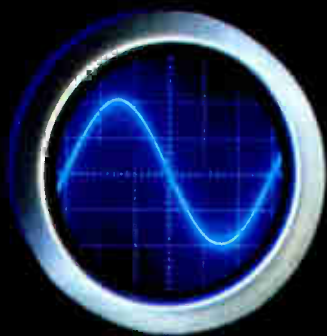
3) Times, they are a' changing. Well, I guess time does that...unless you could keep it in a bottle. Actually, these days I guess we *do* keep time in a bottle. We slice it up into about 44,000 little snips a second and then put it on tape, disks and in memory. Then ten years later, we get the old bottle out and listen to it again (unless, of course, that bottle was a DAT or a cyanine CD-R: then we just get error messages). What a system. What a planet.

It really *has been* a digital world for some time now, where analog gear is the anomaly, the freaky special case, the nostalgic. While most of today's digital gear talks to other digital gear directly, recording consoles, the toll booths of digital audio, do a pretty good job of

BY STEPHEN ST. CROIX



ILLUSTRATION: JOEL NAKAMURA



AUDIO INTEGRITY

You are busy trying to create the perfect mix, so we'll get right to the point. The new Sony DPS-V77 is a single rack powerhouse –

a digital multi-effects signal processor that combines the best of

our DPS Series, for an impressive array of effects including reverb, delay, modulation,

dynamic filtering and more. The V77 also offers balanced and unbalanced analog and digital

I/Os, with high resolution 24-bit A to D, 20-bit D to A converters and Sony's proprietary 32-bit

digital signal processing. Result: great sound in, better sound out.

DUAL EFFECTS ARCHITECTURE

With 50 effects per block, the dual block architecture of the DPS-V77 makes it extremely flexible, since it allows for various serial and parallel configurations. Each block is equipped with a switchable

IT'S A SIGNA



IT'S A GARBA

pre or post effect EQ. You'll find 198 user presets in addition to 198 factory presets. You'll also discover several new, ear-opening effects, from intelligent pitch shifting to irregular delays, to mono/stereo conversion, and three-dimensional spatial placement. The most important feature, however, may be what this unit *doesn't* come with.

MORPHING

Nietzsche once said, 'get rid of the junk you don't need.' Or something like that. Anyway, sound philosophy for life is sound philosophy for signal processors. So, that annoying drop-out you get switching

L PROCESSOR.



GE DISPOSAL.

between effects? It's history. Eliminated. Toast.

Seamless transition — say, between the tail end of a reverb into a chorus — is now reality. With this

'morphing' function of the DPS-V77, a new effect

(like a chorus or flange) can begin while a current

effect (like a reverb or delay) is decaying, giving you

from 0 to 10 seconds transition time.

USER FRIENDLY

Take a good look: nice, big LCD display and "jog/shuttle" knob. Numeric key pad, descriptive icons. Assignable direct access keys, located where they ought to be. Call up a preset and up to 6 of your most frequently used parameters are there instantly. All this, plus full MIDI

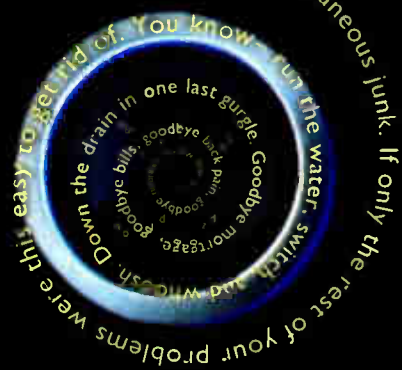
control. So work flow

quickly, smoothly, easily

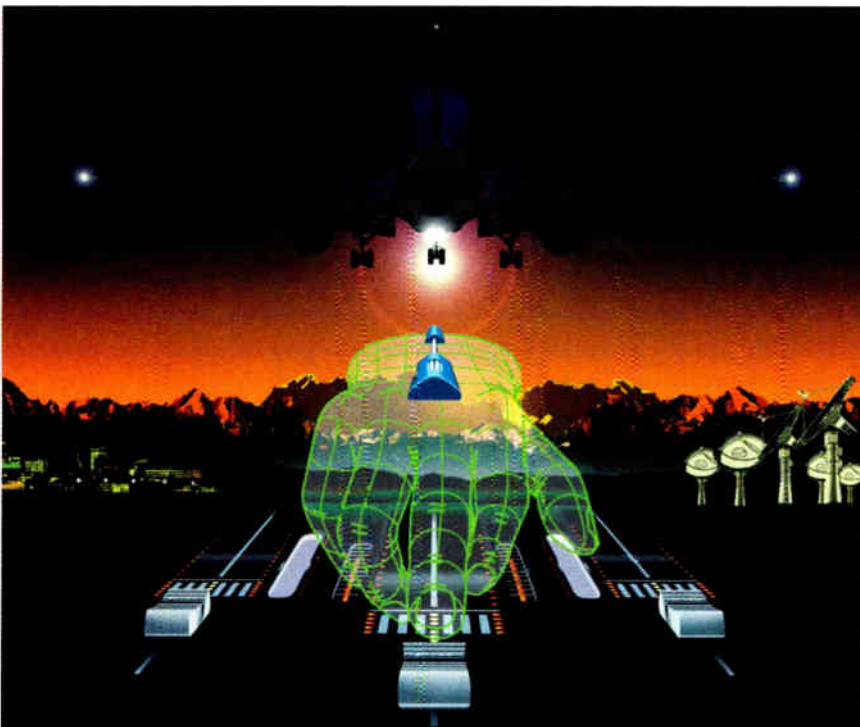
As easy as calling

1-800-635-SONY, ext. DPS, for more information.

Imagine. No more fumbling, grumbling, mumbling with a whole rack of trouble. No more extraneous junk.



SONY



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bringing all that to a screeching halt, forcing D/A conversion and subsequent A/D reversion. Though you would think that consoles would be the first to go digital because they are the audio hub, it just ain't that way.

There are many financial and technical reasons why the majority of mixing consoles aren't fully digital, and I am not about to list them here. Suffice it to say that it is difficult and expensive with today's approaches to get complex combinations of clocked datastreams to sync or resolve, so nobody does. But

**They told us acid would
scramble our genes,
and the only scientific
evidence of that is
those acid-washed pants
hanging a foot too low
off the rear ends
of rappers.**

there's more. Not enough people really trust digital EQ and compression yet, and few of those who do would want to be forced to rely *solely* on DSP for all their signal processing needs, and in many cases, this wariness is probably warranted. I have heard some truly dismal digital EQ in popular commercial products, and even worse compressors, and even *woose* sample-rate conversion. So far, it looks like if 44.09 were meant to be 44.1, it should have come that way.

So where are we today? The Bleeding Edgers will gladly jump right in and tell you that they are 128% totally digital. Well, they are either lying, or simply doing without many functions and processes that don't currently work properly in the digital domain. The Good Ol' Boys will tell you that they are almost totally analog, and that they convert to digital at the last possible second (for you Bleeders, that's 44,100 samples from now), and only do *that* when the silly client insists.

Real-world workers don't have an answer, they have a trend. They either like the power of digital and so live there whenever possible, leaving as

FILM FOR THE FUTURE...



The Logic 2
JoyStick Panel

AMS Neve's Logic 2 digital dubbing console proves that the future of film technology is ready for you now. Flexible, upgradeable, compatible, powerful and with entirely open architecture, the Logic 2 with an integral AudioFile digital audio playback system enables film mixers to work with audio from any source — analog or digital.

The Logic 2's OMF Interchange software gives users the ability to work alongside established picture systems such as AVID and Lightworks — a big advantage in an industry where compatibility is vital. Add to that, surround sound in every current format and Logic 2's Total Dynamic Automation™. Best of all, with over 200 Logic 1, 2 and 3 consoles installed worldwide, your projects are transferable... wherever you want to work.



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THE FAST LANE

soon as an interface issue or a sound quality issue arises. Or they love the old warm sound of analog and only go digital when they need some super-powerful editing feature, or to store and ship final product, since, damn them all, vinyl is now *literally* real gone, daddy-o. These are the cool guys. I know one who actually has an *all-tube* audio system in his *car*. But wait, that's not the really cool part; here it comes: His signal source is a *CD player*! Now I need to find somebody with a set of those old spacey Japanese experimental speakers that ate digital data directly and

pushed solid aluminum honeycomb pistons into the air with 16 on/off switcher transistors, each with its own voice coil winding, each one twice as big as the other, all at 44.1 kHz (think of it; MSW: most significant winding). Now we have to hook that guy up with a nice old Thorens turntable and get him to mount the entire setup in a VW van with peace signs and mushrooms on the side and about half of an "Airplane Live at Fillmore West" bumper sticker.

AND NOW THE WEIRD STUFF

I thought that you might like to see some columns that seemed like a good idea at the time but didn't really work

out once the idea was developed.

1) Pixelcount—The Ultimate Techno-Dweeb Monthly Column: Welcome to Pixelcount. Over the next years, I will be keeping you in touch with the single most important aspect of your interface to that magic and totally necessary cyberspace on the other side of your computer screen. Since you simply can't do *anything* in the music industry without a computer anymore, and you need to stare into a video monitor to see what is going on inside that computer, display quality is critical to your everyday quality of life. While a fuzzy, blurred monitor can make you tired and frustrated and

**Strings...
And Other Things**

Sennheiser's ME 64/K6 system meets the stringent demands of digital recording. The ME 64 cardioid capsule is perfect for capturing the subtle nuances of acoustic instruments and cymbals. Its high output and quick transient response yield superior signal-to-noise ratio with extremely low distortion. Plus the K6 power supply is the heart of a modular system which accepts other mic capsules: from omni to long shotgun and even lavaliers.

Now you can expand your collection to handle any studio or field recording application.

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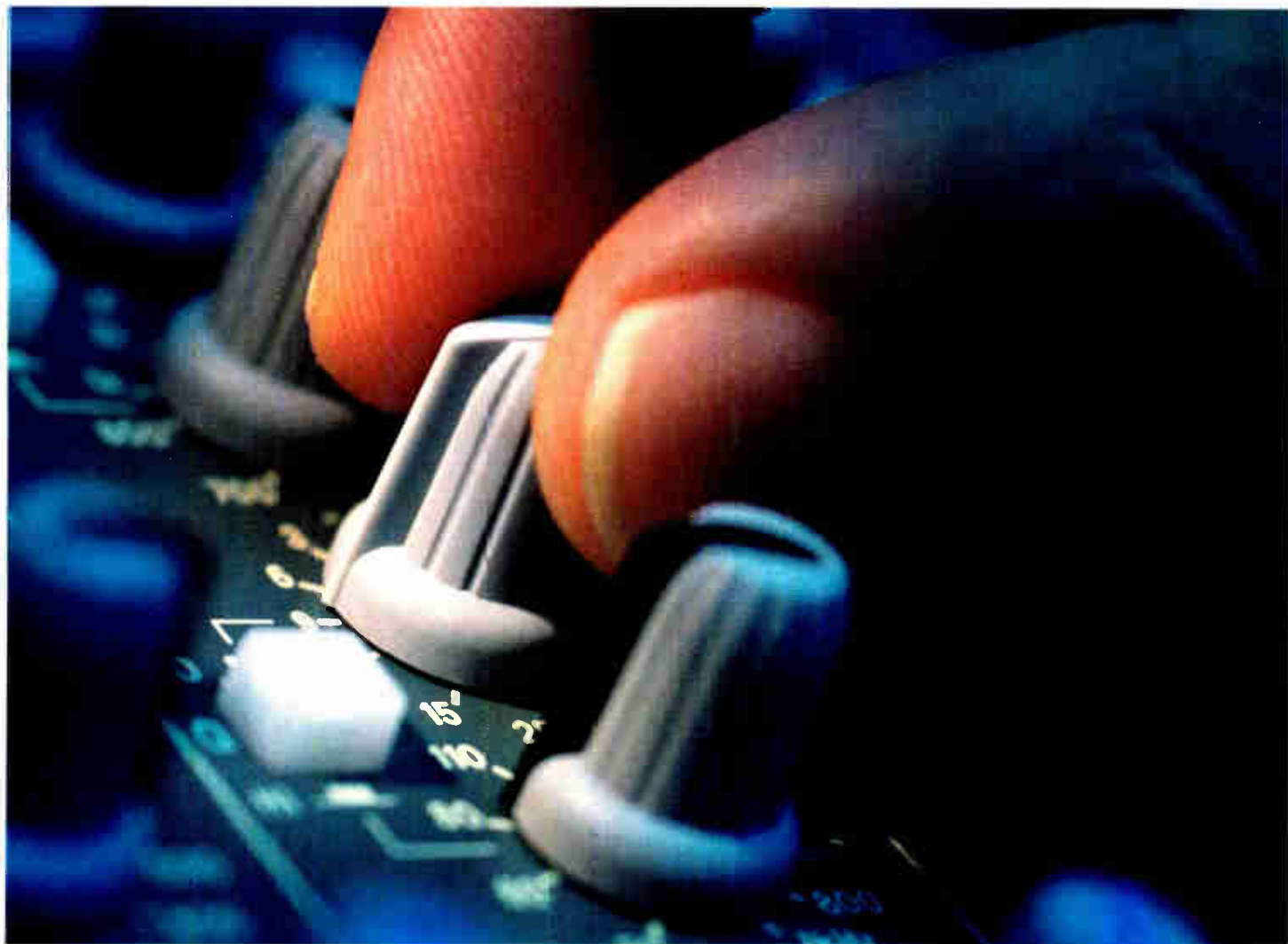
**It really has been
a digital world
for some time,
where analog is
the freaky special case,
the nostalgic.**

probably end up giving you a headache, a sharp, crisp display can be thrilling and give meaning to an otherwise dull virtual life.

We have all heard the quote, "I have been rich, and I have been poor, and rich is better." Well, this basic concept applies to monitors, as well. I have seen low-res, and I have seen high, and high is better. The more pixels the better, the sharper the better, the brighter the better, and the faster the update rate the better. So over the next months I will be... Wait, I guess that's about it. The point is get the most pixels that you can afford, and the sharpest ones at that. Hmmm, I guess there's not too much more to say, so I guess this will be the final column in the series. I want to thank my loyal readers for traveling with me down this fascinating (albeit somewhat short) road.

2) WordLength—The Ultimate Techno-Dweeb Monthly Column. You all know how important it is to cram as many bits into an audio word as possible. Remember the first digital toys? The Delta-t from Chris Moore when he was at Lexicon and the Eventide Harm-O-Nizer? Eight-bit audio bit pretty bad, didn't it? And then 12-bit came along, and it bit less than eight. Then 16-bit

—CONTINUED ON PAGE 213



The Soundcraft DC2020 -because not all EQs are equal.

Whether working in post-production or music recording, you are judged by the sound of your finished product - however diverse and whatever the quality of the source material.



one source.

Add to that moving fader automation, touchscreen driven machine control,



With outstanding new EQ design, Soundcraft's DC2020 delivers an unrivalled degree of control - invaluable when assembling audio from more than

video sync, plus on-board hard disk storage, and the argument for choosing DC2020 becomes irresistible.

Discover more about the DC2020 by calling 818 893 4351 today.



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H A Harman International Company

FEATURES:

8 tk. simultaneous disk recording

Non-destructive editing

Multiple TAKE function

Expand to 128 tracks

Link up to 8 machines

You Could Always Hear What AKAI Did For Your Music . . .

Record/Edit

The new DR Series utilize our latest 24-bit internal processing technology enabling simultaneous 8-track recording with the transparent digital audio quality that has become an Akai trademark.

Three dedicated LSI's (Large Scale Integrated circuit) for recording, mixing, and optional EQ provide real-time performance and stability of operation that computer based units simply cannot provide.

Real-time random-access editing features like copy, insert, copy + insert, move, move + insert, erase, delete, slip, and sliptrack inspire creative efforts that are simply unthinkable with tape based recorders. The TAKE function allows you to record up to five separate takes of a critical solo, or enables you to compare separate effects treatments of a singular passage. The jog and shuttle wheels make finding precise edit points a breeze, while the familiar tape-machine style transport controls and autolocator make operating the DR Series recorders like working with an old friend.

In 1992 we introduced low cost disk recording with our 4-track DR4d. Thousands of DR4d's have found their way into broadcast facilities, recording studios, post production houses, and project studios. Combining our experience with input from thousands of end users, we created the DR8 and DR16. Whether you're just starting out with your first 8-track, upgrading your current tape-based MDM, or even if you're planning on a double-whammy, 128-track, multi-interfaced, graphically-based, post production facility, the new DR Series from Akai will serve your needs and grow with you in the future. It's an important fact to consider when someone tries to sell you a "budget" digital recorder that never really meets your needs. Check out these features and you'll "see" what we're talking about.

MORE FEATURES:

18 bit ADC • 64X oversampling

20 bit DAC • 8X oversampling

24 bit internal processing

16 channel digital mixer

Dynamic MIDI mix automation

Built-in mic preamps

2AUX sends

109 point autolocator

AES/EBU and S/PDIF digital I/O

50 pin SCSI port

DR8 - \$3495.00 Sugg. Retail Price
8 Track Disk Recorder



DR16 - \$4995.00 Sugg. Retail Price
16 Track Disk Recorder

EVEN MORE FEATURES:

Balanced 1/4" TRS in/out

Switchable +4/-10dB line levels

8 in 8 out + stereo master (DR8)

8 in 16 out + stereo master (DR16)

Media

The DR8 can be equipped with an optional internal 1 GB SCSI drive, while the DR16 is available with an optional 2 GB internal SCSI drive. The DR Series recorders are both equipped with a standard 50 pin SCSI port allowing a combination of up to seven SCSI drives with disk overflow recording capability. Lists of compatible drives are available from Akai product information.

Data backup is achieved through standard audio DAT or Exabyte.

At the time of this writing, the Iomega Company is preparing to go into production with their new 1 GB "JAZ" drive, a removable media SCSI drive which will greatly enhance the capabilities of our new DR Series recorders. Stay tuned for more info in our upcoming ads. Better yet, test drive a new DR Series recorder today at your local Akai dealer.

Now You Can See It.

Mixing

Some of our competitors' disk recorders use a portion of their recording LSI to provide mix capability. While this saves money, it can also produce audio artifacts like "zipper" noise when adjusting such critical functions like EQ, pan, and fader level. On top of that, many disk recorders won't even let you make real-time adjustments during mix down, eliminating a critical part of the creative recording process. The heart of the DR mixer is a 16-channel, 24 bit custom LSI designed to provide real-time dynamic digital mix capability. Built-in 99 scene snap-shot automation for all functions and dynamic automation via external MIDI sequencers, combined with 8 or 16 channel 3-band parametric EQ option, ensures that the only limit in the DR Series mixer is your imagination. With its built-in 16 channel mixer, the DR8 becomes the perfect compliment to any 8-track recorder you might currently own. It can mix down its 8 tracks of internal digital audio with an additional 8 inputs from a sampler, tape machine, or a live performance, all in the digital domain. The MT8 mix controller provides a 16 track console format for dynamic remote control of all mix and EQ parameters.

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SuperView™ SVGA card - \$699

ADAT interface - \$299

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MT8 MIX controller - \$799

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SuperView™

We sort of went into a frenzy packing new features into our DR8 and DR16. When we stepped back to take a look at what we'd done, we realized we crammed a whole roomful of equipment into a single 5U box. In order to help keep track of everything that's going on inside our "studio in a box", we developed the SuperView™ SVGA monitor board. SuperView™ mounts internally in the DR8 or DR16 and provides envelope and track information for up to 16 tracks of audio, as well as region highlighting for record, playback, and edit. SuperView™ is further enhanced by 16 track level meters with indicators for left/right master out and aux 1/2 out. The time indicator will read in the same format as the DR front panel. SuperView™ requires no external computer, simply plug your SVGA compatible monitor into a SuperView™ equipped DR Series recorder and you're ready to go. SuperView™ enables real-time video representation of audio status; no waiting for screen re-draws. What you hear is what you see.



(Monitor/Keyboard/Omega Drive and Batteries not included.)

Keyboard Interface

To increase the power of SuperView™ even further, we added an ASCII keyboard input to the SuperView™ card, allowing a standard ASCII keyboard to operate as a control interface for SuperView™ equipped DR Series recorders. Function keys will provide the ability to zoom in on a single track, as well as zoom in/out timewise for precise edit capability. All tracks and locate points can be named, allowing you to manipulate and track large amounts of data in a very simple manner. A unique interface has been developed to allow track arming, transport control, and edit functions directly from the keyboard, providing enhanced productivity through an intuitive human interface design.

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TOMORROW'S TALENT

REPORT FROM AN AUDIO EDUCATION SYMPOSIUM, PART 1



ILLUSTRATION: RICHARD DOWNS

Once upon a time, it seemed that the only way to embark on a career in audio engineering was to do time answering phones and emptying ash trays at a big-city studio, until someone noticed you, or someone got sick, and you were thrown into a session. If you swam, you were an engineer; if you sank, it was back to driving a cab.

Today there are hundreds of programs offering education in the field of audio engineering, from weekend quickie courses at the local 24-track, to four-year college degrees and even post-graduate studies. A lot of the force behind this growth has been the increasing technical sophistication required of today's audio professionals, which is not easily gleaned by merely

peering over an engineer's shoulders. Also contributing has been the increased pressure put on American education in recent years to provide real-world job skills to students, so they can jump into careers with a running start. And let's not forget the coolness factor: Audio engineering as a career is far more visible than ever, and the huge number of young people who are attracted to it are demanding training.

As someone who was denied formal education in audio engineering—for the simple reason that it didn't exist when I was in school—and who today is spending a good part of his time providing just that to the 150 or so

students in the University of Massachusetts Lowell's highly regarded degree program in Sound Recording Technology, I take this topic quite seriously. So when I was asked to moderate a discussion called Educating Tomorrow's Talent at a seminar last fall I jumped at the chance. People from all parts of the audio industry were invited to talk about the role of education in preparing young people for careers in audio. The couple of dozen who showed up included studio owners, post-production engineers, audio manufacturers, dealers, system designers, consultants, educators and students.

The seminar wasn't held at the AES convention, but instead at a remarkable little colloquium put on each fall by Parsons Audio, a re-

BY PAUL D. LEHRMAN

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spected audio dealership just outside of Boston. Now in its fifth year, the Parsons Audio Conference brings together the company's customers and suppliers in a two-day orgy of hands-on demos, product presentations and discussion groups. Topics of the groups range from broadcasting, to acoustics, to multimedia, to "computer hell." What makes the conference particularly valuable, and a welcome change from the formality of an AES convention, is that participants here are happy to let their hair down—whether they are lone-wolf freelancers or representatives of multinational conglomerates—and get into substantive, honest and sometimes downright belligerent interchanges. A lot of food for thought is served at the Parsons conference, and just about everyone who attends comes away with new ideas and understanding, not to mention a lot of product literature and business cards.

This column, and next month's, consists of excerpts (you don't want to read the whole transcript—it runs to 50 single-spaced pages!) of the resulting discussion. As expected, it generated much to think about, as well as a few surprises.

The participants, in alphabetical order, are:

Carol Bousquet, sales and marketing development director of Ferrofluidics, makers of ferrofluids for speakers, among other applications; chairwoman of the Boston chapter of the AES; chairwoman of the "Women in Audio: Project 2000" kickoff event that was held at AES/New York.

Steev Coco, head of audio at National Video Boston, a major post-production house (and one of my former students).

Robin Coxe-Yeldham, longtime Boston recording engineer, and faculty member at the Berklee College of Music; a founder of Women in Audio.

Bill Crabtree, musician, multimedia producer, and chairman of the Recording Arts program at the Northeast College of Communications in Boston.

David Moulton, engineer, writer and former chairman of Music Production and Engineering at Berklee, now on the faculty of U. Mass. Lowell.

Mark Parsons, owner of Parsons Audio.

Martin Polon, writer, faculty member at U. Mass. Lowell, and president of Polon Research, economic consultants to the recording and high-tech industries.

Daniel Rose, marketing director of

Mark of the Unicorn (and a Berklee grad).

Jay Rose, owner of Digital Playroom, a post-production and multimedia studio, and former Berklee faculty member.

Bill Scheniman, chairman of the Music Production and Engineering department at Berklee, and longtime New York studio engineer.

Scott Shapiro, senior in the Sound Recording Technology program at U. Mass. Lowell.

Stephen Webber, producer, engineer, and assistant chairman of Music Production and Engineering at Berklee.

And yours truly, **Paul Lehrman**.

**If you don't know how
to talk to a tech
representative and an
older advertising client
and Mick Jagger's
girlfriend and the guy
from UPS, then you're
not going to know what
a good bass part is, and
whether reverb's a good
idea, and where to start
getting a snare sound.**

—**Bill Scheniman**

Lehrman: How can schools teaching audio do a better job of preparing students for the real world? I'm thinking now not only in terms of the students' needs, but also what skills the industry needs.

Bill Crabtree: We need to make our students more computer-literate. A lot of students we get are kids who come in the door having never used a computer. I see teaching them that as a bonus for them no matter where they go. It's a necessity to get anywhere in today's society. So we're focusing more on computers first. This may be a reflection of my own training—where I went to school to study recording engineering, they wouldn't let me minor in computer science. I saw that as really short-sighted at the time.

Lehrman: Is there anything in particular about computers especially valuable for people going into audio to know?

Jay Rose: I think if you start teaching a particular operating system or application, you're going to dead-end the kids, because these things change so fast. What you *can* teach is a comfort level, the same way that when I was starting out you would get a comfort level with the tubes, with the transistors, not knowing every circuit. If kids today are comfortable with computers, they'll be prepared for whatever operating system comes along in ten years.

Lehrman: Talking to the people in the industry who hire new talent, what is lacking in the students you're seeing that the educational institutions could be doing a better job of giving them?

Jay Rose: One thing I wish was taught better is communications skills, verbal and written. You get kids who have incredible talent, but can't sit down next to a producer and tell him what they want to do. One of the courses that was most valuable to me in college, other than the nuts-and-bolts technical, was a long course in communications theory, everything from modeling—how a message gets from one brain to another—to argumentation and oral interpretation. People are coming out of school not realizing there's even a discipline to this. Do they even have a clue as to the concept that what you say is not necessarily what you're communicating? That your job does not end when you've stated your point of view?

Lehrman: Unless you're a talk show host. [Laughter]

Jay Rose: The other thing to teach is general business. What is a client? All industries have to look at their business and decide what they're selling. Record companies are selling one thing, and it might not be what you think. Broadcast outlets are definitely selling something other than what you think they are. This permeates the entire business relationship and should affect every employee: the knowledge of what business this company is in. Is that being taught?

Daniel Rose: Indiana University has a tremendous music department, turning out very talented classical musicians, and I asked, "Do you have any courses in management, or careers, or how to interview for a symphony?" "Oh, no," they laughed, "none of that stuff here. We train our kids to starve for a living." They admit it, and they understand what the problem is.

Another area I would like to see taught is basic sales skills. For instance,

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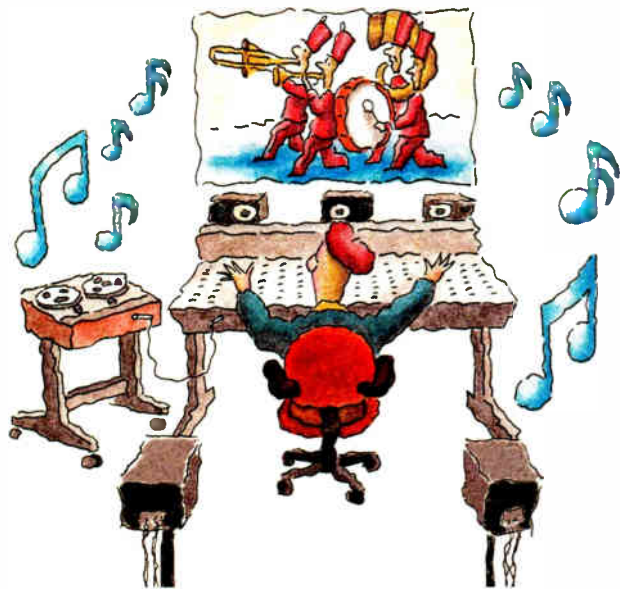
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Photo: Rick ... World Radio History

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World Radio History

INSIDER AUDIO

a huge amount of tech support is "sales." You have to convince the caller to calm down so you can lead them to a solution, to actually hear what you say rather than what they emotionally want to do. You are selling them all down the line, and all you are doing is trying to get them to operate the program correctly. But if you're argumentative, or come across bossy, they're going to fight you, even though they want what you have. We interview people all the time where we see the technical skills are there, but we can't put this person on the phones. They're going to cause an emotional train wreck with prospects. If you are looking to get people involved in this technology, there are so many variables like expense and technical complication, if you start stacking emotional variables on top of it, you're going to be in a lot of trouble.

Mark Parsons: Even though we are talking about technical education, there's a case to be made for a liberal arts education. There are other components besides being able to communicate. Knowing how to prioritize, trying to determine what's important and what isn't—these things matter whether you're working in a sales organization or a studio, or for a manufacturer. Being able to determine what the situation is regarding the people you are relating to: Are you a client, or are you my boss, and what should I be doing and why?

We can give them experience, but they have to be taught to *understand* the experience. Sometimes they have the native intelligence to understand, but beyond that you have to fill them in. It's problem solving, sensitivity, interpersonal skills. That's part of their education if they're going to survive the market.

Daniel Rose: On both the communication and the technical sides, listening is a critical skill. The best audio engineers are the people who can hear what's actually there, and can also hear what people want to know. Same thing on the business side: People who listen the best are the ones considered great communicators. If you can truly listen and understand what people are saying, whether you're in tech support or sales, or you're a producer or an artist, you have a tremendous advantage when you want to communicate to them *your* opinion.

Lehrman: How do you teach that?

Daniel Rose: Just to mention it at all

—CONTINUED ON PAGE 214

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6 mono mic/line chs.

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2 aux sends per ch.

Mute/Alt 3-4 Bus

PFL-in place/AFL Solo

60mm log-taper faders

Aux Send 1 master control

EFX Return to Aux Send

Control Room/Phones matrix

Control Room output

Tape inputs/outputs

Balanced XLR & 1/4" outputs



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Trim control (chs. 1-6).

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Studio grade mic preamps (chs. 1-6) with high headroom, low noise (-129.5dBm E.I.N.) and phantom power. These are the same discrete mic preamps used to track and mix several gold & platinum albums on our acclaimed 8*Bus console series.

Balanced line inputs. Channels 1-6 are mono; channels 7-10 are stereo.

Low Cut Filter (chs. 1-6) cuts mic handling thumps, pops, room rumble and wind noise. Also lets you safely use Low Shelving EQ on vocals.

Two aux sends per channel with 15dB extra gain above Unity.

High shelf EQ. ±15dB at 12kHz.

Peaking midrange with wide, musical bandwidth centered at 2.5KHz. ±15dB.

Low shelf EQ. ±15dB at 80Hz.

Four buses on a 2-bus board! Mute switch routes channel output to extra **ALT 3-4** stereo bus. Use it for feeding multitrack recorder channels, creating a subgroup via Control Room/Phones matrix (more info at right), monitoring a signal before bringing it into the main mix or creating a "mix minus."

Solo. AFL (for studio use) or PFL (for live sound mixing) via global switching. Individual channel metering via Solo makes level setting easy.

60mm logarithmic-taper fader.

More mixer in less space. The MS1402-VLZ takes up just 1.3 sq. ft. of work space.



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Balanced inputs & outputs (except RCA tape in/out & ch. inserts).

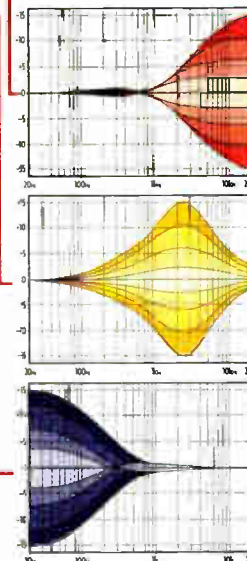
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Separate 60mm L/R Main Mix faders.

Control Room/Phones matrix adds incredible tape monitoring, mixdown and live sound versatility to the MS1402-VLZ. It lets you route any combination of Main Mix, Alt 3-4 bus and Tape Input signals to the Control Room/Phones fader, outputs & LED meters. Tape and Alt 3-4 can also be assigned to the main mix.

Solo Mode switch globally selects mono pre-fader (PFL) or stereo in-place (AFL).



Balanced XLR outputs with switchable mic/line output level.

Control Room & Alt 3-4 Bus outputs. Mackie's signature 3-way Channel Inserts (chs. 1-6).

60mm log-taper faders are accurate along their whole length of travel for smooth fades. They employ a new long-wearing contact material for longer fader life & super resistance to dust, smoke, etc.





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Balanced stereo line inputs (chs. 7-14) are switchable from +4dBu pro level to -10dBV semi-pro levels. Can be used to boost any weak input signal.

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Aux Send 1 Master

EFX to Monitor switch lets you send aux return signals (delay or reverb) to the stage monitors through Aux Send 1.



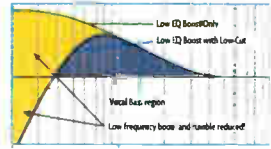
Master Pre/Post switch for Aux Send 1.

Two stereo aux returns with 20dB gain above Unity.



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real low cut filter with a sharp, 18dB per octave slope beginning at 75Hz (some so-called "low cut" filters' shallow 6 or 12dB/oct. slope lops off audible bass). Our filter cuts stage rumble, room noise, P-pops and microphone handling thumps — all of which muddy your



mix, robs amp power and can actually blow woofers. It has another equally valuable benefit: without the filter, if you try to add Low Shelving EQ to vocal channels, low-frequency garbage gets boosted to potentially disastrous levels. Engage the Low Cut filter and you can safely use Low EQ to enhance vocals.

This one really drove our Engineering Department nuts.

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BRIAN WILSON

AMERICAN INNOVATOR

The music of the Beach Boys is American mythology, an endless summer enjoyed around the world. The gifted hero of this story is Brian Wilson, perhaps the most misunderstood figure in modern music. Hailed as a genius and sometimes dismissed as a lost soul, his saga has been buried in tabloid hype and second-hand gossip for 20 years. We love the music, but Brian Wilson is almost too much to imagine.

"He's probably the most innovative musician in the history of rock 'n' roll," Don Was told me. "The single incident that set me on the path to making a documentary of his life was a gig that the two of us played, a pediatric AIDS benefit. He did a couple of Beach Boys songs and then went into 'Love and Mercy.' He was playing piano, I was playing bass, and he went into that song and cut to the essence and truth of the lyric. I'd never seen anything like it. I felt that if people could see that, it would be worth more than a hundred books you could write about him."

If you've seen Was' documentary, *I Just Wasn't Made for These Times*, you know that Wilson is alive and well, but also that he is a delicate, gifted and enigmatic character. Wilson biographer David Leaf told me that he is our American Mozart. Quite an accolade, but praise of Wilson is abundant, from the likes of Linda Ronstadt, Graham Nash and Paul McCartney—pop icons in their own right who look up to this Beach Boy.

I was invited by Was to photograph new Beach Boys sessions happening in Los Angeles at Ocean Way. A week later I met with Wilson at his home and carried out one of my most unusual interviews, but also one of the most personally enlightening. We began by discussing Wilson's latest vocal outing, *Orange Crate Art* (covered in Dec. '95 *Mix*), written and pro-



PHOTO: MR. BONZAI

duced by Van Dyke Parks, whom Wilson last collaborated with 30 years ago on "Heroes and Villains" and the never-released *Smile* LP.

Bonzai: *Orange Crate Art*—do you have a favorite tune on the new album?

Wilson: Yes, I do. I like "Hold Back Time."

Bonzai: One of my favorites is "San Francisco."

Wilson: Mine, too. Very intricate.

Bonzai: Were you in on the early stages of the album?

Wilson: No, Van Dyke prepared it all for me before going into the studio. I just went in there and sang it and got out of there. He produced me very well. Beautiful album.

Bonzai: I was listening to *Pet Sounds* last night. There's 30 years between them, but isn't there stylistically and soundwise something similar?

Wilson: You're very right. It's just a very big musical achievement as far as music parts written.

Bonzai: Was the new album in any way picking up where you two left off so long ago?

Wilson: No, not at all.

Bonzai: The drums and hand percussion on *Pet Sounds* are so distinctive and full of character, especially "I'm Waiting for the Day." What did drummer Hal Blaine bring to your music?

Wilson: He brought a vitality of drums. Hal doesn't fool around. He gets right to the beat and plays it good. Hal never plays a bad beat, and he was always lending ideas to the sessions.

Bonzai: How many tracks did you have then?

Wilson: I think we only had four tracks then.

Bonzai: How would you compare the studio situation now?

Wilson: What we're doing now in the studio is more back toward the '60s. We're just starting to get back into that kind of thing. The Beach Boys did two songs a couple of weeks ago, and we got our feet wet together. It's the first time that we've really gotten together and recorded in a long time. And it's coming out good.

Bonzai: Is there more freedom for your imagination now with all the tracks available?

Wilson: Yes.

Bonzai: Does it inspire you to come up with more vocal parts?

BY MR. BONZAI

How to Succeed with a Sonic

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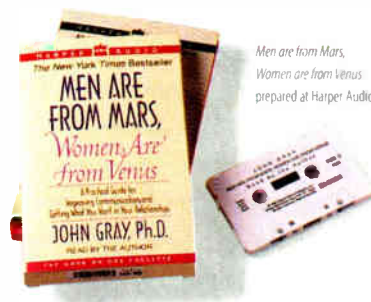
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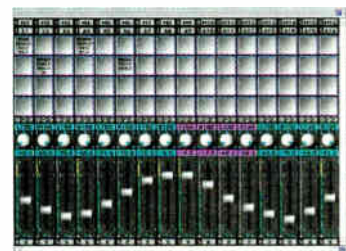
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Wilson: Yes, it really does, and I think that vocally the boys are still as strong as they were in the '60s. Carl's voice still carries the same vibes. Basically, the group is in good shape vocally. They're a little businesslike—Mike Love is very serious, but he's real good.

Bonzai: The night I was there you were laying down the basic tracks for "Soul Searchin'." I could have sworn it was an old classic, but this is a new song you wrote with Andy Paley?

Wilson: Yes, and Andy has a lot of talent for anything you can think of. He plays many instruments; he can write music and lyrics, and he can arrange, produce and sing. He can run, pass or kick—a triple threat. He's the most frighteningly talented person that I've met, and the most serious about music. The guy is absolutely dedicated to music to the point where there is nothing in the world that's gonna stop him. And that's frightening when a guy can do that. He'll say, "I'll put the drums on, the bass, the guitar...you play the keyboard, I'll play the organ." He's real rambunctious, an ambitious, fast-working, intense guy. The guy just turns everyone on around him.

Bonzai: The two of you were really hopping around enjoying yourselves in the studio. Do you have a regular writing schedule with him or do you just pop in on each other?

Wilson: We call each other all the time, he'll come by here or we'll meet in the studio. He wrote most of "Soul Searchin'" himself, and Carl liked it a lot. Carl keeps looking for material, and when he finally finds it, he goes "Wow, you got a song for me!" Andy was a hero to Carl.

Bonzai: How did you meet Andy?

Wilson: I met him in 1985, so it's been more than ten years now.

Bonzai: What's your opinion of Don Was?

Wilson: I like him. Don is a very nice guy and probably the smartest record producer I ever met. He knows what he wants; he knows how to get it. He's a very straight-ahead guy and he doesn't screw around.

Bonzai: Does he let you go your own way?

Wilson: Yes, kinda. He knows how to give us our space, but he's so into the music that there is no time to sit around and wonder what's going on. He takes command, and we get into the music right away. For that reason alone, I would say Don Was is a genius.

Bonzai: I observed you and Andy coming up with ideas and saw Don immediately assigning writing the chord charts so you could record the tracks right away. The whole room was a boiling energy cauldron...

Wilson: Pretty amazing, isn't it?

Bonzai: So these are the first new Beach Boys tunes in a long time?

Wilson: Yeah, we have a whole batch of tunes. We've got 38 songs written.

Bonzai: You've done demos?

Wilson: For some of them, yes. We have about 20 demo tracks.

Bonzai: How does the writing chemistry work with you and Andy?

**A lot of people
don't want to admit it,
but they need that kind
of a spiritual love
that we put out there
in our records.**

Wilson: It usually starts with either me or he going to the piano and coming up with an idea for a song. Then we just extrapolate on those ideas until we have a complete song. It's quite an interesting process.

Bonzai: What happens in the studio?

Wilson: Well, we used to lay down drums and piano, but now that we have Don with us, we're starting to go back to live tracks, like in the '60s, which is exciting. It feels like a return to the '60s in some ways, but not in all ways. We're getting there, but it's taking some time.

Bonzai: Do you know how to surf?

Wilson: No, I tried once and the board shot by my head—almost hit me. Scared me so bad, I never tried again.

Bonzai: Think we're too old to learn now?

Wilson: Yeah [laughs]. Too old for sure.

Bonzai: Can we talk more about *Pet Sounds*?

Wilson: That was the love album. It had love in it, and I think people need that. A lot of people don't want to admit it, but they need that kind of a spiritual love that we put out there in our records.

Bonzai: "Wouldn't It Be Nice."

Wilson: I wrote that just outside the studio, in a corridor at Western Recorders in Hollywood at 6000 Sunset

[now Ocean Way]. I wrote the basic part of the first verse on this little upright tack piano. Bomp, bomp, bomp. Not the melody, just the beat and the chord pattern. I took it home and went to my piano and finished it. Took me two hours and that was it. Then my collaborator, Tony Asher, came over and worked with me on lyrics. It was fun.

Bonzai: You seem to be able to come up with ideas and write songs so quickly.

Wilson: Well, I used to. It's just because I like music so much I get into the music, that I feel I'm able to create what I want to.

Bonzai: Can you imagine what your life would have been if you hadn't become a musician?

Wilson: No. Maybe hell.

Bonzai: How about "You Still Believe in Me."

Wilson: That was an experimentation with angel voices. We tried some of the angelic sorts of things in *Pet Sounds*. Hey, I never thought of it that way. Angelic.

Bonzai: You did quite a lot of the singing on the album, didn't you?

Wilson: Yes, it was basically my album. But Mike did really good on his stuff, too. He gets in there and he cuts right through, he really does.

Bonzai: "That's Not Me."

Wilson: Oh, that's Mike Love. Very special song, very special cut because it shows his positivity and the way he shines through. His voice cuts through the tape very powerfully, and his ability to take a song and nail it, and make it happen, is really up there. He's got a wonderful talent for that. Like anybody else, when you get a piece of material that's really made for you, you're able to do it. He was able to do a job on that song. It was like, "Here you go, Mike." "That's good, I like that." He'll smile. "Let's try it." He gets out there and nails it, you know what I mean? So Mike Love is a nailer-type guy. "California Girls"—man, he took to that. It took him 20 minutes to do the whole song.

Bonzai: You wrote with his voice in mind?

Wilson: All the time. In the '60s, I always wrote with Mike's voice in mind. And I've got so much of Chuck Berry in my soul, in my blood, that I was able to write those kinds of melodies, mostly inspired by Chuck Berry, who was one of the greatest songwriters.

Bonzai: Do you remember the first time you heard a Chuck Berry song?

Wilson: Yeah, I think it was 1957.



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"Johnny B. Goode" was the first one I heard. I was in my car, and when that came on I flipped out. I pulled over and stopped. It got me—I liked the electricity of it. I just had to pull over, and I went through this little process that I do when I get my mind blown.

Bonzai: Do you think that you feel music more deeply than the average person?

I've learned, regardless of whether it's the singer or the listener, it's all music. Listeners are just as creative as the singer.

Wilson: No, I've learned that just about everybody loves music. I've learned, regardless of whether it's the singer or the listener, it's all music. Listeners are just as creative as the singer. It is my experience that people have much more musical ability than I ever thought.

I used to think that the people in the industry were the only ones with all the brains and the listeners were the stupid people that couldn't make music, but could just hear it. It's not so. There's a lot of people that have really surprised me in my life. I never would have guessed.

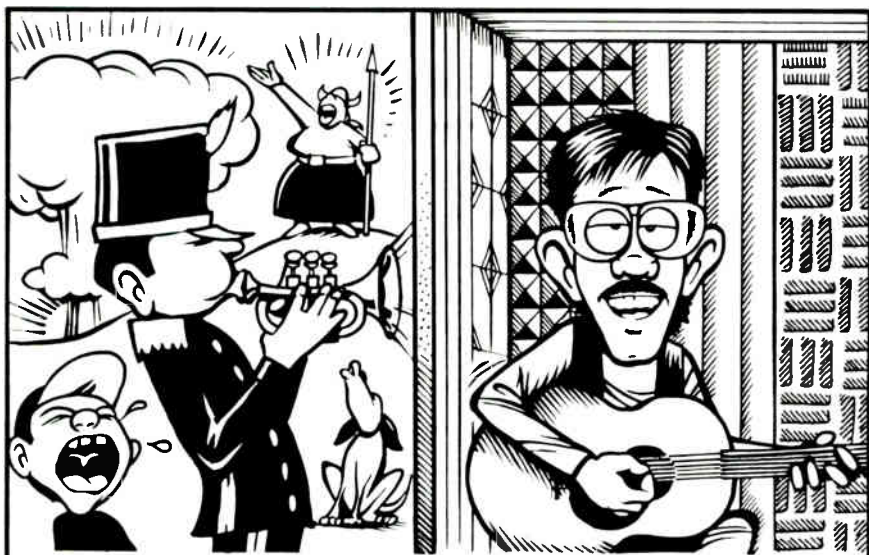
My brother Dennis—fantastic, made beautiful music, after about ten years of Brian Wilson doing all the stuff. He learned, he watched me, checked me out while I produced records. He'd see how positive I was while I was producing. He went in there and tried, and after about a month of fooling around, they started getting the real knack of producing records. Al did it, Carl, Dennis and Bruce did it. Mike never produced a record in his life. But the five of us produced records. We were the five basic guys that cut the records.

Bonzai: What was the first song you produced?

Wilson: I think it was "Surfin' USA."

Bonzai: How did it change for you when you began producing and taking charge of a song?

Wilson: Well, when you have the pro-



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duction in your hands, you are able to do something that you can control and it could be a smash. Sometimes I feel like I didn't have all the control over the records I produced. I thought there was somebody up there in heaven that would pull my strings, but that's okay. I could be that person who surprised God with all my talent. I think God liked the Beach Boys because of their ability.

Bonzai: As a producer, do you hear the finished record in your mind ahead of time, or does it come in the act of working?

Wilson: Actually, I have the arrangement in my head. I can hear the arrangement. By playing the piano, I can imagine the song, but I can't hear it all in my head. I can imagine that the arrangement is right. Like, "Let's try it, guys." I've got the arrangement done. As it progresses, I sort of formulate what it's going to sound like, but I'm not like a Phil Spector who goes in there and knows it all before he does it. I can't do that in my brain. He's smart, and I love the way he talks. He's got something going, but you



(L to R) Bob Glaub, bass; Waddy Wachtel, guitar; Brian Wilson, piano and vocals; Mark Goldenberg, guitar; producer Dan Was; Rik Pekkanen, engineer; Benmont Tench, keyboards and Andy Paley.

don't know exactly what it is. Something special.

Bonzai: Did you learn from Phil?

Wilson: Sure. I learned how to make "Wouldn't It Be Nice." I learned "Good Vibrations" from "Da Doo Ron Ron." And obviously, I learned to get farther behind what I'm doing. I learned to get behind the waves—behind them. And then force it on positive, rather than just sit around and think about it. You go to the piano and you perform.

I just figured if he could do it, I could do it. It's just as simple as that. If that guy could make such beautiful music, I can, too. That's one thing I learned. Another thing was getting behind it, like, whoa...a little bit extra effort put in makes the difference. That extra two inches makes the whole difference on the whole damn thing.

Bonzai: Did you hang around when he was cutting some of his records?

Wilson: Yes, I was invited down there

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three or four times over the years in the '60s. I was honored to be there one night when he recorded the MFQ with a song called "This Could Be the Night." And I was there during one of his Christmas album tracks—I think it was "Rudolph the Red-Nosed Reindeer." He had me playing piano, but I screwed up so much he pulled me off.

Bonzai: Back to *Pet Sounds*. "Let's Go Away for Awhile."

Wilson: Oh, that was something that Burt Bacharach influenced. Just little embellishments, little smatterings of Burt Bacharach. It's hard to explain—I could play it for you, but it's not all that obvious or defined. Just an overall feeling. I learned a lot from him, too.

Bonzai: "Sloop John B."

Wilson: Billy Strange, the guitar player, said, "What if I overdub the guitar a third above it?" The track turned on right then. The track was makin' it all right, you know, but when he overdubbed that second guitar a third above, the whole darn thing started sounding like Sonny and Cher's records. It really did, and they're great, too.

Bonzai: "God Only Knows" is supposed to be the first pop song that has God in the title...

Wilson: For a while there, no one got away with that, but we got away with it, because—we got away with it. [laughs]

Bonzai: "I Know There's an Answer."

Wilson: Oh, my God. That's a great cut.

Bonzai: Why do you like it so much?

Wilson: Well, every time I play it, it seems so brand new. I think Al did a good job on it, and I think I did, too. Basically, it was like a philosophy or a way of thinking. I know there's this, but I had to find it within myself. You go into yourself and bring up your own philosophy and values. That was the message, a Bob Dylan kind of thing.

Bonzai: Was Dylan a hero to you?

Wilson: Oh, yeah. Al especially—Al loves him. Bob Dylan's voice—the way he sings. A lot of people think he sounds sarcastic and egotistical, but he's not. Bob Dylan is a very cool guy. I was under the impression that he was a druggie and an egomaniac, but I met him and that's not the truth at all. He's a cool guy.

Bonzai: As time goes by, I think I'm beginning to understand your voice more and more.

Wilson: Right. Well, that's very personal. You could tell the difference be-

tween "Surfer Girl" and "Sloop John B." Two different kinds of voices. Now how did those come out of this one throat? I don't know.

Bonzai: And it's amazing how many voices you have on *Orange Crate Art*.

Wilson: Well, I believe that versatility was my keynote. I never could really step out and do a "thing." Me and a million people wish they could. But that isn't our fate, our destiny. We sort of sound like a background group; we'll lay a little background sound for you, a little vocal pad, you know? After 33 years in this business, I know pretty much what my parameters are and what my limits are as a singer. But I did a lot of different kinds of voices, which is a good thing to do and it's a good thing to know that. But I don't think it really grabs like a person who has a certain style, like Bing Crosby or Frank Sinatra. That's definitely not my gig in life. [laughs] Their gigs were more "singer." It's okay. I had a lot of problems with that for a while, but as I grew older I realized it wasn't worth going through any trips about.

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Wilson: Yes, very much so.

Bonzai: How about the song "I Just Wasn't Made for These Times."

Wilson: I felt like I was a loner and that nobody understood me, or understood where I was coming from.

Bonzai: Isn't it strange that the title comes back 30 years later in the film as a theme? Do you feel more a part of the times than you did then?

Wilson: No [laughs] I don't. I'm trying to get back into that, though. I think if we can just get that last Beach Boys album cut, we'll shop it around and I think we can get a deal this time. They had big problems there for a while. Couldn't get anybody to sign them. But they have another chance, with Don Was at the helm. Don Was is no joke. He is no joke. That guy has so much—I've never seen anything like it. The guy has so much ability, like Andy. I don't know what to think. What is your secret?

Bonzai: You know, Don has such incredible love and respect for you.

Wilson: I know. He shows it.

Bonzai: He told me the moment of truth was when the two of you were

performing "Love and Mercy" at a benefit. He said he'd never seen a performance like yours before.

Wilson: Well, he's one of my best friends in life and he sure has helped me. He made the documentary, and he just helped produce the background track to "Proud Mary." I'd like to play just a little bit for you as soon as you think we've saturated this.

Bonzai: Just a bit more. "Pet Sounds." Pretty strange to hear an instrumental on a Beach Boys album.

Wilson: I know. Well, we called it "Run, James, Run," because it was a James Bond kind of idea. That's what it said on the box and somebody said to me, maybe Mike, "I don't like that title. Why don't you call it 'Pet Sounds?'" So we did it.

Bonzai: And that became the title of the album?

Wilson: No, he thought up the title for the album first.

Bonzai: And the album finishes with "Caroline No."

Wilson: "Carol I Know." It's "Carol I Know."

Bonzai: That's what I thought. Why is it written "Caroline No?"

Wilson: "Carol—I—Know." [laughs] I'm

just getting excited, because I know you're gonna like what I'm gonna play for you.

Bonzai: Through some of the ups and downs in your life has music helped you to carry on?

Wilson: Well, it's just peace for me. I heal from it. I thrive on it. I need it really badly, I really do.

Bonzai: What is your strongest characteristic?

Wilson: I guess it's my ability to write songs.

Bonzai: Your first song?

Wilson: "Surfer Girl" in 1961.

Bonzai: Not a bad place to start. What's the biggest success?

Wilson: Probably "Good Vibrations." Went to Number One. Everybody said "You're a great genius, Brian." And I'm thinking to myself, "Wow, how the hell did that happen anyway?" That record happened, but I'm not sure it was produced. Could be just the place, you know? I wasn't really able to explain it to anybody. [laughs] Kind of personal, you know?

Bonzai: Your ability to hear so many different sounds, more than just instrumentation?

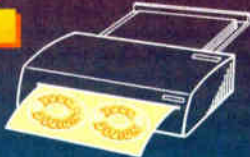
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*Ramone & Filipetti
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Capricorn console at
Right Track Studios.*

PHOTO: EBET ROBERTS

Phil Ramone and Frank Filipetti

On the State-of-the-Art

Eighteen months ago, multi-Platinum producer Phil Ramone had finished recording the soundtrack for the Broadway production of *Passion* and turned to top New York engineer Frank Filipetti to mix the project. The *Passion* soundtrack proved both an artistic and commercial success, garnering a Grammy Award along the way. Ramone and Filipetti enjoyed working together on the album and have since collaborated on a number of other projects, including the soundtrack for the Broadway revival of the Stephen Sondheim musical *Company*, Patricia Kaas' CD and a new album for Japanese artist Shinji for EMI Records.

Filipetti and Ramone are no strangers to new technology, whether it was Ramone using ISDN lines to produce vocal tracks on Frank Sinatra's *Duets* or Filipetti pioneering the use of the Sony PCM-9000 24-bit magneto-optical 2-track to mix Carly Simon's *Letters Never Sent* CD. So it was no surprise that these innovators were attracted to the concept of production entirely in the digital domain, recording to a Sony PCM-3348 multitrack and mixing on a Neve Capricorn digital console. They graciously took a couple of minutes during the mix of *Company* at New York's Right Track Studios to talk about their experiences on current projects, and their attitudes regarding all-digital production.

What format are you currently mixing to?

Filipetti: *Passion* was mixed on an analog board but to a custom 20-bit Sony DASH format. Now we're mixing on the Capricorn, and we're outputting 24-bit to a PCM-9000, using a DAT for backup.

Ramone: On *Passion*, we ran 15 ips SR just as a backup. Generally, with all new formats or anything that we do, we try to back up with something interesting, just as an A/B comparison. Sometimes, it could save your life.

Well, you sleep better at night.

Filipetti: Yes. In fact, on *Passion*, we also backed up to a DA-88, using the "Ramone Routing."

What's the "Ramone Routing"?

Ramone: It's a way in which we break down the mix like a film.

Printing effects and submixes on the DA-88?

Filipetti: Yeah. In the mix process, instead of having a dozen effects, which are combined with everything, we end up setting aside certain effects for certain submixes.

Ramone: What Frank laughingly calls the "Ramone

Ramone and Filipetti were attracted to the concept of production entirely in the digital domain, recording to a digital multitrack and mixing on a digital console.

Routing" preserves those specifics again for effects and for reverbs on some of the vocal artists. You'll never be able to re-create the way Frank sets up his EMTs, chambers and other processing in some other facility, or if you're out of the studio for a week. It's a feel thing—there's no knob. The only time a mix is completely recallable is in the way we're working now in the digital domain: The console recalls all the effects [from the submixes]. It's quite a nice experience.

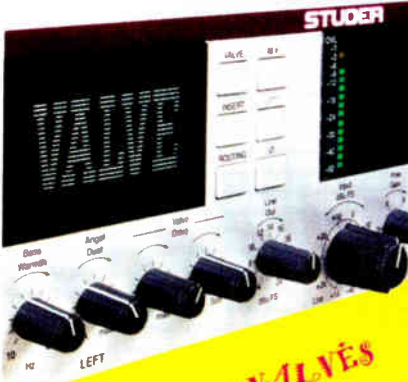
Filipetti: The Capricorn is totally resettable, so everything comes back. The only things you have to deal with are little items like the returns on a plate and getting the right reverb time, but apart from that, every-

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thing else is pretty much reset for you. We can go into either the Tascam DA-88 or the Sony PCM-800 machines digitally, so we don't have to make unnecessary A/D or D/A conversions. It's a pretty good storage medium.

When you're recording a Broadway soundtrack like Company, is it done simultaneously with a live orchestra? Or were you overdubbing vocals to the orchestra tracks?

Ramone: It's all live.

Filipetti: You have to do the whole show in a day and then edit it together. Ramone: It's old Equity rules, you know. It's not so much the musicians, but the cast get a week's salary [for a session]. The ruling's been there for years, and I wish they would change it. The main point of doing live shows is that you capture it as close to what it is. Unfortunately, there's an up side and a down side. The down side, of course, is that the fourth session starts around 8:00 to 11:00, and then if you have to go past 2:00 in the morning...

You could be getting into some financial problems.

Ramone: But by the time we got into the studio, the cast was trained, they were rehearsed and they'd been through it.

So you could have mixed live to 2-track, although that doesn't give you as much flexibility or time to make decisions.

Ramone: Yeah. The recording industry isn't the same as it was 25 to 30 years ago, when certain preparations for being live were specific. A lot of things—particularly jazz or other musical styles—were cut live to 2-track. But you know the world of rehearsal sight reading and continuous fussiness—we all get more fussy. Everybody wants to be in-tune and have a great pocket that they sing into. People just don't make records in one day.

Filipetti: On occasion, we've listened to the old version of *Company*, which is a nice recording, but nowadays, there are a lot of things that people don't want to hear, and they expect all the tracks to be totally in-tune. There are certain expectations now with multitracking that you didn't have 25 years ago. If you went live-to-2-track, you got what you got. Multitracking allows us to do a little bit of editing and finessing of the final product.

Did you track any of these projects on the Capricorn?

Filipetti: No.

Ramone: We did vocals, though.

Filipetti: A lot of Patricia Kaas' album

we did here at Right Track, but the *Company* album—because of the size—was done at the big room at Hit Factory. That was cut on an analog console going into a Sony PCM-3348.

When you were tracking, did you have favorite converters you brought along?
 Filipetti: No, just went to the stock 3348 converters.

Did you bring in different converters during overdubs?

Filipetti: During overdubs, on vocals and stuff, we used the Capricorn 20-bit A-to-Ds, which I like very much. Of course, mixing on the Capricorn means there are no D-A conversions until the consumer plays the CD.

We cut some of Patricia Kaas' reference vocals using my Tube-Tech mic preamps and an [AKG] C-12 microphone, and sent that into the 3348. When we came upstairs on the Capricorn to do the real work on the record, and compared the vocal sound with the same microphone—the same pre-amp, coming into the 3348 off the analog console vs. coming into the Capricorn—the Capricorn was remarkably clearer and cleaner.

Has working in the digital domain changed your work habits?

Filipetti: It makes life easier. Patricia for example, is an example of a vocalist who is very particular about her headphone mixes. We set up a mix on a song so it works for her, and if she wants to work on that song again, the next day, after just finishing another one, then instantaneously, her mix is back the way it was. We ended up doing an EdNet session where Patricia was singing vocals in Paris, because she had to leave before the final mixing process. And we were sending them mixes down the EdNet line, and were able to, within say two or three minutes, set up one mix on the desk and make whatever final changes she might want to make and then go to the next song without the half-hour or 15 minutes of setup it would usually take to get from one mix to the next.

The beauty of working in the digital domain is that it gives us a lot of flexibility. On *Company*, for example, we went in and mixed the whole thing. Then Phil would ask the conductor to come in, and we'd put up each mix and get some comments from him. We'd bring in the arranger and orchestrator, you know, and so forth. You bring in these people, and you don't have to do them all at each mix. In other words, you don't have to mix one song, bring everybody in, then mix the

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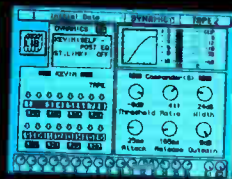
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next song for four or five hours, bring everybody in and mix the next song. We brought these people in at their convenience. And you update the mixes.

Ramone: For me, working this way is also an advantage because Frank can sit and concentrate and, let's say, prepare five songs, where normally, if you did more than a mix a day in most projects, you're doing really well. But in this case, we can get good roughs by running four or five songs. I can come in three hours after him and finesse the first round. You're not in the same room for 12 or 14 hours, hearing the same tune over and over and over. The wear and tear is so much less.

We're focusing on the big picture first, homing in on the picture, and tonight as you called, we were in the refine half. We just played the *Company* mixes back for the orchestrator, who will concentrate on his little notes to us.

Filipetti: Right. It used to take an hour to an hour-and-a-half to reset the console to get everything back, and then you've got to check everything, and in this instance, you sit there and, three minutes later, you're back to where you were, even if you were on another song. Now if we're working on a mix or something, and suddenly the singer comes in and wants to sing something on another tune, it's no big deal. You save where you are, you stop, you go to the other tune, it comes up automatically, you stop that, you go back to mixing again. It gives you so much more flexibility. Working this way makes it easy to do whatever the producer wants at any point in time without feeling like you've lost time.

Ramone: Many times, when you set up reverbs, you love it and you think it's fantastic. Sometimes it would take you a day to walk away from it to hear that the rest of the album doesn't have anything resembling that kind of reverb: "It's over-the-top. Let's reduce it." That could cost you a half a day's work in the studio to get it all back, recalling it. And the way we were working tonight, we'd run four or five songs and listen carefully as we go through them, running sequentially—within a minute or two minutes of each other. This way, we can make comments to each other that are much more sensible than, "Wow, we did a great mix yesterday." Two days from now, we'll have another mix for the album. We'd never get through otherwise.

What are some of the other differences

of working entirely in the digital domain?

Filipetti: The main reason for recording and mixing digitally—apart from the functionality that we've talked about—is staying digital once you are digital. If you are going to put an LA-2A on a vocal, or use a Pultec, or you're doing something else in the analog domain, it's best to prepare ahead of time and do that before the A-to-D. Because once you go to the A-to-D, you're going to want to stay there forever, as you lose so much more than you gain in many instances. If we're going to do that kind of analog processing, absolutely, we do it ahead of time.

Or you could do a split and put a dry vocal on one track and put your LA-2A vocal on another track...

Filipetti: Phil and I have not gotten to that point. He's pretty good about knowing what he wants in the final product. He doesn't leave himself a lot of options. He has a pretty good idea about where he's headed. Obviously, with 48-track work and all that stuff, there's a tendency to keep delaying decisions for as long as possible. But in this instance, we have five days to do the record. It doesn't give you a lot of time to put off decisions. And Phil's pretty good about just saying, "Look, that's the sound: Let's go with it."

Would either of you consider "casting" an album for a certain sound, perhaps going back to analog if you had a choice, rather than working in a digital domain?

Ramone: I think that the name of the game here is that, as the world gets better soundwise, and digital gets better, you still have SR and can run at 15 and do a lot of basics that you might love to do, and then transfer that element onto a 48. I don't love analog machine alignment or using double analog [2+tracks] with all of the interlock systems that drive me crazy. But if I felt I was going to do a specific band a specific way, I will certainly use analog when I think it's cool.

And then make a single conversion to a 48 and stay in the digital domain...

Ramone: That's right. There is no comparison once you're running. I've done many, many records in the last four or five years where I used SR. And once the DA-88s were invented, it was certainly easy for me to strip off the kind of conversions that one makes in order to do a vocal. Then, you know, Right Track is also now on the network, so technically speaking, I could be anywhere and monitor the mix that Frank

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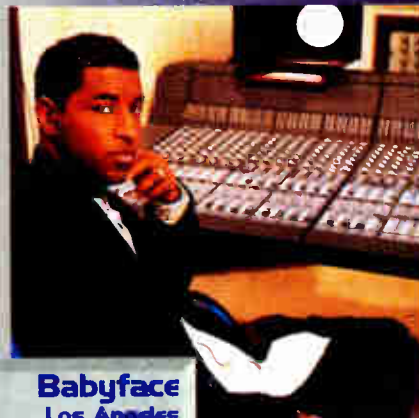
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wants me to hear. We could actually go uncompressed out of here right to Gateway or Sterling [mastering houses], so there's no reason that we should leave the digital domain at all once we're in it.

Filipetti: The debate is not digital vs. analog, and nowadays, it's like trying to debate VHS vs. Beta. Yeah, Beta is better, but nobody uses it, so VHS is the format that won. It doesn't matter what you start with. It's going to end up on a CD. You're going to end up in a digital format, so everybody's decision now is not whether to make that conversion, but when. I feel the sooner you make that conversion, the more control you

have over it. For example, if I mix to half-inch, and then convert to digital, I lose a lot more than if I mix to digital and stay there.

On the other hand, I also have found now that if I mix on a digital console as opposed to an analog console, I have even more control over it. So it's just a matter of when and where you want to make that change. Digital keeps getting better and better. I was pretty much Mr. Anti-Digital about five years ago. I had done a 10,000 Maniacs album on a Mitsubishi 32-track, and I swore I'd never go digital again. But the fact of the matter is, digital keeps getting better.

How are you going from 24- to 16-bit? Eventually, it's going to have to wind up being 16-bit.

Filipetti: We're going from 24-bit on the Capricorn to PCM-9000 and staying 24-bit.

But, at some point, it's going to be 16-bit.

Filipetti: In mastering, it's going to go through a UV22. I've found it, by far, to be the superior method of going from a multibit format down to 16, whether from a 20- or 24-bit source.

What else attracts you to all-digital production?

Ramone: One of the hardest things to accomplish in music is coming from what you hear coming in live and trying to find an open, airy way in which you capture the silkiness that's always elusive, and the kind of low end that's not just bottom boom, but something with fine detail and warmth. That goal becomes more attainable every day. It's a tough call, but in this particular area, we seem to be there in terms of the noise floor and other things that interfere with the sound. And having an acoustically nice room is really important now. A dead room is a conversion in itself, but it doesn't add any glitter to what you're trying to do.

Filipetti: It's all a series of choices. Anyone who works in either the analog or digital formats knows that there are certain limitations to digital in terms of this low-level detail and harmonic content, and so forth. But, being realists, you have to realize that by the time you get to a 16-bit CD, you're going to be losing that detail, whether you came from a half-inch analog master or some other format. How you lose that detail, once again, is the choice.

To me, it's not even a contest. If you sit in the studio and A/B half-inch analog to 24-bit digital, a lot of us are going to prefer the sound of the analog. I still do. But no one's going to hear that. What people *are* going to hear is that half-inch analog after it's gone through a 16-bit A-to-D or dithered down from a 20-bit A-to-D. The audio will be changed to digital. If you're realistic, you want to compare that half-inch analog, monitoring it through a DAT machine, or through some other digital device. When you monitor the half-inch analog after it's gone through that digital device, and compare it against the straight-ahead digital, there's no comparison. You get much more detail now with the digital. ■

George Petersen is the editor of Mix.

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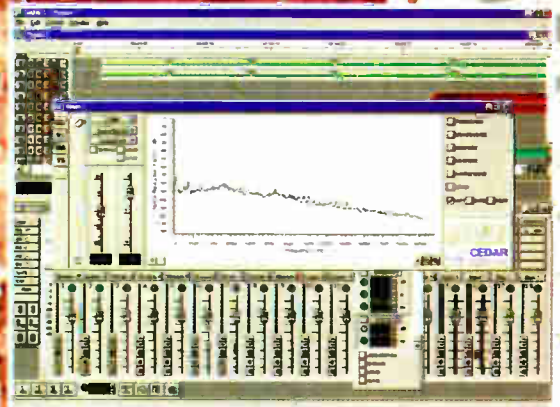


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The modular digital multitrack revolutionized the recording industry, by bringing high-quality, low-cost digital multitrack production to the masses. But perhaps best of all, MDMs lend a new versatility to the production environment, offering a wide range of studio tricks that are impossible to achieve in the analog domain.

BY GEORGE PETERSEN

Without a doubt, the most powerful attribute of digital multitracking is assembly editing, a process of creating new versions of songs by using simple copy and paste techniques. However, thanks to digital technology, all edits are typically made on a clone copy of the original. This ensures two important points:

- As long as the cloning of the tracks is done in the digital domain, the sound quality of the clone should

be pristine, as the clone is an *exact* copy of the original.

- Because the edits are made on a *copy* of the original, the editing process is inherently nondestructive. No matter how many edited versions are created, the original master tape remains unchanged.

So what's new? Well, assembly editing practices do not lend themselves to analog tape recorders, due to the unavoidable generational losses when analog tape is copied. If you have a great-sounding analog multitrack tape and copy certain sections onto another analog tape, the copy is bound to be disappointing. Actually, the digital methods outlined here have been used by leading engineers and producers for years. It's not really all that new, and anyone with a couple hundred thousand dollars lying around

Use Your Modular Digital Multitrack To Create New Versions of Songs.

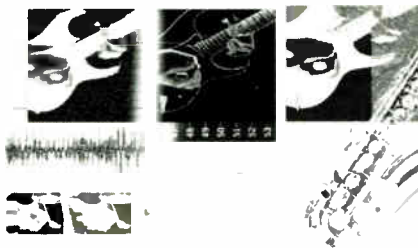


for the purchase of two reel-to-reel digital multitracks has had access to this technology for a decade or more.

But with the advent of modular digital multitracks, access to multiple digital tape transports is no longer solely the privilege of rich and famous recording superstars. In fact, as soon as you add a second transport to your system (usually for the purpose of increasing the number of recording tracks), you're on your way toward having the ability to do assembly editing. It's sort of an added bonus that you might not have originally planned for.

The required tools for assembly editing are a cable for transferring (dubbing) multitrack data in the digital domain, the appropriate sync cable for interconnecting the two decks, two similar-format tape transports and a means of offsetting the synchronization between the machines. You'll also need at least one extra tape, preferably preformatted.

With two Tascam DA-88s, all you need are the sync and TDF-1 dubbing cables. If you're using two Sony PCM-



800s for assembly editing, you'll need a sync cable and the Sony AES/EBU breakout cables for digital interfacing. The original Alesis ADATs include a dubbing cable (the sync cable is optional) but are incapable of offset synchronization without the BRC remote control, which is a must for this kind of work. However, the new generation ADATs—Alesis XT, Panasonic MDA-1 and Fostex CX-8—as well as the Fostex RD-8 machines, have onboard sync offset capability and include a necessary fiber-optic dubbing cable; add the 9-pin sync cable and you're ready to go.

A HYPOTHETICAL CASE

Let's say you've used an 8-track system

to cut basic tracks for a song entitled "Love, Love: Yeah, Yeah." Tracks are laid out as follows:

- Track 1 Kick Drum
- Track 2 Snare Drum
- Track 3 Cymbals/Toms L
- Track 4 Cymbals/Toms R
- Track 5 Bass Guitar
- Track 6 Rhythm Guitar #1
- Track 7 Scratch Lead Vocal
- Track 8 Click Track

After cutting three sets of basics for "Love, Love: Yeah, Yeah," nobody in the band could agree which they liked the best: Everybody seemed to like different parts of each. So before we start overdubbing on the next eight tracks, we use our 16-track system to do a little assembly editing. And as the band cut the basics to a click (metronome) track, tempo is not a problem—except in a couple of problem spots where tempo was *the* problem—so we can pick and choose from the three takes.

We start out by dubbing the intro from take 2 onto the new, preformatted clone tape. At this point, the inter-machine sync is not essential, so we mere-

UNDERSTANDING DIGITAL CROSSFADES

In MDMs, workstations and other digital recording systems, digital crossfades provide a means of making your punch-ins/outs, edits and "splices" as seamless as possible. Basically, the digital crossfade is analogous to the concept of using an angled splice—as opposed to a straight cut—for editing two pieces of analog tape: The longer the splice, the longer the crossfade.

Though the Alesis BRC offers four variable crossfade times, the original ADAT, Alesis XT, Panasonic MDA-1 and Fostex CX-8 have no dedicated switches for this function. Nonetheless, *non*-BRC ADAT users can select from four crossfade times (10.67, 21.33, 32 and 42.67 ms). By pressing the Set Locate and Record buttons simultaneously, the display (on the

original ADAT) will read "FAd1" (which means the 10.67ms setting is selected). Press the buttons a second time and "FAd2" is displayed, meaning 21.33 ms is selected, and so on for the 32ms and 42.67ms crossfade times. With the new-generation decks (XT, MDA-1 and CX-8), the process is the same, but the fluorescent display rounds off the numbers, so "Fade 11" actually refers to 10.67 ms. By the way, all ADATs default to the 10.67ms setting.

Like the ADAT, the Fostex RD-8 also provides variable crossfade times of 10.67, 21.33, 32 and 42.67 ms. These are accessed from page six of the Main Menu: Press the function keys and select the crossfade time you need.

The Tascam DA-88 and Sony PCM-800 default to a setting of 10 ms, and eight other crossfade times are available, in 10ms increments, up to a maximum time of 90 ms. To change crossfade times on these machines, hold the arrow-down key while pressing the Display button. The LED display will show "C.FAdE 10," to indicate that the 10ms time is selected, and the crossfade time will increase by 10 ms each time the

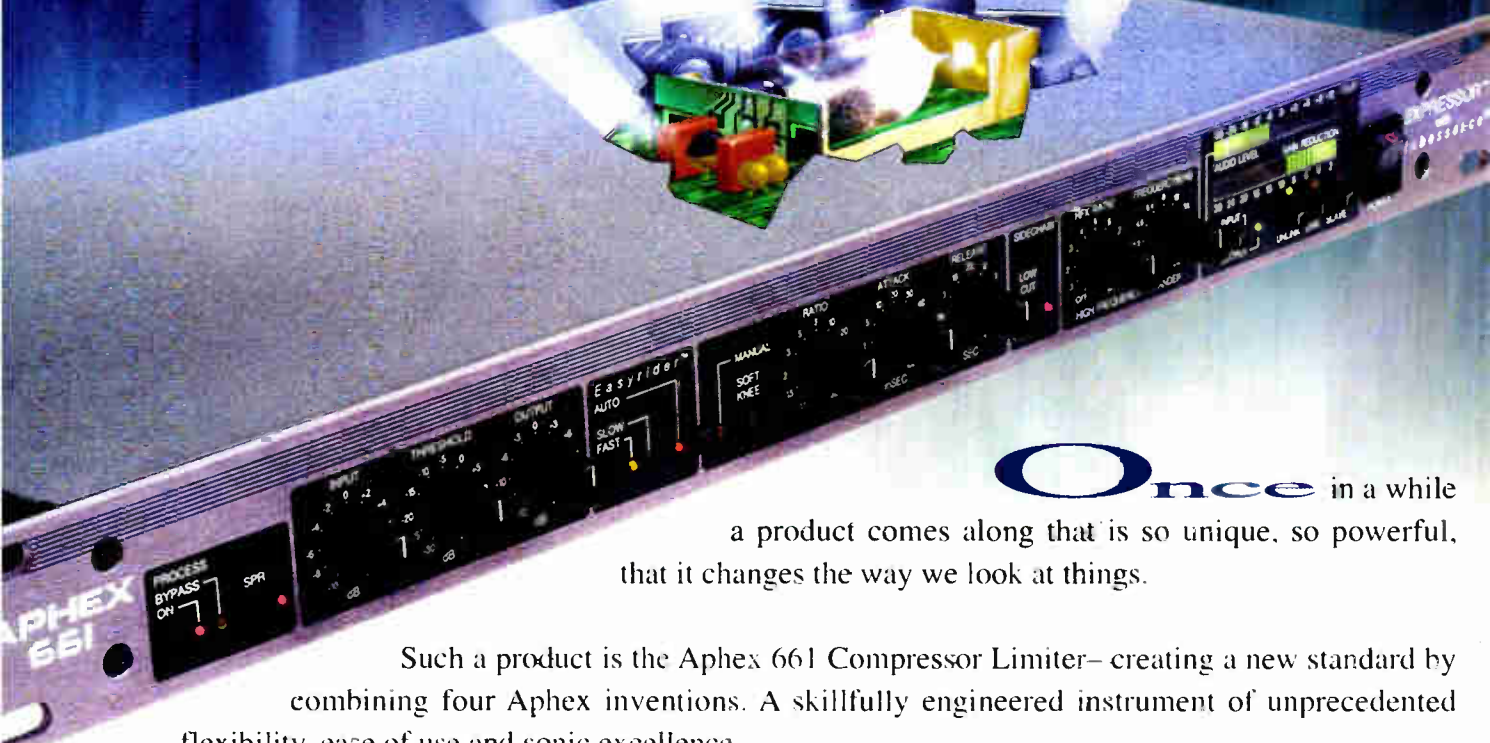
button is pressed. The arrow-down key is used to lower the crossfade time. To check the current crossfade time when in ABS (absolute) time display mode, hold the arrow-up key and press the Display button.

By matching the crossfade time to the material being recorded or punched-in on, you can make the punch as inaudible as possible. Short crossfades are best suited to material where the audio on both sides of the punch is similar, particularly on sounds that have a lot of transients, such as percussion. Conversely, longer crossfades are best for material where the audio on both sides of the punch is dissimilar. When making punch-ins/outs in assembly editing, the MDM's rehearse feature also comes in handy, as it allows you to audition several crossfades before committing the newly recorded section to tape.

The ability to choose different crossfade times is a useful tool for the professional, and a few minutes of experimenting to find the times that work best in your projects will be time well spent. Try it. You may be surprised with the results!

—George Petersen

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MIX

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ly advance Deck 1 up to the start of take 2 and dub the tracks down to Deck 2. Unfortunately, during the first verse in take 2, one of the following is clearly audible (pick one):

- A. The pizza guy ringing the door bell;
- B. Drummer drops drumstick; or
- C. Bassist anticipates one of the 64 sixteenth notes in the four-bar fill, which no one but the bass player can seem to hear.

Due to this disaster of unmitigated proportions, the band finally decides that they want to use the first verse, chorus and second verse, and bridge from take 3. At the end of the long intro, the time display for our clone on Deck 2 shows a location of 01:14:16 (minutes, seconds, frames). The first verse of take 3 begins at 19:44:06, and the correct offset required so that Deck 2 starts recording precisely at the point when verse 1 take 3 plays is -18:30:10.

This offset is calculated by subtracting the time where the clone starts recording (punch-in point) from the address of the new material. In this case, this is 01:14:16 - 19:44:06 = -18:30:10.

The offset time is a negative value, as the time address from take 3 is reduced by the offset amount so that it plays immediately after the 01:14:16 mark on the clone. The length of the added section is 03:03:12, so this composed clone version is now 01:17:18 long.

In a flurry of creative hacking, we now decide to put the intro from take 1 after the second verse and chorus on the clone. We didn't use this intro in the beginning of the song because the rhythm guitar wasn't very tight with the drums and bass, but now we're using this as a drums/bass-only (we'll mute the unwanted rhythm guitar track in the mix) bridge into the solo, which will play over the basics in take 1, verse 1.

Now, the start time for the take 1 intro and verse is 00:32:05, so to calculate the required offset, we'll subtract this start time from the punch-in point (end of the cloned section). So we have 01:17:18 - 00:32:05 = 03:35:13.

Note that in this case, the offset time is a positive value, as the time address

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WHAT'S NEW

👉 In Digital Multi-effects PROCESSORS

BY CHRIS MICHIE

Once an exotic (and not always reliable) studio toy, the digital multi-effects processor is now a staple of recording and live performance setups. Today reliability is up, prices are down, and there are devices available to suit most requirements and budgets. We took a look at the new units and significant upgrades that were introduced during the past year, excluding devices that are primarily reverb units. Here is what we found.

ALESIS QUADRAVERB 2 VERSION 2.0

The QuadraVerb 2 (Q2) from Alesis is a single-rackspace unit with reverb and multi-effects capabilities. Reverb settings include various plate and room programs. EQs in-

clude lowpass, highpass and band-pass filters; 1-, 3- and 4-band parametric; 5-band graphic; and 2-band sweepable. Other effects include resonator, tremolo and stereo simulator effects. The Q2 can provide mono, stereo or dual-mono (discrete) effects, with real-time MIDI control of effect parameters. Two fiber-optic connectors on the rear panel allow the Q2 to both send/receive digital audio in proprietary Alesis multichannel format. Introduced at the October 1995 AES show (and reviewed in the January '96 *Mix*), Q2 Version 2.0 offers new effects and features, including sampling, hard/soft overdrive, triggered panning, phase inverter, triggered flange and a new stereo Leslie effect. A new EPROM has 200 factory programs and provides 100 user memories. Retail is \$799; an upgrade from earlier versions is \$30.

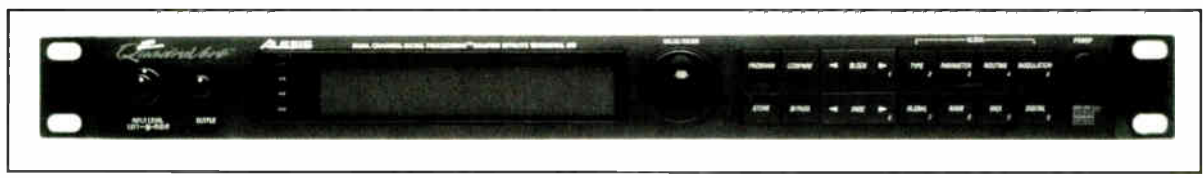
The Alesis **MidiVerb 4** (\$399) and **MicroVerb 4** (\$299) are fourth-

generation products featuring 18-bit processors and more than 200 effects programs in addition to comprehensive editing and storage capabilities. The MidiVerb 4 is a true dual-channel processor that can act either as a traditional stereo signal processor or as two independent mono effects processors. It features automatic level sensing; a 48kHz sampling rate; an 18-bit, 128x oversampling analog-to-digital converter; an 18-bit, 8x oversampling digital-to-analog converter; and 256 programs selectable via MIDI or a back panel footswitch.

Alesis, 3630 Holdrege Ave., Los Angeles, CA 90016; 310/558-4530; fax 310/836-9192.

ART EFFECTS NETWORK

The Effects Network from ART is a fully programmable 2-channel multi-effects processor featuring reverb, delay and effects, all in a 1U chassis. Designed for ease of use with a "session-friendly" interface,



The Alesis QuadraVerb 2 Version 2.0

the Effects Network allows users to quickly select and edit without laboriously stepping through multiple versions of the same effect. The reverb programs are derived from ART's Acoustic Room Modeling (ARM) algorithms developed for the company's RXR. Delays include mono and stereo tapped delays; maximum delay time is 2 seconds. Three local MIDI controllers are available per preset, and any adjustable parameter may be controlled by an external MIDI controller. Price is \$449.



The DigiTech Studio Quad

way, Sandy, UT 84070; 801/566-8800; fax 801/566-7005.

DIGITECH STUDIO QUAD

The Studio Quad from DigiTech is a 1U, 4-in, 4-out multi-effects processor that can operate as four mono processors, or two stereo processors, or stereo and two mono

processors. Preset selection is via front panel push buttons and a rotary knob. The combination dot matrix and LCD screen shows preset number, characteristics, and the four processors' modes and status. Effects include reverbs, flangers, choruses, phasers, tremolo and auto panners, pitch shifters and detuners, delays, graphic and parametric equalizers, and noise gates. A utility menu allows for easy management of I/O levels, screen contrast, MIDI, and factory and user preset management. I/O connections are 1/4-inch unbalanced and are located on the back panel, along with MIDI In and Out/Thru connections, footswitch control jack, and a +4/-10 switch. Price is \$499.

DigiTech, 8760 South Sandy Parkway, Sandy, UT 84070; 801/566-8919; fax

801/566-7005.

E-V DYNACORD DRP-15

The Dynacord DRP-15 from Electro-Voice has been recently upgraded with new software that adds reverb and multi-effects algorithms. Featuring 100 factory and 128 user programs, the 1U unit offers multiple reverb programs plus echo effects such as delay line, stereo delay and ping pong; modulation effects (chorus, flanger, phaser, rotor and space); and pitch-shifting, equalizer, voice-filter and distortion programs. Up to six multi-effects programs can be used at one time, and 24-bit internal processing provides flat frequency response and better than 90dB signal-to-noise. One unusual feature of the DRP-15 is that it will operate at any line voltage between 90 and 250 volts at 50 to 60 Hz.



The Ensoniq DP/2 and DP/4+ Parallel Effects Processors

Applied Research & Technology (ART), 215 Tremont Street, Rochester, NY 14608; 716/436-2720; fax 716/436-3942.

DOD R512

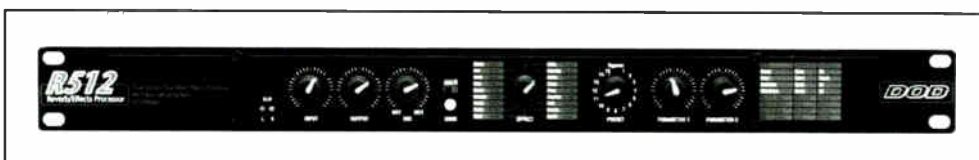
The R512 from DOD is a 2-in, 2-out effects processor that offers 32 effects combinations with 15 presets each—a total of 480 presets. Users can modify the presets with two real-time parameter controls, and effects include multiple reverbs, delays, choruses, flangers, pitch shifters, phasers, tremolo and panners. The 16-bit unit provides true stereo or dual mono, enabling two independent sources to be processed independently. I/O connections are 1/4-inch unbalanced, and the unit includes a rear panel adjustable noise gate. Price is \$230.

DOD, 8760 South Sandy Park-

processors. Preset selection is via front panel push buttons and a rotary knob. The combination dot matrix and LCD screen shows preset number, characteristics, and the four processors' modes and status. Effects include reverbs, flangers, choruses, phasers, tremolo and auto panners, pitch shifters and detuners, delays, graphic and parametric equalizers, and noise gates. A utility menu allows for easy management of I/O levels, screen contrast, MIDI, and factory and user preset management. I/O connections are 1/4-inch unbalanced and are located on the back panel, along with MIDI In and Out/Thru connections, footswitch control jack, and a +4/-10 switch. Price is \$499.

DIGITECH TSR-24S

The TSR-24S from DigiTech is an



The DOD R512 Reverb/Effects Processor



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Stereo/dual mono I/O connections are unbalanced 1/2-inch switchable from -6 to +4 dBm. MIDI In, Out and Thru connections and pedal remote switch inputs are also available on the rear panel. Price is \$1,426.

Electro-Voice, 600 Cecil Street, Buchanan, MI 49107; 616/695-6831; fax 616/695-1304.

ENSONIQ DP/4+

The Ensoniq DP/4+ Parallel Effects Processor replaces the DP/4 and adds new algorithms to the former's inventory for a total of 54 algorithms and 600 presets. The 2U device includes four separate 24-bit processors, allowing for a variety of algorithm sequences and routing combinations. Studio effects and tools include expanders, gates, shelving and parametric EQ, compressor, de-esser, a vocal "remover" and a wide range of reverb programs. Instrument effects include various types of tube amplifier distortion, rotating speaker, and tremolo, chorus, flanger, panner and vibrato effects. Front panel controls include individual input and output pots for the four channels, LED and dot matrix displays for program selection and description, a shuttle wheel, and lit push-button switches for the processor selection and various editing

distortion, pitch shift, chorus, pan, tremolo and vibrato effects, as well as compression, gating, expander, de-esser and EQ functions. Inputs are balanced TRS 1/2-inch, and the DP/2 can process stereo or mono inputs; MIDI control is standard. Price is \$995.



The Electro-Voice/Dynacord DRP-15

Ensoniq Corp., 155 Great Valley Parkway, Malvern, PA 19355; 610/647-3930; fax 610/647-8908.

EVENTIDE DSP4000 ULTRA-HARMONIZER® VERSION 2.0

According to Eventide, the DSP4000 Ultra-Harmonizer Version 2.0 contains practically every effect Eventide has ever created—phaser, flanger, pitch shifter, reverb, delay, diatonic shifter, dual mono shifter, chorus, dynamic processor etc. Current software Version 2.0 provides over 500 presets and 130

24-bit resolution; analog is via balanced XLR and unbalanced 1/2-inch connectors at 18-bit resolution. Price is \$4,995.

Eventide Inc., One Alsan Way, Little Ferry, NJ 07480; 201/641-1200; fax 201/641-1640.

LEXICON DUAL ALGORITHM FX CARD

The PCM80 Digital Effects System from Lexicon is a 1U device that features a two-processor architecture. The new Dual Algorithm FX Card plugs into the PCMCIA slot in the Lexicon PCM80 to add 25 new algorithms and 250 new presets. New capabilities include stereo reverb into stereo effects and vice versa; reverb and effects in parallel; dual mono-in/stereo-out processing; and independent processing of two mono signals. A digital submixer controls various effects combinations, allowing on-the-fly configuration changes, such as going from reverb to effects. The card is priced at \$250.

LEXICON MODEL 300L DIGITAL EFFECTS SYSTEM

The Model 300L is a version of the popular Model 300, but with a blank front



The Eventide DSP4000 Ultra-Harmonizer

functions. A combination XLR/1/2-inch input on the front panel allows an instrument or microphone to be plugged directly into the unit. Rear panel I/O connections include four balanced 1/2-inch TRS inputs and output jacks with a global +4/-10 switch; MIDI In, Out and Thru; a control voltage pedal input; and two footswitch inputs. Price is \$1,795.

ENSONIQ DP/2

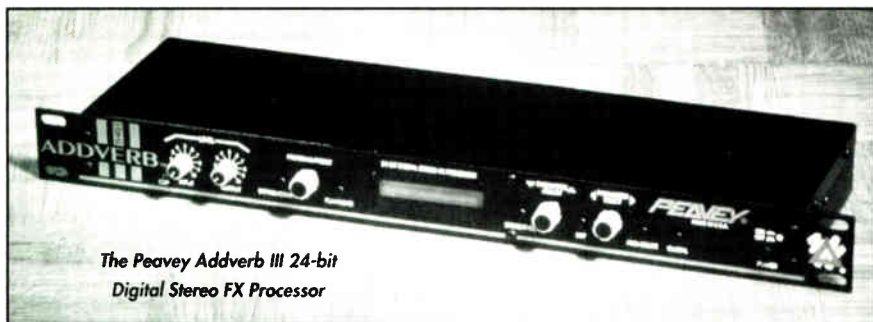
Ensoniq's DP/2 Parallel Effects Processor is a 2-in, 2-out, two-processor version of the DP/4+. The single-rackspace unit comes with 600 preset effects, including all of the DP/4+ algorithms, and offers 65 algorithms (including some combination algorithms to compensate for the reduced in/out configuration flexibility). Using custom 24-bit DSP chips, the DP/2 offers reverb, delay, phase, flange,

modular building blocks, organized into groups for easier selection. Program selection and control are via front panel function keys and soft keys, a shuttle wheel and a front panel numeric keypad.



A sampler card is available with capture times of up to 87 seconds in stereo (174 seconds of mono). A time compression/expansion algorithm allows

panel for remote operation with a Lexicon Alphanumeric Remote Console (LARC) III interface. The 2U 300L is based on a two-processor architecture



The Peavey Addverb III 24-bit Digital Stereo FX Processor

and includes two LexiChip™ II DSPs. The 300L can be run in Single mode, where both DSPs are used in a unified stereo configuration, or as a Split system, in which the DSPs can function as



The Sony DPS-V77 Multi-effects Processor

separate mono processors or may be cascaded together. Digital and analog I/Os are both available simultaneously, allowing an analog signal to be run through one DSP and a digital signal to pass through the other. Supported sampling rates are 48 kHz, 44.1 kHz or 32 kHz. Most of the 300L's Single effects are reverb and ambience algorithms, including Random Hall, Random Ambi-

ence, Stereo Pitch Shift, Stereo Adjust/Delay, and Rich Plate. The Random Ambience, developed for post-production, allows for accurate matching to a pre-recorded ambience. The 300L's Split effects include Dual Delays, Chamber and Mono Pitch Shift, and three effects specific to stereo mastering: Compressor, Small Stereo Adjust, and PONS (Psychoacoustically Optimized Noise Shaping), which improves signal-to-noise when mastering 20- or 18-bit audio to a 16-bit medium. MIDI control and timecode input connectors allow for external control of effects. Digital and analog I/O are via both AES/EBU and S/PDIF and balanced XLR connectors. Software upgrades are effected by replacing ROM chips. Price for the Model 300L is \$4,995; the LARC III is \$1,500; and the Lexicon 300 Version 3.5L software is \$250.

Lexicon, 100 Beaver Street, Waltham, MA 02154; 617/736-0300; fax 617/891-0340.

PEAVEY ADDVERB III™

The Addverb III™ from Peavey is based on 24-bit technology. The 1U stereo unit offers 35 different effect types, with 128 factory presets and 128 user-definable patches. Effects are easily selected via three front panel rotary pots and an easy-to-read LCD screen. The Addverb offers eight special Ultra Reverb effects, two independent pitch shifters and two independent choruses. Up to eight effects may be used simultaneously, and full MIDI control offers continuous control of up to eight parameters per patch. Price is \$349.

Peavey Electronics, 711 A Street, Meridian, MS 39301; 601/483-5365; fax 601/486-1278.

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SONY DPS-V77

The DPS-V77 multi-effects processor from Sony is a single-rackspace unit combining the popular effects of Sony's DPS-R7, -D7, -F7 and -M7 processors in one unit. Features of the DPS-V77 include reverb, delay, pitch shifting, filters, modulation and dynamic effects, and "morphing" between effects. The device is designed as two 50-effect 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. Price is \$1,775.

Sony Business and Professional Products Group, 3 Paragon Drive, Montvale, NJ 07645; 714/229-4385; fax 310/372-3958.

TC ELECTRONIC WIZARD M2000

New from TC Electronic, the Wizard M2000 uses the same DARC™ processor

as the company's successful (but much more expensive) M5000 multi-effects processor. Based around 20-bit A/D converters, the single-rackspace unit of-

fers two analog I/Os and AES/EBU or S/PDIF (switchable) digital I/O. Internal processing is 24-bit. The Wizard M2000 has memory for 250 factory presets and 250 user programs and can run two independent effects simultaneously, with no reduction in processing power. Supplied algorithms include an assortment of reverbs (including the C.O.R.E. algorithms from the M5000), pitch shifting,

not limited to a certain number of characters when naming effects and presets. A useful (and regrettably unusual) feature allows the unit to operate on any voltage between 90 and 240 VAC. Price is slated to be less than \$2,000.

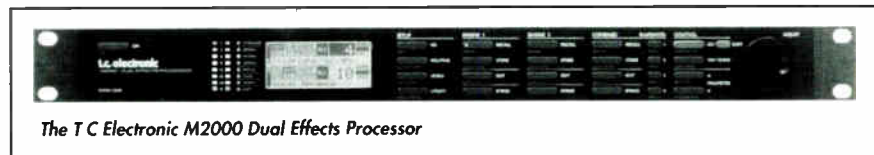


The Yamaha ProR3

TC ELECTRONIC

M5000 ATAC REMOTE

The M5000 from TC Electronic continues to dominate the product category it pioneered—the software-upgradable modular hardware platform for audio processing. New upgrades in 1995 included a revision of the software to Version 2.0, and the introduction of the ATAC remote controller and the Digital



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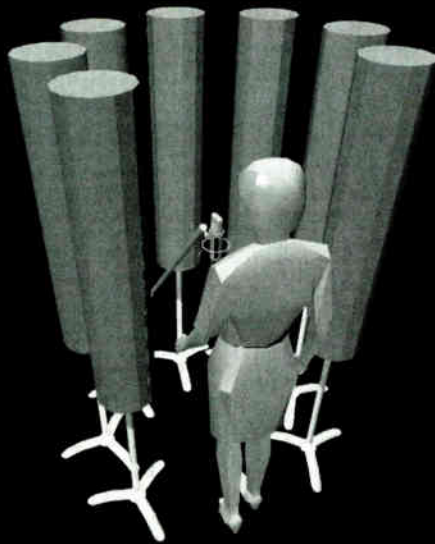
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TC ELECTRONIC DIGITAL TOOLBOX

The Digital Toolbox™ from TC Electronic is a recent addition to the optional MD2 MultiBand Digital Mastering package for the M5000. Among several features available in the software-based Digital Toolbox are: 4-band parametric EQ; fade-in/out functions based on Fletcher-Munson curves; dithering to 22, 20, 18, 16 or 8 bits; MS encoding/decoding. All features can run simultaneously. The system includes large-scale PPMs with peak-hold and correlation meters. Price is \$595.

TC Electronic, 705A Lakefield Road, Westlake Village, CA 91361; 805/373-1828; fax 805/379-2648.

YAMAHA PROR3

Introduced at the January '96 NAMM show, Yamaha's ProR3 is based on a new DSP chip. The unit features 20-bit A/D and D/A converters and runs 32-bit processing internally and boasts a 110dB dynamic range. Ninety-nine factory presets may be augmented with an additional 99 user-defined programs. In addition to quality reverb programs, the ProR3 features true stereo processing, parametric EQ, gating, flange, pitch change and auto-pan. I/O connectors are XLR and 1/4-inch balanced and unbalanced; its MIDI functions enable direct program selection from external MIDI devices, as well as program dump capabilities. Price is \$1,599.

YAMAHA REV100

The REV100 digital reverberator from Yamaha is a direct descendant of the company's REV7 and REV5 products with 16-bit A/D and D/A converters. Among the 99 editable reverb programs are stereo reverb, gated reverb, reverb plus flanger and delay programs. The 1U unit offers true stereo processing with dual ins and outs and MIDI control. Price is \$299.

Yamaha Corporation of America, P.O. Box 6600, Buena Park, CA 90622. 714/522-9011; fax 714/739-2680. ■

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The recording studios here have often been in houses, or squeezed in next to auto repair shops, squirreled away and found out as generations of musicians passed through, looking to bring a piece of the New Orleans sound—a mixture



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Clarence “Reggie” Toussaint, manager and
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Egyptian Room Recording

Ultrasonic Studios



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their projects here. New Orleans will see at least three new SSL consoles installed by midyear. At least a couple of high-priced studio designers are walking around with RTF guns. Two high-profile music figures have made the city home and are acting as a beacon for others. The city already has an amazing musician base, one that has no problem swelling its own ranks, even though no one can make a living off studio work alone. It's open all night, it has serious food, and there are clubs where you can pick your players right off the stage the night before a session. New York has turned into a machine-driven dance factory. L.A.'s music community keeps deserting it in search of family values to replace failed chakras and crystals. Nashville's production line keeps getting blunted by the unrelenting deity of country radio and an alternative (to country, anyway) music scene that refuses to kick-start. So, New Orleans figures it's got a few studios here and a few on the way that might grab more than a little of the American mindshare.

"You can ride your Harley around and go to the French Quarter and find people to play on your record the next day. And it's got great fishin'," says Michael Montero, a resident tech, owner of Montero Electronics, remote truck pilot, consummate angler, and one-man New Orleans passion play. The Louisiana native married at 15 and started having kids at 16. He worked the local oil boom till the bottom fell out a decade ago and people from Houston would come saying they'd work for food. He started studying electronics in his spare time and applied some of the skills to mixing live gigs at a local club. There he heard the war stories of New Orleans in the 1950s, the days of Fats Domino (65 million records sold) and Cosimo Matassa's now-defunct studio that recorded Domino and cohorts like Little Richard.

"It was a big place in the '50s," he says. "But New Orleans never got a name for itself, really. Not like places like Nashville did. New Orleans is not the kind of place that markets itself. After Fats, then came the screw-the-musician days; the Meters got screwed, the Neville's got screwed. We were too far away from where the money was. It gave the local musicians a bad taste in their mouth. That's changing now. There's lots of good studios here. People are coming down again and getting serious about it. Me, I take them fishing."

At least, when he can find the time.

As the city's main tech, Montero is responsible for keeping alive an electronic infrastructure that walks a fine line between vintage and just plain old. But there is no museum-like quality to the vintage gear; it's worked hard day in and day out.

The two names that have brought the most attention to New Orleans of late are superproducer Daniel Lanois (U2, Peter Gabriel) and more recently Trent Reznor, the dark genius behind Nine Inch Nails. But a discussion of New Orleans studios needs to start with its elder studios, Ultrasonic, owned by Jay Gallagher (who interviews legendary New Orleans engineer Cosimo Matassa on page 88), and Sea-Saint, owned by Reggie Toussaint.

ULTRASONIC

Ultrasonic's chief engineer, David Farrell, is proud of both the decade-old 52-input MCI/Sony console (which is actually a youngster by New Orleans standards; only a dozen of that size were made) and the 18-inch-high watermark that shows the extent of a flood that hit the studio's canal-crossed neighborhood last May. That, and the fact that in this and every other studio here you can feel the floor shake with every truck and bus that drives by, is dealt with in a typical New Orleans manner—with a laugh and a philosophical shrug.

"The whole town's on a big cushion of water," grins Farrell, who came here in 1978 from Indiana and has spent the past six years at Ultrasonic. He points to a picture of the band that was recording at the time of the flood, knee-deep in water with their pants rolled up and holding their guitars and, of course, laughing for the camera. This is New Orleans' oldest current studio, having opened in 1976. It's where Massenburg and Ronstadt came, where Steve Lillywhite and McCartney and a host of others—including Lanois and Reznor when they first came to town—came when they wanted the flavor. There are no apologies for the board. "We've been thinking about a new one for a long time," says Farrell. "Thing is, people don't agree on what boards are the ones they want to use. So we spent the \$50,000 we were going to use as a down payment on a new console on new outboard instead. Some Focusrite and Neve stuff, some API 512B mic pre's and 550 EQs. Instead of sinking the money into one sound, we bought things that would make us more versatile."

Ultrasonic's main recording room is acoustically versatile and sonically charming. It was modified in 1990 with a raised ceiling and new iso booths and is a favorite among local musicians for tracking. Many of those sessions are for Blacktop Records, a local blues label that accounts for a quarter of Ultrasonic's revenue base. "Every studio here has something," Farrell says. "Either they have the name of the owner, like Daniel Lanois' place does, or they have a room like this, or they have some amazing vintage console. Everybody here has one or two things that are special. It's like the city itself; it has a vibe to it. It's the closest thing to a European city that you can get in America, so that draws people in." Farrell readily admits that when it comes to out-of-town acts, they tend to be short visits, going elsewhere to mix. "Still, we're booked further in advance than we've ever been," he adds. "So that tells us something."

Ultrasonic asks and gets \$1,350 per day from its music clients, local and otherwise, Farrell maintains. He adds, however, that more and more of the revenue base is shifting toward the audio post-production work being done in the studio's B room with its Soundcraft Delta console and 4-channel Pro Tools system, as well as from the more recently opened satellite studio, New Orleans Digital, located downtown with 16 channels of Pro Tools and in partnership with two local video post companies. But Farrell's heart remains with the music. "This is a town known for its rhythm sections," he says. "I love listening to guys like George Porter, Lee Zeno, Raymond Webbber. They play like no one else in the world. They can't make a living just in the studio. No musician here can. But they stay anyway."

SEA-SAINT

From a distance, Reggie Toussaint could easily be mistaken for an NFL linebacker. Up close, he could be the franchise. So his soft-spoken tone catches you a bit off guard at first. The son of legendary producer/composer/arranger Allen Toussaint, Reggie manages Sea-Saint (named for his father and his partner, Marshall Sehorn) and learned engineering at the age of 15 within its wood-paneled walls. Visiting artists have included McCartney, Patti LaBelle (who did three albums there with Toussaint père), New Edition and Bobby Womack. A Harrison 3232B console was changed for a vintage (what other kind is there?) Sony/MCI desk two years ago, in what



Sea-Saint engineer John Roger Branch

could be described as a traditional New Orleans upgrade.

Reggie admits that Sea-Saint fell behind the curve in New Orleans in the mid-'80s as newer studios began opening. "But business was never really spectacular in New Orleans, anyway," he says. "It was always a town where you had to have something else going for you. Here, we had my father." However, Sea-Saint, opened in 1977, was a regular stop for the major artists who visited New Orleans over the last decade or so. Reggie engineered for a wide variety of acts, from the haircut-intensive Night Ranger to classic saxophonist James Rivers, whom Clint Eastwood chose as the living voice of Charlie Parker in his biopic *Bird* (Eastwood had earlier used New Orleans as the setting for his film *Tightrope*). "I remember getting a call from someone who said he was Clint Eastwood," Reggie recalls. "I just laughed and said, 'Yeah, right.' Then a second later, his production office called here to say that Mr. Eastwood would be calling."

Like Ultrasonic, Sea-Saint seems content with its vintage-heavy technology mix, and Reggie believes it can carry him through a period of expansion—which he believes the New Orleans' studio community is about to undergo—and continue to get him the \$1,100-a-day rate that the studio charges. Instead of relying upon technology upgrades, he'll be depending on a more intensive marketing campaign that he, his sister Allison and studio manager Sandy Labayen are now formulating. But his father (who at age 57 continues to work hard and is currently running four projects there) will remain the studio's ace card. "New Orleans is about people, not technology."

says Reggie sincerely. "That's what it's all about here."

KINGSWAY

If Ultrasonic and Sea-Saint represent New Orleans' long-time traditional residents, Daniel Lanois' Kingsway Recording illustrates the effect that the city's spooky charm can have, and the effect new blood can have on it. Kingsway is not so much located in, but consumes, a 30-room

house (two houses, actually; you can see the seam that joins them running down the middle of the central staircase). The house was built just after the Civil War, on the edge of the French Quarter, and renovated in 1929 by the Arnaud family, whose ghosts reportedly still reside within the vintage rooms. Lanois, who first came to New Orleans to produce the Neville Brothers' *Yellow Moon* in 1988, fell in love with the city and took over the house in 1990, creating a studio that has turned out to be an ongoing process in terms of interior decor and technology. Live-in studio manager Karen Brady, who once owned an antique store, scours the city for furnishings that match the house's charm and contribute to its creative atmosphere. At the time of my visit, Throwing Muses members were walking about the rooms on the first and second floor, listening to playbacks of their next self-produced album.

Trina Shoemaker, Lanois' former house engineer and now a freelancer who still does much work there, is effusive about Brady's aesthetic sensibilities and about the house-as-studio. "You can use any room in the house to record, and that's what people do," she says. "You just string cables as you go." The side of the house where the vintage 40-input API console (complemented by a Neve 12-channel 8068 sidecar) resides started out as the main tracking space. But Pearl Jam ventured to the other side for *Vitology* in 1994, followed by Tragically Hip and others. The front room—Shoemaker's favorite drum space—is acoustically controlled via a foam-sided cave. In the center of the room, the console is surrounded by vintage outboard such as the original comp/limiters from the old Decca Studios in Manhattan, and Tannoy cus-

tom Gold monitors from Abbey Road.

The studio is increasingly used on a for-hire basis at a card rate of \$1,500 per day, including accommodations. Lanois has done relatively few productions there lately, which Brady attributes to a combination of the producer's schedule with various artists and to the studio's growing popularity. "I just had to turn him down for time in his own studio," she mentions. Lanois also has been spending less time in New Orleans in the wake of a civil legal action, but that circumstance only limits his visibility, not whether or not he uses his own studio. Brady stresses.

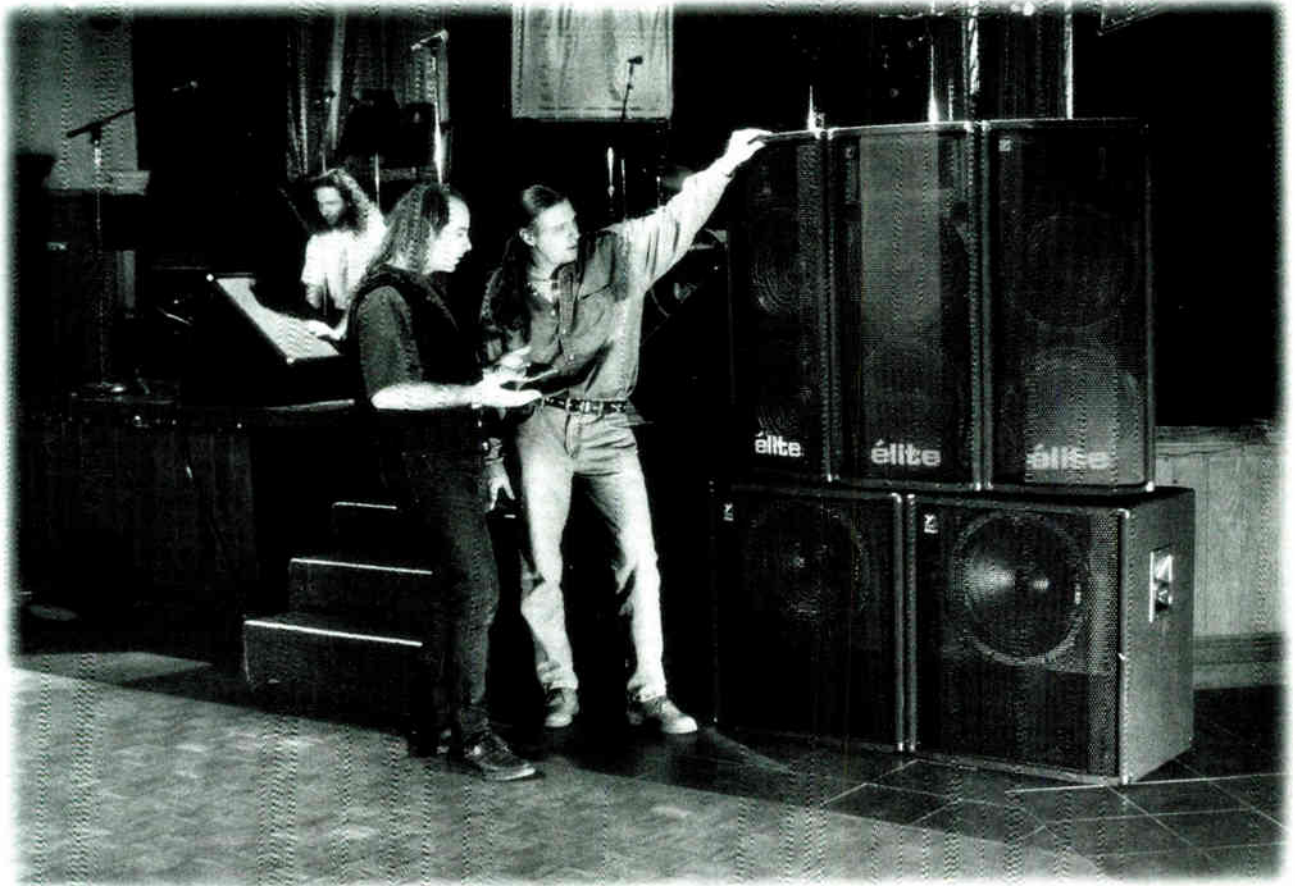
Kingsway seems to have no shortage of takers even without Lanois as producer, although both Brady and Shoemaker acknowledge that his presence is the initial draw. "But once you're here, you realize that the house itself is what you've come for," says Brady. "In New Orleans, some things never change," adds Shoemaker, "and we're not trying to change them. You can't get someone to come over and work on the house when it rains, but they'll come over and have a beer with you. Everything here is happenstance; if you plan something, you're sunk."

NINE INCH NAILS

The other new arrival of note is Trent Reznor, the foreboding presence behind pain-rock band Nine Inch Nails. Reznor, like others, passed through New Orleans and felt it beckon. He bought a 15,000-square-foot former funeral home in the Garden District for his studio, and he bought a home nearby. The location is equal parts eerie and pragmatic: The upstairs hallway is lined with video games, leading to the rather used-looking torture chair from one of NIN's videos; on the other hand, the casket elevator is perfect for loading in equipment.

The central control room, formerly the home's chapel, is huge, nowhere near filled by the 72-input SSL G Plus with Ultimition, New Orleans' first SSL. It's tielined into several rooms, the actual funeral parlors, two of which are the main recording rooms linked by video cameras and monitors. A second control room holds 32 tracks of Tascam DA-88s and the Amek Mozart that was used on NIN's *Downward Spiral*, which was recorded at the Tate House in Los Angeles, site of the famous Manson murders. (The choice of a funeral home becomes less and less enigmatic.) Other equipment includes a pair of Studer A800s, Teletronix,

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AMS, Eventide, Neve and Focusrite outboard, and Reznor's seemingly endless array of keyboards and samplers. Sixteen channels of Pro Tools are also available.

The studio is managed by engineer Brian Pollack, who met Reznor while assisting at Record Plant during their last recording there. He lives upstairs in one of two apartments in the building and noticed right away the geologic aspect of New Orleans. "The floor has a total of ten inches of concrete with a layer of damping material in between," he says. "But you can still feel New Orleans shake. When I first got here, I thought it was earthquakes."

Sean Beavan, NIN's production assistant, FOH engineer on the road and co-designer of the studio with noted monitor expert Steve Brandon, nods in agreement. "We've also talked about taking the studio for hire when Trent's on the road," Beavan says, adding that initial commercial clients will likely be personal referrals rather than off-the-street clients. Beavan believes that Reznor's choice is a good one. "New Orleans has a lot of potential for more music recording," he says. "The interest level is high, the town has a mystique about it—musically and otherwise—the Quarter is ten minutes away and, unlike L.A., New Orleans is open late. You can go blow off steam and come back and get some work accomplished."

EGYPTIAN ROOM

Egyptian Room Recording is housed in the 1926 Masonic Temple building downtown, in what's referred to as the American Sector. Owners Robinson Mills and Paul McCord sculpted a control room at one end of the massive Daughters of the Nile sub-temple within the main building, adding an old API from Sunset Sound's Studio D, abetted by a Neve 5215 sidecar that was originally used by the BBC for *The Benny Hill Show*, for a total of 44 inputs. These and other vintage pieces are offset by some new outboard equipment and Genelec 1031A monitors. As we spoke, Egyptian's owners and those of nearby Dinosaur Recording, a smaller room with an Amek Angela console, were finalizing an agreement to merge the two operations. The two studios, which currently rent for \$700 and \$600 per day, respectively, would operate at their present locations until April 1996, when a building on Girard Street that is owned by Dinosaur's holding company will be ready for a new, larger facility,

to be called American Sector Recording. An SSL G Plus with Ultimatum and Total Recall will be installed, not necessarily as a repudiation of the city's vintage character but as an interface with what they see as the larger recording world, of which they believe New Orleans is about to become an integral part.

"New Orleans is different now than it was five years ago," observes Jim Albert, chief engineer and manager at Dinosaur. "The economy is doing well, people are moving to town. It used to be that people like Elvis Costello or Linda Ronstadt would come to town to record a local brass band for their records and bring their own microphones to do it, then go back to Ocean Way. Now, people are setting down roots here, like Lanois and Reznor. They don't come for the brass bands anymore."

"People are starting and finishing projects here now," adds McCord. "That's why we're talking about pooling resources. We want to anticipate what we think is going to happen here."

"The studios here might not look it, but the maintenance is at a high level now, and people in New Orleans are trying harder than many other places to please the client," Mills says. "We're going to see spillover from Trent coming here, just as we did from Daniel Lanois. It's all combined to usher in a new level of professionalism here."

Which prompts Albert to pronounce, "If New Orleans siezes the moment, it can make it. The market here is already exceeding what the studios can deliver. It's time for a city-wide upgrade. And that's what's happening. It has no choice. You'll get eaten from below by ADATs, so there's nowhere to go but up. Fortunately, even though gear costs the same everywhere, New Orleans is a less expensive place to buy into. And that's a big advantage. A quarter-mill will buy you a palace."

SIDE ONE

Side One Recording in Jefferson Parish is perhaps what every personal recording studio might someday aspire to. Owner Greg Troyer started messing with ADATs and Mackies while a



Egyptian Room

teenager, and now at the ripe age of 22, he has seen his studio nearly consume his house and is planning a new two-story tracking room in the back yard. At the moment, though, he is sauntering around that yard envisioning it, pausing now and then to rock his heels on the motorcycle trailer that brought down leading Nashville producer James Stroud's (Clay Walker, Tim McGraw, Clint Black) Harley Davidson. It was drawn by Stroud's huge RV, which is now parked in front of the house, where Stroud is producing the Neville Brothers' next record. Side One has also been the site of recording for another New Orleans legend, the Meters, as well as visiting artists like Speech of Arrested Development and the Brand New Heavies. They've all come to work on a pair of old Neves—an 8066 and a 5302 broadcast sidecar—jammed together for 60 inputs. Soon to be joined by another Neve, the three connected consoles will go into the new tracking room (Russ Berger is among the designers making bids on it), and an SSL to be named later is intended for the current studio, which will become a mixing room.

Future ambitions have not been blunted by current or past success, a theme for both Troyer in particular and New Orleans in general. "There's a big resurgence going on here," Troyer says in that distinct New Orleans dialect that has more in common with Brooklyn than the Bayou. "There's no giant studio here, and I don't think there's gonna be any. This isn't going to be the showplace that Los Angeles or Nashville is. People are putting lots of nice gear into houses, and we'll have the same gear but it'll be more comfortable. With more studios coming to town, it'll bring more [artists] in to record. The lack of great studios

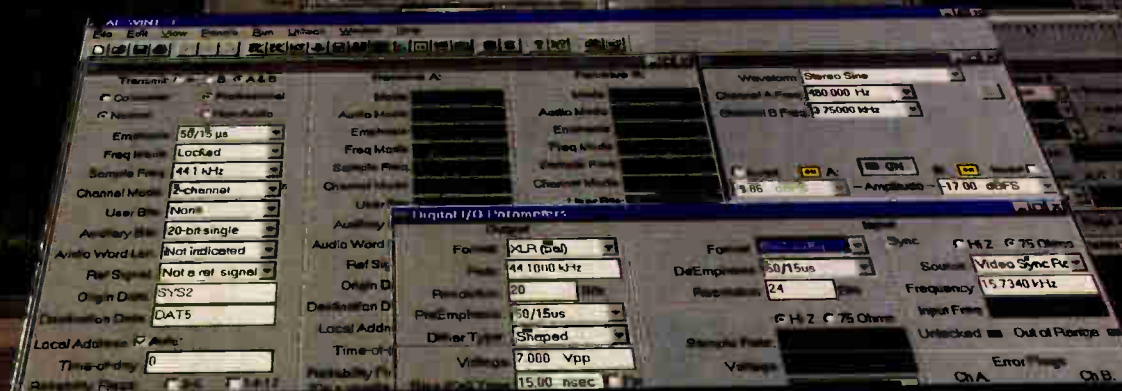
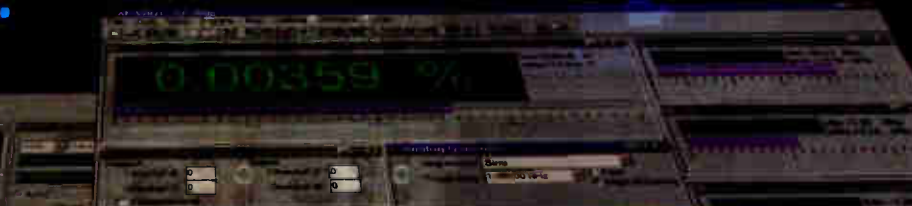
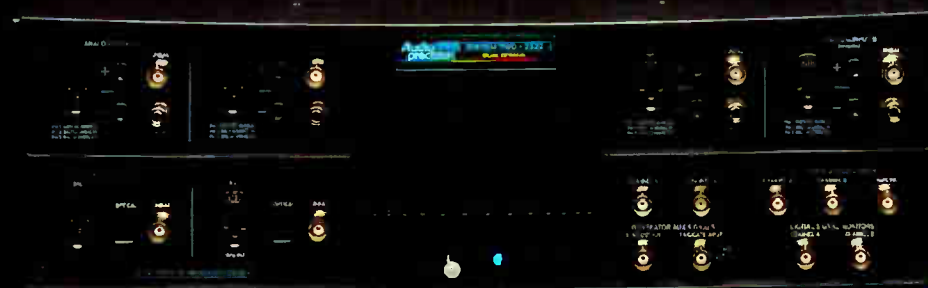
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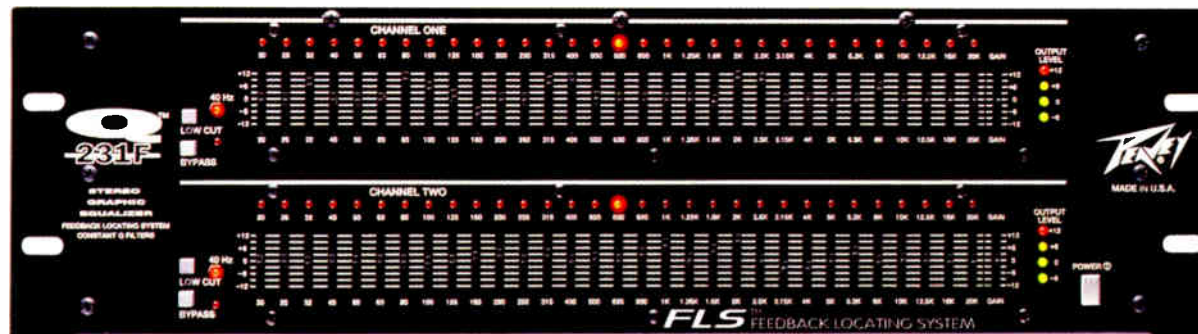
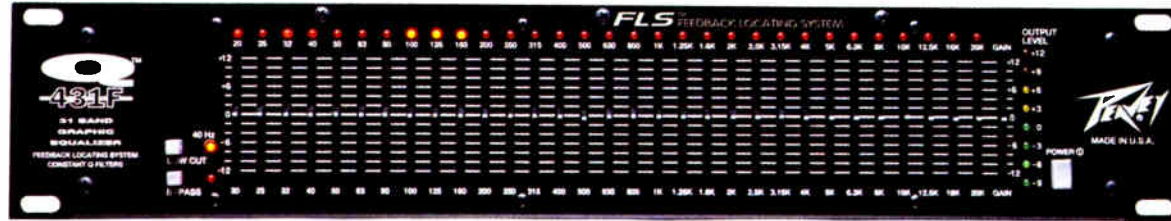
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Listening to Iguanas mixes at Chez Flames. (L to R) Keith Keller, producer; Armando Montier, Iguanas percussionist; and Rod Hodges, Iguanas vocalist.

here is what held it back so long. That's why I'm putting in the tracking room, and I hope other studios here also expand and upgrade. I like the fact that Trent is here. I hope next to see a major record label set up an office here. New York had its turn, and L.A. and Nashville. Now maybe it'll happen here."

Troyer's approach to expansion underscores the economic viability of New Orleans cited by other studio owners. He has acquired all his equipment on a cash basis by buying as his business grew (the house was bought with a loan co-signed by his father), and future purchases will also lean toward cash. I realize, talking with him, that not once have studio rates been mentioned in New Orleans as anything but simply numbers, rather than the sore points they are in other cities. "Rates are easier to deal with here because there's fewer studios around, and New Orleans is just less expensive a place to be than New York or L.A.," Troyer suggests. "Everyone's very friendly toward each other, and we all share work and clients. I hope that when New Orleans becomes a successful recording center, it doesn't change much. I went up to see some Lorrie Morgan sessions with James, and it was great but it went so fast, like a production line. That's just not the way they make records here."

CHEZ FLAMES

Chez Flames is perhaps the quintessence of the fusion of New Orleans' past and present as a recording center. In a house built in 1850, Keith Keller, known to friends as Fred Flames (the explanation for the studio's name but little else), runs a personal studio that is equal parts Animal House and Left Bank salon. He produces for a range of

alternative acts such as The Subdudes and The Iguanas in an environment that is at once moldy yet defies entropy. Old socks and cans of School Days Pork & Beans lie about the stairs and floors, mingling with vintage guitar amps and reverb plates, all of which are destined to belong wherever they are left. The juxtaposition continues with an ancient Neve 8000 Series coupled to

a Mackie 1604, Collins and Pultec comp/limiters in racks next to a glowing SADiE digital editor.

Keller, who left Seattle seven years ago for New Orleans, describes himself as "kind of a roots guy," whose eccentricities are more than compensated for by the fact that he manages, in this techno-funhouse of his, to get some serious screaming performances out of people and equipment. The drum sounds for The Iguanas' record then under way had little to do with radio and everything to do with inspiration. Ron Hodges, The Iguanas' lead singer and guitarist, says from a chair behind the console, "Most studios make me nervous. This place is just like hanging around in someone's house that you're comfortable with." Or as Keller himself sums it up, "A fair amount of chaos—controlled chaos—gets players bewitched and more inclined to make keeper tracks. I wouldn't make as good records if the place was neat as a pin."

Keller has dealt with the exigencies of New Orleans in the locally characteristic way: changing the things he can (he bought the house next door to obviate noise complaints) and accepting the things he can't ("A truck goes by downshifting, it's going to be 30 cycles, and the house is simply going to shake"). New Orleans lets him be what he wants to be, and by encouraging rather than simply tolerating eccentricity, both he and the recordings are enriched. "What I'm really doing here is running a salon for adult males who have developed their artistic and philosophical tendencies to a fairly high degree," Keller observes of his own cosmos. "It looks like it does because that's New Orleans: the city with a low quality of living but a high quality of life." ■

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Cosimo

A CONVERSATION WITH THE DEAN OF NEW ORLEANS RECORDING

BY JAY GALLAGHER

Down N' Awlins way, there's been a long lineage of musicians with colorful personalities and the names to match: Professor Longhair, Huey "Piano" Smith & the Clowns, Clarence "Frogman" Henry, Dr. John... It's a musician's town. But on the other side of the glass, one name truly stood alone for more than four decades of recording: Cosimo. The full name is Cosimo Matassa, but if you're in the Big Easy, you need only say Cosimo.

We had heard stories of Cosimo for years here at Mix—the one-liners, the absolute commitment to recording and musicians. But it wasn't until an editor attended the second meeting of the local AES chapter last year that we truly got wind of the man's accomplishments, encompassing more than 40 years in the business spent recording some of the finest players to ever set foot in a tracking room. The engineers throughout the group affectionately said, "We all bow down to Cosimo." Never one to lag technically, Cosimo asked most of the pointed questions during Tom Scott's (of EDNet) presentation on digital telephony and ISDN capability.

Today, Cosimo runs a couple of grocery stores, while serving as a consultant to local studios and taking an active role in establishing a New Orleans Music Commission, which is intended to promote the city's often-insular music industry. We needed a writer to sit down with Cosimo, so we turned to Jay Gallagher, owner of Ultrasonic Studios, who, it could be argued, inherited Cosimo's torch in the late '70s. Gallagher now has entered a second career in audio-for-video with the 1995 opening of New Orleans Digital Post. But he took time off to sit down with one of his heroes and reminisce at Cannon's, a quintessential New Orleans lunch spot.

Gallagher: I got a real easy one here to start off. How

and when did you get started in recording?

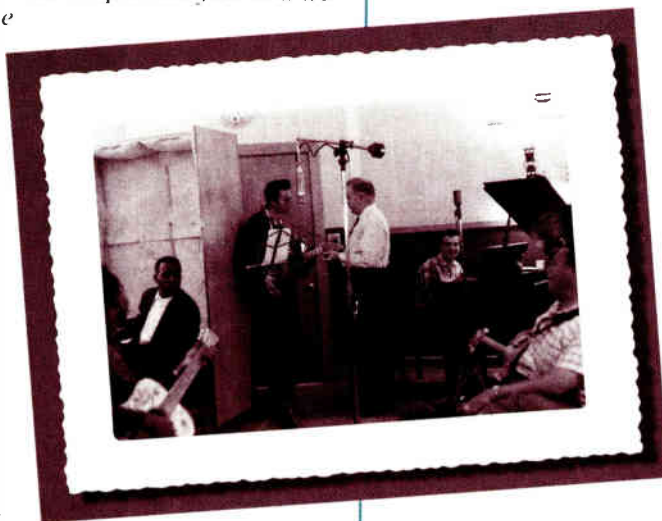
Cosimo: Well, I like to explain it as I backed into the recording business. I was going to school to be a chemist. About the time I found out what a chemist really was, I didn't really want to be a chemist anymore. I was going to Tulane, and it was January, and in April I was going to be 18, and this is World War II time, okay? I was going to have to register for the draft, so I said, "Well, I don't want to get drafted. I need some time off." So I convinced my father not to register [me] for the next semester, because he was paying the bill, you know? I didn't get drafted. The war in Europe ended. So I started working for the jukebox company that my dad had a half-interest in. One thing we'd do was sell

the records that we took off the jukebox in our office. Now we're talking about 78s that wore out very fast—big old-fashioned heavy things and all.

Gallagher: They had 78s in the jukebox?

Cosimo: Yeah. I mean, this is a long time ago.

Gallagher: I guess so. You'd need a big ol' changer.



Left: "Hungry" on drums, Justin Adams on guitar and Mac Rebennack aka "Dr. John" on piano

Cosimo: Yeah. So we'd sell the old records, and customers started asking for new records, so we started selling them new records. By that time, the war was over, and we decided to take the place next door, the corner of Rampart and Domain, and remodel it and have an appliance store. Because the war was over, we figured people were going to be buying that kind of stuff. So we put in a record shop and an appliance store. And the guy I was working with—and it wasn't my idea, it was his idea—says let's put in a place where people can make records. Think of it. A guy walks in off the street and gonna sing happy birthday or something. And it fell to me to run it, because I was a little more technically oriented than he was. And gradually, I was doing more recording and less everything else, and



Left: Jimmy Clanton and Cosimo

mote recording at CAC, Contemporary Arts Center. We rented a truck and put a bunch of junk in it. I think we had a 16-track at the time and rented a console, and I think we were doing Little Queenie and the Percolaters. Remember that?

Cosimo: Oh, yeah. You're talking about stuff I was into with a lot of interest [that was] done by Robert or Bob Fine, primarily for Mercury Records, where he pioneered a single-microphone technique. I think mostly he was using U67s and M49s, but still one microphone. He was doing a lot of symphonic things, and it really sold me on the idea that microphone interference was so crucial that you better listen for and listen to it. So I started paying attention to that kind of thing. Especially since I was using stuff in a tiny room for a long time, and multiple microphones did make a difference. You turn two on,

then finally, nothing but recording. And it never was planned that way.

Gallagher: Mine was similar. I was in electrical engineering in school—figured I was going to work for GE or invent the next great transistor, and I'd been recording myself. Primarily piano and vocals, and I needed other guys to play to make it sound like something, so they made deals. You record me, and I'll record you, you know. And I remember even at LSU, I had an apartment, and I'd set up a drummer in the closet with six mattresses all around him, trying to stop the sound from getting out, which was totally ridiculous. During finals week, mind you, which the neighbors did not appreciate at all. And my partner, George, and I...He had a degree in urban geography. Very useful. And he was in Houston, I was in New Orleans, and he said, well, what do you want to do? Well, why don't we build a studio, and at this point, people were giving me gifts to record them, and I said, "Gee, that's awfully nice." So, we decided New Orleans was the place to have more music with less competition. This was in '75, '76.

Cosimo: I remember, because you guys used to come down with stuff. I was on Camp Street when y'all came down.

Gallagher: Jazz City, right? And your first one was...

Cosimo: J&M on Rampart and Domain. And that was 1945. Had some great caliber, but it was a lousy year.

Gallagher: When you were still in the business actively, you and I did a re-

and it sounds different now than one, or either.

Gallagher: Yeah, we notice that when you're cutting horns, and you double-track it, the phase cancellation makes the horns sound terrible.

Cosimo: I remember the first time we started using the fourth microphone. I had three single-input, and I got one and I could do four. And the fourth one allowed me to use a second drum mic. I had a 21B, which is a tiny condenser microphone. You notice I'm saying condenser, not capacitor microphone. Altec made it. Looked like a little black baseball bat. I put that on a floor stand with a baby boom, and turned in and it was positioned somewhere near the snare, cymbals, and all that. We were trying to find one microphone to get as much of the hand work. And for the saxophone solos, it would be somebody like Lee Allen. And at the same time for the solo you're going to have to take this mic and swing it around by him, play his solo, then shove it back by the drummer. And if you listen to the records...

Gallagher: You can hear that?

Cosimo: Yeah. Well, here's what you hear. Earl Palmer has this thing that if the vocalist is coming back, he plays something on the drums like "Here comes the vocalist," right? You know the thing with the sticks. And they fade up. Thump thump thump. And then I'm doing it, and the vocalist comes in, and then it just happens.

Gallagher: Teamwork recording.

Cosimo: It's amazing.



Right: Red Tyler at the piano with Edward Frami

Gallagher: Who were some of the early guys that you cut who had really never been in studios before?

Cosimo: One guy, an old guy, Papa Celestin. A traditional jazz musician. He was totally out-of-touch with the fact that it was a recording. So you'd have to do it like he's playing, and everything you did had to be incidental to him and the band playing. And he'd lost his teeth.

[laughter]

Gallagher: A common problem in musicians.

Cosimo: Yeah. And he had this new set of false teeth, and they were giving him a bad time. He wasn't ready for them yet or something, and he'd stop playing. He'd be in the middle of a song, and if something didn't go right, he didn't like the way it sounded because he couldn't get his chops together with his new teeth...

Gallagher: Literally.

Cosimo: And he would stop. And now I'm recording a disc, right? This is before tape and everything. I went over and said, "Look, no matter what you think about it, other people are going to be so impressed with your playing." I'm lying like hell to him, you know. "Other people are going to be so impressed with your playing, that you might be wasting a real gem here."

Gallagher: "Do not stop."

Cosimo: And for the most part, that worked, but he thought it was because I wanted to make sure that we didn't lose one single take on this, and it was because he didn't understand that you couldn't stop in the middle of the song.

Gallagher: When you're cutting direct-to-disc with "C," on those kind of deals, do you cut the whole side at one time?

Cosimo: Yeah. Beginning to end, no stopping. It wasn't until Pickering, who invented the Pickering pickup, that you could then play acetates and do so little damage that you could play them several times. And so you could play sections of them and edit them. But until that lightweight, high-compliance pickup came along, you just couldn't do it. In fact, when we used to cut, we had a two-turntable setup, and we'd cut a master and a safety. And you'd play the safety, to see what you had, and the master you didn't touch. So they could process it. And you'd hope that it didn't have a pop from a thread or some physical defect, which they had often enough. It was an interesting time.

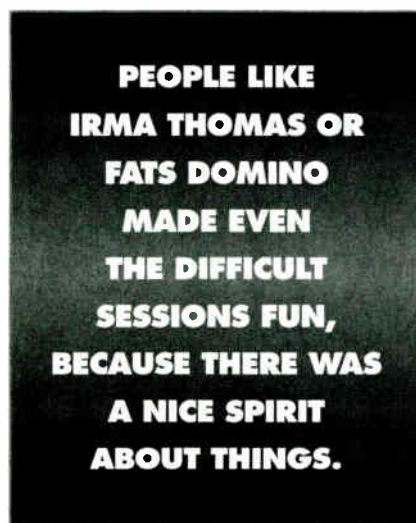
Gallagher: I understand you also had a mastering lab at one point?

Cosimo: Yeah, for about 12 years. I got

it when I was still on Governor Nichol Street and moved it to Camp Street, and unfortunately, I never got to cut stereo discs.

Gallagher: Those were all mono, then. Was that a Scully?

Cosimo: No. It was a Neumann lathe with a Rampian cutter head. I had a friend who was an engineer on an ESSO supertanker. He used to go to Germany and England with crude oil and come back loaded with ballast, usually. But he'd stop in England, and he was a hi-fi enthusiast, and early on, when they had the first little 50W2 McIntosh with the little two-part amplifier with the gigantic transformers. He had the first Acoustic Research electrostatic speakers on it.



God, them things were great, but they crashed every two days. When they were working, they sounded fine, but you just couldn't keep them working. He had a rig with Klipsch bass speakers and AR tweeters in midrange, and anyway, he heard about this feedback cutter head in England made by Rampian, so he bought three of them. He asked me, and I told him, yeah, get them. So he bought three of them, and he brought them back, and he was going to keep one to play with, and I was going to keep one, and I sold one to a guy...He was one of my early heroes, too, at Universal Recording in Chicago.

Gallagher: Murray Allen?

Cosimo: No. He ended up owning the company and making phase-aligned loudspeakers and all that. I'll think of his name, it'll come back to me. But he had this great studio in Chicago, and they did a lot of commercial work. And I used to hear his stuff and be struck by it. He did the first record that used reverb theatrically, as opposed to just trying to re-create natural sounds. It was a

harmonica record by a group called The Harmonicats, called "Peg o' My Heart." And if you hear that thing, you go "Whoa, the harmonicas sound like organs." He was a real, true pioneer in the business. He did a bunch of records I was impressed with, and I got to visit up there once and talk to him a little bit, and he was telling me how you make money in the recording studio business.

Gallagher: How do you do that [laughs]? I'm still wondering. Let's talk a minute about famous musical families. Obviously, there's the Nevilles. But you probably knew several more in the early days.

Cosimo: Adams. Gerald Adams and his whole family. They had a family band, an actual band with "nothing but family members. His mother, and some of his brothers and an uncle, I think. Gerald Adams plays bass, and Justin Adams, who was a guitarist, I think he's passed away now, but he was a guitarist, and they had a full band. Nothing but Adamses.

Gallagher: This is traditional jazz, or what?

Cosimo: New Orleans jazz, and then they'd play sort of R&B and what we now call rock 'n' roll. One thing I think that makes New Orleans—this area, really, more than New Orleans—great musically is that for years people really entertained themselves. Before they went out to clubs and all that, there was a lot of music in homes, in fraternal organizations, meeting halls, and places like that. The result of that was, because there was so much of it, that the good players prevailed and the bad ones were down the drain, because, if they didn't like the way you played, you had screwed up their party. I mean, you weren't comin' back. But they had to pay you anyhow. So I think there was this great filtering mechanism that helped. Number one, they needed a lot of players. It isn't like now. You didn't buy the record, though a few people did that with their gramophones [laughs]. But primarily, it was live musicians, even these little home parties. Of course, everybody played, though. Barbers and longshoremen, they all also played.

Gallagher: There's a lot of musician-ship in New Orleans that some other towns don't have. You know, there's a lot of cab drivers who are great players.

Cosimo: That's right. And one of the reasons, as you know, is it's tough for a musician to rely on just his playing to make a living. Especially in a town like

—CONTINUED ON PAGE 95

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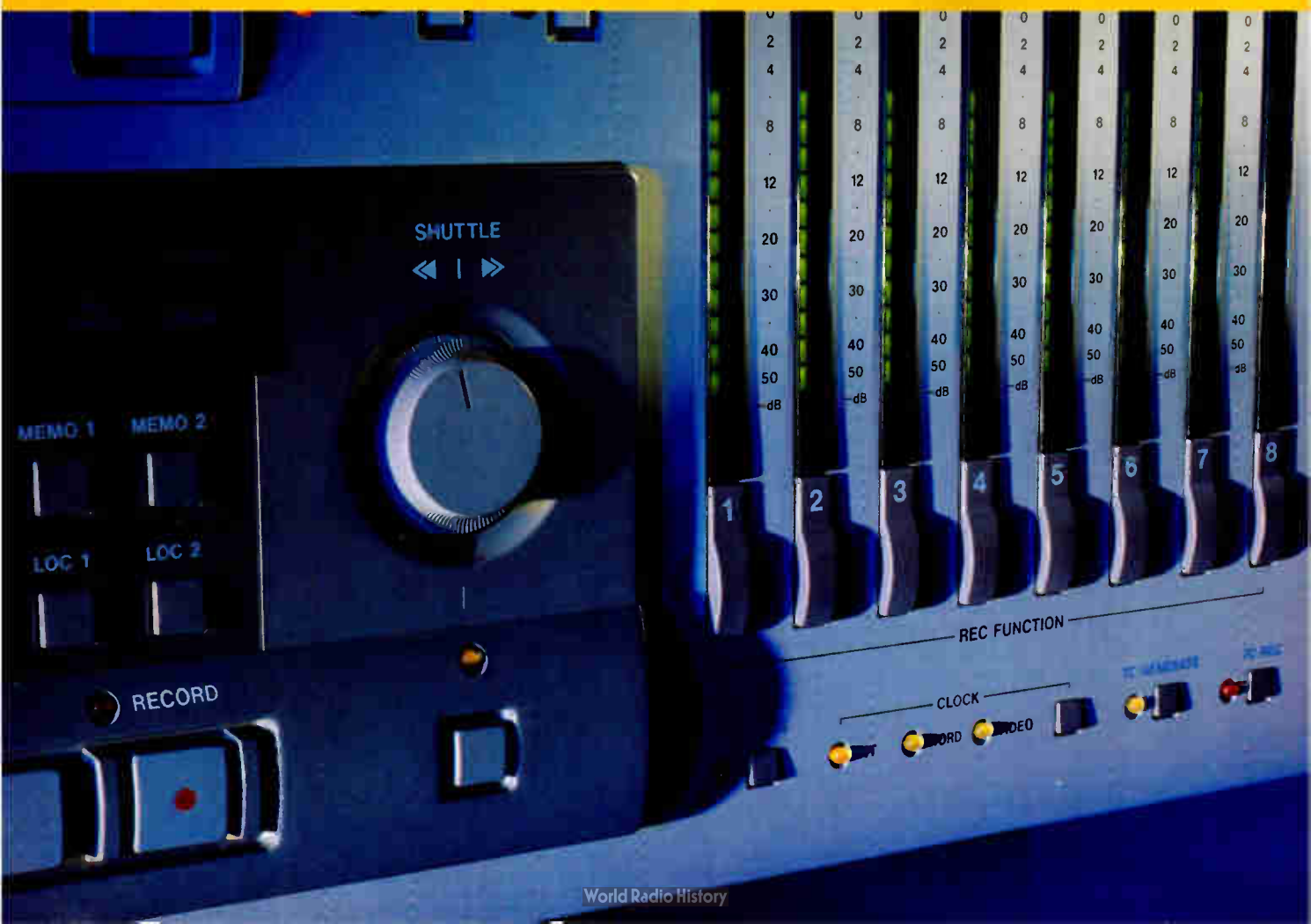


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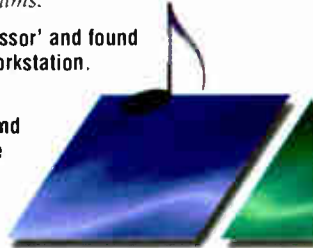
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—FROM PAGE 90, COSIMO

New Orleans. Club owners are notorious for not wanting to pay and that sort of stuff, and you couldn't play house gigs for much more than pickup money.

Gallagher: Speaking of not paying, in the early days of the record business, you had a record company, didn't you at one point? Talk about that for a second.

Cosimo: Well, first of all, let me back up to why I got into the record company. One of the main reasons was these guys would come to New Orleans and record people, and I know guys who signed contracts for a penny a record. A penny a record, and they got cheated out of some of that! So anyway, I started recording a few things, just hoping that if nothing else I could give them a fair shake. David Bartholomew and I did a couple of things together, like we did "Lawdy Miss Clawdy." That was when we sold that to Art Rupe for a thousand dollars. The whole idea was to have a place for these guys who either weren't getting contracts or were getting lousy contracts. A home to go to that was local and a fair shake and a decent revenue. It worked for a while. I went busted because of other reasons—I was stupid about the business side. I think back on it, and if we'd had just one really enterprising lawyer, it would have been different. But there was no infrastructure in this town. No access, especially for bands and musicians, to accounting and lawyers and things like that.

Gallagher: I guess the middle '60s was kind of when the recording scene exploded.

Cosimo: Yeah. Well, that's when things like we were doing and they were doing in Memphis suddenly became mainstream music. We'd always had sort of crossover records that went pop as opposed to R&B, and probably the single greatest instance of that is Fats Domino.

Gallagher: Let's talk about that for a second.

Cosimo: Once he did the first record, *The Fat Man*, in the early '50s, it got played on a white station. And you have to understand: Back then, it was a tremendous differentiation. It's not like today. They got stations that got all black DJs that play all black music, and a lot of white guys listen. Back then, there was one station in Mexico right over the border that played R&B music that white kids across the world, especially in the United States, could tune in

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and listen to and started finding out. "Hey, there's some other stuff besides what we've been hearing."

Gallagher: Besides Elvis Presley.

Cosimo: Yeah, but even before Elvis. In fact, Elvis had at least two songs that I know that we did originally here, and he covered them in his own version. In fact, it's kind of funny. It shows how you clean it up, even for Elvis. We did a thing with Smiley Lewis called "One Night of Sin," and he changed it to "One Night of Love." Cleaned it up a little bit. And he had a big hit with it. Sold a lot of records. It's amazing. We had no sense of what that huge market out there was. Guys would make a record, and it would sell 40,000 copies, and they thought they did great. And all of a sudden, people like Pat Boone were covering them and selling a million. Every time I hear Pat Boone's "Tutti Frutti" I could gag. [laughs] And yet he's sold more records than Little Richard. Well, at that time, he did. By now, he probably hasn't. The great equalizer has taken place now.

Gallagher: How about The Meters? That was late '60s?

Cosimo: My experience with The Meters was we did some of the first things they did, and they had pretty good success with them. But they also had some records that didn't do well. And as a group, and I can't blame any one of them personally, they were never satisfied with the results, but they never looked internally at themselves about maybe this just wasn't a good side or something. They were always blaming the producer, the studio, the record label, the whatever, and there was a little period after those first things I did where they tried every studio you could imagine. They recorded all over the

country. From San Francisco to Miami. They must have recorded in a dozen different studios. And studios don't make records. People make records. I think maybe by now they understand that. I'm not sure, really, but I think by now they understand.

Gallagher: Let's see who else I've got here.

Cosimo: Dr. John. Let's talk about Dr. John. I got to know him when he was about 14, I guess. Playing in a kid band.

Gallagher: He was playing guitar.

Cosimo: Right. Guitar. And they were good. They really were good. They were good beyond their years, is what was good and also bad about it. So he was accepted by older musicians real easy. And he started coming to the studio. I remember he wanted to quit his last year of high school to do music full-time. And I told his mother, "Don't let him. He's going to have enough time to do whatever he wants." But she really deeply, sincerely loved this kid, and she wanted him to do what he wanted to do, you know, and "Macky"—she called him Macky—"wants to do this, and I'm going to let him do it." And that was good and bad. The good part was it freed him to do music, and he was phenomenal. He still is, really. And it also opened him up to what all the dangers are, and he wasn't old enough to deal with it. I don't say this very often, but I'll tell you right now, the reason he had trouble with narcotics was he got a job on Bourbon Street playing in a club. And those club owners are parasites. They put two girls on him for a few weeks. Nothing Macky wanted was not available, including the drugs. By the time they had him hooked, he was playing in two clubs and rehearsing the band for a third club and not making enough money to support his problem.

Gallagher: That's terrible.

Cosimo: It's terrible, and it's a man-created tragedy. It's not something he did. It was something that was done to him. And like I say, I don't talk about that often, and I hope that if he hears this he doesn't get upset by it.

Gallagher: Allen [Toussaint]? You worked with him up until recently. When did his studio Sea-Saint start?

Cosimo: '72 or '70. Something like that. And it's a nice one. I think that the most unusual thing about him was his ability to take a marginal singer and make a good record. As a producer, and as a player and a writer and everything. He did it all and did it marvelously well. I say about him, you could give him a wishbone and a feather, and he'd make

a chicken out of it for you. But take Lee Dorsey, for instance. Everything like "Coal Mine," you listen to those tunes, and Lee's really talking through the record. You know, singing songs, but he's talking through the record, and yet the rhythm is popping, and everything is moving, and everything he says and does makes good sense. And Allen's just naturally good at that. He even had a penchant for using not the best musicians. He might have one or two really great guys on the session, and he'd have a bunch of just average guys, and he was always looking for that new something, different kind of thing.

Gallagher: Who else? How about Irma

[Thomas]?

Cosimo: Well, Irma is not one of those people who was old beyond her years. As a young girl, she started doing her thing, doing backup at first, and just naturally good. And she's got this marvelous personality. Smiling and bubbly and all that. In fact, she's one of those people I call an entertainer, as opposed to a singer. And I tell people, "Look. Go to her club, or go to her show that she's in, and you'll find the crowd is having fun before she starts singing." She'll walk out on the stage, and already they're having a good time. I mean, that's hard to do! And she does it all the time.

Gallagher: What about the Marsalises?

Cosimo: Gee, what can you say? I mean, a dynasty.

Gallagher: We've cut records or parts of records on a bunch of them.

Cosimo: That's three generations now. And the thing about it is every last one of them is great. Some of them are just good, and the others are phenomenal. And Ellis is like the Rock of Gibraltar. If you look at a lot of kids who are cuttin' up and not doing anything with their lives, you go, "If only their father could be like Ellis."

Gallagher: I've heard it before where the sons credited him with being a major influence.

Cosimo: And their mother, too, but in a far back of the scenes thing, but if ever there was an example of what great parents can do for good kids, it's that family. Just amazing. And still doing it.

Gallagher: Now, Huey P. Smith. Can we talk about him?

Cosimo: Yeah. Alcohol destroyed him. And having recorded for record companies that didn't treat him fairly. He had several dry periods that were really devastating to him emotionally and financially, but overall, his output was tremendous. He did a lot of really great records in the early years, and he had this wild group singing with him, that changed a little bit. A guy named Roosevelt had the [in a deep voice] bass voice, and the guy that does all of the female impersonation things...He was one of the group that sang with Huey, and then he made a bunch of records on his own...Bobby Marshan.

Gallagher: We've done some stuff with Dovell Crawford, I think his grandfather was...

Cosimo: Sugarboy Crawford.

Gallagher: Did you cut him in the early days?

Cosimo: Yeah. Do you know what ruined Sugarboy's career? He was in north Louisiana, and some redneck police beat him up, and he never quite got over it all. I mean, he was in bad shape. They almost killed him. They had this thing...I mean, you can imagine, in the segregationist-type mind, right? Don't get off the bandstand. Afraid they're going to bother my girl. When you're through, go out that back door and get in your bus and get out of here. It was terrible. But Dovell is developing, and he's starting to develop that thing beyond his playing, you know? Just talking to the audience and all of that. He's really getting good. And he plays like hell. I mean he's great.

Gallagher: You've talked about people

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you looked up to—who were some others in the early days?

Cosimo: A Nashville engineer by the name of Buddy Robyn. He was a guy that mastered most of the things I did for Imperial and companies like that. Because, remember, I'm sending him first discs and then tapes, and he's transferring them to the lacquer masters. And he fixed up some things of mine, made them sound better. I've gotta say that. But he also did one thing that caused a lot of problems. He figured out how to speed up records. And one way was to wrap splicing tape on the capstan. We're talking about the Model 300 Ampex. Had a capstan on it about the size of your middle finger. Well, they'd wrap a couple of layers of splicing tape on that...

Gallagher: Making its diameter a little larger.

Cosimo: Making it a bigger thing, and speed up the record that way. And he'd fine-tune it. Cut off a little bit, add a little bit, you know? But you had to be real careful, because just for a splice, you had to make a diagonal cut, so it didn't go "bup bup bup bup bup bup" every time it hit the edge of the extra bit. He had that all worked out, you know. And I copied that. There was this one Fats Domino record. I forget what it is, but it had a lot of instrumental piano in it. And kids here in New Orleans who always wanted to emulate him would come in and they couldn't play the thing. There ain't no such key. It's in the cracks. But he [Buddy Robyn] was really good with the kind of equipment that was available then. And his ear... You know, we talked about, "There's ears, and then there's EARS." Well, he had EARS. He mastered a lot of hit records. And another guy, Jeep Harned out of Miami.

Gallagher: The founder of MCI?

Cosimo: Yeah. Jeep used to do big band recordings back when it was tough, you know. And he'd make these great, live good-sounding big band records. I had admired him and his work. And what's-his-name over at Atlantic...

Gallagher: Jerry Wexler?

Cosimo: No, not Jerry Wexler. The engineer, Tom Dowd. Well, he later became a producer/engineer, but at first he was the engineer. And like every other good engineer, he was a subtle sub-producer. And the first time I went to New York, when Atlantic moved to where they are on Columbia Circle, and they had this little console, and he had the sliders in upside-down. All the way

up was off. And he pulled them down to on. Why, I don't know, because it looked strange as hell. You want it louder? Pull down. And they were one of the first to use an 8-track machine.

Gallagher: The Ampex.

Cosimo: Yeah. In studios, now, we know that Les Paul pioneered the thing, but the way they use the 8-track machine was really the sensible way to multitrack. Every track was kept at maximum level. And the remix, mixdown, even during the loud sections was on the output after the tape machine, so that you were bringing down the output after the tape machine where you wanted something, but you were loading at full level on the tape to minimize hiss. Because when you added eight tracks in those days, it sounded like a wind storm. It was really bad.

Gallagher: Speaking of tape, this is the technical side, but I was just reading in the paper that 3M is getting out of the videotape and the audio tape business. They're just going to shut it all down.

Cosimo: I happen to know how they got into it. They made abrasives. They had a great technology for glueing stuff onto paper and metal and stuff. They made grinders and sandpaper and stuff like that. And one of the things they made was a roofing shingle—another thing where you stuck stuff together. And the color of the roofing shingles they used—iron oxide. You can see it coming, right? And Ampex, who was the other company that pioneered the tape... Reeves, Reeves Soundcraft, it was called. Anyway, the original recordings were done with black iron oxide. Ferric oxide, which had high coercivity. And they were having all kinds of trouble, first recording and then erasing it. [laughs]. And they decided that ferrous oxide, the red iron oxide, would be better because it had low coercivity, and they could deal with it with the heads they had of the day. And 3M had these literal mounds of it, because they'd get it from the iron ore company places right across the state of Minnesota. So 3M got this iron ore, and they ground it up, and that was their red iron oxide. Then they developed the thing about baking it. They'd bake it with carbon monoxide, I think, to reduce ferric oxide to ferrous oxide.

Gallagher: See, that chemistry comes in...

Cosimo: Yeah. Anyway, the red oxide ultimately won out, because it was easy to use, and then, of course, thank God it went from paper base to plastic base.

Gallagher: From acetate to polyester?

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Cosimo: No. At first they had plain paper. Paper!

Gallagher: That's before my time.

Cosimo: Old calendar paper, which means they rubbed it a little bit to smooth it down. But it was still rough as hell, and you could imagine what that did to your noise level.

Gallagher: So they went from that to acetate.

Cosimo: They went from that to acetate, and that worked better than paper, but it brought with it a whole new set of problems, as everybody knows. Like the oxide falling off and things like that. Then they went to polyester, because they could texture the polyester, and the oxide would stick better. And by then, of course, they went to the newer binders.

Gallagher: Did you ever get any recognition?

Cosimo: Yeah, and it feels good, but it's kind of embarrassing. I'll be down at the store, and then somebody will come on the phone and say somebody down here wants to see you. I'll go down and there'll be a guy or maybe a guy and his wife from somewhere across the United States or England, and he'll come up to me: "You're my hero!" It's embarrassing! And I always try to say, and it's the truth: "Well, a lot of good musicians made me appear good. I mean, these guys played." And, for the record, it's the musicians, not the engineer.

Gallagher: The more you do it, the more you realize that the players are 99.9% of it.

Cosimo: And songs. The right songs. I can think of some of the times like "Sea Cruise," which was originally going to be Huey Smith. And I don't know what happened. There was some difficulty, so they put Frankie Ford on a Huey Smith track. And then the guy that was managing Frankie, a record salesman named Joe Corona. Joe Corona decided to put the horn, the bells and all that. And a record that nobody could figure out how to make it sound decent all of a sudden was a great record. It's just...Who knows?

Gallagher: Have you kept anything from days gone by?

Cosimo: I don't have pictures of myself, the studio or nothin'.

Gallagher: We don't have many either. That's kind of a mistake.

Cosimo: Yeah. You oughta think about it. And every time there's something in the trade about you, save it.

Gallagher: Did you go to the Rock and Roll Hall of Fame opening?

Cosimo: Yeah, they invited me. It was a nice little to-do.

Gallagher: I saw it on TV. It was a nice turnout.

Cosimo: Clarence "Frogman" Henry was up there, too. I saw him. We were in the same hotel. We went to the show in the stadium, but I had to leave early. It was terrible. When Dr. John came on, they had him do two tunes that weren't even his two tunes. I mean, producer? I'd like to meet the guy. Having said that, everything else was marvelous. Beautiful room, greatly embellished artifacts. They made displays of all the artifacts.

Gallagher: What were some of the most-fun recordings you had. Not necessarily things that sounded the best, but sessions where you just said, Boy this is where it's at. I've only had five or six over the years...

Cosimo: Generally, the sessions that I could say were fun were stories where the protagonist was fun. You're talking about people like Irma Thomas or Fats Domino who, literally, even the difficult sessions were fun, because there was a nice spirit about things. Lloyd Price. We did him when he was quite young, and he had all the enthusiasm he has now, but no polish. He went to New York later and got slick.

Gallagher: What about Fess [Professor Longhair]? You didn't talk about him?

Cosimo: Yeah, but I didn't do many [of his recordings] because he didn't do many. You know a lot of people talk about him, but his output was small. There were a couple of things that were done live that have resurfaced and all that, but he did the same things two and three times, so you know, after a while...And while I acknowledge his "contribution," he doesn't strike me as being as seminal as people are portraying him. He added that Latin feel to his stuff, and he played very percussionist-like. And strictly speaking, the piano is a percussion instrument, but he played percussion-like, and the other thing is his phrases tended to sound like brass—like a trumpet. [sings a little pattern] Not chordish at all, but single-note progressions that were good and different, but they were more percussionish than pianoish.

Gallagher: New Orleans in the good old days.

Cosimo: I'll tell you what Moms Mabley said. The good old days? Where were they? I was here. And that's another thing, too. When I first started recording, we were, to put it plainly, poverty-stricken. Everybody in the business—musicians, me, everyone—no one had money, and times weren't exactly great, but they still were fun. ■

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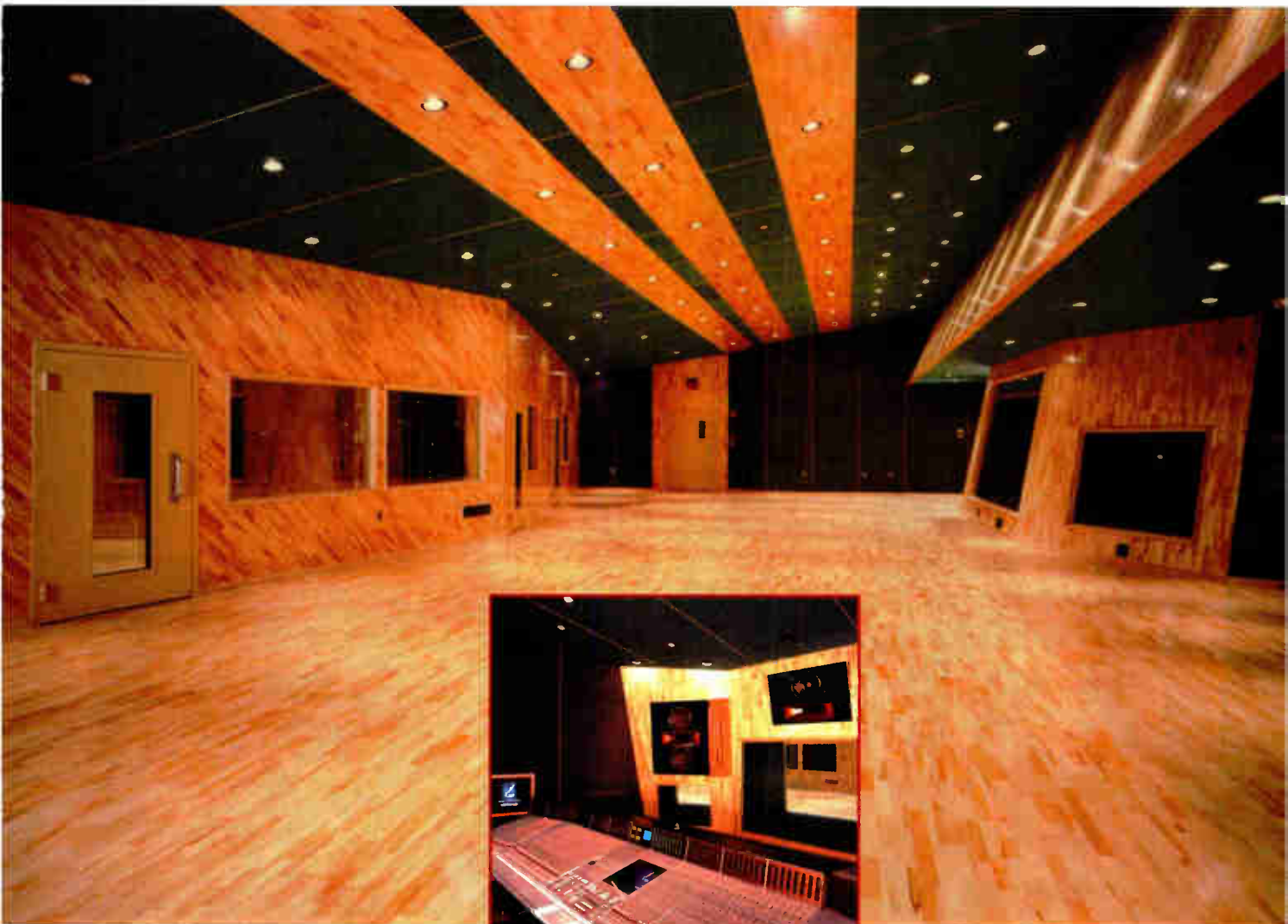
THE TRACKING ROOM

With project rooms and commercial facilities reported numbering in the hundreds, Nashville arguably has more studios than churches—not a small accomplishment in this Bible Belt town of half a million. Given that there are already so many, the opening of a new studio hardly causes a stir; it takes something rather extraordinary for the collective com-

munity to stop and pay attention. But everyone did just that last October when Masterfonics (already a venerable mastering, mixing and recording address on Nashville's famed Music Row) opened The Tracking Room, designed and built by the renowned studio designer Tom Hidley.

Nine years before The Tracking Room's opening, Hidley had made ground-breaking news with Masterfonics when The Mix Room debuted as the world's first room to accurately

BY RICK CLARK



PHOTOS: ROB HOFFMAN

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World Radio History

ly render sound down to 20 Hz. Excited by the accomplishment and the immediate success of this room, Hidley and Masterfonics' president Glenn Meadows began conspiring now and then about creating a large, all-purpose studio facility that could provide a dramatic range of recording environments and handle large tracking sessions, while expanding upon the sonic concepts realized at Masterfonics' Mix Room.

"Tom and I had been talking off and on for many years about different ideas for a large studio in Nashville that was

tures like a good loading dock added to the appeal of the building. Another plus was the address—next to the Music Row area.

"In Nashville, one of the key situations is convenience and location," Meadows points out. "Many of the top producers are working on more than one project at a time, and having to hop, skip and jump all over town is something that they are not really interested in doing. They would rather be much closer to where they could almost walk from facility to facility."

To help ensure that Masterfonics



Exterior view, Masterfonics

tailored to the way Nashville records," Meadows says. "We wanted to make something that was producer-friendly and music-friendly to the way people felt they wanted to work."

Meanwhile, in 1991, Hidley broke new ground with his design of the BOP Studios facility in Bophuthatswana, South Africa, by introducing the world's first facility to intelligently and accurately deal with the issue of infrasonic (sub-20Hz) information. The development heralded a new era of recording possibilities, and it also presented new challenges for Hidley, who was already eager to apply new design refinements brought on by the experience at BOP.

In the first quarter of 1994, Hidley and Meadows found their window of opportunity to turn vision into reality. A nearby building that had been occupied by Carlo Sound and Cases suddenly became available. By May, Masterfonics had made an offer and secured the structure, and Hidley began design work on what would become The Tracking Room.

The 8,500-square-foot facility was perfect for realizing the goals the two-some had set forth, and existing fea-

was on the right course in the execution of The Tracking Room. Meadows enlisted the opinions of a handful of Nashville's top session players and producers. The end result was the huge tracking floor, augmented with five separate isolated recording environments.

As construction got under way at The Tracking Room, special thought had to be put into ensuring that unwanted infrasonic information from the ground (particularly the nearby expressway) was nipped in the bud before it had a chance to complicate the sonic environment in the studio area. To that end, Hidley cut all of the original foundation slabs into small chunks, so they wouldn't resonate at low frequencies and pass unwanted sound. The studio floor, including iso rooms, was made out of 10-inch concrete slabs, floating six inches above the foundation. The slabs were supported by a network of 4-inch concrete pylons topped by 2-inch cubes of fiberglass called kinetic isolators. The extra effort has paid off handsomely, with a full 4Hz to 20kHz noise floor spec of 15 dBA and lower, with the air condition-

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Various views of the interior of Masterfonics: reception area at right, stone-lined recording room below and a view of the control room, far right



PHOTO ROB HOFFMAN

ing running and the studio compressors up. Hidley is quick to point out the significance of The Tracking Room achievement.

"This is many steps forward of many studios in the world," Hidley says. "If you are going to be concerned about infrasonically clean product coming off the studio floor, that is without infrasonic energies in it that you can't perceive as a human, then you need to get down into that 15dBA region, which we did at BOP and Masterfonics. You need to cover a bandwidth that gets down into the infrasonic region, which, with our measuring gear at Masterfonics, was around 4 Hz. If you achieve this in the execution of the design and in the end product, then you know that what the microphone on that studio floor picks up and brings into the control room is infrasonically clean and

that there isn't unwanted information in there that the digital electronics will record and pass on to the home environment in the form of laser disc or other transfer medium," Hidley says.

"Indeed, if that infrasonic data is allowed to get to the final CD, via the digital electronics of the day, then your product is substandard as it hits the home, because your electronics are having to deal with it, even though your ear isn't. Your speakers may not be able to deal with it at home either, but the amplifier has to work on it, and this is removing headroom and amplifier capability, in terms of good transients and openness in the audible range of that power amplifier and the home system," Hidley continues.

"It behooves the studio owner to get his product clean into the infrasonic range, so that the digital electronics will

not be responding to that garbage that we can't hear but that will ultimately degrade our product." Hidley says, adding that "The Tracking Room is an infrasonically clean room and suitable for putting out high-quality CD product to the home, and it is a very important achievement."

Another one of The Tracking Room's most exciting innovations concerns Hidley's development of a super-accurate control room listening environment that presents the listener with a detailed soundstage featuring not only width and depth, but also that audio Holy Grail of height. "I've never heard a control room that allows me to experience the width, depth and height of a sound," says legendary producer Barry Beckett, whose studio credits include Bob Dylan, Bob Seger and Paul Simon among many others. "You can see literally through the speakers to the sound itself. That is about the best way I can put that. The sound image seems to go above the ceiling. There is no limit to it." Putting it a different way, another producer (who refused credit for the remark) laughed and said, "This is something you always wish you had—a control room where you don't need a good joint to get into the depth of the sound."

Hidley is rightly pleased that his years of research and studio design have paid off so handsomely in this area of sonic dimensionality. He attributes much of this to the development of The Tracking Room's bass trap (running three feet deep under the control room's free-floating, 16-inch thick floor slab), which symmetrically echoes the spatial characteristics of the rest of the

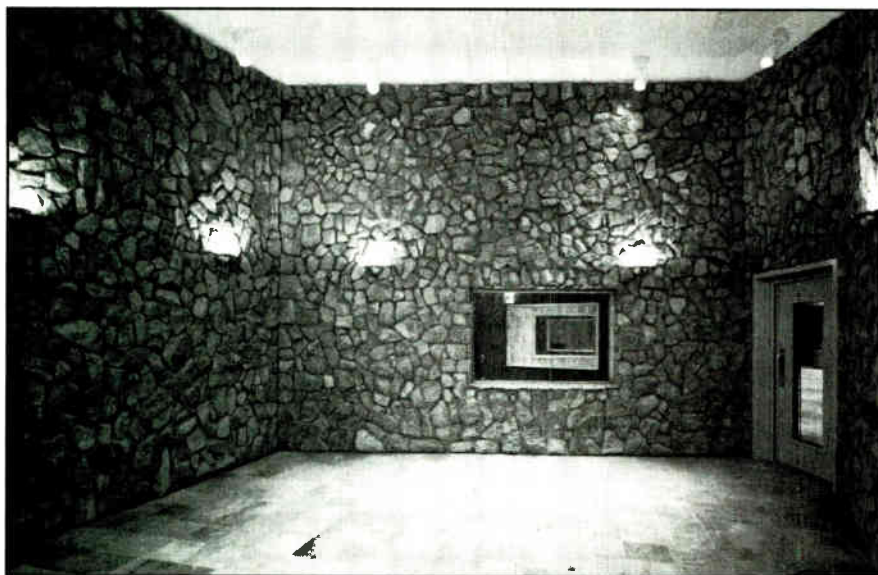


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room. "Yes, vertical is there," Hidley says. "When you mention the vertical component in Masterfonics' control room monitoring, it is solely due to that floor pit trap, which is simulating what is going on the sides of the monitor and the ceiling area above the monitor. What you perceive sonically is a result of that: a symmetrical unloading of the room, which to my knowledge had never been introduced, prior to 1991, when we put it into practice at BOP. At BOP, we found a few things that we felt should be approached differently, which we refined at Masterfonics."

"The nice thing is the sound you hear translates to the real world," Meadows points out. "If the sound is grand and glorious in the room, it is going to sound grand and glorious when you take it out." The control room is outfitted with Kinoshita 2-V monitors, which are powered by Mark Levinson Cello Performance amplifiers, running bridged mono at an awesome 6.5 kilowatts. The 2-V's have a -3 to -4dB curve, from 20 Hz on up, and demonstrate no audible sonic deterioration, even when pushing a sound pressure level of 125 decibels. The Tracking Room Kinoshita near-fields, as well as client monitors, are powered by Levinson Cello Duet amps, bridged mono at 1,000 watts a cabinet. "Glenn's relentless pursuit of clean electrical system power has proven to us all how important clean power really is," says producer Brian Ahern, whose credits include George Jones and many of Emmylou Harris' classic albums. "I kind of thought about that, but I was never hit in the face with the reality of it until I worked at The Tracking Room."

The control room is also designed to

handle full surround sound for film/post-production audio needs. There are also capabilities for handling Hidley's infrasonic subwoofer speakers. The Tracking Room console is the new SSL SL9000J, which has an 80-input frame and full automation. The console has also been outfitted with a special Hidley-designed acoustic module (which SSL built) that is intended to deal with the 800Hz and up frequencies (which are often the ones at issue in the creation of the sonic "smear" that develops from the acoustic interaction between the back of the console and the control room window).

The machine room contains Otari MTR-100 24-track, Otari DTR-9001i 32-track and Studer D827 48-track machines. The Tracking Room's \$2,500 daily rate covers everything, except the Studer, and includes a full complement of classic vintage and newer in-demand outboard pieces, as well as a mic selection that is as good as you will find anywhere. Since the studio's fall '95 opening, business has been very brisk, with major producers and label heads already having to book in advance to secure time.

"For many years, people in Nashville have been talking about wanting a top-quality large tracking room," comments Meadows. "I kept seeing lots of people get sort of close to achieving that but never quite getting there." Adds 1995 TEC Award-winning producer Tony Brown, "There isn't one aspect of the Tracking Room that hasn't been completely thought out."

Rick Clark is a Memphis-based writer/musician/producer and barbecue connoisseur.

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It's difficult to imagine John Elefante's commute. It's probably the only time he can keep his fingers off a multitrack arming button. When he is not working at Sound Kitchen, the two-room Neve VR-equipped studio he and his brother Dino own and operate in the Nashville suburb of Brentwood, he is working at his home studio, The Snack Bar. It's a self-designed concatenation of quintessential project gear—Mackie 32-bus console and four Tascam DA-88s—and an awesome rack of keyboards and sound modules, all fitted inside one-and-a-half bays of a partially converted five-car garage at his Brentwood home.

Elefante, who was the lead singer with Kansas from 1982 to 1986, uses the home studio as both a refuge and a center for his contemporary Christian music productions, which include his own critically acclaimed *Windows on Heaven* on Word Records, and records for CC acts Guardian, Petra and St. Elmo's Fire. The place is simple, purposefully so. "It's not the equipment that brings them to you," he says, acknowledging an Alesis MidiVerb and a Lexicon Alex as primary reverbs. "It's what you can do with it."

But equipment like this has affected the contemporary Christian market significantly; this genre was in many ways brought up in personal recording environments due to budgets that averaged around \$20,000 for an entire album until a few years ago. And even with budgets closer to four and five times that now, much of CC remains most comfortable in personal recording studios like Elefante's. "I have access to a couple of Neve VRs at Sound Kitchen, but quite frankly, I think that 72 inputs is overkill during the interim stage of a recording," he observes. "I can track and mix at a larger studio, but I'm more comfortable here for



overdubs, and so are the artists I work with."

What is changing is that CC artists and producers are able to spend more time on their projects, and this is translating into better-sounding records and more elaborate home studio setups. "It's also flooding the market with mediocrity," adds Elefante. "And I don't say that as a put down but as a statement of fact. I go back to my earlier statement, that it's not the equipment that makes a record, it's what you do with it."

What personal recording has also done for CC is to make the acts themselves considerably more savvy when it comes to recording; Elefante says that acts are increasingly doing more of their pre-production in their own home studios before they get to his. Another trend engendered by the larger budgets has been to move the recordings away from the electronic realms of drum machines and synths and more into the acoustical domain. That, however, will not necessarily move CC out

of the house and into traditional recording spaces. "It doesn't cost any more to record live drums in the kitchen than it does to do a drum machine," he notes. His production of Guardian's record *Swing, Swang, Swung* was recorded at The Snack Bar just that way, although the drums were overdubbed after acoustic guitars and a scratch vocal were first done to a click track. The personal studio simply accommodates itself, effectively though somewhat inelegantly—cables were simply strung across the Mackie console to the kit. That record, though, remained an unrewarded milestone for Elefante. "Mackie told me that if I cut an entire record on the console, they'd give me a free T-shirt," he laughs. "I never did get the shirt, and I'm still a little ticked about it."

One phone call from a *Mix* editor and three minutes later a Mackie T-shirt was on its way to The Snack Bar. The power of God can move mountains; the power of music can change lives; the power of the press is somewhat more limited, but it has its moments. ■

BY DAN DALEY



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FILM SOUND

VIGNETTES

BY TOM KENNY

"HEAT" ON LOCATION

ONE WORD THAT SEEMED TO KEEP POPPING UP IN REVIEWS, interviews and conversations about *Heat* was immediacy. It's on the screen from the opening armored-car heist to the extreme close-ups in intimate conversations to the frenzied dash-across-LAX finale. And it's there in the audio tracks, too: Roughly 90% of the production dialog made it into the film, and a surprising 70% of the gunshots came from production effects.

Director Michael Mann had said he wanted to make a crime drama that could have only taken place in Los Angeles, and perhaps to heighten that only-in-L.A. feel, he set up an arduous shooting schedule that included 85 locations in just over 100 days, with only three constructed sets, and those in a warehouse. Not easy for the picture department. Not easy for sound.

"We had a very tough shoot," admits production sound mixer Lee Orloff, who has won a Best Sound Oscar for his work on *Terminator 2*:

—CONTINUED ON PAGE 115

Below: Heat production sound mixer Lee Orloff in downtown L.A. preparing for the bank-heist shootout. The 4-channel Nagra D is in the foreground; the analog backup is under his arm; the Sonosax mixer is to the left. Surrounding: the principals from Michael Mann's Heat, a Warner Bros. release.



ALL HEAT FILM STILLS BY FRANK CONNOR. COURTESY MONARCHY ENT. REC-ENCY ENT. & WARNER BROS.

VOCALIZATIONS FOR "JUMANJI"

ROBIN WILLIAMS BURSTS OUT OF A BOARD GAME after 27 years and helps summon forth a parade of animals from the mythical land of Jumanji. The studio heads must have flipped over the concept—an adventure for the whole family with Williams as man-child. Industrial Light & Magic must have jumped at the chance to experiment with the CGI complexities of hair and fur after the smooth-skinned *Jurassic* dinosaurs. And for a sound designer, well, it's an effects paradise—a land that doesn't exist, a blank slate.

"One of the trickiest sounds to deal with was the monkeys," says sound designer Randy Thom, nominated for an Oscar last year for his work on *Forrest Gump*. "Director Joe Johnson wanted the idea to come across that they look more or less like real monkeys, and at least something about their voices should suggest real monkeys, but they also are supposed to come from this exotic land called Jumanji, which isn't quite on the planet Earth. And they're supposed to be very mischievous and intelligent. The main challenge was to come up with vocalizations that would say monkey on one level, but would also say smarter-than-a-monkey on another.

"So we tried the shotgun approach, as we usually do, which is to try a little bit of everything and play with it to see what works. I recorded myself doing a lot of vocalizations, and did all the usual tricks that everybody's bored with hearing about—speeding them up, slowing them down, playing them backward, pitching them up, down, taking pieces and re-editing pieces to pieces. My success rate, my 'shooting ratio' doing that sort of thing, is about 200-to-1, meaning I have to make or create 200 sounds before I find one that I think is worth keeping and has some interesting twist on it.

"We also brought in Frank Welker, who's well-known for doing the stylized vocalizations for *Gremlins* and all kinds of other creatures. He works in ADR style; that is, he watches the picture and records vocals in sync. His shooting ratio is a lot higher than mine, and he's an extremely talented guy, but sometimes if you want something really exotic and bizarre, you have to go through my approach. So we wound up with a few of his sounds, mostly my stuff, and two or three other people's vocalizations to make the monkeys.

"You basically have to come up with a vocabulary. So I'd look for the basic emotions that are required. You need an angry vocabulary, so I try to get 30 or 40 vocalizations, whether they're single words or phrases, that imply anger. Then you need surprised vocalizations, like at one point there's a monkey on a gas range, and the burner gets turned on and he jumps up in the air about five feet. And you need quizzical, or questioning, vocalizations. So you try to cover the range of typical responses that any human would go through if they were interacting vocally with a complex situation.

It's pretty hard for a human to sound nonhuman, but that was one of the cardinal rules: We didn't want the monkeys to sound like humans making cute little sounds."

The monkey vocalizations were recorded in the Foley room at Skywalker Ranch. It had to be quiet, Thom says, and it had to be miked "ultra-up-close," without any room reverberation or noise because it was going to be processed electronically. He used a variety of cardioid mics, most often a Neumann U87. Editing took place on a Pro Tools III system, which was brought to the dub stage and used as a playback device on the effects premix; no transfer to DA-88 or 24-track.

Besides the monkeys, there is a stampede of elephants and rhinos, crocodiles that thrash Williams, a lion guaranteed to send the kids running for mom and dad's lap, and any number of exaggerated, hyper-real animal encounters. "The spiders from Jumanji are about two or three feet across," Thom explains. "With the monkeys and the spiders, an important contributor was my 8-year-old son, Austin. I pitch-changed his vocals, and the spiders are a combination of him and dry ice squeaking on metal. That sets up a nice resonance, and the warmer the piece of metal, the more you get.

"The challenge in these situations, especially in a

—CONTINUED ON PAGE 118



PHOTO: BOB MCEWAN

Left: Robin Williams in Jumanji; below: monkeys causing mayhem in the kitchen, and bottom, Jumanji sound designer Randy Thom (standing) on the dub stage at Skywalker Sound, with supervising sound editor Gloria Borders (now general manager at Skywalker), and re-recording mixer Tom Johnson.



PHOTO: COURTESY INDUSTRIAL LIGHT & MAGIC



COURTESY: LUCAS DIGITAL LTD

THE SCORE FOR "TOM AND HUCK"

NEW YORK ENGINEER JAMES NICHOLS WAS BEHIND the SSL Series E in Manhattan Center's Studio 7 (assisted by Richard Clarke and Tommy Miho) for the scoring sessions on *Tom and Huck*, a Disney adventure film aimed at teens. The texture of the Stephen Endelman score is old-timey Americana ("not country," Nichols says), with a six-piece bluegrass band driving many of the scenes, a 72-piece orchestra providing a full, rich backdrop, and live synth sounds by Richard Sortomme. The core group—banjo, guitar, mandolin, jaw harp, acoustic bass, violin/fiddle—was tracked on the stage of the big ballroom, separately from the orchestra. Because the movie is aimed primarily at pre-teen boys, Nichols says, the score had to be contemporary, with bite, and it had to be funny when appropriate.

"It's a very movie-ish score, and it has all these different textures popping in and out of the same cues," Nichols says. "So we blocked it out with click. When the bluegrass band was playing, we would lay out 40 bars of click, for

example, for where the orchestra was supposed to play. Then we went in and found the best take of the bluegrass band and had the orchestra overdub over that so we didn't have to splice tape together later. It ended up being one piece, and it worked interestingly



PHOTO: FRANK MASI / COURTESY BUENA VISTA PICTURES

At the Neve VR in Manhattan Center for the Tom and Huck scoring sessions (l to r): Victor Moore, Manhattan Center VP of sales; Richard Clarke, assistant engineer; James Nichols, engineer; and Dan Gillberg, studio manager.

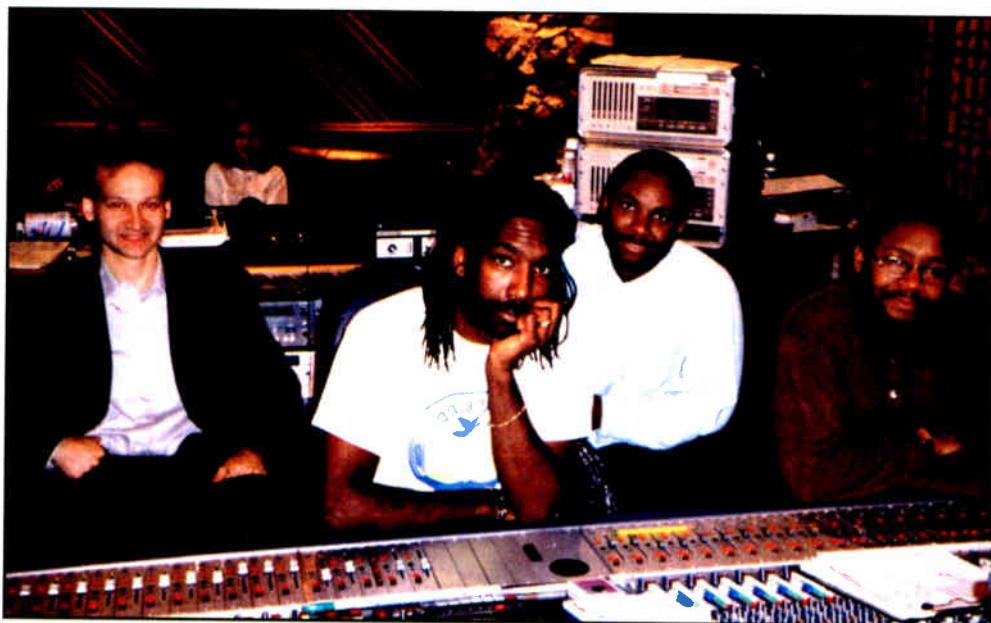
well. The bluegrass band was mixed to the forefront so that they provided the bite, and the orchestra had the lush feel that filled in the scenes.

"There's one particular scene where

the music hits, then dies down. Very traditional movie score.

"We could have done it in two pieces and edited them together, or have the bluegrass band and the orchestra play together, but then you wouldn't get those little nuances that you get when it's just six or seven guys sitting around playing.

"The challenge was really keeping track of all the instrumentation over the four days of recording. We did 42 cues with a total of 212 takes. In the scene where Injun Joe dies, there's a little bluegrass in the midst of it, and there's a violin that has become his signature sound that had to be laid in. Then there were synths for when he falls into this bottomless pit—there's a fight and buildup to him falling into the pit, so as the



music's dying down, the synths take over and lend the depth to the hole. Also, there are little rocks that fall in the pit right before him, and Richard Sortomme, who is a violinist by trade, played marcato strings on his MIDI violin, through a Roland 770, for the rocks."

The orchestra and bluegrass band were tracked on an SSL E Series board to 48-track digital, then mixed 6-channel (regular 5-channel mix, with the sixth channel a mult of the left-right rear) on Manhattan Center's Neve VR in Studio 4 to a Tascam DA-88. Monitoring was through Genelec 1031As, set up left-center-right.

"I used as many tube mics as I could get my hands on," Nichols says. "For the room, I used TLM170s for the stereo rears. For the left-right, I used Sony 600s, and the center was a C-12VR. The strings, violins, violas, cellos, were miked with TLM140s; basses were U47 tubes; woodwinds were AKG252s; French horns were U47FET; trumpets, bones, tuba were 77DXs; and percussion was U87s and anything else that was laying around. For the bluegrass bass I used a U47, mandolin was a Beyer 740, harmonica was a D-12, fiddle ended up being a 740, acoustic guitar was a 414, room was a C-24. And everything went through Avalon and Manley mic pre's. Since we were recording digital, we tried to warm everything up as much as possible with the tube mics and the preamps." ■

—FROM PAGE 112, "HEAT"

Judgment Day and been nominated twice for *The Abyss* and *Geronimo: An American Legend*. "It's a 2-hour and 45-minute movie, and it's an intensely dialog-driven piece, literally people walking out of one shot talking and into the next one talking. Then there are these major pieces of action in the midst of the film, a few major heists, but in and out of those sequences people are talking the whole time. And these are a bunch of understated, soft-spoken professional thieves, along with cops who are burned-out professional pursuers. So they don't need to get into big, blustery performances. It's matter-of-fact, and everything is very even delivery. It tends to be low and quiet.

"In the conversation where you finally get Al Pacino and Robert De Niro to sit down at the table over a cup of coffee in the diner, it's two guys talking about their lives and the jobs they do," Orloff continues. "Very matter-of-

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fact, and we're right on Wilshire Boulevard. There's traffic through two sides of glass as you look out on the street. It's not as if I can say, 'Hey guys, can you speak up so we can get above the noise?' They don't change because of our technical needs.

"So, for me it becomes a case of the floors all around the place are completely swept of any grit, so any of the extras who are doing their crosses don't have any crunch on their soles. All the shoes are wiped off before the take. Then you get together with wardrobe, and everyone gets foot-foam. The crew takes their shoes off to do the dolly moves in socks. The extras are instructed that when they're eating not to touch their silverware to the plates, literally. Michael wants to see steam coming up from the kitchen, so at the same time, I have to make sure that steam produced by the effects department is quiet, and the hiss created from the valves is not going to get into the track. All those elements for Michael to get the picture he wants, and at the same time, it's like a morgue—a lively diner with no noise on Wilshire.

"The good side of this quiet delivery is that if you have a good front end on

your mixing panel—if your preamps are quiet—when you turn it up, at that high gain setting, that's the richest sound there is. Everything is up full—you hear all the nuances, you hear the lips smack. It's great."

Orloff's sound cart includes an 8x2 Sonosax mixer, straight off the shelf, with nearly stock mic pre's. Because it was such a location-heavy shoot (including freeways, airports, generator substations and crowded downtown streets) and because directors today tend to shoot more sequences tight, wide and Steadicam simultaneously, he relied heavily on wireless mics, particularly Audio Limited's (London) newest UHF diversity system, which includes a quad box with a multi-splitter. He recorded to the 4-channel Nagra D. Mann had never worked with digital on the set and wanted an analog backup, so Orloff also ran a stereo timecode Nagra at 15 ips.

"I think the Nagra D was a great choice because it's such a quiet machine to deal with low-level delivery," Orloff says. "It's basically got 108dB dynamic range, and it's about 36 dB quieter than the best-setup analog Nagra. When people are that quiet, if you start turning

everything up—even in these high-noise-level ambient environments—tape noise in the analog world becomes an issue. In this film, we could let people play down without manually compressing the dynamic range and saying we have to bring this up above the noise floor. The noise floor of the mixing panel and mics was so quiet that the only thing that would have been a problem was the recorder, and the D is just so quiet. I hope that translates to the final mix. I hope the way the audience perceives it is that it's a full, rich track at low levels."

Still, it's not the quiet moments that audiences will be talking about when they leave *Heat*; it's the action scenes, particularly the downtown bank heist gone awry, which ends in about a reel's worth of automatic-weapon fire. In the script, it was referred to as World War III.

"There's a big discussion going on, and I think that largely the sentiment in effects recording is to still do gunshot recording in analog because when you get that explosive hit of the gun blast, there's a distortion, a splatter that happens on tape that is distinctly true...it's so familiar to us now that it's part of

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what we expect to hear in gunfire. With digital, you don't record that way. You make sure that whatever you do, you don't hit the wall—digital overload. So we just basically tried to use conventional techniques of recording the gunshots and take advantage of the multitrack capability of the Nagra D at the same time.

"We did a location effects recording session over the course of two days, where we did every one of the guns used by all the participants. We had a near-field stereo pair of dynamic Sennheiser 421s in an X-Y pattern doing the explosion of the gunfire. At the same time, we had on tracks 3-4 a distant-field

stereo recording that was getting the sound of the gunfire echoing off all the buildings in the downtown L.A. 'canyons.' We'd do them going down the street one way, then we'd set up another way—there's some stuff that takes place laterally down the street. Then there's other gunfire that takes place in the midst of this quadrant in front of the bank, which is a big plaza and a completely different characteristic in terms of what's happening in the distant field. That was the basis of all the individual signatures for those guns, and I heard in conversations with the re-recording people that that stuff was heavily used.

"During the actual production track,

when we're doing the scenes with the actors, the multitrack assigns were basically mono wireless mix on one track; centerpoint camera perspective, which is my boom man Nick Allen and utility person Tom Payne following the cameras down the street for that perspective; and then the third and fourth tracks were always the wide, distant-field stereo pair happening simultaneously."

Orloff saw a Dolby A print of the movie in El Paso, from the site of his next project with director Walter Hill, and he felt queasy. Something went wrong with the left channel in the multiplex. He returned to his home in L.A., saw the 6-channel Dolby digital print and felt much better.

"It's not as if I think every line is brilliant and perfectly recorded," he says, "but I guess we strived to make sure that whatever we got was the best possible under the conditions. There are increasingly a lot of directors who are putting a lot of importance on maintaining the integrity of the original performance. Directors say 'cut-print' because they got what they wanted, and they don't want to leave it up to chance when they get back to the editing room to re-create that, because they may never get that again. That's my notion of production recording: When the director says he's printing it, everything is right, and part of that is the sound." ■

—FROM PAGE 113, "JUMANJI"

scene that's going to have a lot of music and be very loud, is to come up with sound effects that are articulate and get enough attention so you can hear them. One of the main ways a sound effect gets attention is if it changes in pitch or has some kind of tonal quality. That's one of the secrets of cutting effects for dense sounds in movies—you try to select sounds that change in pitch, even if it's something that you wouldn't normally think of as changing in pitch, like a gunshot.

"Now, with third-party plug-ins for Pro Tools," Thom continues, "you can do Doppler shifting, and you could always change pitch with samplers. I still use Alchemy, a software program, and the thing it does that no other does as far as I know, is it allows you to draw a pitch envelope graphically over a waveform. That's been really useful for sound effects work. Even if you used a pitch wheel on a sampler, this gives you more control, and you can be a lot more precise, more quickly." ■

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SOUND FOR FILM

AN OPEN LETTER TO DIRECTORS/PRODUCERS

by **Larry Blake**

Dear Director/Producer:

In a column many years ago (1987, to be precise), I wrote an open letter to you above-the-line types regarding the world of film sound. Although many of my brothers and sisters who work to create your soundtracks tell me that there's been some improvement, there are still some roadblocks in our quest to give you the best track for your money.

Budgeting. Too many sound battles are fought and lost because of ignorance of people preparing budgets—

usually the unit production managers, few of whom have any hands-on experience with post-production. You should not wait until early in post to know who your post-production sound team will be, with just a single line item to "allow" some money for sound editing. While I'm not saying that your supervising sound editor should be on salary during production, there should be open lines of communication between production and post-production crews before shooting begins.

One issue that should be dealt with early on is the interface of nonlinear editing systems with the production/post-production flow of materials. Most of these problems concern technical issues that are easy to deal with in production, yet almost always waste time and money later on. The simple solution is to shoot a synchronization test film, which will allow

your production mixer, picture-editing department and post sound editing facility to know where the other is coming and going.

You can save money and increase the quality of your picture editor's track if you see to it that first-generation audio—from your 1/2-inch or digital production tapes—is loaded directly into the nonlinear edit system's hard drives. Not only will the sound quality of your temp dubs be improved, but you can save a fortune in having to reprint audio at the beginning of dialog editing.

Your production sound mixer should be included on all tech scouts in pre-production. Rent the quietest generator possible, and make sure that your transportation department realizes that you expect it to always be parked the farthest possible distance from the set. Also see to it that the production mixer is

—CONTINUED ON PAGE 123

SOUND EFFECTS LIBRARIES AND BEYOND

by **Loren Aldrin**

Sound effects libraries. Whether you love them or loathe them, you have to admit that they play an increasingly substantial role in today's audio post market. If you count yourself part of the "loathe them" camp, you're probably remembering a day when most libraries offered relatively low-fidelity recordings and



Jill Kirshen, sound designer for National Sound in New York City

effects libraries into respectable works of art in their own right.

In some cases, stock sound effects form the backbone of a film or video production's soundtrack. Those clients who lack the budget—or the time—to create original effects often find libraries to be a lifesaver. Still, merely possessing a quality sound effects library does not guarantee a breathtaking soundtrack. Folks dipping into libraries usually come away with results that fall into one of three broad categories: First, the sound available may not be *perfect*

limited content. Today, the better sound effects libraries are models of meticulous recording techniques and digital clarity. Bigger budgets, increased competition and savvy recordist/editors have turned humble sound

FACILITY SPOTLIGHT

SONOLAB STUDIOS, MONTREAL

by **Barbara Schultz**

When Pierre Mercier became general manager of Sonolab Studios in 1993, the 25-year-old facility was showing its age and losing money. The studio needed major renovations—technically, aesthetically and philosophically. Not surprisingly, Mercier, whose 27 years of experience as a composer/producer include advertising jingles, music videos and the French-language version of *Wheel of Fortune*, saw diversification as a large part of the solution.

"Sonolab has always been the major feature film-



PHOTOS: CARL SEGUIN

Above: Sonolab Studio 127.
Left: Designer Daniel Seguin at the Opus workstation in room 118.

mixing facility in Montreal, but you can't live on one single specialty today," he says. "You've got to diversify but always stay in what you know, and for us this is sound. So we ended up try-

ing to marry advertising with feature film, major television series and all sorts of other TV shows. We started the improvements two years ago with the first [Lexicon] Opus system that we built." The

Opus was installed in the facility's Studio 118, which was redesigned by Daniel Seguin of Montreal's Danaudio. Studio 118 is now a dedicated jingle and voice recording and editing room, run by engineer Serge Ouellet, who Mercier says he "stole" from another local music house.

The living room-like design that Ouellet, Seguin and
—CONTINUED ON PAGE 133

for the task at hand, but it's a far cry better than nothing at all; second, the sound turns out to be well-suited to the piece and boasts fantastic fidelity to boot; or third, the sound effect comes close the mark, requiring the fi-

nesse of a sound designer or editor to make it a perfect hit. The latter case may be the most common of all, and it's precisely the one we're interested in.

To learn more about the art of sound effects editing,

we spoke with four notable designers/editors who work with libraries almost every day. Jeff Hofmann is the owner, sound designer and engineer at J.D. Audio Post in San Jose, Calif. Once specializing mostly in corporate audio post work, J.D. Audio Post currently does sound design for such game publishers as Namco, Crystal Dynamics, Sega and Electronic Arts. Jill Kirshen, sound designer with National Sound in New York, has been working with production music and sound effects for 13 years. In that time, she's worked on shows for National Geographic, PBS,



PHOTO: COURTESY OF BUENA VISTA TELEVISION

A&E and the Sci-Fi channel, as well as on spots for MTV, General Motors, *People* magazine, the USA Network and others.

Bill Koepnick is the pres-
—CONTINUED ON PAGE 126



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—FROM PAGE 120, SOUND FOR FILM

in touch with the music department as early as possible regarding preparation of tapes for any music playback. Music synchronization is another area where it's possible to waste vast sums of money in post-production correcting simple production mistakes. In the olden days, prior to SMPTE and video, you knew that everybody would be in sync. Today, things are so much more complicated, and though *you* don't need to know any of the technical gibberish that is required to make everything eventually line up, just know that some amount of planning is necessary when doing playbacks.

Is there inescapable noise on the set due to physical effects such as wind machines? Give the mixer time to shoot wild tracks with everything turned off. The combination of correct room presence (really a function of actor-to-microphone distance) and performance (which will be a lot easier to re-create ten minutes—rather than ten months—later) will result in tracks that will lay in easily. The picture-editing and temp-dub processes will go much smoother because even the earliest cuts can incorporate proper dialog tracks, and you will save a fortune in ADR recording and editing.

Speaking of which, it really is possible to do films with minimal ADR recording—if you give the production sound team half a chance. It all comes down from you, and if you don't want looping, you don't have to have it.

Get a feed from the production mixer and try to wear high-quality headphones. Don't worry if you hear too much low end in dailies. *Do* pay attention to actors being off-mic or tracks being distorted, if you didn't already catch it on your headsets during shooting. The low end can be easily rolled off, and most noise (with the exception of some broadband camera and generator noise) can be handled with minimal harm to the voice. This is the key issue that you should always keep in mind: If the intelligibility is there, and the track is smooth and well-prepared, then it probably won't bother the audience in the least.

"All-digital" claims: In my 1987 letter, I warned you of being seduced by facilities that flaunt digital technology as *de facto* proof that you would get a state-of-the-art soundtrack. Almost nine years later, these words are more true than ever for two opposing reasons: In the late '80s, the software was a bit too green and the storage space a bit too

lean to allow full-blown feature films to commit to workstations for sound editing. Today, *everyone* is cutting on workstations, and therefore it's nothing special to say that one is cutting digitally. (Indeed, you should be wary of sound editorial companies that are still only cutting on mag in 1996.) When confronted with newfangled high technology, try to distinguish between being infatuated and genuinely falling in love. The former is always a dead end, while the latter will reap many rewards, although patience and hard work are necessary.

And when it comes to production recording, the use of digital technology

means NOTHING. Nothing. Anybody can record digitally; that's a no-brainer. Don't let a prospective production team wave digital smoke and mirrors in front of you. This is not to say that equipment doesn't matter—anything less than a good console and a high-quality recorder will compromise the final quality of your overall soundtrack from the first day of shooting. But a well-tweaked Nagra is a good match for a DAT machine, and few will argue the claim that a Nagra with Dolby SR is in many respects superior. But, all in all, a good recording chain *should* be taken for granted.

What you need to be concerned with

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is "does this crew know where to put the microphones?"—a question that can only be answered by talking to dialog editors and re-recording mixers who have handled their tracks. With all due respect to some of your colleagues, I don't think that asking other directors and producers is a good way of finding out about production mixers, considering how often I hear horror stories from my sound editing/re-recording colleagues about the work of some of the best-known and busiest production teams in the industry. The only way one can really peek under the kimono of a production track is to edit and mix it personally—don't ever assume that just because someone (and this applies for post-production as well as production personnel) has won awards or has a resume filled with "big" pictures means that they know what they're doing.

Production effects. Every sound editor will tell you that crowd walla is the hardest material to pull out of a sound li-

brary and fit to an image. It's therefore important to record as many flavors of crowd tracks as possible on the set, and it takes minimal extra time if you plan things properly. For example, take advantage of times when there is no dialog in a crowd scene: tap the camera operator on the shoulder to turn off when they've got the shot. Continue to let the sound roll, perhaps instructing the crowd to do what you need (cheers, whistles, talking among themselves), but, again, don't let on that the camera has stopped. I think announcing "We're Recording Wild Tracks" can result in very artificial-sounding backgrounds.

The other classic stealth mode of recording production crowd tracks is when the crew is setting up. If it's possible for everyone to go about their business for a few minutes with walkies turned off and "crew talk" kept to soft levels, then you can get great walla with absolutely no increase in stage time.

With regard to standard room tone,

the best and most usable fill is always immediately adjacent to the take proper. This ensures that all of the key components—camera noise (which you shouldn't allow in the first place), lighting noise, general room presence, plus the precise microphone position—are exactly as they were when words were spoken. Therefore, whenever your production team asks for ten seconds of fill at the end of a take in a problem location, know that ultimately you will be giving yourself greater options in the cutting of your dialog track, especially in regard to cheating lines and making scenes flow as a seamless whole.

Temp dubs: Scribbled on an old piece of paper, I found the following words of wisdom written about temp dubs: "When history is written, these battles will not exist." I wish I could take credit for these words, for truer ones have not been spoken. Though it is understandable that you want to present your film to preview audiences in as fin-

POST NOTES

Projects: At Russian Hill Recording in San Francisco, producer Ed Bogas recorded music and narration for the PBS documentary *American Promise*. The music sessions were engineered by Chris Haynes, assisted by Daryn Roven; narration tracks were engineered by Jeff Kliment. Also, Sam Lehmer recorded and mixed the Charles Brown and Danny Caron score for the independent feature *Johns*...The Broadway Sound (New York) team of Ralph Kelsey, Michael Ungar, Frank Cabanach and John Crenshaw has been working on the edit, VO and ADR recording, sound design and final mix for the popular Nickelodeon series *The Adventures of Pete and Pete*...Bad Animals/Seattle's Ella Brackett provided sound design for Corbis' multimedia project *A Passion for Art*, the winner of 1995's Washington Software Association Consumer Product of the Year...**Mixed Nuts**, the audio division of Post Perfect in New York City, recently designed effects and recorded some of the voices for *Alien Trilogy*, a 3-D animated CD-ROM game based on the

Alien movies ad using Acclaim Entertainment's proprietary motion capture system...David Robbins' score and three songs performed by Eddie Vedder, Patti Smith and Jewel for the feature film *Dead Man Walking* were tracked and mixed by Gary Chester at **The Edison**, New York City. Meanwhile, engineer James Nichols recorded the score for the cast album of *Victor/Victoria* at The Edison's 56-input SSL 6000G, to 48-track digital...Jonathan Helfand and Tom Giffith of **Jonathan Helfand Music** (NYC) wrote an aria to go with a humorous 30-second spot introducing DeLonghi's Caffè Sienna Cappuccino Maker. The aria was created on a Fairlight MFX3, then mixed with vocals at Helfand's post suite...**People:** Skywalker Sound has named **Lee Bartolomei** chief engineer and promoted **John Mardesich** to technical operations manager...William Frazee has resigned as president of Post Logic Studios in Hollywood, and has been replaced by **Richard Voss**, who previously served as executive producer and general manager of Planet Blue in Hollywood...Interlock Audio Post recently moved into refurbished digs in a 1926 building that formerly housed the Hollywood Chamber of Commerce on Sunset Boulevard. The site includes two digital and three analog

mixing suites, editorial rooms, a Foley/ADR stage, and a 6-channel surround dub stage. **Lisa Pagnato**, formerly of Weddington Productions, has been appointed general manager...**Fox News:** The historic Stage 1 at 20th Century Fox has been restored and renamed. The scoring stage, which was the industry's first when it opened in 1928 and can house 120 musicians, will be called the Newman Scoring Stage, after brothers Alfred and Lionel Newman, who at separate times chaired the Fox music department. As part of the refurbishment, an SSL 9000 J Series Film Scoring System, which provides 48 multitrack buses, LCRSS stem outputs and 8 aux buses...**Miscellaneous:** **Steve Wytas Productions** of West Hartford, Conn., added a Fostex PD-4 portable timecode DAT recorder and Denecke TS-2 timecode Smart Slate to its arsenal...**Graham-Patten Systems** recently delivered a fifth D/ESAM 400 Digital Edit Suite Mixer to NOB, Amsterdam, and a single D/ESAM 400 to Satellite Information Systems in London, for use in the company's betting parlor audio-video news service...Finally, San Francisco Bay Area company **Harris Creative Group** is providing voice-audition service over the Internet. You can check out voice-over talent at <http://www.crl.com/~voiceone/>. ■

ished a form as possible, you should realize some of the ramifications of too much emphasis on temp dubs.

First and foremost, as the saying above implies, money spent on them will frequently be wasted, along with the tracks they are cut from. Of course, material cut for temps can and should be re-used for the final mix. Recycling of temp tracks is facilitated by having the film in as close-to-final shape—including reel rebalancing—before turning the film over to the sound editing crew. The fact that it's very easy to make changes on a nonlinear system shouldn't change the meaning of locked picture.

You should also be aware that as much as you might fall in love with the audio power of your nonlinear picture editing system, don't let familiarity of tracks that *you* cut come at the expense of new, carefully crafted material that your sound crew will cut for the dub proper.

Mix etiquette. When mixers are sorting through tracks at the dub, give them time to get a balance going before "brooming" effects out of hand. In many instances, you should have sorted through material with the sound editor

before the tracks went to the mix. A classic example of this is ADR selection. It's easy to sort through selected takes at a workstation with the ADR editor to ensure that you will have the right options at the mix. Looking for alternates at the mix is a waste of everyone's time and money.

Regarding the presence of *others* at the dub: Why? Some films have had three-dozen people at the mix; there is no reason or excuse for this. The best way to think of it is perhaps the classic military "need-to-know" basis: If you don't need someone's opinion or skills at the dub, they shouldn't be there. Final mixes of films are fun places to be, for sure, but the resulting cacophony dilutes the focus of the room from the work at hand, and distracts mixers from their work.

Someone else you might want to disinvite to the mix: the composer, who too-often is there only to have their music played loud.

Release in digital. Back in 1987, I said you should mix in stereo. Well, at this point in the game, virtually every film is in stereo optical. Now, you should take it one step further and re-

lease your film not only in a digital format (Dolby Digital, DTS or SDDS), but as many as is practical. Don't let your distributor tell you that they favor one system over the other. They have their personal, political and financial agendas, whereas yours should be only to ensure that the widest number of paying moviegoers will hear it as you did when you played back the final mix at the dub—and this cannot be done by releasing a film in only one digital format or only in analog stereo optical.

"The more things change, the more things stay the same" Department: The old argument against mixing in stereo used to be that unless your film was a musical or war movie, stereo wasn't really necessary. The same arguments are being made today against digital release formats and they're equally misguided. While digital (as was the case with analog stereo) is perhaps best shown off with loud, flashy sound jobs (see below), the most overlooked benefit of digital release is the reduced alignment requirements of the A-Chain, which includes the print and whatever will read the track. The sound system of a theater—the B Chain—is a given, regard-

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less of analog or digital playback.

Movies are too loud. Some of you might have hearing problems, but rest assured that all of us are trying to avoid them. The overwhelming consensus of moviegoers (do your own poll of ten "non-pro" friends) is that films are too loud and dialog is unintelligible. When you are playing back reels at the final mix, always be aware that the audience will not know the dialog as well as you do, and what you consider as acceptable distinction between dialog and sound effects/music will often obliterate the words.

If you only listen to one thing in this whole column, let this be the one.

Follow your work through. While not everyone has the clout of a Spielberg or Lucas, always remember the "squeaky wheel getting the grease" maxim. For example, don't ever let anyone tell you that "this room was just aligned." You should take it upon yourself to ensure that showcase theaters in Los Angeles and New York will be tweaked on opening day. If someone from your post sound team is available to personally check a theater, get them there! Even the most experienced and talented theater service technician will appreciate the presence of someone who knows what the final track should sound like. (Not to mention what said sound person will learn from seeing their tracks to the very end, all the better to improve their work on your next film.)

You also should keep on top of video mastering of your film, and try to get this done as soon as possible after you finish the movie. Understand that somebody, somewhere will have to sit down and transfer your film, so the studio can't argue that your participation is going to cost more, unless you're going to second-guess and change everything the colorist does. And if you're going to do that, it's probably best that you stay away, because chances are that you'll end up right back where you started.

Let us sound people know what we could do better by writing to 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 one of them would have to be that no director or producer will ever tell him "you'll never work in this town again" because, as we found out at the end of last month's column, there's no place there for him to edit and mix films.

—FROM PAGE 121, SOUND EFFECTS LIBRARIES
ident and co-owner of Advantage Audio in Burbank, Calif. Advantage's mainstay is sound design for cartoons, including such shows as Disney's *Aladdin*, *Timon and Pumba* and *Gargoyles*; Marvel's *Spiderman* and *Fantastic Four*; and the new *Felix the Cat* series. Michael Lawyer, owner of SR Audio and Cinemedia (Des Moines, Iowa), specializes in music scoring and sound design for nonbroadcast corporate work, CD-ROM and CD-I. His clients include Purina, RayCom, CD-I developer Pioneer Hybrid International and others.

When talking to these professionals about sound effects libraries, a few names popped up repeatedly. Among these were the heavy-hitters in sound libraries, including Sound Ideas, Hollywood Edge, Valentino, Lucas Films, Bainbridge, Hanna-Barbera, Warner Bros. and Network. Some mentioned jukebox-style management/retrieval systems such as those from Sonic Science or Gefen Music Systems. Lawyer went so far as to say that he finds the occasional gem in some of the older libraries: "We keep these around for those times when you need an effect that just doesn't seem to exist in the newer versions. The fidelity might suffer, but we often find something we can work with."

STOCK—A FOUR-LETTER WORD?

The diversity of sound effects available in stock libraries is nothing short of staggering—sound designers have never had more raw materials at their fingertips. Still, today's sound designers often use every tool and trick at their disposal to avoid using sounds exactly as they come off the CD. "We want to come up with something that isn't the same old thing," says Lawyer. "If we're using a stock sound, we'll do something to it to push it past the norm. Sometimes, it's as simple as pitching the sample up and adding harmonizer. Very rarely are we using a sound that's totally stock. If we have the time, we're doing some kind of modification to the sound."

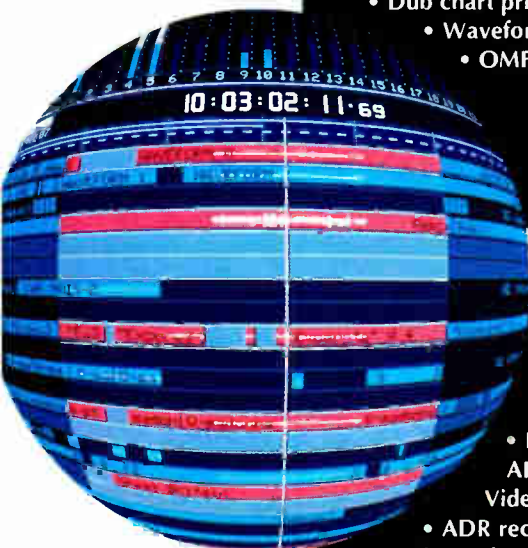
"We'll often take a sound and make a quick loop out of it and turn it into something else," adds Koepnick. "We took the startup sound of a Harley Davidson motorcycle—just the solenoid latching on the starter, before it even cranked over—and put it into a half-second repeat. The result was a very interesting, rhythmic background sound. We layered more sounds on top

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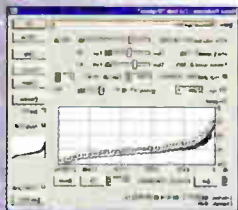
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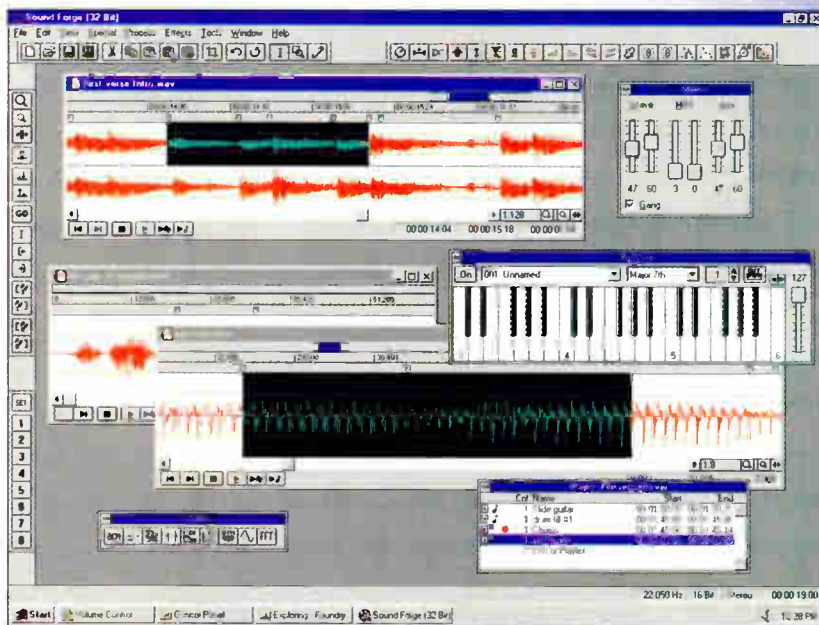
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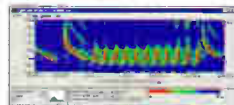
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World Radio History

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and used it as the basis for ambience in a small, enclosed machine area."

Sometimes, using sounds in a way that catches the viewer off-guard can take away the predictable edge. In a spot for the U.S. Open tennis tournament, Kirshen created what she called "a completely different landscape" by matching unexpected sounds to familiar visuals. "We used all African musical elements instead of 'normal' tennis sounds. When a guy's racket contacted the ball, we didn't want the usual sound—so we used something more like a shaker. When the sun came up at the beginning of the spot, it was a strange African horn. It was very dream-like—just a different way to color things with sound. When I was done with the spot, we had a cooking African drum track. To anchor the whole thing in reality, I added in some crowd cheer from an off-the-shelf library. In a piece like that, the viewer catches that it's not literal, right off the bat."

Designers often combine stock elements with effects they've recorded or created themselves, just to add a unique twist. "We're constantly pitching up, looping, spatializing, combining stock effects with things we've created

in-house to try to get the right effect," continues Lawyer. "Right now, we're working on a corporate convention piece for a high-tech communications company. We're going through libraries, stacking up stock sounds with our own stuff and running it all through digital processing to get the unique effect they want."

POWER TOOLS

At the same time stock sound effect libraries have been improving in both breadth and quality, the tools available to sound designers have become faster and more powerful. Digital audio workstations, samplers, outboard processors—all give the sound designer the ability to layer and edit sound, almost without limit.

Koepnick relies on a combination of high-tech and human timing to build up his dense, futuristic cartoon soundtracks. "Take robots walking, for example," he says. "We use Digidesign Pro Tools as a design engine to layer up air releases, spring retracting sounds, servo-motors, and big metallic crunching noises. We build up a very complex, moving sound that will sync well with picture. We then transfer that

sound back into the Emulator IV sampler. With the PostView option on Pro Tools, we slow the picture down to half-speed and actually play the sound effect live, in real time, on two keys of the E-IV. We build it up one layer at a time. It's very fast and efficient. Most of our sound effects end up on our Emulator E-IVs before they get into our Pro Tools system."

When Hofmann needed to create the sounds of otherworldly animals for a game, he used his Ensoniq ASR-10 sampler and Alchemy software to transform real-world animal sounds. "I used a lot of layering for this game," he says. "I used pig sounds mixed with those from a horse. I turned the horse sound around and lowered the pitch on the pigs. I layered that with a lion growl and horse breath sounds. The end result was a sequence that worked very well."

Lawyer's studio includes a Euphonix automated console, 24-tracks each of analog and digital recording, and a Pro Tools system. "We do a lot of work in Pro Tools and Sound Designer, blending different sound elements together," he explains. "We use E-mu samplers when we want to integrate effects right into a musical sequence. Recently, we



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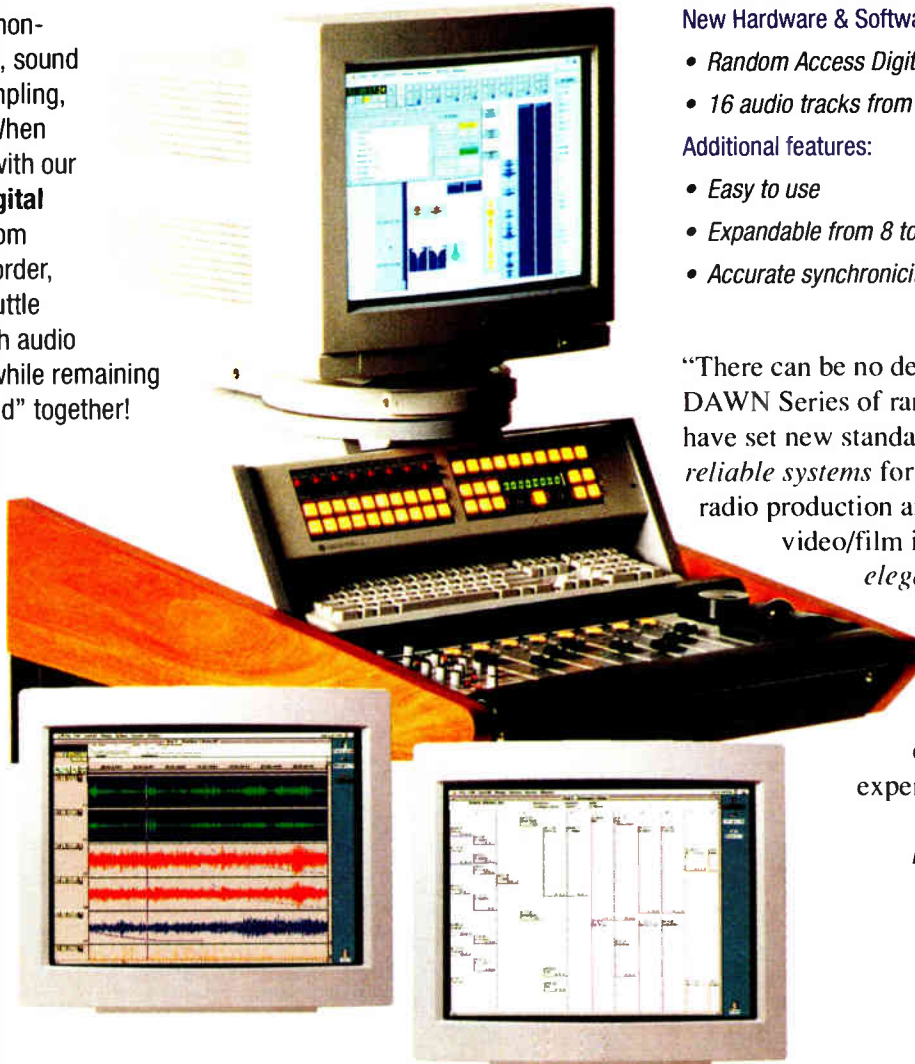
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needed to create the sound of a modem dialing up and connecting, but it all had to integrate with the music that accompanied it. So we built the modem simulation up piece by piece. The tones from the modem literally morph into the sound of an electric guitar to become part of the music."

"With the digital systems that everyone is using," Koepnick adds, "stuff just sounds better on the air. We're hitting a golden age of audio—there are so many ways to tweak sounds, it just comes out sounding fabulous. It's a good time to be in the business!"

LIBRARIES AND BEYOND

Even if a sound effects library weighed in at 10,000 CDs, it still wouldn't contain the perfect sound for every cue. Sometimes a stock effect needs the help of do-it-yourself sound, or the cue needs to be created completely from scratch. "Some effects I just like to do myself," says Hofmann. "Stock effects are often too specific, or they'll involve too much editing to make it sound the way I want. If you have a very specialized event or sound, library effects may not work." In such a case, Hofmann often sets out with his portable acquisition system, consisting of a Sony DAT recorder and AKG 414 condenser mic.

"The new CD libraries are getting better and better," adds Koepnick. "They're really good for sounds you just can't get or make—frogs croaking, or a supersonic jet fly-by. This leads some people to think that samplers and electronic sound libraries are just going to 'take over the world' as far as sound editing goes. But there are still some things that are best done live, on a microphone—they're more accurate that way. In animation, there are lots of objects that don't really exist—machines, for example—things that have no precedent in sound. That's where we get into actually manufacturing sounds. For more sci-fi sounds, we often use synthesizers or software tools like TurboSynth, HyperPrism or Alchemy on the Macintosh. We also use a Kurzweil K2000 or MIDI Moog—whatever's the quickest way."

"One time we needed a flock of birds," recalls Kirshen, "and there just wasn't anything on a library that worked. That particular day, I happened to be wearing a shirt with sleeves that were far too long. I walked into a booth, pulled the sleeves down over my hands, and I flapped. We layered it up, added some effects and had a perfect flock of rare geese flying over-



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head. I don't care what I have to do to get a given sound effect—I just want to get it."

THE CLIENT CHALLENGE

CD-ROM libraries and technology are improving at a rapid clip, and it's a good thing, because sound designers are finding themselves stretched by the increasingly sophisticated expectations of their clients. More often than not, clients want sound that's fresh, creative, exciting, powerful and moving—and they want it yesterday. "Shows are getting more complex, quality is improving, and clients are demanding better sounds," says Koepnick. "Sound effects are playing a larger role, especially in animation. We're putting more sound effects into shows than we used to—more layering, more depth, more realism. Some of these shows have *huge* sounds. Each week, we're making a 30-minute movie with no production track to borrow from. We have to create *everything*."

Hofmann finds his clients wanting a "cinematic quality" in their games, regardless of budget. "For a game or interactive work, you're riding the line between quality and cost-effectiveness. Even though the budgets are smaller, the clients have real high expectations. Thankfully, the technology is coming around. We're getting close to true virtual reality, and sound is a huge part of making it work. But nothing is quite to the point where you would say, 'Wow—it sounds like I'm there.' That's what I'm striving for, to create that kind of atmosphere."

"We're always trying to get a thicker sound for the client," says Lawyer. "Even in simple radio and TV spots, we experiment with combining different sounds. If a client wants a mechanical sound to seem more alive, we integrate some human element. If there's any time to add that special touch, we do it."

Kirshen sees the increasing sophistication of graphics as one of the driving forces behind the higher expectations of her clients. "The line between literal and fantasy is becoming fuzzy for music and effects. Graphics are becoming more abstract and sophisticated; therefore, soundtracks are becoming more abstract to keep up.

"When it comes to sound effects," Kirshen concludes, "you go with whatever works. The idea is to take nothing and make it into something." ■

Loren Alldrin is a freelance audio and video producer.

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ASK ABOUT OUR MAGNETIC AUDIO FILMS

—FROM PAGE 121, SONOLAB STUDIOS

Mercier arrived at for Studio 118 became the aesthetic standard for improvements to the remaining five rooms. "We wanted to give our clients really special rooms," Mercier explains, so we just decided that we would go with something other than the normal Formica counters, tables and all that. We decided to go with a nice wood finish, Italian tables. Instead of buying the piece of furniture that they wanted us to buy to put the Opus in, we went to one of the top furniture stores here and bought a very nice, chic walnut table. We gave the studio a style, and we tried to give it a life of its own."

Phase Two of the renovations included the total rehaul of Studio 127, a dubbing and film/TV post room equipped with another Opus, custom Danaudio SM25 three-way monitors, a vocal booth with a 43-inch back-projection TV, and AKG and Neumann mics. Studio 127 opened in October 1995. Also part of Phase Two improvements was Studio 119, the film/TV mixing room, which was completed last August.

Studio 119 has a 48-input Neve VP51 console with Necam automation, Studer A827 and Otari MTR-90II analog recorders, three Sony PCM800 8-track digital recorders, Dolby XP24 and 365 SR encoding/decoding units, and a Sony PVW 2650 Betacam video player. Monitoring in 119 is via the JBL Cinema active monitoring system with QSC 1600 amps and Klark-Teknik DN-800s (LCR) and QSC 1400s (stereo surround). Designer Daniel Seguin points out, "The main front wall is an 8-inch block wall with a 20-inch air space for the JBL4670 flush-mount soffit. The baffle wall is composed of a 2x8-inch number 16 steel stud frame with 1-inch MDF, plus three layers of 3/4-inch sheet rock, plus 3/8-inch lead and a 2-inch base glad acoustic treatment. During construction, I referred to this as the Canadian version of the Berlin Wall." Seguin says he felt lucky to have Patrick Bernsen as the contractor for the project (Bernsen used to be Tom Hidley's project builder/contractor).

Sonolab also owns a studio called Studio St. Charles, a former music-recording space that was recently converted to a Foley room. St. Charles is situated in a separate building about ten minutes' drive from the main complex. "It used to be one of the major music rooms in Montreal," explains Mercier, "but the music business here is getting very tough. The price they want to rent these rooms for is unbelievably low, and

the rent and the infrastructure are expensive. But having Foley, we could give this room long-term projects. So we left the design as it was, but we built Foley stages."

Studio 131, the facility's feature film mixing studio is the only room that was largely left as-is. This room offers a Neve VRP-48 console, with Necam automation, that has been modified for two-operator mixing. Other featured equipment includes Otari MTR-90II and MTR100 recorders, a Studer A810 2-track with TLS4000 synchronizer, an Altec A+ LCR cinema speaker system, JBL 8330 split surrounds and 4688 sub-woofer, and Dolby DS4 surround mix-

ing processor, DS10 SR•D processor, XP24 SR encoder/decoder and 365 SR 2-channel encoder/decoder.

All of the rooms at Sonolab are networked by function via fiber optics: advertising video rooms are linked with ad audio rooms, etc. The facility uses EDNet to link with outside facilities.

Mercier says Sonolab is back in the black now and that clients are impressed with the way the facility has rounded out. Projects completed after the redesign include advertisements for GM, Chrysler, Acura, Proctor & Gamble and Kellogg's, and TV and feature work on *Higlander III*, *The Mighty River*, *Paper Boy* and many others. ■

THANK YOU MIX READERS!

An open letter from Morris Ballen, Disc Makers Chairman

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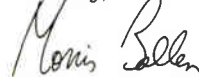
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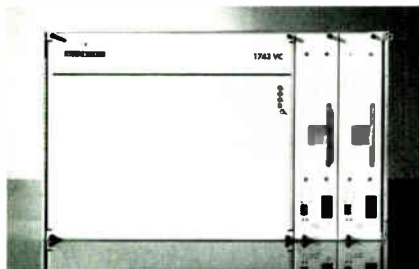


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NEW PRODUCTS FOR FILM/VIDEO



ALCATEL VIDEO CODEC

Now shipping is Release 2.0 of Alcatel's (Richardson, TX) 1743 VC video codec. The 1743 VC is designed to be used with a DS3 telephone network to create a "virtual studio" for teleproduction needs. Features include up to four encoders or decoders per shelf, bi-directional DS3, 4:2:2 serial digital component video interface, two transparent AES/EBU stereo audio channels or four 20kHz analog channels, one bi-directional DS1 interface, RS-422 remote-control interface, linear timecode interface and Basic Supervisor. Composite video is converted to a 45MB/s bitstream for network transport.

Circle 190 on Reader Service Card

STUDIO AUDIO TIMESYNC SYSTEM

Studio Audio Digital Equipment Inc. (U.S. offices are in Nashville) releases TimeSync, a new system for automatically synchronizing timecode rushes. Part of a new SADiE package designed for sound transfer purposes, TimeSync has an integral timecode reader/generator allowing instant chase to any type of LTC timecode, and allows synchronizing of rushes generated by Aaton and Arriflex camera equipment and can also sync Digislate rushes. When audio is loaded, slates are placed into current positions on a timeline with respect to their recorded timecode. All loading is completed in one real-time pass of the audio reel and audio synchronizing is completed in two passes.

Circle 191 on Reader Service Card

RSP SURROUND 600 POWER AMP

RSP Technologies (Rochester Hills, MI) introduces the multichannel Surround 600 power amplifier, designed to power either surround systems or separate monitor setups. Weighing 35 pounds, the two-rack-space unit has six amplifiers, each delivering 100 watts at 8 ohms, or 150 watts into 4 ohms. Dynamic range is greater than 103 dB, and THD is less than 0.01% (into 8 ohms); matched channels provide ± 0.2 dB response from 20-20k Hz. Inputs are balanced combo XLR $\frac{1}{4}$ -inch jacks; outputs are five-way binding posts. Retail is \$1,249.

Circle 192 on Reader Service Card

ELECTRO-VOICE THX-APPROVED CINEMA LOUDSPEAKERS

The TS992-1X cinema loudspeaker from Electro-Voice (Buchanan, MD) is approved by THX for use in small theaters. The TS992 delivers THX-approved performance in theaters measuring less than 45,000 cubic feet, and allows the screen-to-back-wall distance to be reduced by one third. Frequency response is said to be uniform across a 40-20k Hz range; a THX-designed custom electronic crossover assists in matching directional characteristics of the low- and high-frequency systems.

Circle 193 on Reader Service Card

COASTCOM D/I MUX III

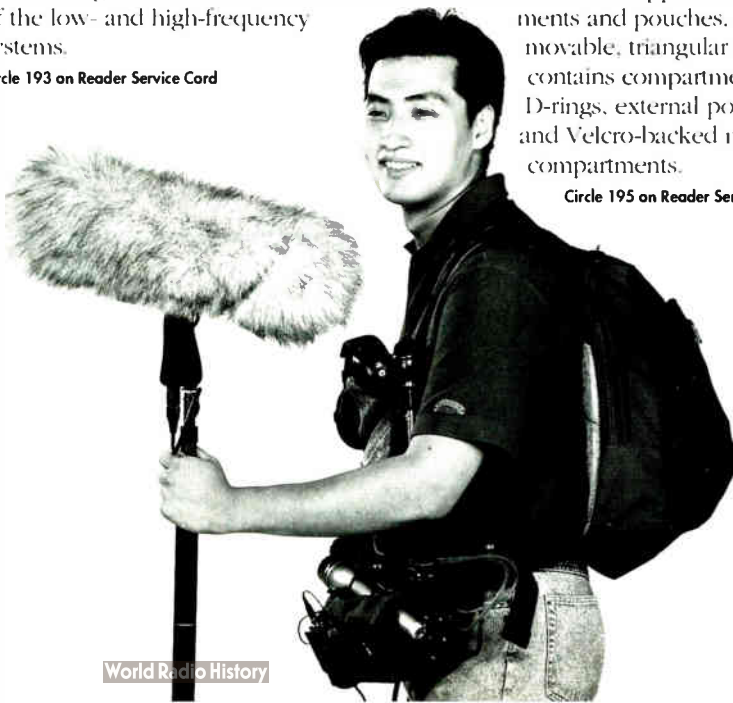
Coastcom (Alameda, CA) and Dolby Laboratories (San Francisco) are introducing a joint offering for remote editing, the combination of Coastcom's multichannel D/I MUX III T1 multiplexer with digital audio codecs from Dolby. The D/I MUX III combines video transmission, voice, I-800, WATS, low-speed data, switched 56, Fractional T1 and frame relay through a T1 circuit, saving time and money. Combined with codecs from Dolby, The package permits videoconferencing of remote sites, viewing daily rushes, remote mixing and machine control, through a fiber service.

Circle 194 on Reader Service Card

KATABAND AUDIO VEST

Band Pro Film/Video Inc. (Santa Monica, CA) introduces the Kataband Versatile Audio Vest, a modular organization system for equipment carried on location. The vest consists of three major components—the Chest Vest, the Audio Front Belt and the Backpack—that can be used separately or combined together. The Chest Vest contains inside and outside pockets, and elastic straps. The Audio Front Belt provides holsters and includes zippered compartments and pouches. The removable, triangular Backpack contains compartments, D-rings, external pockets and Velcro-backed modular compartments.

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PRO AUDIO MEETS MI

PRODUCT HITS FROM NAMM

BY GEORGE PETERSEN



exclusive domain of MI products. For example, more than ten new pro microphones debuted at NAMM—five in the \$1,000-and-up range. And when companies such as Amek, Focusrite, HHB, Manley, Meyer, Otari and TC Electronic—who *don't* cater to the music store crowd—exhibit at NAMM, you can be sure changes are afoot in pro audio land.

Clearly, the most talked about, "must-see" product at NAMM was **Roland's VS-880** Digital Studio Workstation, which combines a disk-based digital 8-track recorder/editor with a 14-channel digital mixer; two optional studio-quality effects processors are added via an expansion slot. The system is available with either a removable IGB Iomega Jaz drive or a fixed hard

Once upon a time, the convention of the National Association of Music Merchants was a nice little summer gathering where music store owners would meet and check out new band instruments. Eventually, the popularity of rock 'n' roll brought electric guitars and drums into the spotlight, and they added a second show each year. About ten years ago, as the emerging MIDI and electronic musician market shifted the musical instrument centers away from Chicago and the Midwest to the coasts, the importance—and size—of the winter NAMM show grew immeasurably.

Walking around the five-plus exhibit halls at this year's winter show, held January 18-21 at the Anaheim Convention Center, I saw plenty of cello, oboes and acoustic pianos, but I was most struck by the preponderance of big-time pro audio gear at this once-

drive. Features include eight virtual tracks per record track (up to 64 virtual tracks per song), four simultaneous record tracks, eight 3-band EQs, 14 2-band EQs, S/PDIF digital I/O, MIDI sync, MMC, SCSI port for storage/backup devices, nondestructive editing



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and scrub preview, time compression, time stretch, instantly resettable scene memories and dynamic automation of all fader/pan/mixer parameters via any MIDI sequencer. The VS-880 with IGB Jaz drive is available now and retails at \$2,795.

Tascam unveiled its **Digital Studio 564**, a disk-based, random-access "Digital PortaStudio" based on MiniDisc-Data discs. Second-generation ATAC processing provides a maximum of 37 minutes of 4-track recording time on a 140MB MD. A Bounce Forward feature allows the storage of alternate 2-track mixes (or track bounces) to five song locations; also, five takes (virtual tracks), available on each record track, can be edited into a single seamless performance. Its 12-input mixer has four XLR mic/line inputs with 3-band (sweepable mid) EQ, stereo inputs with

high/low shelving EQ and two aux sends. MIDI sync via MTC, MMC control and analog and digital outputs is standard. Deliveries begin this summer; retail is \$2,399.

Also new from Tascam is the DA-38, a scaled-down version of its DA-88 digital 8-track. Slated for late spring/summer release, the DA-38 does not support video sync or 9-pin protocol (as does the DA-88/SY-88 combo), but MIDI sync and MMC can be added via the optional MMC-38 adapter. However, the DA-38 adds a few new tricks of its own, such as track-to-track copying within the machine, dither on/off switching, A440 digital tone generator and bar graph error rate display. As the DA-38 is projected to retail at \$3,499—about the same as the ADAT-format Alesis XT, Fostex CX-8 and Panasonic MDA-1—life in the MDM lane should be very exciting in the

months to come.

The **Panasonic SV-3800** has replaced the SV-3700 studio DAT, adding 20-bit resolution DACs and a dual-speed-range shuttle wheel, along with AES/EBU, S/PDIF RCA and optical digital I/O, +4/-10 dB analog I/O, independent L/R recording levels and a wireless remote. Retail is \$1,695.

Ready for a digital console? Coming this summer is **Korg's SoundLink DRS 168RC**, a fully digital 16x8x2 recording console equipped with two ADAT optical inputs, two ADAT outputs, S/PDIF I/O, eight analog inputs with 18-bit A/D converters, 3-band EQ, two aux sends, two effects sends, two internal digital effects processors and automation of all console functions with 100-scene memory. Multiple mixers can be ganged for more inputs; retail is \$3,500.

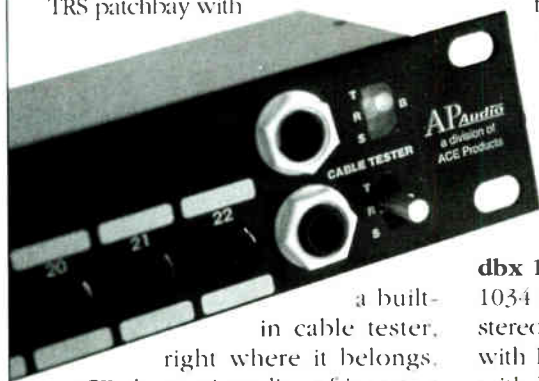
—CONTINUED ON PAGE 211

TEENY LITTLE INNOVATIONS

NAMM HITS YOU MAY HAVE MISSED

There's so much hubbub surrounding audio/music conventions that many products get lost in the shuffle. Listed alphabetically, here are ten "small"—in the headline sense—products that deserve a closer look.

AP Audio Patch Bay: Patchbays are no big thing, but the RPM44-SCT from ACE Products (707/765-6597) is a 1U Re-an 44-point (¼- to ½-inch) TRS patchbay with



a built-in cable tester, right where it belongs. ACE also carries a line of inexpen-

sive padded nylon cases that, coincidentally, just *happen* to exactly fit Mackie 1202 and 1604 mixers.

Benson Studio Stat: Benson Audio Labs (708/860-3870) unveiled Studio Stat, a compact (18x11x12-inch) near-field studio monitor with an 8-inch cone woofer and 5x5-inch electrostatic panel for flat performance out to 25 kHz. The system incorporates a unique light-pipe LED that indicates the exact listening sweet spot to the user. Retail: \$1,399/pair.

BIAS Peak: Peak, from Berkeley Integrated Audio Software (415/331-2446), is a 2-channel audio editing program that runs on Mac and Power PC systems, either as a freestanding application (with support for Waves and InVision plug-ins) or as a plug-in for Adobe Premiere. It offers flash-fast editing, extensive DSP, looping and sampler support, with nondestructive editing and unlimited undo. Peak is ideal as a stand-alone program or in conjunction with your Sonic Solutions or Digidesign system.

dbx 1034: The dbx (801/568-7660) 1034 is a full-featured, three-way stereo or four-way mono crossover with PeakStopPlus™ limiting (along with level meters and phase/mute

switching) on each of its six bands. I'm rarely impressed by crossovers, but when a 1U box can replace an entire rack of processing, the industry needs to take notice.

Emagic Zap: Emagic (916/477-1051), the wunderkinds behind Logic Audio, announce Zap, an under-\$100, loss-less data compression utility for the Macintosh that shrinks (and later restores) the size of files in the industry-standard Sound Designer format.

JLCooper Mini Controllers: JLCooper (310/306-4131) is always up to something clever. This time, it's the WB desktop jog/shuttle wheel controller (ADB port) for Macs/Power PCs running QuickTime-based digital video, or—via a control panel—MIDI sequencers, digital audio, multimedia, etc. The BB Transport Controller, a small panel with "ffd/rwd/stop/play/record" buttons, uses MIDI Machine Control commands to communicate with sequencers and compatible multitracks.

Line6 AxSys 212: Fast Forward Designs (310/390-5956), a design group whose principals worked on the Alesis ADAT and Quadverb, and Oberheim's classic OB-8 and Matrix 12 synths, is developing its own

—CONTINUED ON PAGE 212

PREVIEW



TDK PRO MEDIA LINE

New from TDK (Port Washington, NY) is a range of audio and video cassettes for the professional project and high-end studio market. The tape line includes DA-R, a data-grade certified DAT cassette; CM, an S-VHS formulation specially suited for ADAT recording; and Hi8MP, high-resolution 8mm tape for DTRS applications. New SM and SM-X formulations are professional versions of SA and SA-X consumer high-bias tape; AM and AL are normal-bias, all-purpose cassettes. The line is available in various lengths and is sold in music industry retail outlets.

Circle 226 on Reader Service Card

SPECTRAL PRISMA MUSIC 2.0

Spectral Inc. (Woodinville, WA) has upgraded its Prisma Music™ DAW software to Version 2.0. Free to all current users, Version 2.0 includes full-screen control panel graphics, flexible scrub selector, automatic de-glitching and smoothing, and a new "snap manager" that assists in lining up musical phrases to the beat. Designed for audio post-production and project music applications, Prisma Music 2.0 offers powerful lock-to-picture features, multiple layers per track recording, real-time mixing and pen draw of audio waveforms. Price is \$4,495.

Circle 227 on Reader Service Card

CAKEWALK PRO AUDIO

Cakewalk Music Software (Watertown, MA) announces Cakewalk Pro Audio™, the first professional MIDI and digital audio recording system for Windows-based multimedia PCs. Pro Audio allows users to record, edit and play back multiple tracks of synchronized MIDI and digital audio from within one program. It supports Digidesign's Session 8 disk recording system and many Windows-compatible sound cards. Featured are variable sampling rates (11 kHz to 44.1 kHz), graphic and parametric EQ, audio scrubbing, audio cut/copy/paste and drag/drop commands and pattern-based sequencing. Price is \$399; an upgrade is \$99.

Circle 228 on Reader Service Card

SONY MDM TAPES

Sony (Park Ridge, NJ) announces availability of two new series of digital audio master cassette products. The DARS-116 is a metal evaporated tape for use in 8mm DTRS-format recorders. The DASV-40 is designed for S-VHS-based digital audio recording. Both products were first announced at NAB in April 1995. According to Sony, the proprietary "Diamond-Like Carbon Coating" (DLC)™ process improves tape-to-head contact and lowers error rates for the 116-minute DARS-116 tapes, which are designed for Sony's PCM-800 and Tascam DA-88 digital multitrack recorders. APRS/SPARS labels are included with both tape formats.

TLC SPEAKER SIGHTS

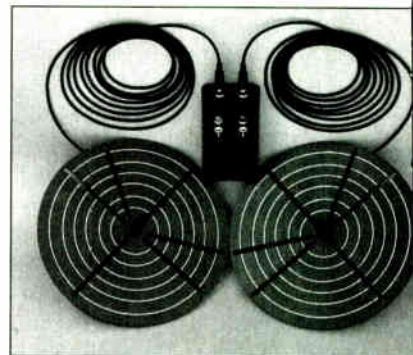
Now shipping from the Technical Laser Company (Stevenson Ranch, CA) is the Speaker Sights speaker alignment system. The battery-operated system uses laser Sights centered on aluminum discs, which are then mounted on drivers to determine speaker placement by reflecting on a flat surface at the mix position. Laser accuracy is stated as 0.001 inch; separate left and right switches and LED indicators are included. Options include custom driver mounts, A/C power supply and sighting grid to determine optimum placement.

Circle 229 on Reader Service Card

A.R.T. ADAT CLEANING KIT

American Recorder Technologies (Simi Valley, CA) introduces the K-171D ADAT Cleaning Kit. The kit includes a 2-ounce bottle of S-711 professional cleaning fluid, ten VS-1 chamois cleaning swabs, V-311A ADAT cassette cleaner, CO-1 particle duster and storage case. The components are stored in a nylon carry bag that has additional space for two ADAT cassettes.

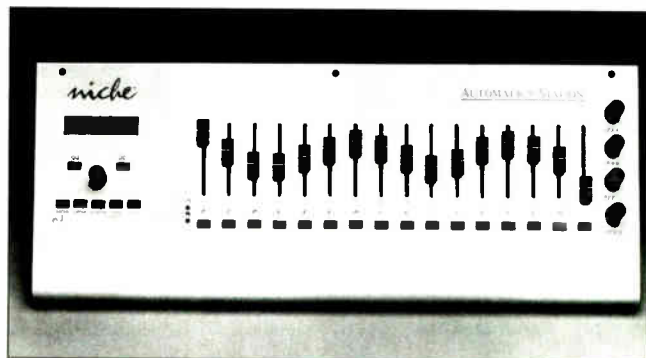
Circle 230 on Reader Service Card



NICHE AUTOMATION STATION

The Niche Automation System from Russ Jones Marketing Group/NICHE (Northridge, CA) is a MIDI fader controller for tactile mixing in computer-based audio and MIDI environments. The station features 16 faders, 16 mute buttons, four assignable Efx knobs, built-in software and LCD screen. Software features include channel grouping, fading and muting; assignable master and slave groups with nested groups; snapshots, crossfades and crossfades between snapshots; and Niche Null™ nulling software to eliminate sudden unexpected jumps in volume from fader adjustments. In addition to MIDI automation, the Niche can be used in ADAT, DA-88 and Pro Tools III mixing applications. Retail price is \$799.

Circle 231 on Reader Service Card



PREVIEW



AUDIO-TECHNICA AT4041 MIC

The latest in Audio-Technica's (Stow, OH) 40 Series microphones, the AT4041 is a cardioid, pressure-gradient capacitor microphone designed for professional recording and critical applications in broadcast. Frequency response is smooth over its 20-20k Hz range, with a slight high-frequency rise. It has a balanced, transformerless output and will accept up to 145 dB SPL with less than 1% THD. The back plate carries a fixed charge, and is aged and precision milled. A recessed-switch highpass filter provides 12dB/octave roll-off at 80 Hz. Housed in a turned brass chassis, the AT4041 operates with any 48VDC phantom power source and features output impedance of 100 ohms, open circuit sensitivity of -36 dB, typical dynamic range of 121 dB and typical S/N ratio of 70 dB.

TL AUDIO INDIGO TUBE GEAR

New from TL Audio (Oakville, Ontario) is the Indigo range of tube audio processor products. The Indigo line, an economical version of the Classic line, will initially consist of five models, with more releases planned later this year. The range includes the PA-2001, a 4-channel tube mic pre-amp; the EO-2011, a 2-channel, 4-band tube EQ; the EO-2012, a 2-channel parametric tube EQ; the C-2021, a 2-channel tube compressor; and the O-2031, a 2-channel tube overdrive. All models are single-rack units.

Circle 232 on Reader Service Card

DK-AUDIO MD100 MASTER STEREO DISPLAY

DK-Audio (Herlev, Denmark) introduces the MSD100, a combination digital audio signal meter and visual display. The "workstation" includes PPM with six standard scales, including VU and digital, audio vector oscilloscope and phase correlation meter. Three buttons navigate the software menu choices, which provide immediate stereo signal information.

Circle 233 on Reader Service Card



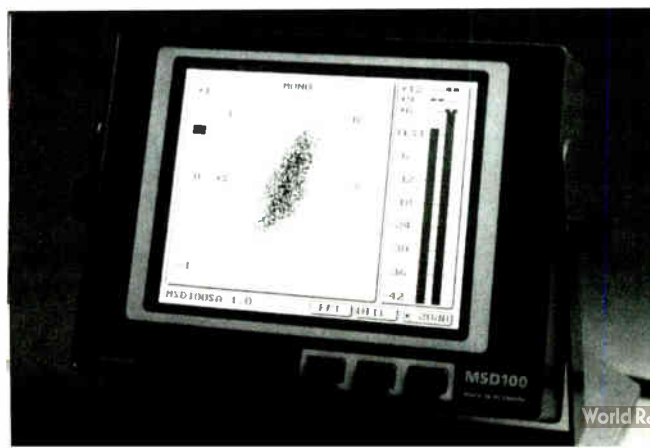
QSC DARIS

QSC (Costa Mesa, CA) announces the availability of the DARIS Digital Audio Routing and Interconnect System. Designed for live sound, recording and broadcast applications, DARIS permits long-distance fiber-optic transmission of digital audio signals between base units, each link carrying up to 64 channels, and each base unit performing matrix switching of up to 256 audio signals. Signal processor boards can be added to base units, further increasing system capabilities; parameters and configurations are stored on a controlling PC and manipulated through graphical interface software. Other features include 24-bit audio data transmission, high-grade 20-bit converters and 40-bit floating-point audio signal processing. Supported audio formats include analog, AES/EBU and S/PDIF. Sampling rates supported include 32 kHz, 44.1 kHz and 48 kHz, internally; external sync supports 44.056 kHz.

Circle 234 on Reader Service Card

DIGIDESIGN PROCONTROL

ProControl from Digidesign (Menlo Park, CA) is a modular control surface designed to integrate the digital audio production process by providing an integrated hardware mix controller for Pro Tools III systems and Plug-Ins. Comprising a Main Unit and an 8-fader Fader Pak, ProControl will support up to four Fader Paks for a total of 32 faders. The software-based system is controlled from a touch-screen and edit buttons, and features motorized 100mm faders, dedicated edit controls, control room and cue mix monitor control, and LCD "scribble strips." ProControl will be available in the second quarter of 1996, for less than \$8,000.



PREVIEW



HOT OFF THE SHELF

Marshall Electronics' Sound Runner snake cable is available in analog or digital formats (the latter meets AES/EBU digital audio requirements) and features two 24-gauge 7x32 strands of tin-plated copper conductors. Call 800-800-6608...

Semiconductor Essentials for Hobbyists, Technicians and Engineers, by Stephen Kamichik, is a first course in electronics, at the technical and engineering levels. The 128-page paperback is illustrated. Call 800/428-7267... **Motorola's 24-bit digital signal processor**, the DSP56009, is ideal for running memory-intensive audio decompression algorithms and is the first cost-effective, single-chip DSP to provide Dolby Laboratories' AC-3 Surround Sound or Digital Theater Systems' (DTS) Coherent Acoustic solutions. Call your Motorola dealer for details... Said to be the first single-chip plug-and-play multimedia audio subsystem with music synthesis, Crystal Semiconductor's CS4236 offers true full-duplex, 16-bit sound with integrated FM music synthesis, and is compatible with SoundBlaster Pro and AdLib games, with

support for DirectSound API. Call 512/412-7555... The by **VansEvers clean line Model 80** series of audio-ophile-quality power conditioning units feature UL-approved filter elements, circuit breakers and specification grade outlets, six for analog equipment and two for digital/video equipment. The Clean Line Jr. unit is designed to tuck behind tape machines or remote amps and video projectors. Call Tracer Technologies at 717/747-0200... Interval Music's **TransferStation 2.0** (\$199), an update to its digital audio SCSI transfer and CD-Audio/CD-ROM import utility for Macintosh, imports from various non-Macintosh media and stores sound files in standard AIFF or Sound Designer II format. Supported SCSI samplers include Akai, E-mu, Peavey, Kurzweil and Roland; users can remotely audition from any supported device, through the Macintosh. Call 310/478-3956... **Toby Arnold & Associates' Attitude II** is a CD demo update to the company's Competitive Edge production music library. Featuring 11 tracks in categories ranging from Fun Radio to Skam Jamz, Attitude II is available direct. Call 800/527-5335... Studer Editech

CD Press for Dyaxis combines Red Book-compatible audio CD recording with powerful editing and signal processing tools. The new software for the Dyaxis II digital workstation includes seamless program fades, full PQ channel editing, ISRC and UPC coding and emphasis and copy-prohibit flags. Call 415/326-7030... GEPCO International's **GEP-FLEX flexible outer jacket compound** for 22- and 24-gauge multipair audio cable conforms to the UL listed-type CM rating for permanent installation, and may be used in temperature extremes to -60°C. Call 312/733-9555... Markertek Video Supply offers its 1996 300-plus page **catalog of video and audio supplies**, featuring thousands of products at competitive prices. Call 800/522-2025... Just out: The 240-page **Jensen 1996 Master Catalog** of tool kits includes the Jensen Tool Kit line and lists products from other tool and test equipment manufacturers. For a copy, call 800/426-1194... The BC Personal UPS System from Tripp Lite protects against power surges, spikes and line noise. The unit measures a tiny 7.5x4x5.5 inches and starts at \$119. Call 312/755-5400... Selco Products offers a 22-page, full-color guide to specifying and selecting control knobs, with the entire Selco line, including the new Trio series of three-color, molded parabolic knobs. Call 800/229-2332... E-mu Systems has released the **Emulator Operating System (EOS) Version 1.20d** for the Emulator IV, which is shipping with all new units; a free upgrade is

available from E-mu dealers... **The Bohning Company's Eliminators** solve drum head ring and overtone problems with a sound absorption polymer that mounts on the head without adhesive and doesn't interfere with the playing surface. Call 800-253-0136... **Pullizzi Engineering** introduces the **Z-LINE TPC 12/MTD**, a rackmount power distribution system offering up to 12 automatically sequenced time delays at power-up. For more information, call 714/540-4229... Microtech is offering free **MasterMaker™ ISO 9660 CD premastering software**; the Rock Ridge version sells for \$2,000. Call 800/223-3693 for details, or pricing on Red Book and mixed-mode versions... The new **MIDIMan Macman PT MIDI** interface is GEO port compatible and also functions as a 1-in/2-out Thru box. Retail is \$59; phone 818/449-8838... **Crystal Semiconductor's 8-page brochure** features its multimedia IC audio products. Call 800/888-5016... Yamaha reduced the price of its quad-speed **CD recorder** products. The external CDE100 II is now \$2,145, the internal CDR100 is \$1,995. Units are available through distributors, including Optical Laser, Revelation Products, Conson Storage Solutions and Optical Storage Distribution... Belden Wire introduces Brilliance, a series of high-performance open twisted-pair plenum cable, featuring Flamarrist insulation, allowing installation without conduit. Cables are available in gauges ranging from 18 AWG to 12 AWG. Phone 800/BELDEN-4 for more information. ■

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SADiE MASTER SYSTEM

DISK EDITOR

When the industry considers the realm of professional workstations designed for DAT editing, CD preparation, pre-mastering and audio restoration applications, a few Macintosh-based American manufacturers are usually the first names that come to mind. However, such old-fashioned attitudes are bound to change with the availability of the British-made SADiE Master System, which takes advantage of the speed and power of the Pentium PC in an affordable, turnkey production system that's ready to go right out of the box.

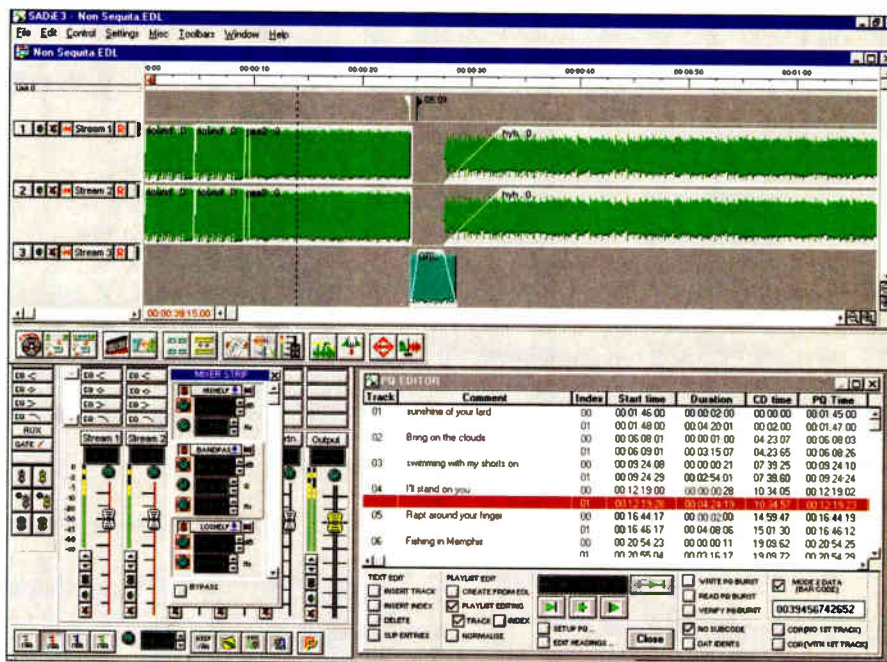
The company was founded five years ago by Joe Bull, Michael Kemp and David Mortimer, two studio engineers and a finance director with a passion for electronics design. The first SADiE disk editor was unveiled at APRS in 1992 and made its U.S. debut at AES San Francisco, six months later. The current software is now Version 2.2, with 3.0 (more on this later) slated for arrival about the time you read this.

Supplied as a complete system—with computer—the Master System retails at \$15,995, including an Intel Pentium-based CPU, 16 MB of RAM, X-S digital audio processing card, X-ACT analog converter and timecode card, rack-mount breakout box for audio connections, two 2.1GB audio drives in removable bays, Exabyte 8505XL 8mm tape drive (for archiving or DDP mastering), 17-inch high-res color monitor and all necessary software: SADiE Version 2.2, DOS and Windows. Among the available options are a comprehensive hardware controller (with scrub wheel, dedicated transport and edit buttons and motorized faders), JL Cooper CS-10 or CS-1 hardware controllers, a dual RS-422 card for machine control interfacing and a Yamaha CDR-100 CD recorder. For those so inclined, SADiE systems are also available in non-

turnkey (less computer) versions.

The X-S 32-bit floating-point digital audio card is based around the AT&T DSP32C, which delivers 25 MFlops of floating-point processing power and support of audio with up to 24-bit resolution (using external converters) at all standard sampling rates. The card also provides access to one AES/EBU digital input pair, two AES/EBU digital out pairs and S/PDIF I/O. The X-ACT card has a 2-channel A/D converter (with bal-

I/O on XLRs, balanced analog I/O (two inputs/four outputs) on six XLRs, a BNC video input sync jack, two balanced 1/4-inch TRS jacks for longitudinal SMPTE in/out and MIDI In/Out/Thru ports. The AES/EBU digital streams are transformer-balanced for glitch-free transfers. Unfortunately, all the connectors on the breakout box are on its front panel, which may seem handy at first, but becomes messy in a permanent installation. I would have preferred having either rear-



The PQ Editor screen (lower right) is clear and concise.

anced and unbalanced outputs), SMPTE (and MIDI) timecode reader/generator/chase sync, four channels of D/A conversion to four balanced outputs and two unbalanced outs. The I/O converters are sigma delta, 64x oversampled, while an 80C188 microprocessor allows field upgrades for improved performance in the future. No sign of obsolescence here!

A nice touch is the breakout box, which has AES/EBU digital

panel connectors, or a dual set of connections, with both front and rear jacks wired in parallel. Alternatively, Connectronics (of Stratford, CT) manufactures a SADiE interface cable that terminates in a fan-out of connectors, rather than a hard front panel. I also appreciated the fact that the SADiE manual includes complete pinouts for the D-25 sub connectors on the X-S and X-ACT cards, which allows users to fabricate specialized snakes to accommodate any custom installation requirement.

BY GEORGE PETERSEN

PLUG-AND-GO

Setup of the turnkey system was fairly straightforward: Unpack the boxes, plug the monitor, mouse and keyboard into the CPU, connect the breakout box to the D-25 connectors on the X-S and X-ACT cards, power up and you're ready to go. One minor hitch was the lack of marking on the RCA connectors on the X-S and X-ACT cards. Wading through the manual, I found that the X-S' RCA jacks are for S/PDIF digital I/O, and the jacks on the X-ACT cards are for unbalanced analog outputs.

The 17-inch display that accompanied the system was sharp, clear and more than adequate for just about any operation. However, for those who feel the need to have lots of open windows displaying every conceivable status screen, and need to have a two-monitor system, the folks at SADiE recommend the ProLightning card (from Color Graphic Communications, Atlanta, GA), which supports dual 17- or 21-inch displays.

Before continuing, I have a confession to make. Although my studio is home to computers bearing the names "Amiga," "Atari ST," "Macintosh" and "IBM," my usual studio production platform choice is the Mac. However, all the time I was using the SADiE Master System, I never felt I was constrained by the platform (other than the limitation to provide DOS-style filenames, such as "MASTER#.EDL." What I did enjoy was the simplicity of the system's screen interface, which is logical and intuitive. By the way, the manual is well-written and complete (and always available via on-screen help files), yet some kind of quick reference card detailing simple operations would be a nice adjunct to the system, especially for novice users. After a few minutes of growing accustomed to the various icons—a few are not so obvious—I was on my way.

Using any DAW requires understanding the terminology that defines different audio elements, and SADiE is no exception. The system is based on Tracks (the original stereo or mono file recorded on the hard disk). Clips (a set of pointers that define part or all of the track), and EDLs or Edit Decision Lists, which can be Playlists or Text EDLs. Playlists are EDLs created visually by using alternating color blocks (Streams) to define the audio; text EDLs are made up of a sequence of clips, listing their starting times on a chart. Multiple versions of clips can be defined and stored in the Clipstore.

Streams can be thought of as individual tracks on a multitrack recorder,



and can be assigned to be routed to any of the system's four outputs. The Level Window provides an onscreen representation of a mixer, where individual streams can be faded, ganged, muted, metered and soloed. Within the level control window, the Mix Automation function allows creation of one or multiple mixes of the stream data, with dynamic recall of all mix parameters to timecode. Multiple variations of mixes can be saved, for later recall.

A toolbar across the bottom of the screen provides access to the main screens and controls required for most record/edit/play operations. The beauty of the SADiE interface is that the user has full control in creating a screen display that is exactly what is needed for any given situation. For example, click on the transport window in the toolbar and you have the option of seeing tape recorder-style buttons (with timecode display and varispeed control), record meters, overload logging, autolocator points, punch-in/out displays or SCSI activity "LEDs." Use as much—or as little—as the job entails: The choice is entirely up to the user.

Operations within the SADiE environment happen quickly, whether referring to screen redraws, DSP functions or creating edit versions. Editing can be enabled via very smooth mouse scrubbing, click-and-drag graphical methods or text EDLs—again, with the user free to use whichever system is appropriate to the project or one's work habits. Tracks can be moved, cut, copied, pasted or time-slipped with ease. The system also allows any two EDLs to be instantly available, switched by a touch of a button. This dual EDL approach is a particularly powerful feature and makes edit comparisons a snap.

The depth of control throughout

the system is impressive. For example, the crossfade window offers no fewer than 20 different crossfade curves, with duration limited only by the length of the file sections. And crossfades—as with many other SADiE operations—can occur in real time, allowing the user to tweak and immediately hear the result, without having to wait for the system to calculate such moves and write them to disk. Multiple levels of undo and redo are provided, with the exact number determined by the user's requirements and memory availability, and the user can choose to work using destructive or nondestructive methods. Even simple parameters such as Nudge amounts can be set to either zoom-dependent (nudges per pixel) or user-defined time values.

REAL-TIME DSP

The Master System provides the same DSP functions as the standard SADiE Disk Editor, and these are impressive in scope, functionality and audio quality. The DSP operations occur in real time, so the system never slows you down. But a more important aspect of the DSP is the ability to make changes while the program is running, which simplifies making A/B comparisons and tweaking the audio to exactly what you're looking for.

The DSP palette includes parametric equalization, high-/lowpass filters, dynamics, Timescrunch, track bouncing, speech edit, resampling and noise reduction. The EQ is a gangable 3-band design with full Q control and a 20 to 20k Hz frequency range available on each overlapping band. Any or all bands can be bypassed individually or as a group, and the sound of the EQ is musical and quite useable in any situation. And I have yet to see an analog

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The resampling functions provide sample rate conversions, digital variable speed and microtiming tweaks (for correcting azimuth errors, etc.). Although resampling can occur in real time, the quality of the audio is much higher when the changes are done offline.

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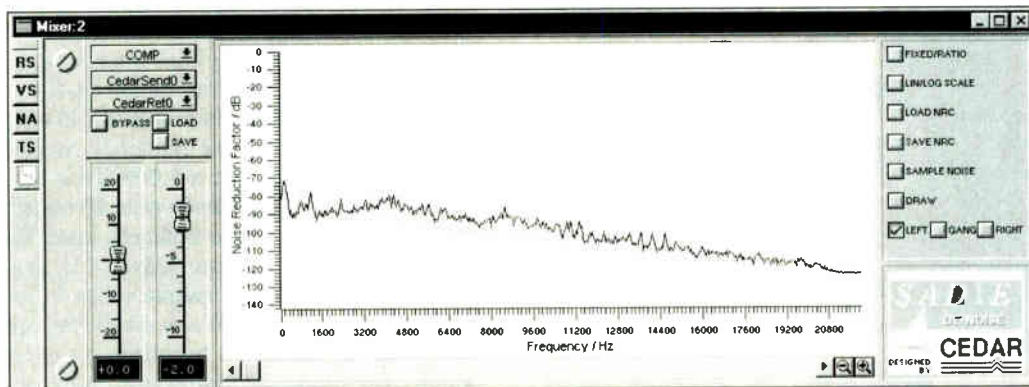
WHAT'S NEXT

SADiE is constantly updating its products and offers free software upgrades as new features become available. Due out this month is Version 3.0 software, which adds a number of key features, including scrub-to-picture (via 9-pin control), background recording (multi-tasking), unlimited virtual tracks, user-definable toolbars, ADR facilities and more. Version 3.0 will also be written using Object Oriented Programming language, which should open up the platform to other third-party companies, and as the number of SADiE systems increases worldwide, more and more outside developers will look at creating new SADiE tricks.

Overall, the SADiE Master System will continue towards becoming a major contender in the field of premastering/editing workstations. The quality of the digital audio was first-rate, and the system was solid and didn't crash during the weeks it was here. At \$15,995,

the system is an affordable alternative, considering the high quality and completeness of the system (computer, monitor, software, onboard converters, breakout box, dual removable hard disks and Exabyte drive).

Distributed by Studio Audio Digital Equipment Inc., 1808 West End Ave., Suite 1119, Nashville, TN 37203; 615/327-1140; fax 615/327-1699. ■



Cedar's De-Noise software plug-in option for the SADiE system.

about.

Technomad, 340 Riverside Dr., Northampton, MA 01060; 413/584-4842, 800/464-SPKR; fax 413/586-5681; Web page <http://www.technomad.com>. ■

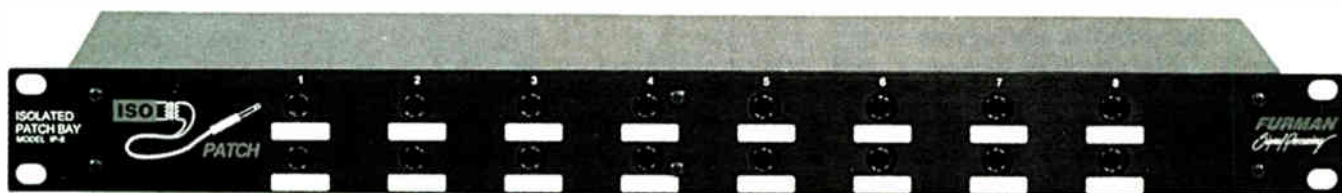
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CD master. In any event, PQ coding on the system is a no-brainer.

Once the tracks are edited, the PQ coding is complete, we're ready to create a CD master. Recordable CD and Exabyte DDP (Disc Description Protocol) tape masters are fast replacing the venerable Sony PCM-1630/U-matic tapes as acceptable formats for CD pressing, and the SADiE Master System supports both of these newcomers. The 8mm Exabyte tape has a dual function, not only as a means of backing up the data on the removable hard drives, but also for CD premastering. The system is currently the only system that can play back a DPP tape. Once a DPP tape is created, the software also includes (data and audio) verification routines to ensure exact data integrity before the tape goes to the CD plant. The system supports a variety of CD-R drives (Ricoh, Sony, Yamaha) via SCSI or non-SCSI standalone drives via S/PDIF.

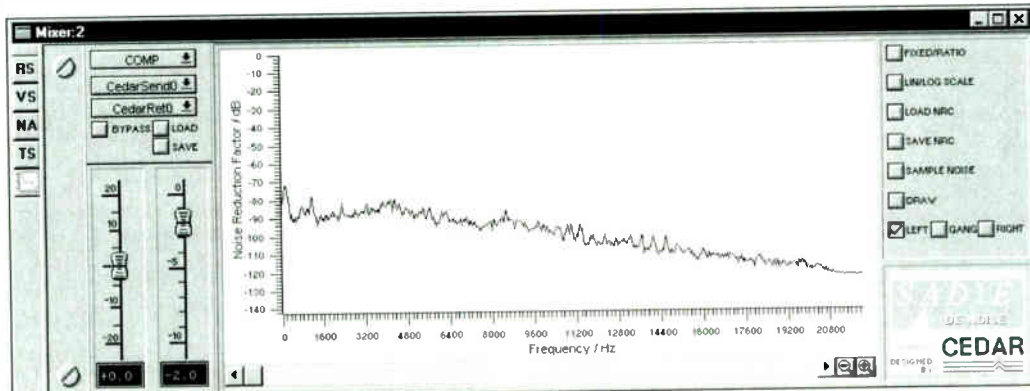
WHAT'S NEXT

SADiE is constantly updating its products and offers free software upgrades as new features become available. Due out this month is Version 3.0 software, which adds a number of key features, including scrub-to-picture (via 9-pin control), background recording (multi-tasking), unlimited virtual tracks, user-definable toolbars, ADR facilities and more. Version 3.0 will also be written using Object Oriented Programming language, which should open up the platform to other third-party companies, and as the number of SADiE systems increases worldwide, more and more outside developers will look at creating new SADiE tricks.

Overall, the SADiE Master System will continue towards becoming a major contender in the field of premastering editing workstations. The quality of the digital audio was first-rate, and the system was solid and didn't crash during the weeks it was here. At \$15,995,

the system is an affordable alternative, considering the high quality and completeness of the system (computer, monitor, software, onboard converters, breakout box, dual removable hard disks and Exabyte drive).

Distributed by Studio Audio Digital Equipment Inc., 1808 West End Ave., Suite 1119, Nashville, TN 37203; 615/327-1140; fax 615/327-1699. ■



Cedar's De-Noise software plug-in option for the SADiE system.

TECHNOMAD LOUDSPEAKERS

RUGGED AND WEATHER-RESISTANT

Technomad loudspeakers are a cross between a modern military road case and a loudspeaker. Attendees at last fall's AES show saw operational Technomad speakers with water pouring over them. Anyone who needs a "ruggedized" field or permanent installation system should take a look at these products. Royal Caribbean

Cruise Lines is using them on deck for mobile P.A. applications.

Technomad's one-piece, "rotomolded," polyethylene enclosures employ the same technology developed for the military in 1954 by sister company Hardigg Industries. The systems are Military Specification 810E-compliant, ATA III-approved and are not to be confused

with injection-molded plastic speakers, which will not hold up to impact nearly as well. Technomad enclosures are loaded with OEM components from EV and Radian, with ferrofluid-treated compression drivers. Cone drivers are impregnated and coated to make them moisture resistant, and all internal components are polyresin-dipped to make them impervious to sand, salt, water and insects. All models are available in a WeatherTech™ version that adds a four-layer moisture barrier. Although black is the standard, they can be ordered in a variety of colors, which are molded throughout and cannot chip or fade. Scratches can be smoothed by fanning the surface with a blowtorch. When sealed with their lid, they are watertight. We verified this by dropping one off Pier 57 into Puget Sound after one of our shows. Technomad offers a wacky promotional video of a series of assaults on one of their speakers and another manufacturer's that in-

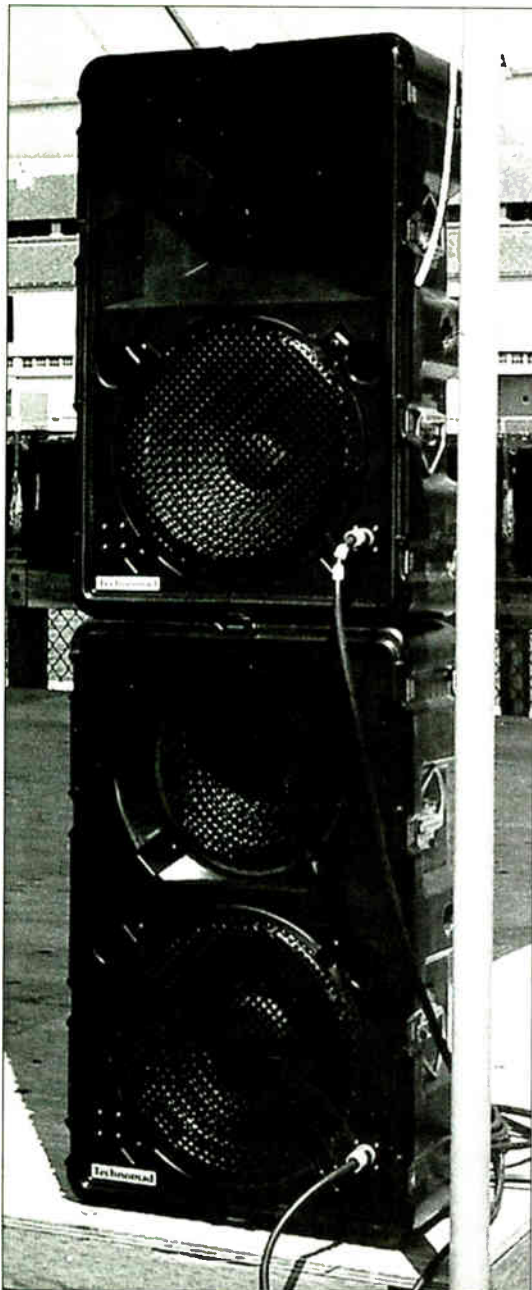
cludes a sledgehammer, a shotgun, burning gasoline and a 50-foot drop into a river, which left only the Technomad working.

OPERATION

Flush-mounted sockets on all four sides allow for quick mounting on Ultimate Support™ or Quik Lok™ tripod stands. The sockets can also be used to stack speakers in columns by inserting lengths of 1.5-inch schedule aluminum pipe between them. This arrangement allows for easy swiveling and aiming. At one gig we made a single column of four speakers, pointing one forward, the next back as a side fill, the third to the side and the top speaker angled toward the door. There are also folding handles on the ends and four D-ring flying points that are rated at up to 20:1. The ribs in the lids match up with grooves on the back of the enclosures, adding stability when speakers are stacked for transport or storage.

Instead of picking easily forgettable model numbers, Technomad has named each of the various models after a city. The three larger speakers—the Cairo, Berlin and Chicago—measure 21x33 inches by 10 inches deep and weigh about 90 pounds, perfect for one-person crews. There is also a half-sized model, the Noho, which weighs half as much. All Technomad speakers come with two Neutrik NL-4 connectors for loop-through, one circuit for full range and the other for sub-bass.

The Cairo (\$1,982 list) is a three-way speaker, wired for bi-amplification. The Cairo has the Radian co-ax 12 in the top and a 1,000-watt EVX-150A. This is my favorite and a good choice as the building block for a rental inventory. Using an 80Hz crossover and a couple of QSC Powerlight 1.8 amps, our system easily covered two hundred people. The Berlin (\$1,834 list) is a full-range, passively crossed-over



BY MARK FRINK

**All internal components
are polyresin-dipped
to make them
impervious to sand,
salt, water and insects.**

speaker, loaded with an EV DLX-15 and a Radian 2-inch mounted on a 70°x70° horn, which is actually molded into the one-piece enclosure. The Chicago subwoofer (\$1,554) is rated for 1,000 watts. The smaller Noho (\$1,194 list) is half the size of the other enclosures and is loaded with a Radian 12-and-1-inch co-ax using a passive crossover. This popular driver makes the Noho a smooth-sounding, full-range system, perfect for "sound-on-a-stick" outdoor field operations.

With the exception of the Cairo and the Chicago subwoofer, all Technomads are full-range speakers that can be plugged into an amp and are ready to go. Adding subs and bi-amping just allows you to pump up the volume. We used a variety of combinations for everything from acoustic to reggae outdoors last summer, and we found very little need for EQ, usually running flat and making simple adjustments to the passive or active crossovers. The optional four-position PassiveProcessor ("voice," "flat," "concert" and "near-field") allows the system's response to be accurately reset for different applications.

Technomad also provides matching cases for amps and consoles. The amp rack is an aluminum frame that floats on foam in a case, just like the speakers but deeper, and there are spaces on each side suitable for stowing cables. The Mackie SR24•4 console fits into a thinner case. Our entire system fits in the back of a pickup truck, and all pieces can be easily stacked up, rolled into the gig and set up in a few minutes. These are the speakers of choice for abusive and semi-permanent environments. Seattle has a lot of outdoor mini-concert series and an unpredictable climate. A rugged, fully weather-resistant system means there's one less thing to worry about.

Technomad, 340 Riverside Dr., Northampton, MA 01060; 413/584-4842, 800/464-SPKR; fax 413/586-5681; Web page <http://www.technomad.com>. ■

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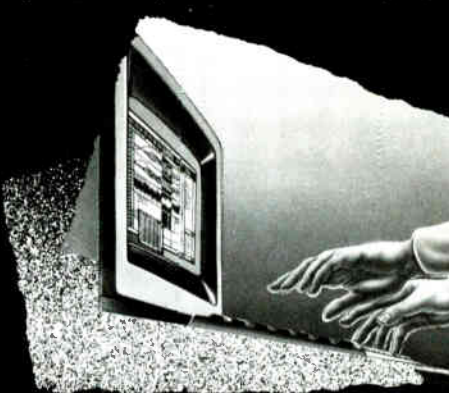
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Into the future the wise will carry with them the legends of the past.

Combining the very best in new and classic circuitry, the Vac Rac 4000 modular processing system brings legendary tube technology to the modern world.

What's its secret? There are many. The 200% over-spec tube power supply, 20 ga. all steel construction, and nearly eighty years of combined design experience are a few. Quality is expressed and longevity is assured, by design.

Sonically pure, natural, and dimensional, the Vac Rac 4000 makes anything you record simply sound better. Track it, mix it, master it all with the Vac Rac — even build an entire studio around it. Reconfigurable to any task in moments. The Vac Rac is like no other processing system available, at any price. **The Vac Rac. It truly is tube love.**

Currently available modules:

Tube Mic Preamplifier	(TMP-1)
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Tube EQ — 3-band, 15 freq.	(TEQ-1)
Discrete 3-band Para. EQ+filters	(DEQ-1)

Additional modules coming soon...

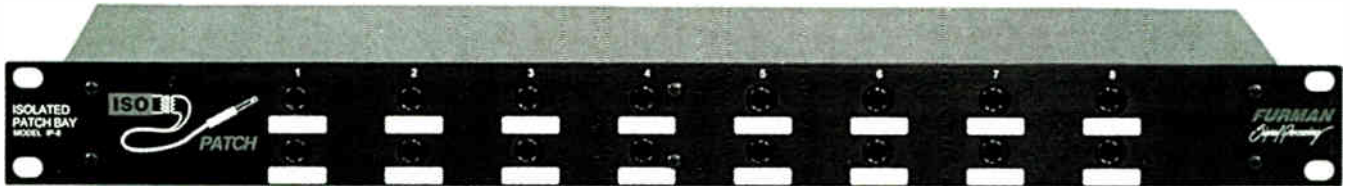
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Are there flies inside your speakers, or do you need a Furman Iso-Patch™?

Get rid of buzz and hum caused by ground loops
with the new Furman IP-8 and IP-2!



Furman IP-8 Isolated Patch Bay

The new IT-1220 provides any studio or stage with quiet, balanced power.

The Furman IT-1220 is a rack mount, 20 Amp Balanced Isolation Transformer designed to provide ultra-quiet power to an entire studio.

It can make your audio system dramatically less susceptible to hum pickup, with a typical 10 to 15 dB improvement in noise floor—a result often surpassing that obtainable from complicated star grounding schemes with heavy buss bars and ground rods.

And all you have to do is plug it in.

The back panel of the IT-1220 provides 12 isolated AC outlets for your equipment. The front panel provides two more, plus a three-color, 20-LED voltmeter.

Inside the IT-1220, a specially wound and shielded toroidal isolation transformer delivers perfectly balanced AC power—and very quiet performance from the equipment that's powered by it.

Find out how easy it is to produce with the sound of silence, with the Furman IT-1220.



IT-1220 20 Amp Balanced Isolation Transformer

You should get a buzz from creating music with your equipment, but not from the equipment.

Of course, any band or studio with a rack full of equipment can be plagued by buzz and hum.

Furman's new Iso-Patch series gives you a solution—by (temporarily or permanently) isolating your rack components from each other to break ground loops, and put an end to buzz and hum.

How does an Iso-Patch work? Simple. Each of its input/output module features a low-distortion isolation transformer, which isolates line level audio signals, breaks ground loops—and puts an end to those annoying noises.

The eight channel IP-8 Iso-Patch Isolated Patch Bay looks and works like an ordinary patch bay with standard, half-normalled 1/4" jacks. The IP-2 is a two-channel version, small enough to fit in any tool kit—and priced so low you can afford more than one.

See the new Iso-Patch series at your dealer today, or call, write or fax us for a free Iso-Patch data sheet and a copy of our catalog.



IP-2 Dual Isolator

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TASCAM M-5000

AUDIO PRODUCTION CONSOLE

Without a doubt, the Tascam M-5000 offers outstanding value: a 64-input recording and production console for around \$30,000? It lacks one or two features—built-in machine control would have been nice—but, in its basic format, the system virtually bristles with functionality. I would recommend that the M-5000 be considered as a serious contender for facilities looking for a cost-effective, great-sounding analog board that's flexible yet simple to use.

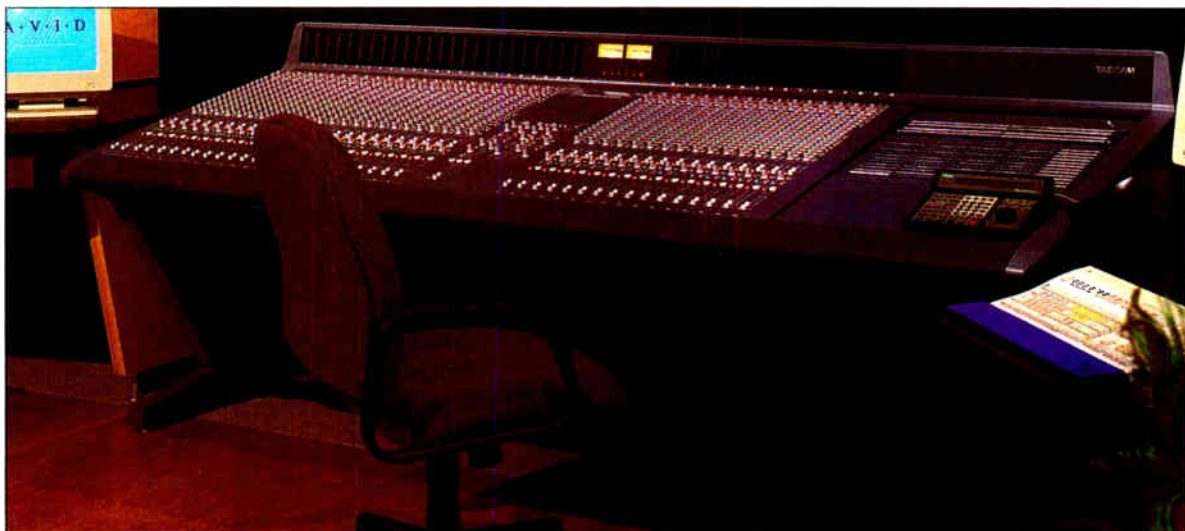
automation is supplied with the console.

IN-LINE CHANNEL STRIP TOPOLOGY

Each mono channel strip on the M-5000 features an in-line topology, with a neat twist in the way such a module normally would be laid out. Conventionally, the lower, long-throw fader would be used to control input levels from the mic preamp/line return, routing to the multitrack sends, aux buses and/or

lower faders. However, if you need to use the M-5000 in a conventional mode, internal jumpers can be set on a module-by-module basis to reverse the default settings.

Group assignment is available to a total of 24 output buses, arranged as a bank of six send buttons, plus a "1 thru 12" and "13 thru 24" toggle switch. Panning is provided between odd and even groups. Alternatively, the post-fader output from the channel input—controlled from the upper or lower fader, depend-



One of the M-5000s at Wild Woods, Los Angeles

Three basic console formats are available, with or without factory-installed automation. The M-5000 frame can be partly or fully loaded with either 32 or 40 dual-input mono channel strips; alternatively, a bank of 32 mono inputs can be supplemented with eight stereo modules. Prices are around \$30,000 and \$36,000 for the 32- and 40-channel mono versions, respectively, and \$37,000 for the enhanced 32+8 stereo configuration. The M-5000 FA VCA-based channel-fader and mute automation package for the Macintosh is available for an additional \$6,800 (32 automated channel strips; 40 channels will run you to around \$7,650); these prices are slightly lower if

subgroups, while the upper, short-throw fader would control levels to the monitor and/or two-mix outputs. But if most of your projects are multitrack mixdown or mix-to-picture, with the occasional overdub or voice-over/ADR sessions, the lower bank would be monitor/two-mix controls, with the upper faders being used as subgroup masters. In this case, most channel modules would be set to "fader-flip," or a similar mode, which is the M-5000's factory-shipped configuration. Individual FRV (fader reverse) switches on each module enable selected sources to be moved to upper or

lower faders. However, if you need to use the M-5000 in a conventional mode, internal jumpers can be set on a module-by-module basis to reverse the default settings.

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Also on the upper part of the channel module is a mic/line

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TANNOY System 6 NFM II

A 6.5 inch Dual Concentric with Tulip HF wave guide forms the heart of the System 6 NFM II providing a reference single point source monitor in a more compact enclosure than ever before. Every aspect of design fully complements the drive unit's capability. The rigid cabinet with carefully contoured baffle and trim minimizes diffraction and the high quality minimalist DMT crossover and gold-plated Bi-Wire terminal panel optimize the signal path. Pin-point stereo accuracy with wide frequency response, good power handling and sensitivity make this an ideal nearfield monitor.



PBM Series II Reference Monitors

The PBM II Series is the industry standard for reference monitors. They feature advanced technologies such as variable thickness, injection molded cones with nitrite rubber surrounds and the highest quality components including polypropylene capacitors and carefully selected inductors. With a Tannoy monitor system you are assured of absolute fidelity to the source. True dynamic capability and most important, real world accuracy.



PBM 5 II

- Custom 5" injection-molded bass driver with a nitrile rubber surround for extended linearity and accurate low frequency reproduction. They are better damped for reduced distortion and exhibit more naturally open and detailed midrange.
- Woofers blends seamlessly with the 4" polyimide soft dome ferro-fluid cooled tweeter providing extended bandwidth for extremely precise sonically-biased monitoring.
- Designed for nearfield use, the PBM 5 II cabinets are produced from high density material for minimal resonance and features an anti-diffraction radially front baffle design.

PBM 6.5 II

- Transportable and extremely powerful, the PBM 6.5 II is the ideal monitor for almost any project production environment.
- 6.5" low frequency driver and 3/4" tweeter are fed by a completely redesigned hardwired hand selected crossover producing uncompromised detail, precise spectral resolution and flat response.
- Fully radially and ported cabinet design reduces resonance and diffraction while providing deep linear extended bass.

PBM 8 II

- High tech 1" soft dome tweeter with unmatched pattern control and dynamic capability. 8" driver is capable of powerful bass extension under extreme SPL demands.
- Hard wired crossover features true bi-wire capability and utilizes the finest high power polypropylene capacitors and components available.
- Full cross-braced matrix mediate structure virtually eliminates cabinet resonance as a factor.
- Ensures precise low frequency tuning by incorporating a large diameter port featuring laminar air flow at higher port velocities.

Stewart PA1000/1400/1800 Power Amplifiers

- High frequency switch mode power supply fully charges 120,000 times per second (1000 times faster than conventional power supplies) requiring far less capacitance for filtering and storage.
 - High speed recharging also reduces power supply sagging that affects other designs.
 - Incredibly efficient, 5 PA-1000 or PA-1400's (4 PA-1800's) can be run on one standard 20 amp circuit. There is no need for staggered turn-on configurations or other preventive measures when using multiple amp set-ups, as current draw during turn-on is only 6 amps per unit.
 - They produce smooth and uncolored sound, while offering very full detailed low end response and tons of horsepower.
 - They each carry a 5 year warranty on parts and labor.
- PA-1000 weighs 9 lbs. is 15" deep and occupies one standard rack space. Delivers 1000 watts into 4Ω when bridged to mono.
PA-1400 weighs 16 lbs. is 15" deep and takes 2 standard rack spaces. Delivers 1400 watts into 4Ω when bridged to mono.
PA-1800 weighs 17 lbs. is 17" deep and takes two rack spaces. Delivers 1800 watts into 4Ω when bridged to mono.



TASCAM M-2600 Series 16/24/32 Channel Eight Channel Mixers

- **LOW NOISE CIRCUITRY**
Combining completely redesigned, low noise circuitry with Absolute Sound Transparency™ the M-2600 delivers high-quality extremely clean sound. No matter how many times your signal goes through the M-2600, it won't be colored or altered. The signal remains as close to the original as possible. The only coloring you hear is what you add with creative EQ and your outboard signal processing gear.
- **DOUBLE REINFORCED GROUNDING SYSTEM** eliminates any hum. World class power supply provides higher voltage output for better headroom and higher S/N ratio.
- **PREMIUM QUALITY MIC PRE-AMPS**
The M-2600's mic pre-amps yield an extremely low noise floor, enormous headroom and an extremely flat frequency response. This lowers distortion and widens dynamic range. It also increases gain control to an amazing 51 dB. Plus, you get phantom power on each channel.
- **The M-2600 accepts balanced or unbalanced 1/4" inputs, and low-impedance XLR jacks.** Better still, the TRIM controls operate over a 51 dB input range. For the hottest incoming signals, all it takes is a press of the -20 dB 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.



World class power supply provides higher voltage output for better headroom and higher S/N ratio.

• Double reinforced grounding system eliminates any hum. World class power supply provides higher voltage output for better headroom and higher S/N ratio.

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THE BEST AUX SECTION IN THE BUSINESS

The most versatile AUX section in its class, rivaling expensive high-end consoles, it 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 pairs.

MACKE MICRO SERIES 1202 VLZ 12-Channel Ultra-Compact Mic/Line Mixer

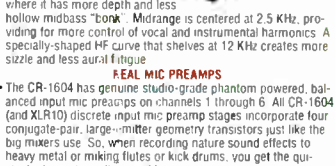
Usually the performance and durability of smaller mixers drops in direct proportion to their price. Fortunately, Macke's fanatical approach to pro sound engineering has resulted in the Micro Series 1202 VLZ, an affordable small mixer with studio specifications and rugged construction. The 1202 VLZ is 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.

- 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.
- **HEAVY DUTY CONSTRUCTION**
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 ur cue mixer, level matching pro audio "tool kit", drum or effects sends, 5.0 mixer, 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 Macke 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 far larger boards. It features 24 usable line inputs with special headroom/ultra-low noise Triplus 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 controls for 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 understandable line level 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 a +5 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 mid-bass "bark". Midrange is centered at 2.5 KHz, providing for more control of vocal and instrumental harmonics. A specially-shaped HF curve that shelves at 12 KHz creates more sizzle and less aural fatigue.
- **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 composite-larger, larger-mixer geometry transistors just like the big mixers use. So, when recording nature sound effects to heavy metal or miming flutes 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 contaminants like dust, smoke, liquids, and even the oxidizing effects of air itself.



Optional Accessories

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 buss channels.

XLRT10

While the standard CR-1604 comes with 6 high performance mic inputs, there are times when you need more. Enter the XLRT10. This simple-to-install, easy-to-service adds 10 more (for a total of 16) mic inputs, with the same quality, performance and features as those in the CR-1604.

ALESIS Monitor One

Near Field Studio Reference Monitor

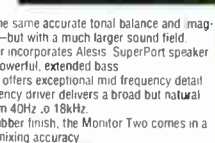
Designed by engineers with decades of experience, the award winning Monitor One provides the last critical link in the recording studio's signal chain: giving you an accurate reproduction of what is being recorded.

- Delivers excellent image and transient reproduction, powerful bass, and smooth, extended high frequency detail.
- Exclusive SuperPort speaker venting technology eliminates the "choking" effect of port turbulence for solid high-power bass transients and superb low frequency response.
- Ferrofluid cooled 1" silk-dome driver eliminates the harshness and ear fatigue associated with metal or plastic tweeters, making it easy to mix on for extended periods.
- Monitor One's powerful bass incorporates a proprietary 6.5" low frequency driver with a mineral-filled polypropylene cone and a 1.5" voice coil wound on a high-temperature Kapton former.
- They come in a mirror-image left/right pair covered with a non-slip rubber textured laminate for stable mounting.

Monitor Two Mid Field Studio Reference Monitor

With much of today's popular music demanding more bass at louder volumes than a small near field monitor can possibly produce—the Monitor Two delivers—at a price no higher than many of these smaller speakers.

- Utilizes a 10" three-way speaker design with a unique asymmetrical crossover to maintain the same accurate tonal balance imaging of the Monitor One—but with a much larger sound field.
- 10" low frequency driver incorporates Alesis' SuperPort speaker technology to provide powerful, extended bass.
- 5" mid frequency driver offers exceptional mid frequency detail.
- 1" silk dome high frequency driver delivers a broad but natural frequency response from 40Hz to 16kHz.
- Covered in a non-slip rubber finish, the Monitor Two comes in a mirror imaged pair for mixing accuracy.



SHURE M267 Microphone Mixer

An industry standard, the M267 is a microphone mixer/remote amplifier specifically designed for professional applications. A complete and compact console, the M267's excellent performance, versatility and features make it ideal for studio, remote and sound reinforcing applications as well as an add-on mixer for expanding existing facilities.

- Four switchable XLR-balanced mic or line level inputs with individual gain controls and low-frequency rolloff switches.
- XLR-balanced output switchable for mono or line level.
- Wide, flat frequency response (30Hz to 20kHz) and extremely low distortion up to +18dB output.
- Feedback-type input gain controls for maximum clipping levels and dynamic range.
- Built-in adjustable peak limiter cuts out overmodulation distortion and adapts to power supply sag.
- Externally switchable limiter threshold (-4 to +18dB).
- VU meter is calibrated for +4 and +8dB with range switch. Meter is also illuminated during AC operation.
- Phantom power for condenser microphone operation.
- Front-panel headphone level control and monitor jack. Can drive almost any stereo or mono headphones.
- Headphone output level is high enough, so you can use it as an auxiliary unbalanced line feed to drive a tape recorder or power amplifier.
- Automatic muting prevents speaker damage during turn-on and turn-off.
- Highly stable, low-distortion tone oscillator provides for line test and level checks.
- Rear panel Mix Bus jack facilitates stacking multiple M267's for additional input capability without losing any inputs. Two M267's connected, provides two independent master gain controls & two isolated line amplifiers with eight individually controlled inputs.
- Internally selectable 120 or 240 volt AC operation as well as portable DC capability (three 9v batteries required).

M367 Microphone Mixer

Built to meet the requirements of the most demanding field production applications, the M367 incorporates all the features of the legendary M267 plus much more. The M367 is a six-input portable mic mixer designed for ENG and EFP applications as well as general audio mixing. With its exceptionally low-noise design, the M367 is also ideal for use with digital transmission links and digital video/audio recording media.



- All the features of the M267 Plus—
- Low-noise circuit makes it 25dB quieter than the M267 and ideal for digital formats.
- Six XLR-balanced switchable mic/line inputs.
- Two XLR-balanced outputs: one selectable mic/line output and one dedicated line output.
- Metal XLR connectors on both inputs and outputs (inputs only on the M267).
- 48v or 12v phantom power for condenser microphones.



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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 preattenuation 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, overdubbing 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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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, gating, 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 computer 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.

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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-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 wide 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 (C) 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 91dB. As you would expect from a CD-quality recorder, the wow and flutter is immeasurable.

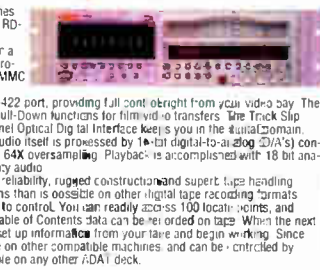


- One of the best features of the DA-88 is the ability to execute seamless Punch-ins and Punch-outs. This feature offers programmable digital crossfades, as well as the ability to insert new material accurately into tight spots. You can even delay individual tracks, whether you want to generate special effects or compensate for poor timing. All of this can be performed easily on a deck that is simpler 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 function control is available via the unit's industry-standard RS-422 port, providing full control over your video tape. The RD-8 records at either 44.1 or 48KHz and will perform Pull-Up and Pull-Down functions for film and video transfers. The Track Slip feature helps maintain perfect sound-to-picture sync on the 8-Channel Optical Digital Interface keys 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's) 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 100 local presets, and cross-lade time is fully controllable in machine editing. Table of Contents data can be re-ordered on tape. Within the next session begins, whether on your RD-8 or another, you just load up the information from your tape and begin working. Since the RD-8 is fully ADAT compliant, your machine can play tapes made on other compatible machines and can be controlled by other manufacturers ADAT controllers. Your tapes will also be playable on any other ADAT deck.



ALESIS adat xt

8-Track Digital Audio Recorder

An incredibly affordable tool, the new ADAT-XT sets the standard in modular digital multitrack recording. With new features & enhanced capabilities, the ADAT-XT operates up to four times faster than the original ADAT, offers an intelligent software-controlled tape transport and provides onboard digital editing and flexible auto-location.

Stunning Audio:

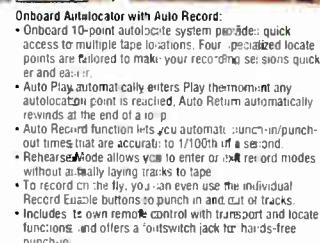
- Incorporates the latest ultra-high fidelity 18-bit, 128 times-oversampling analog-to-digital converters which provide better-than-CD audio quality.
- For output, the digital-to-analog converters provide 20-bit, 8x oversampling performance for a flatter frequency spectrum, improved phase response & much less low-amplitude distortion.
- Frequency response is 20 Hz to 20 kHz ± 0.5 dB, signal-to-noise ratio is greater than 92 dB, crosstalk between channels is better than -90 dB @ 1 kHz and wow-and-flutter is unmeasurable.

Intelligent Transport:

- Re-winds and fast-forwards up to to four times faster than the original ADAT.
- Advanced transport software continuously monitors auto-location performance and the head constantly reads ADAT's built-in sample-accurate time code—even in fast-wind modes.
- Newly developed Dynamic Braing software allows the transport to quickly wind to locate points while taking every precaution to treat the tape gently.

Digital Editor:

- Makes flawless copy/paste digital edits between machines even without a single unit. A new Track Copy feature allows you to make a digital clone of any track (or group of tracks) and copy it to any other track (or group) on the same recorder. This allows you to assemble composite tracks for digital editing. For example, record six "takes" of a guitar solo on separate tracks, then choose the best selections from each track and digitally build a single new track.
- Use two or more ADAT-XTs and the Tape Offset feature lets you copy and paste not only from track to track, but from location to location. Tape Offset assembles the elements of a project with a minimum of repetitive over dubbing. It changes the relative tape position of a slave XT to its master, so you can "fly" audio to different locations or on each tape. For example, you can create the perfect vocal harmony for your song's chorus on tracks 7 & 8, then copy those tracks (with 1/100th of a second accuracy) to the next two channels on tracks 15 & 16.
- Track Delay feature allows you to delay the time reference of a track by up to 170ms. With Track Delay, you can easily change the groove of a tune. Track Delay is individually adjustable on each channel and is excellent for fixing slight timing errors in recorded tracks (player lags behind or rushes the beat). In recordings with multiple microphones, you can time-align each track, precisely compensating for the spacing between mics with accuracy to 0.0001 seconds.



Onboard Autolocator with Auto Record:

- Onboard 10-point autoblock system provides quick access to multiple tape locations. Four specialized locate points are tailored to make your recording sessions quick and easy.
- Auto Play automates tape entry. Play then momentary auto-locator point is reached. Auto Return automatically rewinds at the end of a tape.
- Auto Record function lets you automate punch-in/punch-out times that are accurate to 1/100th of a second.
- Rehearse mode allows you to enter or leave record modes without actually laying tracks to tape.
- To record on the fly, you can even use the individual Record Enable buttons to punch in and out of tracks.
- Includes its own remote control with transport and locate functions - and offers a "hotswitch" jack for hands-free punch-in.

Flexible Inputs and Outputs:

- Servo-balanced 56-pin ELCO connector operates at +48dB for interfacing with consoles which offer balanced or unbalanced inputs or outputs.
- Also includes unbalanced -10dB inputs and outputs on phone connectors.
- Has an electronic patch bay built-in so it can be used with stereo and 4-bus consoles.
- Multiple Optical Digital I/O can carry up to eight tracks at once completely in the digital domain. The digital I/O combined with the ADAT Sync synchronization interface make it completely compatible with any ADAT-format recorder or other devices that use Alesis' proprietary digital protocol.

Optional Accessories:

- 8-Track Master Remote Control lets you command up to 128 tracks from a single location, with 460 measurable locate points, SMPTE & MIDI synchronization & extensive digital editing power.
- AI-1 Digital Interface offers sample rate and digital format conversion between the ADAT-XT's Optical Digital Interface and AES/EBU and S/PDIF formats.
- AI-2 Synchronization Interface allows synchronization to video and film. The AI-2 offers compatibility with video recorder and editing systems (including the Cine Line's Lynx-2 system) and can issue MIDI Time Code and translate MIDI Machine Control commands to the ADAT-XT.

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 new 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 over use with an 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 record/playback in 18-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 for sudden level changes of the recording. It also helps prevent sound leaks through headphones.
- Two speed cue review lets you hear sound while playing in fast-wind modes: up to 30x and 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 backlight 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. Also includes a wireless remote control.

TCD-D10 PRO II Portable DAT Recorder



- Has balanced XLR input, switchable microphone (-60dB) or line (+40dB) inputs. A 12-pin digital connector provides interfacing with AES/EBU digital signals of 32.0, 44.1, or 48 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 20 dB.
- Irreversible 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 NFA-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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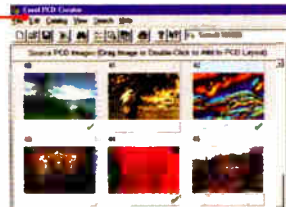
Corel VCD Creator allows users to select videos and stills from various sources and produce a video CD.



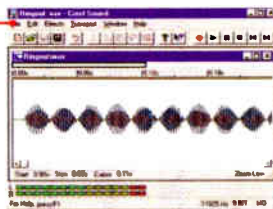
Open CorelDRAW™ 6 or other Windows® 95 OLE 2.0 graphics applications within Corel CD Creator 2 to edit images for jewel case inserts.



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FIELD TEST

switch with separate mic- and line-level trim controls; phase (polarity) reverse, highpass filter (-12dB/octave at 80 Hz), phantom power on/off and 30dB pad; plus a handy SUB switch that routes the corresponding group output back into the channel, for subgrouping sources with EQ/aux sends into the stereo mix.

FLEXIBLE QUASI-PARAMETRIC EQ CONTROLS

The M-5000's equalization controls are split into three sections. Both the monitor and the channel paths are provided with the same basic EQ: a shelving low-pass section with selectable turnover frequencies of either 8 kHz or 12 kHz, and a highpass section operating at either 80 Hz or 120 Hz; maximum cut/boost on both sections is 16 dB. In addition, a quasi-parametric midband section can be dropped into either the monitor or channel section to provide two sweep EQ bands whose center frequencies are adjustable from 43 Hz to 5 kHz, and 350 Hz to 18 kHz, respectively, with 16dB cut/boost per section. The EQ is very smooth-sounding, al-

though I would have preferred adjustable Q on the two mid-frequencies. They are a shade too broad for my taste; an internal jumper might have been provided on the M-5000 to narrow the bandwidth for more precise control in the all-important 800 Hz to 3.5 kHz range.

The Auxiliary section has eight output buses, with individual on/off switching. For enhanced flexibility, the first four sends can be derived pre/post from either the channel or monitor fader—unfortunately, you cannot select channel/monitor outs from individual aux buses; it is all or nothing. Aux send 1/2 are set up as a stereo pair with pan and level, while 3 and 4 are mono sends. The remaining sends can be selected on a per-channel basis to feed either 5-6 or 7-8; the send is fixed post-fader.

A dedicated Direct switch routes the post-channel fader signal directly to the corresponding group bus outputs, effectively disconnecting all other sources being routed and mixed to that port. Individual group trims are provided on the corresponding channel strip, although I would have preferred these to be screwdriver presets rather than rotary

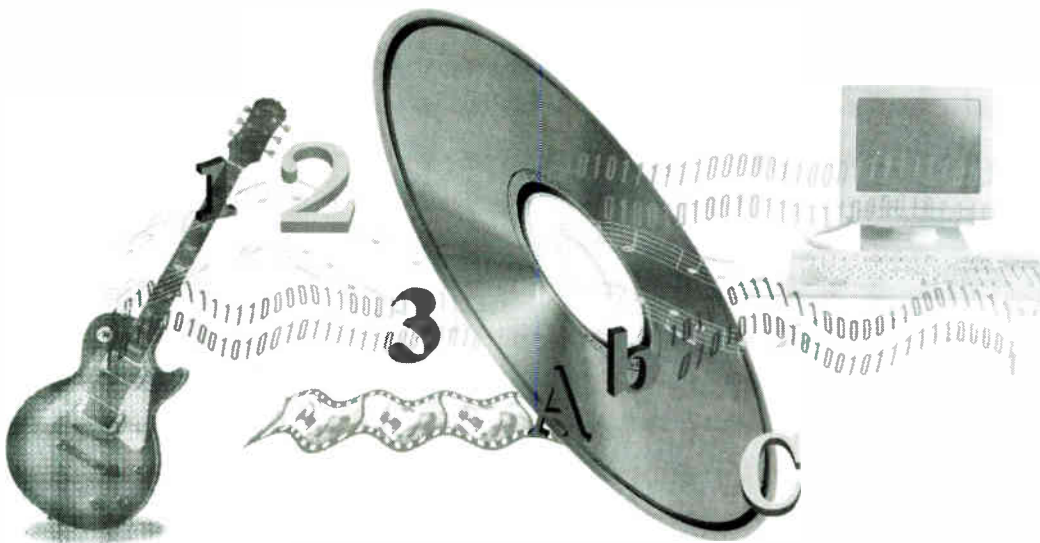
controls with knobs. It's all too easy during a busy session to adjust the wrong control. (Of course, if this is a problem, you could always remove the plastic knobs from the group trims.) An overload LED monitors the channel signal path at a point post-EQ, pre-fader, and lights if the signal exceeds a nominal +20 dB.

As would be expected, the fader-swap function lifts both the long short fader from the channel/monitor path with its associated solo controls. In addition, three programmable Cut Groups are provided, along with a very flexible solo system interlinked with AFL buttons.

OPTIONAL STEREO INPUT CHANNEL STRIPS

For many applications, tracks prepared as stereo music, effects, backgrounds or Foley sources need to be re-equalized and blended to create a master stereo or surround-sound mix. In this case, the M-5000's optional stereo input modules are ideal. Each module accepts two stereo sources—referred to as the "A" and "B" inputs—to an upper and lower section. As with the mono input modules, the stereo strip provides routing to the 24 group buses, plus a useful L+R

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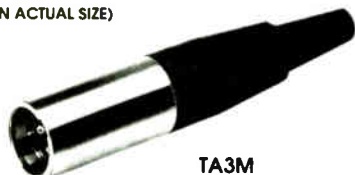
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FIELD TEST

sum, left-to-stereo or right-to-stereo selections, depending on the signal source. Three-band stereo EQ is provided for the "A" input—lowpass shelving at 8 to 12 kHz; midband sweep, 250 Hz to 5 kHz; and highpass at 80 to 120 Hz; the "B" input has a simpler 2-band EQ section without the sweep mid-frequency.

Also provided on the "A" input section is a useful Image control, providing continuous adjustment between stereo, mono (L+R sum) and reverse. Used in conjunction with the normal balance control, this offers a means of panning stereo sources across the LCR sound field. A neat touch.

Aux sends can only be derived from the "A" input section. Usefully, Aux 1/2—the stereo pair—are provided with a switch that enables the relative balance to be adjusted or, in a second setting, to be panned across the stereo spread. In addition, left inputs are sent to odd aux buses, and the right to the evens; this can be defeated, however, using the mono buttons.

COMPREHENSIVE METERING, TALKBACK AND MASTER CONTROLS

A bank of 30-segment bar graph meters above the channel strips provides a highly visible means of monitoring levels at several output points on the console. As well as offering switch-selectable PPM or VU ballistics, the source to each bar graph meter from the mono input channels can be set to follow either Group Outputs, Tape Returns or Insert Sends (post-EQ/pre-fader). In the case of the stereo modules, no levels are displayed if Group Out is selected; a summed L+R output from a point post-trim/pre-EQ is monitored when Tape Return is selected; and summed L+R from a point post-EQ/pre-fader is shown when Insert Send is selected. It's all very logical and easy to follow, although it might have been useful to have routed something—anything—to the meters when the Group Out source was selected for stereo input modules.

Various peak-hold modes are also offered, including Continuous, which holds the peak level until manually reset, and Auto reset, which holds the peak reading for a preset amount of time (either 0.95 or 1.5 seconds). A pair of master stereo VU meters can be set to monitor either the main L-R two-mix bus, or a number of control-room sources,

as selected on the master section.

Also housed within the central control master section are Auxiliary Masters for the eight send outputs. A useful Gang control enables the overall levels of the stereo Aux 1/2 bus to be controlled in tandem; otherwise, the control operates as a pan-trim function. A variety of control-room monitor sources can also be selected, including external stereo tape machines and DATs. Within the master section is a handy bank of switches that enables the stereo bus to be sent directly to the Aux 1/2 sends. As this bus is most likely to be used for studio foldback to musicians or voice-over talent, it is possible to send a mixture of the master stereo mix plus individual contributions from individual input sources directly to the cue bus simply by depressing one button. Ingenuity personified.

Controls are also provided for two sets of control room monitors, plus a cut/mute button. Overall levels for the A and B monitors (soffit-mounted and near-field, for example) can be adjusted individually to compensate for different sensitivities and user preferences. A variable Dim function is also provided on a toggle on/off button. Two In-Place Solo (IPS) modes can also be selected. If Channel IPS is off, Solo on the input channels now operates like a PFL (pre-fade listen); in activated mode, the soloed channel signal is derived from a point in the signal path post-fader/post-pan control. Monitor IPS is similar in operation.

Comprehensive communications are also provided via talkback to the buses (slate), studio monitoring and Aux sends 1-4.

The optional M-5000 FA automation package, which I didn't have the opportunity to test, provides plain-vanilla recall and reset of VCA-based channel fader and cut switches. Fader levels and cut status are shown in real time on a companion Mac screen and can be used to create MIDI events for controlling external hardware such as samplers and MTC controllers. Data can be edited offline on the Mac. Snapshots can also be captured and manipulated using a Cue List Editor that forms part of the automation package.

THE BOTTOM LINE

In just about every respect, the M-5000 packs an impressive amount of functionality into an affordable, great-sounding package. The console layout is clean and functional; it is very easy to find your way around in a trice. The



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input sections feature high-quality mic preamps and EQ sections, coupled with bus amps at key summing points that will not degrade your signal sources. The use of +22V power rails is said to ensure a +29dB headroom throughout the console; and I never once heard a moment's protest from the system. If you or your studio is on the lookout for a flexible mixing console that would be at home in a tracking room or a full-on mix-to-picture suite—at a cost of around \$30,000—then the M-5000 is definitely worthy of consideration.

My complaints are minor. Most of the toggle switches have small control buttons, which sometimes makes it hard to see whether they are actually depressed. Although, for cost reasons, a separate LED is out of the question, a longer-throw button or a contrasting color for the button might be useful. On the same tack, additional color coding on the board might make it a little easier to find the right control without having to search for the appropriate legends. Also, some form of built-in tape-machine controls would have been nice. But, there again, such extras simply elevate the console's overall cost. *[Note: A blank area to the right of the M-5000's master faders looks like it could accommodate the custom installation of a simple remote control pad, such as the RC-808 for the Tascam DA-88—ed.]*

All in all, however, the Tascam M-5000 represents a great buy from a firm that knows how to design, market and support production hardware for the masses.

Tascam Corp. of America, 7733 Telegraph Road, Montebello, CA 90640; 213/726-0303.

•••

My thanks to Derek Luff and his talented crew at Wild Woods, Los Angeles, including the facility's chief engineer, Glenn Aulepp, for providing access to their M-5000 consoles. Audio 1, the main dub stage, features an 80-input console fitted with 32 mono and eight discrete stereo modules, while Audio 2 has an 80-input M-5000 fitted with 40 mono modules. ■

Formerly 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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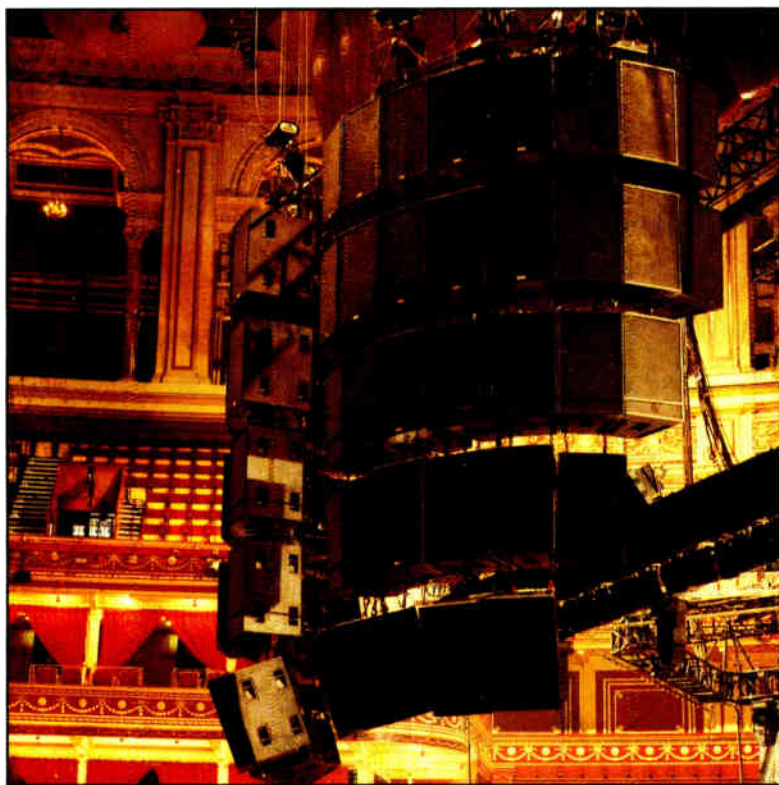
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SOUND CHECK

MAIN LOUDSPEAKERS: THE STATE OF THE TOUR, 1996



Concert Sound's EAW rig at the Royal Albert Hall (see info on page 164)

Loudspeakers for touring applications have come a long way since the days when a couple Altec A-7 Voice of the Theatre cabinets and some 100-watt amps were considered state-of-the-art. Here's a peek at some commercial, tour-quality main systems that are available to today's sound reinforcement companies.

ADAMSON

The Adamson Hi-Q system uses a multilayer 18 with a Kevlar diaphragm, the massive M-200 horn-loaded Kevlar 4-inch exit midrange device, and two 1.5-inch high-frequency compression drivers on twin 15° flares, side by each. The companion subwoofer has three 18s. The trapezoidal enclosures measure 42 inches high by 28 inches wide and 30 inches deep, with 12° side-angles. The system uses the Adamson DX-4000 two-in/four-out digital controller with crossover

points at 80, 280 and 1,800 Hz. Middlehouse Sound in Massachusetts used an Adamson 12 box HI-Q system on Pat Metheny's recent world tour, comprised of three full-range boxes and three subs per side, plus the earlier Adamson 225 enclosures underhung for near fill. The system was powered with Crest 1001s on the 18s, 7001s on the mids and 4601s on the highs.

The newest Adamson full-range speaker is called the Radial Aperture™ RA-25 and uses the same components and dimensions as the HI-Q box. The two HF drivers load into a manifold, and the high frequencies exit from a horizontal curved slot across the top of the enclosure's face, providing 25° horizontal dispersion by 30° vertical. As additional cabinets array, these slots line up across the front of the array. Inverting one row to the next

below puts these slots together and provides 60° vertical dispersion, with minimal comb filtering. A tubular rigging member runs the height of the boxes, with connectors that pin them together.

Adamson Systems Engineering, 332 Fairall St., Ajax, ON, Canada L1S 1R6. Tel. 905/683-2230; fax 905/683-5414.

APOGEE SOUND

The Apogee AE-9 is a three-way, bi-amp trapezoidal enclosure (\$3,100) with a front-loaded 15-inch woofer, a horn-loaded 10, and a ferrofluid-cooled 1-inch compression driver on a small horn mounted inside the mouth of the midrange horn. Smooth sound is provided by the use of the midrange device for the majority of the vocal range, and the speaker offers pattern control down to 300 Hz. Two years ago it won the TEC Award in the category of Sound Reinforcement Speaker Technology. The P-9 processor provides



Apogee AE-9

servo-loop protection, time and frequency domain correction and frequency division. For touring applications, it is offered in the P-9 RV dual-channel version (\$1,964), with XLR inputs and Neutrik NL-4 speaker connectors on the front panel for easy access. Another less-familiar Apogee speaker in its "Artist" line is the model 8000

—CONTINUED ON PAGE 162

BY MARK FRINK

**TOUR
PROFILE**

THE STEVE MILLER BLUES BAND

Live at the Fillmore Auditorium



Singer/guitarist band leader Steve Miller is probably best known to record buyers for his mid-'70s multi-Platinum albums *Fly Like an Eagle* and *Book of Dreams*. These brilliantly crafted projects yielded no less than six hit singles, and tracks such as "Rock'n Me," "Jet Airliner" and "Take the Money and Run" are still played daily on light-rock radio formats around the world. A Greatest Hits package based around those two albums continues to sell over a million units a year.

Notwithstanding the commercial success of his '70s output, Miller has strong blues roots, which he has returned to on recent albums such as *Living in the 20th Century* and *Born 2 B Blue*. But in all his years of touring, Miller had never put on an all-blues show—until last fall. By inserting a couple of hits-oriented Steve Miller Band shows into the schedule, Miller and manager Scott Boorey were able to justify an otherwise uneconomical 11-date all-blues tour at the end of Miller's eighth annual summer shed tour. The Steve Miller Blues Band came to San Francisco's Fillmore Auditorium for a sold-out, four-night stand in early November. *MIX* took the opportunity to catch up with the advanced production technology that has become a hallmark of Miller's shows.

NO STRINGS ATTACHED

If there is one word that describes the audio portion of Miller's stage show, it is "wireless." The five vocalists in the band all wear headset-mounted wireless microphones, and every



Above: Steve Miller FOH engineer/manager Scott Boorey. **Right:** Posters such as these have been a venue hallmark since the Fillmore's early days.

bandmember monitors his performance via in-ear monitors—there are no instrument amplifiers or monitor speakers onstage. To complete the picture, all of the mobile instruments—two guitars, bass, saxophone and harmonica—are also wireless (harmonic maestro Norton Buffalo plays into a hard-wired microphone, but the lead goes only as far as his waist, where it terminates in a belt pack).

The vocal microphones are a hybrid system combining Countryman Associates Isomax headset mics with Sennheiser EM1046 wireless transmitter systems. Countryman manufactures several headset microphones for vari-

—CONTINUED ON PAGE 174

BY CHRIS MICHIE



—FROM PAGE 160, MAIN LOUSPEAKERS

three-way enclosure (\$3,200). Its design is similar to the AE-9, but it has two 15s instead of one, in a taller and deeper trapezoidal cabinet.

Apogee's new DA-800 2-space amplifier delivers 940 watts per channel into 2 ohms. Its front panel features two large LCDs for readout of not only attenuation, but also temperature, load impedance, AC line voltage, output voltage and output wattage by toggling a display switch. A processor version for the AE-9 called the DPA-9 RV (\$2,800) combines amplification and processing into a single chassis.

Apogee Sound, 1150 Industrial Dr., Petaluma, CA 94952. Tel. 707/778-8887; fax 707/778-6923.



Clair R-4T

CLAIR BROS. AUDIO SYSTEMS

The road-tested Clair R-4T is a variable-array, trapezoidal system using the same technology employed in the company's S-4 Series II. The design of the R-4T allows the choice of components, distribution patterns and cluster shapes, which can be oriented vertically and horizontally. Designed for nightclubs, arenas, stadiums, churches and auditoriums, the R-4T features proprietary infrastructure rigging to accommodate virtually any installation application.

Available in three- and four-way versions, the R-4T has a high-powered 18-inch for low frequencies, a 12-inch midrange speaker and a 2-inch high-frequency driver coupled to a 60x40° constant-directivity horn.

The variable-array system can be set up with the bottom or top pair coupled and amplified to cover a desired area with maximum speaker efficiency. Lobbing and phase problems are minimized with the proprietary horn and cone transducer technology.

The three-way active bass, midrange and high-frequency system features three drivers. The bass and midrange sections have one 18-inch and one

12-inch driver, respectively, capable of handling 300 watts of pink noise. The high-frequency section has a single 2-inch-high compression driver coupled to a constant-directivity horn.

Clair Bros. Audio, P.O. Box 396, Lititz, PA 17543. Tel. 717/665-4000; fax 717/665-2786.

COMMUNITY PROFESSIONAL LOUSPEAKERS

With all of its components ferrofluid-cooled for high power handling and reliability, Community's three-way RS880 is horn-loaded with two recently developed triple-spider 15s, crossing over at 450 Hz to a 2-inch exit "low compression" midrange, which is then passively crossed at 3 kHz to a 1-inch titanium driver. The lows and mid components are mechanically aligned on a single fiberglass horn molding,



Community VBS415 subwoofer and RS880 loudspeaker with the 880 system controller

with the high-frequency driver coaxially mounted on the upper 15. The birch-faced poplar plywood enclosures are covered with either black carpet or gray paint. An optional fiberglass laminate is popular in touring applications. The 210-pound trapezoidal RS880 en-

TURBOSOUND

FLOODLIGHTS SHINE ON BOYZ II MEN

Boyz II Men have gone from relative obscurity to being one of the top music acts in the world in just a few years. Sound services for last year's North American Boyz II Men tour were provided by Eighth Day Sound. We met up with the tour at the Blossom Center, in Eighth Day's hometown of Cleveland, Ohio. Tom Winch was the FOH engineer and audio crew chief. Winch's recent resume includes a stint with the artist formerly known as Prince, several tours with Jethro Tull, Manhattan Transfer and, more recently, Randy Travis.

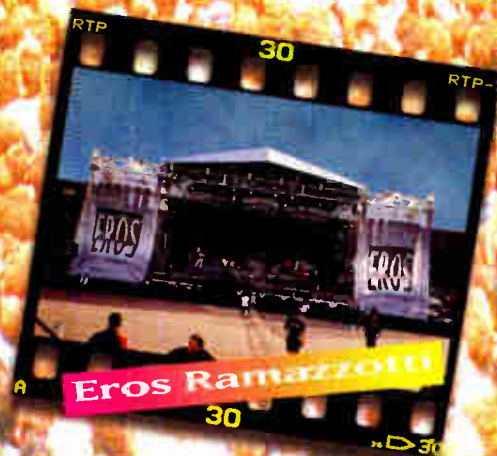
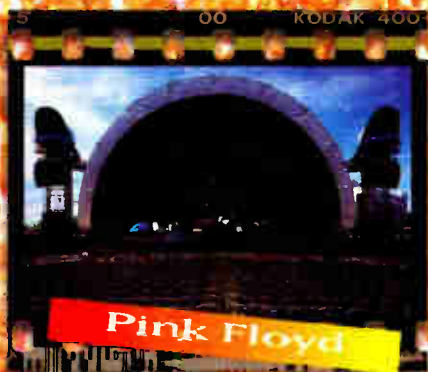
The main console was a Yamaha PM4000-48 with eight stereo modules, plus a second 4-K for the support acts, which alternated between TLC and Mary J. Blige, plus Montel Jordan. Inserts included BSS DPR 402 and dbx 160X compressors, and DPR 502 and 504 gates. Effects were shared by both consoles and included an Eventide H3000-SE used as a pitch doubler, and a Roland SDE 3000 delay. A Yamaha SPX900 was dedicated for snare, and a Lexicon PCM80 was used as the drum reverb. "I really like what they've done to the old PCM70," Winch notes. A Lexicon 480 was used in split mode, with one side on a room program for the vocals and the other for keyboards.



A BSS FCS 926 Varicurve equalizer master and two FPC 920 slaves were used, along with a BSS FPC 900 Varicurve remote. One channel of Varicurve was inserted on each vocal at four subgroups. "Each guy has an entirely different voice," Winch explains. "A lot had to be done on-the-fly, and we often didn't get a soundcheck. That way there was always a convenient place to go to adjust the voices." The other two Varicurve channels were used for either rear fill in arenas, or for lawn systems in sheds.

The Turbosound system Eighth Day uses is run as two separate stereo systems, with the Flashlights for longer throw and the Floodlights for short throw outside and down-fill boxes. "Each system has its own drive," Winch says. "While the Floodlight's components are physically aligned, the Flashlights require small amounts of component delay." Two BSS stereo 1/2-octave equalizers were used with two of the new Turbosound LMS 700 digital processors.

—CONTINUED ON PAGE 164



IT'S ALL IN THE COMPANY WE KEEP



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closures have a 22.5° angle and are designed to operate with a dispersion angle of 65° horizontal by 40° vertical. The RS880s measure 50 inches high, 30 inches wide and 22.5 inches deep. The companion subwoofer is the VBS 415 quad 15.

The group Kansas, which recently completed a tour supporting their latest release, *Freaks of Nature*, have officially signed on as endorsers of Community loudspeakers. Providing sound services for the group using the RS Series enclo-

tures. Branchini Sound powers its RS880 and VBS415 speakers with Crest 9001 amps and either CA 12 or 8001 ("same thing") on the lows. The system uses the Community 880 controller with IntelliSense™ circuitry for dynamic equalization, compression and frequency division. "As for Community's role in everything we're trying to do," Kansas' FOH engineer Bill Carbone comments, "their cabinets perform in a smooth, clean and transparent fashion."

Community Professional Loudspeakers, 333 East Fifth St., Chester, PA 19013. Tel. 610/876-3400; fax 610/874-0190.

EASTERN ACOUSTIC WORKS

Alison Moyet's recent appearance for two nights at the Royal Albert Hall (RAH) marked a turning point for Concert Sound of England, a company that has much experience with EAW and this acoustically challenging venue. RAH has a capacity of 3,600, but has the air volume of a much larger hall, with a reverb time well over four seconds. Concert Sound's main speaker system for Moyet's shows marked a departure from the company's traditional deployment of EAW KF850s; instead they used eight EAW KF853 and four BH853 enclosures per side as the core of the main arrays, plus a dozen KF850s below and to the outside for the shorter throw. The KF853 (\$5,085) is a "high-Q" horn-loaded enclosure, with two 10-inch drivers, plus a 2-inch compression driver. The companion low-frequency box is the brand-new BH853, a double-15 horn-loaded enclosure (\$3,825). Both 853 speaker enclosures are six inches deeper than an 850, but conform to the same trapezoidal shape, extending three inches forward and behind.

Like the KF/BH852 system, the 853 is a two-box evolution of the KF850 speaker, but in a higher-directivity package, designed for 30 instead of 55° of horizontal coverage. A new CD 5003 compression driver is mounted on a larger horn at the top of the KF853, with built-in passive EQ contouring and HF protection, and the two 10-inch speakers, also horn-loaded, are below. The 853 system uses the new MX 8000 processor, which is card-configured for specific KF-series systems. The 853 is a dual-purpose system, designed to either add into 850 systems as the long-throw section for arenas, or as stand-alone building blocks for outdoor and stadium arrays.

Each array used at the RAH was eight cabinets wide, for 300° of total horizontal coverage. The third column from center was a line-array of four BH853s, providing what was described as "punchy kick drum all the way in the back of the hall." In the top two rows, to each side of the BH853 column, were pairs of KF853 speakers, eight total. On the outside there were KF850s in the sixth, seventh and eighth columns. The third row had four KF850s split by the BH853 column, and two more in the fourth row were tilted down at an angle. Two pair of 850s were ground-stacked to cover the extreme sides.

Concert Sound uses Lab Gruppen (Kungsbacka, Sweden) Model 2000C amplifiers for the KF853. "This is the

—FROM PAGE 162, BOYZ II MEN

which are modified Omnidrives with presets for Turbosound products stored in them.

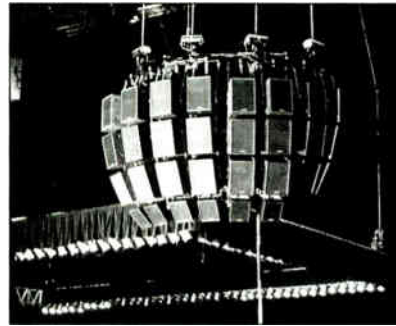
System engineer Bob Prah flew the stage-right P.A. and miked the stage. John Kosinski flew stage-left and then put out wedges, and Doug Short assisted flying the P.A. and miked up the support acts. The system flies on four motors per side, hanging eight boxes wide and four rows deep, with a bottom row of underhung cabinets. The outside two columns, typically for shorter throws, are wider dispersion Turbosound TFS 760-H Floodlights. Under each of the inside six columns of Flashlights is a 760-UH, essentially the top half of a Floodlight. This arrangement can have up to 270° of total horizontal coverage. In sheds the TFS 780L bass cabinets usually stack on the deck. "In some sheds we only need two rows of Flashlights," Winch explains. "In arenas we would generally fly some of the bass cabinets also." The system is powered with BSS EPC 760 and EPC 780 amplifiers.

Boyz II Men use Shure microphones, including wireless vocal mics. Beta 57s were used on snare and guitars, SM98s on toms, SM91 on kick and SM81s on cymbals and overheads. Direct boxes were Countryman, and the keyboard racks each had pairs of Stewart ADB-1 active DIs installed in them.

The monitor console was a 52-channel Yamaha PM4000M, while a 40-channel Midas XL-3 was used for the support act. Mike Parker was the band's monitor engineer, and Tony Pieras was the all-around monitor system engineer and man Friday. "If there was a problem, Tony usually

had it fixed before I knew about it," Winch says. "He had been doing Extreme in Japan, flew into Boston on a red-eye at 1 a.m., and was at Great Woods the next morning for load-in."

Monitor processing included BSS 402 and 404 compressors, 504 gates,



Turbosound Flashlights and Floodlights were combined for even dispersion.

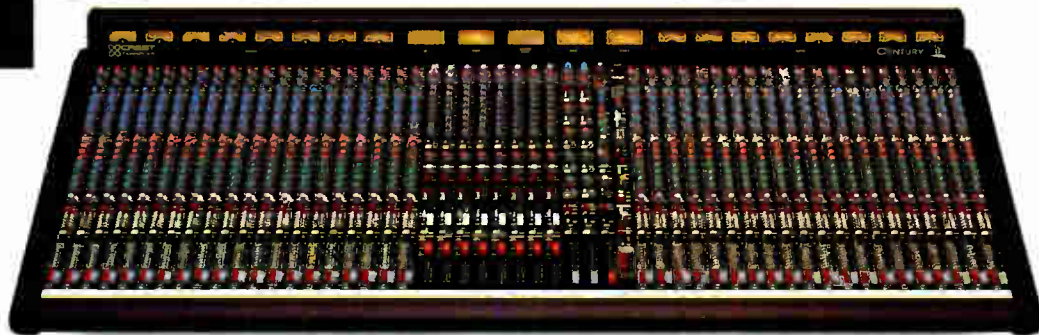
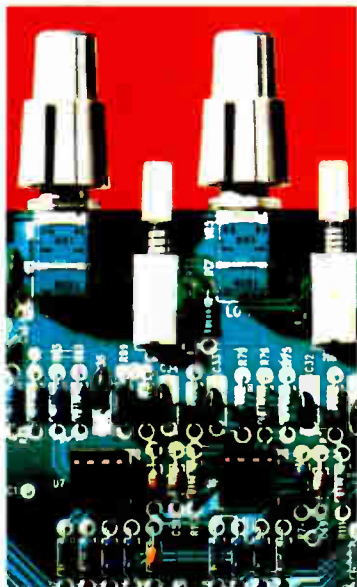
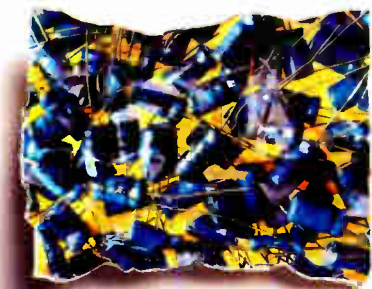
a Lexicon PCM42 and two PCM70s. For graphics there were a dozen Klark Teknik DN 3600 digital ½-octave equalizers with the second DN 3698 remote controller in the country. Two Klark Teknik DN 410 stereo parametrics were used to insert on each of the vocals.

Six proprietary low-profile single-15 wedges were used across the front of the stage and throughout the set. These are JBL-loaded with 2227H Super Vented Gap woofers and 2450 compression drivers. Two double-15s were used for the drummer and one for the percussion player, and single 18 subs were used to supplement the drum mix. Flown sidefills were two Floodlights and a low box per side, and two TMS 3 speakers per side were used for ground stacked side fill. Power for the monitor system is Crown MA 2400 and 3600VZ amps.

—Mark Frink

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Crest Audio Inc. 100 Eisenhower Drive, Paramus, New Jersey 07652 USA Tel: 201 909 8700 Fax: 201 909 8744

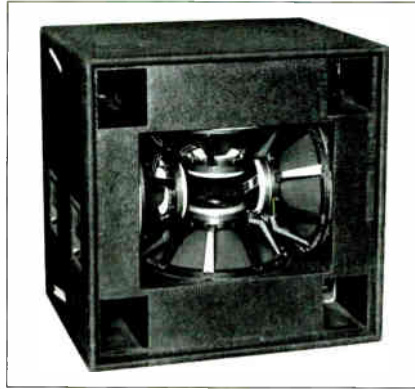
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amp we have been replacing our BGW GTA amps with," managing director Mick Anderson explains. "Although we are still using BGW on the highs, we are looking at the Lab Gruppen 1600, which they have just brought out."

British pop/rap/dance group East 17 played the Royal Albert Hall using the same P.A. on the following three nights. E-17 features four male vocalists, and the patrons were predominantly screaming teenage girls, who came equipped with the band's trademark police whistles. SPLs of 113 dB were measured at the FOH console before the show even started, which made for a difficult situation, based on the 103dB house policy.

Concert Sound started 1996 with shows for Eric Clapton, R. Kelly, Mike and the Mechanics, Shirley Bassey and Curtis Stigers. This coming season they look forward to fielding larger rigs for European arena and stadium shows. The KF/BH853 augments EAW's Virtual Array" technology, providing another building block for assembling larger systems.

Eastern Acoustic Works, One Main St., Whitinsville, MA 01588. Tel. 508/234-6158; fax 508/234-8251.



Electro-Voice MTL-4B

ELECTRO-VOICE

EV's power-density concept achieves higher SPLs with smaller arrays that use less truck space. The manifold horn design achieves consistent pattern control through use of a single horn for multiple devices in each band, improving differences in arrival times and horn overlap over traditional arrays producing the same SPLs. EV's MT concert speakers are two-box systems crossing

over at 160 Hz. They come in two sizes, the MT-2.5 and MT-4.5, and have gone through several revisions in recent years.

The smaller MT-2 enclosures are 36x22.5x30 inches. The MTL-2B is the improved version of the low box, now loaded with two EVX-180A speakers, to provide 3 dB more output through higher power handling. The companion mid-high enclosure, now called the MTH-2.5, is a two-way enclosure with two DL-10X midbass drivers and two DH-1A compression drivers. Vocal clarity in the midrange has been improved by a change in the design of the phase plug. Originally available with 90° or 60° horns, in either rectangular or trapezoidal enclosures, 40x20° and 20x20° versions (MTH-2.5/42B and MTH-2.5/22B) are now available in keeping with the industry's trend toward higher-Q devices.

The larger MT-4.5 enclosures measure three feet square by 30 inches deep. The MTL-4 quad-18, loaded with four EV DL-18s, remains unchanged. The three-way MTH-4.5 is loaded with four 10-inch speakers operating from 160 to 1,600 Hz, using the improved

MEYER SOUND

BRINGING PAVAROTTI TO THE MASSES

The arena concerts of operatic tenor Luciano Pavarotti have set the benchmark for sound reinforcement of classical music, selling out Madison Square Garden, Wembley, and the Stadiums of Barcelona and Berlin, to name a few. A June '93 appearance on the Great Lawn of Central Park drew an estimated half million, and his '94 appearance at Dodgers Stadium with Jose Carreras and Placido Domingo has been seen by millions on PBS. His recent appearance before 18,000 at the new General Motors Place arena in Vancouver sold out in three hours. Sound services were provided by KIAN Sound Services Ltd. (Vancouver, B.C.) which was also the sound company for the Pavarotti concert in Alberta the previous week.

All equalization was accomplished using seven Meyer CP-10 parametric EQs, and adjustments were made with the assistance of KIAN's new Meyer SIM II system. Alexander "Thorny" Yuill-Thornton II is the sound designer, and he uses the SIM to assist in op-



KIAN's Meyer rig at the GM Place.

timizing the system before and during the show. Prior to joining the show in 1985, he worked for Meyer Sound Labs, and got involved by providing SIM services. "For critical classical shows, building a team is the best approach," Thorny comments. "The combination of technical engineering expertise with a creative balance or mix engineer gives us consistently good results."

The show is mixed by John Pellowe, who has been with London/Decca records for 30 years as their lead classical recording engineer and has been mixing Pavarotti's live shows for over a decade. Pellowe mixes on a Ramsa WRS840 and uses a Lexicon

480, with one side for "wetting" up the orchestra with a medium hall setting and the other to fill out Pavarotti's monitors with a shorter hall. The Ramsa is used because of its quality, ease of operation and the consistency factor of availability from vendors all over the world. Monitoring for Pavarotti consists of a pair of Meyer UM floor monitors sent from the FOH console. A second stereo pair of UM wedges are located behind Pavarotti and are fed from the return of a Lexicon 480 reverb.

KIAN's crew consisted of general manager Mark Reimann, Craig Reimann, Dave McRae and rigger Jamie Howieson. The main center cluster consisted of a row of eight Meyer DS-2s with a row of four MSL-5 speakers beneath, powered by the new Cyber Logic modular amplifier system. The rest of the system is powered with QSC Series III amps, with 3800s for the two pairs of 650 subwoofers and 3500s for all the other speakers. Front fill speakers are a pair of UPAs in the center, under the front of the 5-foot-

—CONTINUED ON PAGE 168



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phase plug that is the hallmark of the "point five" revision. The four DH-2 compression drivers that operate from 1.6 to 8 kHz were upgraded to newer DH-2A drivers, offering improved response around 5 kHz. When groups like Metallica began touring with the system, the four DH-2010 drivers that operate above 8 kHz were changed to two DH-2As, yielding lower power compression at high levels. Originally offered as a 60x40° it is now also available as a 40x20°. The MTH-4.5/42 uses only two DH-2As for the high-mids due to the increased gain of the higher-Q horns, but keeps both HF devices, as the main application is longer throws in arenas. Upgrade kits for existing MT "A" and "B" systems are available from EV.

The new Electro-Voice DX-34 digital 18-bit processor (\$2,198) replaces the previous MTX-4 crossover. It is a single-rackspace, 2-in/4-out device with many possible configurations and adjustable parameters. Front panel controls include four output level controls and a data entry "soft knob." It has a two-line, 16-digit backlit display and offers easy SPX-like operation, but also has a lock-

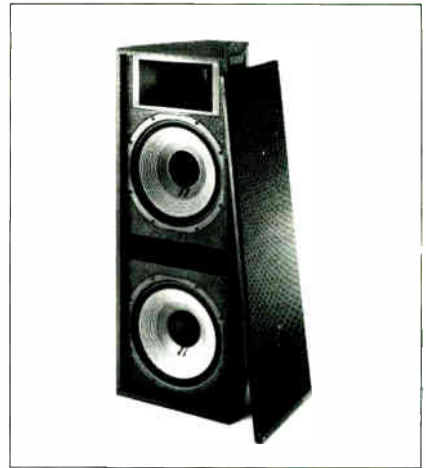
out mode. It ships with 16 presets for various EV speaker systems and configurations, plus 30 user memories.

Electro-Voice, 600 Cecil St., Buchanan, MI 49107. Tel. 616/695-6831; fax 615/695-1304.

JBL

The JBL Array Series, introduced in the early '90s, is a multipurpose speaker system that has found its way into installations and tours ranging from classical theatrical to rock 'n' roll. The two-way trapezoidal Array Series 4894 (\$3,595) is 42 inches tall by only 15 inches wide. The 100-pound enclosure is loaded with two Vented Gap™ 14-inch, high-power woofers, plus a 1.5-inch exit neodymium compression driver with a 4-inch titanium diaphragm mounted on a flat-front Bi-Radial horn. The 90° version provides a wide angle of coverage for non-arrayed applications. The companion 4893 subwoofer (\$1,595) has matching dimensions for convenient integration into arrays. The 4890 and 4891 Array Series floor monitors were winners of the 1995 TEC Award in the category of Sound Reinforcement Loudspeakers.

Last year, JBL introduced the new



JBL Array Series 4894-90

DSC 280, a stereo, two-, three- or four-way crossover with 60 user-programmable memories. The DSC 280 comes preconfigured for a variety of JBL speaker systems, including the Array Series, and looks suspiciously like a pared-down version of a BSS Omnidrive. There are two sections of parametric EQ per band, and one section can be switched to give all-pass phase adjustment at the crossover frequency.

JBL recently introduced the 2227H 15-inch and 2242H 18-inch speakers

—FROM PAGE 166, MEYER SOUND

high stage, and UMs on the outsides. These front fills are delayed to put them back in time with the center cluster overhead.

The sides and rear are covered with three clusters, splayed 30° on ATM Flyware, each consisting of four Meyer MSL-3 speakers. Each of the four clusters has three UPAs underhung also with a 30° splay. Using a 1/2-inch aluminum plate, the flying hardware rings on the UPAs fit through slots and are secured with carabiners, which then hook directly to the rear points under the MSLs. This plate is an adaptation of an A-1 Audio plywood design by system engineer Henry Cohen, who has worked with the Pavarotti show for five years. It has slots for hanging UPAs four-wide and three-wide tight-packed, as well as the 30° splay used here. "The systems we use have evolved from MSL-3s, to tens and now fives," Thorny comments. "We've learned how to use the tools we're using very well, and are able to quickly get the system optimized based on ten years experience."

The microphones used are a kit of three dozen Schoeps condensers that

belong to the Pavarotti organization. "They give a more natural, open sound than is available with most other condensers," Thorny explains. "They're also unbelievably reliable." Two MK-4 hypercardioid condensers are used down stage center, for Pavarotti and for soprano Kallen Esperian, who was a winner of his International Voice Competition and has appeared with him numerous times, allowing the inclusion of duets, in addition to the Maestro's beloved arias. Pavarotti's mic is also used for the solos of award-winning Italian flautist Andrea Griminelli.

Fifteen Schoeps MK-21 cardioids are used on the strings. "They are a bit brighter than the MK-4s we use everywhere else," Pellowe comments. Three each are used for the cello and violas, to conductor Leone Magiera's right, and two for the string basses on his far right. Six more MK-21s are used on the 20 first and second violins and one more for the concert master, or principal violinist, to his left. Other instrumentation includes harp, accordion and classical guitar, each with their own MK-4. Pairs of flutes, oboes, clarinets and bassoons are split-miked upstage. One more MK-4 is used behind a sec-

tion of four french horns further upstage, and another on a brass section upstage left, consisting of two trumpets, three trombones and a tuba.

GM Place arena has Clifford Henricksen's Bose Panarray LT in-house system installed by ACG's Jonathan Tulip in a typical four-points-of-the-compass arena configuration. With the help of Bose's Tom Clelland, the upper tier of each array was turned on and delayed to help fill in the luxury boxes on the upper level. The Bose speakers are flown using a unique axial structure that hangs them around a cylindrical frame and then tilts each enclosure downwards.

In a town that now boasts four professional touring sound companies, KIAN has carved a niche by building an inventory of Meyer gear and providing uncompromised service, including k.d. lang's "Ingenué" tour. They own a late-model Peterbuilt tractor-trailer and are also incorporated in the U.S.A. Opera lovers will be pleased to know that a July appearance of the Three Tenors at Giants Stadium is planned, as well as summer shows in Tokyo, London, Vienna and Munich.

—Mark Frink

using Super Vented Gap™ (SVG) technology, providing greater maximum output than previous transducers. JBL's Technical Note #22 offers a discussion of the improvements these SVG components offer.

JBL also has long-standing relationships with major touring companies. In Audio Analysts' new AALTO speaker system, used on the Natalie Merchant and Bruce Springsteen tours, the newest JBL components have been incorporated into an entire proprietary system.

While continuing to provide components and service to clients who want custom development, JBL also provides packaged systems. Although the collaboration with AA remains proprietary, something similar will be brought to market in the future. "There's no doubt it's a systems business, while still being a transducer business," Gander adds.

JBL Professional, 8500 Balboa Blvd., Northridge, CA 91329. Tel. 818/894-8850; fax 818/830-1220.

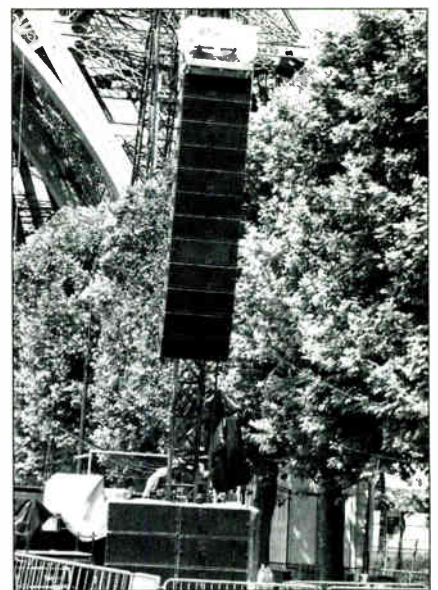
L'ACOUSTIC

Introduced to this country last year, the V-DOSC speaker system from French company L'Acoustic provides better sound by making use of an old princi-

ple. Conventional speaker arrays produce sound characterized by the interaction of adjacent components. In an array of sound sources, there is a limit frequency above which the components no longer couple; this is the point at which the distance between the acoustical centers is larger than the wavelengths being generated. While coupling of lows and mids is commonly achievable, full-range coupling of all devices in a traditional array is not possible, resulting in lobing and comb-filtering (except in the front row, where only one box is heard).

Each V-DOSC cabinet is a horizontal "slice" of a larger line array. The three-way enclosures are 50 inches wide by 18 inches high, and weigh 220 pounds. Each cabinet is loaded with two 15s, two pairs of 7-inch Kevlar mids, and a pair of 2-inch compression drivers. The cabinets are stacked or hung in a single vertical column, lining up individual components into columns to form a three-way line array.

The tall, thin openings of the high-frequency waveguides are in the center of the cabinet with a column midrange angled in on each side. The name "V-DOSC" comes from this V-shaped



L'Acoustic V-DOSC

acoustic loading of the mids. High-frequency coupling is achieved by the vertical cabinet-to-cabinet alignment of the waveguides into sections of a column down the center of the array. The 15s at each end of the cabinet are separated by less than a wavelength of the frequencies they reproduce. The entire array behaves as a single tall, narrow

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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.

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transducer. The horizontal angle of coverage is 90°. When stacked with 0° of "splay," vertical dispersion is tight, about 5°, but a hung array can be "bent" to open the vertical dispersion.

The coupling of midrange and high-frequency components allows the V-DOSC line array to act as one large transducer, moving the effect of listening to a single speaker out over a large portion of the audience. The near-field listening area becomes a full-range, long-distance effect. A coherent line-array source generates a sound field where the SPL decreases proportionally to the distance, rather than the *square* of the distance. Because the rate of attenuation is different, the majority of the audience is also sitting in the stereo field for the first time, rather than just those in the center. The sound energy is not focused on the ceiling and walls, and the effect of the room is reduced, further improving the sound. In addition, the SPL is increased and quality of sound is improved due to the absence of combing and lobing.

French sound company Dispatch provided 12-cabinet arrays at the Eiffel Tower for last summer's Bastille Day celebration for a crowd of over a million people. V-DOSC has also been used as the front end for the Grammys, the Academy Awards and several other televised events in the past year.

Jeff Cox, who may be familiar to readers from the Universal Amphitheater, has left MSI to bring this unique speaker technology to North America; V-DOSC is available in the U.S. through Cox Audio, tel. 213/344-8587.

MARTIN AUDIO

The Martin W8 (\$3,625) is a horn-loaded three-way, full-range enclosure. British speaker designer Bill Webb has combined the best features of several popular speakers and added a couple of twists. Each W8 has two horn-loaded 12s that are vertically splayed slightly and produce frequencies up to 850 Hz. Covering the frequencies up to 3.5 kHz is a specially developed 6.5-inch treated cone driver that uses a unique "donut-shaped" toroidal phase plug, eliminating the "shadowing" of conventional phase plugs at higher frequencies. Distortion and HF "beaming" are reduced by using a cone midrange instead of a 2-inch compression driver, and then crossing over to a 1-inch driver at 3.5 kHz. The system can be run three-way

or bi-amped, using an internal passive crossover.

"The top boxes have a natural 'hi-fi' sound and the system voices up nicely," Raleigh Music owner Cooper Canady observes. Canady took delivery of a 24-box system last year. Delicate Productions used the W8 system for the "festival" stage on the "Horde" tour; a Martin F-2 system was used for the main stage.



Martin W8

"One interesting thing we did was to use two Sony UHF systems to pass program back and forth between the main stage and the festival stage," Delicate's Spy Matthews reports. "That way there was always something live going on through both systems, and the show had continuity."

The trapezoidal W8 enclosures are 22 inches wide at the front and 42 inches high, making for an efficient truck pack. High-quality, grease-impregnated sealed-bearing casters are mounted on the back of the cabinets, eliminating the need for dollies and making for an overall cabinet depth of just over 36 inches. The MAN flying hardware is like that used on Turbo equipment; similarly, the boxes don't carry the weight, the chains do.

The Wavefront 8-S (\$2,938) is the companion sub-bass enclosure. At 181 pounds, it is only five pounds heavier than the W-8. It is identically sized and has the same center of gravity, which simplifies arraying. The problems of ground-stacked subs are well-known. The 8-S design offers the advantages of getting the lows into the array, eliminating phasing problems in the crossover

region due to the physical separation of the LF system. The 8-S's unique combination of horn and reflex design combines punch with LF extension. "The hybrid bass enclosure has the lowest octave plus the concussion of a 15, making it easy to dial in the low end," Raleigh Music's Canady comments.

Raleigh Music's system is powered with amps from UK manufacturer Chevin Research. Chevin amps use MOSFET power transistors and switching power supplies to reduce weight. The four-space A-6000 amp is rated for 3,000 watts per channel at 2 ohms, weighs 55 pounds and is used for the low boxes. The two-space, 26-pound A-2500 mono-block amps power the 12s, and the 4-channel Q-9 is used on the high-mids and highs. "Part of the sound quality can be attributed to these amps," says Canady. "The response and attack are superior to other systems we've heard."

Martin's MX-4 controller performs system-specific limiting, crossover and EQ, but excellent results have also been reported using the BSS Omnidrive.

Martin Audio, 300 Gage Ave., Unit 1, Kitchener, ON, Canada N2M 2C8. Tel. 519/745-1158; fax 519/745-2364.



To showcase its systems, PAS has outfitted a tour bus with panels that pop out to reveal a full-scale touring rig, ready for "instant" demos anywhere.

PROFESSIONAL AUDIO SYSTEMS

Professional Audio Systems has updated its line of Time Offset Correction coaxial speakers. The new FT-2.2 two-way trapezoidal enclosure (\$1,367) is 2 feet tall and loaded with a DE 750/8 2-inch compression driver that is coaxially mounted on a PAS CXL-2580C 15. The high-frequency driver has a copper shorting ring on the phase plug that extends the response of the driver over that of the JBL 2450 previously used in the old RS-2. The new RS-2.2 (\$1,675) is similar to the FT-2.2, loaded with the same heavy-duty PAS co-ax 15, plus a second PAS HL-2580C 15. A third version, the RS-1.2 (\$1,792), has a passive crossover built in. The horn on the co-ax is a constant-coverage 30 by 60° de-



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sign, slightly larger than other coaxial horns, enabling the crossover frequency to work well down to 1,200 Hz. A blue polyfoam edge has been added to the horn, similar to that on the UREI studio monitor, to improve its response, particularly in the crossover region. The companion CB-2 subwoofer is loaded with two long-excursion HL-2880C 18s. It measures 22.5x52x24-inches deep, and is designed to fit three of the RS-2.2 cabinets on top. The system uses the new R-2 stereo three-way crossover (\$2,000) for time offset correction, frequency division and protection.

Professional Audio Systems (PAS), 2270 Cosmos Court, Carlsbad, CA 92009. Tel. 619/431-9924; fax 619/431-9496.



Renkus-Heinz TRAP-40

RENKUS-HEINZ

The new TRAP-40 three-way, bi-amplified loudspeaker (\$2,175) is an evolution of the Renkus-Heinz CE-3 touring speakers. Similar to earlier Co-Entrant™ designs, two carbon-fiber 6.5-inch midrange drivers load into the same large horn as a 1-inch compression driver. This Co-Entrant horn design ensures physical signal alignment and constant beam-width pattern control through the crossover region, offering true point-source performance. A front-loaded 15 below this horn completes the package, crossing over at 250 Hz. The TRAP-40 weighs 95 pounds and is a compact 38 inches tall by 16 inches wide. It is designed with 20° side angles for seamless horizontal coverage when arrayed, each cabinet adding 40° to the coverage. A built-in passive mid-high crossover eliminates the need for tri-amplification, reducing system cost.

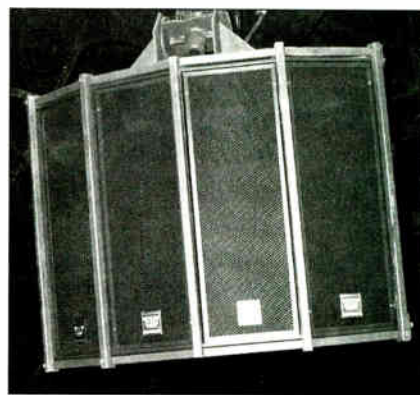
Renkus-Heinz now manufactures amplifiers with built in processing. The Renkus-Heinz P-2800 amplifier (\$2,250) is 750 watts into 4-ohm loads. It has a slot on the front for the plug-in con-

troller module for various Renkus-Heinz speakers and Neutrik NL-4 connectors on the back, allowing for direct connection to TRAP-40 enclosures. The PM-2100/TRAP-40 controller card includes crossover, EQ contouring and limiting specifically for these speakers. Renkus-Heinz Inc., 17191 Armstrong Ave., Irvine, CA. Tel. 714/250-0166; fax 714/250-1035.

STAGE ACCOMPANY

Stage Accompany sold an entire Performer Series to Paisley Park Enterprises after the artist formerly known as Prince used SA speakers for sidefills at his birthday party at Glam Slam in Miami last summer. A week later an SA system was purchased to handle rehearsals at Paisley Park and shows for up to 2,000 to 4,000 thousand people. Even though all SA products usually come in a blue color, the Paisley Park system was custom-finished in black with gold metallic grilles, as the artist's new album is called *Gold Experience*.

The 48-box Paisley Park system has 24 sets of bass and mid-high cabinets. The P16 bass cabinets (\$2,600) are each loaded with two SA 1513 long-excursion



Stage Accompany's Performer Series

15s. The P26 mid-high cabinets (\$3,725) each has a single SA 1202 and a SA 8526 fan-cooled compact high-frequency driver for frequency response to 30 kHz. All SA speakers are cabled with Neutrik 8-conductor cables and are interchangeable. The system is powered by a dozen Sound Accompany PR2 amp racks, each loaded with two PPA 1200 amps to power two tops and two bottoms. The amps are configured with crossover cards and software for the speakers with crossover frequencies of 100 Hz and 1 kHz. A Sound Accompany PPE2110 programmable paramet-

NEWSFLASHES

Bag End Loudspeaker Systems (Barrington, IL) reports that 16 of its Bag End D18-E subwoofer systems were retained and reused when the **MGM Grand Theater in Las Vegas** underwent a complete audio systems upgrade for the EFX production, "a surrealistic high-tech journey through space starring Michael Crawford."...Florida Sound Engineering recently completed the installation of a new sound system at the 75,000-seat **Jacksonville Municipal Stadium**, formerly the Gator Bowl. Central to the new system is a ten-speaker cluster of MH4020C constant-directivity Manifold Technology® two-way coaxial stadium horns from Electro-Voice (Buchanan, MI)...ProMix, an authorized dealer for Stage Accompany (Cincinnati, OH), has completed the installation of an SA Screen Series system at the **Vivian Beaumont Theater at Lincoln Center**, NY...Allstar Audio (Nashville, TN) was busy over New Year's Eve at the **Opryland Hotel**, Nashville, with systems running in three ballrooms...OAP (Buford, GA) debuts a new stage monitor, the SM-183, featuring an 18-inch LF driver

and a 12-inch co-ax mid driver with a 2-inch compression driver. The system may be bi- or tri-amped...**Symposium**, which claims to be New England's hottest dance club, installed a D-Mix 1000 modular DJ mixer from Soundcraft (Northridge, CA). The D-Mix 1000 joins a comprehensive 11,000-watt JBL sound system installed by Audio Visual Communications Systems Inc. of Queens, NY...A BSS SPC900 digital remote-control system has been installed at **The Palace**, a 2,600-seat performance venue in Myrtle Beach, SC. Comprising four 926 stereo programmable EQs from BSS (Northridge, CA) the SPC900 system allows operators to reconfigure the EQ and crossover characteristics of the complete house P.A. system in seconds—at the touch of a button...JBL Architectural Series loudspeakers from JBL Professional (Northridge, CA) were selected for the **Macon Coliseum and Convention Center** in Macon, GA, when the facility's sound system was recently upgraded. Osborn Sound and Communications installed 29 JBL AS2225 cabinets in a main array surrounded by 13 delayed satellite arrays. ■

INSIDE
THE
PL4.0

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PowerLight

4.0

PowerWave™
Switching Technology
allows for the high-speed
transformer to be small
and dramatically
light weight.

The charged capacitor
bank distributes current
as needed before the
transformer—delivering
continuous, stiff supply
voltage.

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controlled, continuously
variable speed fan
blows heated air rear
to front, keeping the
amp and the rack cool.

An aluminum heat-sink
tunnel designed with the
maximum possible
surface area transfers
and dissipates heat.

The new PowerLight 4.0 introduces massive power to a series of amplifiers that have already become a benchmark for excellent audio performance and reliability. *PowerWave™ Switching Technology* (patent pending), at the heart of the PowerLights, is **the power supply technology for the future**. The 4.0 clearly demonstrates why...

SUPERIOR AUDIO

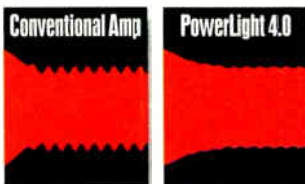
The 4.0 achieves remarkable audio quality because **voltage supply to the output section is powerful and stiff**. There are virtually no sags following transients or long peak power demands. You won't hear typical modulation from AC ripple or garbling during clipping. The bass is ultra-clean and fat. Highs are pure and unstressed.

MAXIMUM EFFICIENCY

A **PowerWave transformer "flies" at 115 kHz** (2000 times the frequency of a conventional transformer). Waste heat from resistance is almost nil. The supply is 90% efficient! And the 4.0 features **the latest three-step Class H linear output circuitry** for maximum audio quality and efficiency.

"NO-FAIL" PERFORMANCE

QSC's renowned protection circuitry is enhanced by the PL 4.0's "smart" supply which matches power delivery to changing musical demand. The 4.0's thermal management keeps the amp cool under extreme conditions (even 2 ohm loads). And with the 4.0, **EMI and RFI are absent**, making the amp safe for wireless mics.



Less power sag, less clipping intermodulation, more bass impact, cleaner transients...PowerLight.

INCOMPARABLE AMP

You won't see or hear another amp with the power and performance of the PowerLight 4.0. **Call your QSC Dealer or QSC direct at 714-754-6175** for complete details.

The front panel of the PL 4.0 features comprehensive LED status arrays, detented gain controls with soft touch knobs and 2 dB steps for easy resetting.

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4 PowerLight Models

Output Power in Watts per Channel			
MODEL	8 Ω *	4 Ω *	2 Ω **
PowerLight 1.0	200 Watts	325 Watts	500 Watts
PowerLight 1.4	300 Watts	500 Watts	700 Watts
PowerLight 1.8	400 Watts	650 Watts	900 Watts
PowerLight 4.0	900 Watts	1400 Watts	2000 Watts

*20 Hz-20 kHz, 0.1% THD; **1 kHz, 1% THD

PowerLight 4.0 Key Features

- ▶ PowerWave™ Switching Technology
- ▶ Advanced Thermal Management System
- ▶ DC Sub-Aura and Thermal Overload Protection
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- ▶ Extreme Light Weight—30 lbs!
- ▶ 6 Year Warranty Available

Three-step, Class H linear output circuitry insures less waste heat, less current demand and excellent signal-to-noise ratio.

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AUDIO

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NOLOGY™



ric equalizer is used for system EQ.

Also purchased for Paisley Park were two L27 15-inch floor monitors, six L24 wedges with 12s in flight cases, powered with PPA 1200 amps and five SA2310 dual-channel graphic equalizers, which, along with half the P.A., used as sidefills, were flown to Japan for recent shows there.

Stage Accompany USA, 6573 Wyndwatch Dr., Cincinnati, OH 45320. Tel. 513/624-9977; fax 513/232-8709.



Woodworx MAX 3.5

WOODWORX

Woodworx of Greensboro, NC, manufactures the three-way trapezoidal MAX 3.5 enclosure which is 36x30x22.5-inches. The 215-pound enclosure is JBL-loaded with two custom 12-inch, 600-watt, high-excursion drivers, plus two 10-inch speakers. A 1.5-inch exit Radian compression driver is mounted on a round 50° wave guide. The MAX 5.0 is the companion double-15 sub-woofer. The furniture-quality enclosures are made of 13-ply Baltic birch, have contoured corners, double-thickness baffle-board construction, and include flush-mounted Aeroquip® L-track hardware on all four sides. The system is typical of those used for Roadworx's national touring accounts.

Roadworx is the sister touring company to Woodworx. Roadworx powers its MAX 3.5 systems with AB Systems 9620 amplifiers on the lows, 9420 amps on the mids, and a custom 4-channel AB Systems amp for the highs. The "MAX" line also includes speakers with both single and double 12s, in trapezoidal enclosures or floor wedges, called the MAX 1.5A, 1.5M, 2.5A and 2.5M. The single-space MXC-42 4-channel, two-way crossover incorporates phase alignment and EQ contouring for four channels of these MAX-series speakers.

Woodworx Audio Products, 402 Edwardia Dr., Greensboro, NC 27409. Tel. 910/855-5600; fax 910/855-1488. ■

—FROM PAGE 161, STEVE MILLER

ous wireless transceiver systems, but Carl Countryman admits that it was pressure from Miller's monitor system engineer, Steven McCale, that prompted development of the Sennheiser-compatible model.

"We had been putting it off, because it's not that easy to do," says Countryman. "There's so little electrical power available [from the Sennheiser transmitter], it's hard to design the microphone so that it won't overload under rock 'n' roll vocal conditions. In fact, our headsets have higher headroom than anyone else's, under a given set of circumstances."

The Isomax microphone is available in cardioid and hypercardioid patterns and, according to Countryman, has better gain-before-feedback characteristics than most handheld cardioids and hypercardioids. Countryman describes the element as "about the size and shape of half a stick of Dentyne chewing gum," and the side-address pattern allows the capsule to be positioned along the side of the face, near the corner of the mouth but out of range of breath popping. This arrangement "minimizes the size of the wind-screen you have to use, and it's more attractive from a visual point of view," explains Countryman.

SOUNDS LIKE A 58

The microphone's frequency response is purposely modeled on that of a Shure Beta 58. During development, a raw prototype capsule was mounted on a test subject and compared with a Beta 58 by feeding the two microphone signals to a digital signal analyzer. The resulting difference curve corresponded to the EQ needed to make the raw diaphragm sound like the Beta 58; that EQ is built into the mic's electronics. (A model designed for regular phantom-powered mic lines has a slightly smaller capsule, as the electronics are housed in the XLR connector.)

Why mimic the Beta 58? "We looked at the market and asked ourselves, 'What do these people want this to sound like?' We [could have made] it sound like a lot of different things, [but we decided that] we wanted it to sound like the world's leading vocal microphone, because that's what it's going to be compared against," says Countryman.

The Isomax capsule is sonically different from the Beta 58 in a couple of ways. "We discovered that if [the sound] was perceived to be too thin, the instinct was to try to bend the booms

around...and use proximity effect to put more bass in," says Countryman. "Then, of course, you get popping, and the visual appearance goes to hell."

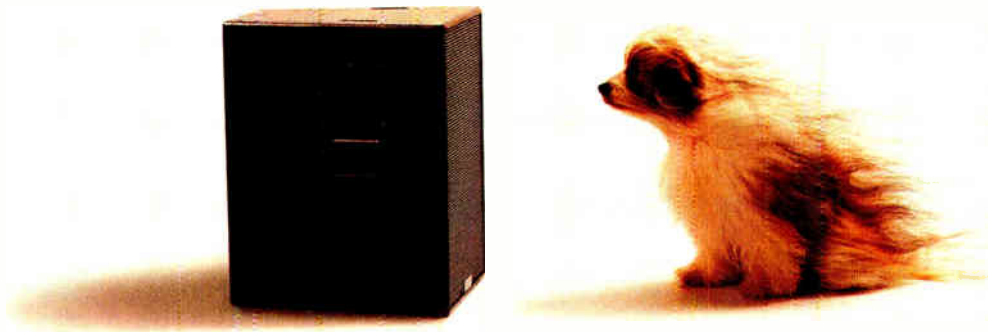
On the other hand, an informal survey revealed that if the sound was perceived as too warm, most mixers' first instinct was to take bass out with EQ. "So we deliberately made it 4 dB warmer at 100 Hz than the 58—the majority of people would find it okay or needing to have low end removed. That way, we're encouraging people to keep the good visual appearance," Countryman says.

The Isomax is a condenser microphone, and the high-frequency response goes out further and flatter than the Beta 58, adding "more of a condenser-y sibilance to it than the 58," says Countryman. "Most people find that attractive, or they can easily get rid of it." Countryman's design philosophy is obviously a success: the company OEMs the microphones to Shure at the rate of several hundred a month (it is resold as Shure part number WCM16).

WATERPROOF CONNECTION

Steven McCale's company, Soundproof Enterprises (Kimberling City, MO), takes care of all the packaging and customization requirements of Miller's gear, including a special Rayban sunglasses-mounted headset for Miller and a swivel boom for Norton Buffalo, who needs to move the microphone away from his face when playing harp. McCale also specified a quick disconnect feature that would allow for microphone element replacement onstage. But because Miller wears the microphone wire connecting headset and transmitter under his shirt, the logical location for the disconnect is at the neck, where sweat could pose a problem. Countryman eventually found a waterproof connector designed for diving applications, and the system has been trouble-free.

McCale and assistant monitor mixer Dave Skaff divide the band's mixes between them, with McCale handling mixes for Miller, saxophonist Bobby Malach and bassist Billy Peterson. McCale and Skaff each use a Midas XL-3 40-input monitor console with a 24-channel extender to create seven discrete stereo mixes. "The concentration and precision are too much for one person to handle more than two or three people at a time," says McCale, adding that the complexity of the monitor mixes "has to do with the intricacy of the effects. It's such a critical environment when you're listening to it with



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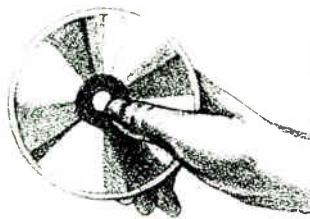
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Among the signal processing devices that McCale and Skaff use are multiple Eventide H3000 Harmonizers, TC Electronic M5000s, and Yamaha SPX990 and SPX1000 units. McCale also uses a UREI LA-22 on Miller's vocal, enabling full dynamic range in performance, from the full-on, high-register "Whooh, whooh" and rock vocals of the Steve Miller Band material to breathy Jimmy Reed songs and the lengthy talking blues introduction to "Gangster of Love," which opened the Fillmore set.

MEDIAMATRIX MONITOR ROUTING

The monitor mix area is surprisingly clear of additional outboard gear. McCale uses a 16x16 Peavey MediaMatrix* to create the monitor system mix bus EQs and limiters and to manage routing. As McCale describes it, the MediaMatrix allows him to create almost any signal processing chain he can imagine; he simply selects from among the 180-plus preprogrammed functions and processes and then customizes as necessary. The Windows-based interface allows for quick and intuitive creation of complex setups. Retrieval is similarly painless; the complete monitor routing plan for the support act can be implemented with a few mouse clicks.

Designed primarily for permanent installations and complex audio signal routing applications, MediaMatrix does not include reverb effects. But by expanding the current 16x16 configuration to 32x32, McCale aims to replace all external gating, limiting and EQ devices in the monitor chain by the start of Miller's 1996 tour. Does McCale have any qualms about consigning primary monitor routing, EQ and limiting functions to a computer and software? "Properly backed up, those systems are the most reliable stuff on stage in 1995," he claims, explaining that UPS (uninterruptible power supply) systems are fundamental to all of Miller's wireless systems.

At the end of the monitor mix signal chain, backup protection limiting is provided by Aphex Dominators. Future Sonics Radio Stations distribute the various mixes to the musicians' Future Sonics Ear Monitors*, and a comprehensive routing system designed by Soundproof Enterprises allows for "on-air" monitoring of the various mixes. Are

the mixes onstage very different from each other? "Absolutely," says McCale. "Radically different. It goes to show you what different people consider a good monitor mix."

NO ROOM AT THE IN

The benefits of in-ear monitoring for musicians and monitor mixers are widely appreciated and understood. But the in-ear system also fundamentally changes the FOH mixer's job—for the better. "You and I could have a conversation onstage with the band playing full bore and the only thing you could hear would be the drums," says Miller's manager and FOH mixer, Scott Boorey. "It's the closest thing to being in a studio I've ever seen. You hear every single thing you do."

At the Fillmore, Boorey was mixing through a Yamaha PM4000, though his console of choice is the ATI Paragon. "What I love about the Paragon is the dynamics that are built in are fantastic," he says. "The gating and compression are great, the EQ is 4-band, with fully adjustable Q, and it's just so warm. I've never heard a live console that sounds that way." But the Paragon is a big console, and the second-floor Fillmore lacks a freight elevator. "We could not physically get an ATI in the building," explains Boorey. "The PM4000 offered the sends and returns that I needed, and I'd used it one other time, with Mr. Big, on a Pacific Rim tour last year." As it turned out, the PM4000 supplied by Clair Bros. barely fit into the Fillmore's FOH mix enclosure.

Bypassing the PM4000 mic preamps, Boorey runs Miller's vocal into an ATI Pro* multimode audio processor (essentially a rack-mount version of the Paragon input module), and then through a Brooke Siren 901, which he uses primarily for EQ. Before returning to the PM4000 as a line-level insert, the signal runs through an ADL 1000 tube compressor, which Boorey claims is "as close to an LA-2A as you can get." Boorey actually owns a Teletronix LA-2A but prefers not to risk the vintage compressor on the road.

FANCY FOOTWORK

One advantage of the Isomax headset system is it ensures that the microphone capsule is always the same distance from the singer's mouth. However, this means that the singer is unable to turn away from the mic to cough or communicate with other musicians or crew. Boorey and McCale have overcome this problem by linking a footswitch to the

Paragon input module in Boorey's rack; whenever Miller steps on the switch, his vocal signal is ducked completely in the FOH mix only, enabling him to communicate privately with the band and monitor crew through the monitor mix.

Guitar cabinets for Miller and Kenny Lee Lewis are set offstage in isolated cabinets and miked with long-unavailable AKG D-12Es. The Leslie cabinet for Joseph Wooten's keyboards is similarly isolated in an enclosed road case and miked with two AKG 460s on the top and an EV RE20 on the bottom. Gordy Knudtson's drums have AKG 414s on overheads, a Shure SM57 on snare, internally mounted AKG D-112s in the toms, and a Shure SM91 PZM on kick drum, though McCale also sets up a D-112 to capture kick drum for the monitor mixes. Billy Peterson's bass and the non-Leslie'd keyboards go direct. From a visual standpoint, the effect is a bit unsettling. With no amps, monitors, vocal-mic stands, or instrument leads in sight, the set reminds one of those mid-'60s TV shows on which acts blatantly mimed to playback. Sonically, however, the setup has definite advantages.

"When I'm mixing live with Steve, compared to other acts, the old adage 'less is more' is truly reality," says Boorey. "If I use the right mic and the right mic preamp and I put the mic in the right spot, I find I use very little EQ."

CUSTOM RACKS

Boorey's FOH setup includes two outboard racks he has specifically configured for the Miller show by combining some of his personal equipment with Miller's. For reverb, he uses four Yamaha SPX990s with a chip upgrade (the current ROM chip supplied with new units is Version 1.4), a selection he made after extensive listening tests against a Lexicon 480L at Fantasy Studios in Berkeley, Calif. Although he admits that the \$14,000 Lexicon is a better-sounding unit than the \$1,149 SPX990, he notes that in a live situation, he "stuck a 480 out there against a 990 with the chip upgrade, and I don't think you can tell."

Another Boorey favorite is the BSS DPR 402 compressor/limiter, which he uses as a de-esser on the electric guitars of Miller and Kenny Lee Lewis; both of whom use single-coil pickups, which Boorey sometimes finds a little bright. Other dynamics units include a dbx 160X for bass and a Drawmer DL441 4-channel compressor for backing vocals. Clair Bros. system engineer C.J. Patterson uses a Klark-Teknik 504 quad com-

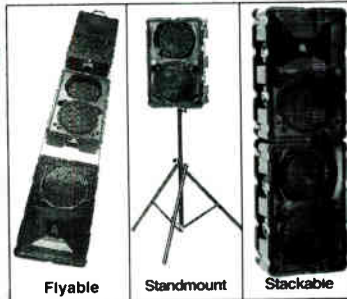
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pressor/limiter for support acts, which he mixes through a 16-input Soundcraft 200B that is returned to the Yamaha PM4000 through line inputs. Separate microphones and splitter snakes for the support acts ensure that set changes do not disturb the Miller band setup.

A veteran of many Steve Miller tours (Miller is a Clair Bros. client of long standing), Patterson uses a TC Electronic TC 1128/TC 6032 programmable graphic equalizer system to EQ various components of the P.A. Though the tour was carrying a complement of Clair S4 cabinets, these stayed in the truck for

the Fillmore shows, as the house system includes two hanging clusters of Meyer MSL-3s with underslung UPAs angled for downfill and R-650 subwoofer cabinets. Patterson augmented this comprehensive and professional system, typical of Bill Graham Presents-promoted shows, with Clair Bros. front-fill speakers positioned on the lip of the stage.

RECORDING BLUES TO DIGITAL WITH DESIGN FX

Surprisingly, for an artist whose career spans four decades, Miller has released only one complete live album. (Parts of 1971's *Rock Love* are live, and the Steve Miller Blues Band backs Chuck Berry

on his *Live at the Fillmore* LP.) Which is not to say that Miller shuns live recording—apparently, Boorey recorded 50 shows in 1994 on ADATs, but, due to a variety of technical problems, only 13 complete shows were recoverable. Somewhat soured on the ADAT format and not yet ready to commit to an alternative MDM setup, Boorey contracted engineer Bobby Summerfield to record the four nights at the Fillmore; Summerfield in turn specified the Design FX recording truck. Formerly the Record Plant No. Three truck, Design FX still contains the custom API console that chief technician Jack Crymes had built in the 1970s. At press time, the console was undergoing a long-planned upgrade and will re-emerge with all-new input modules, though the original 550A EQs will be retained.

Recording was straightforward. Though Summerfield mixed each show to create a soundtrack for a single-camera videotaping, most of the mics were patched directly from the API's mic pre-amps to the inputs of a Sony 3348 48-track digital recorder. Some of the API 550A EQs were in use, and a few channels were run through compressors, but Summerfield's brief was to capture the material as cleanly as possible. McCale had specified and built what Marty Garcia of Future Sonics describes as "one of the most sophisticated packages out on the road today," but the companding action and less-than-ideal frequency response of the wireless system prompted Summerfield to request hard-wired vocal mics for the Fillmore dates, an idea that Miller promptly and decisively vetoed.

Whatever the sonic compromises of wireless systems, they are more than outweighed by the advantages of in-ear monitoring and manageable-to-negligible onstage instrument levels. The musicians enjoy a better-defined, personally tailored and consistent monitor mix, the front row audience is spared an overdose of guitar stacks, and the FOH mixer has an unprecedented degree of control. And everyone benefits from cleaner mixes at lower SPLs.

"I did heavy metal for years, and I'm at a point now where I don't want to touch it," says Boorey. "I like the fact that my ears don't ring any more—my ears haven't rung in two years. I go out for three or four months with Steve Miller and do a 50-date tour, and at the end of the tour, my ears are just as good as the day I left. I like that." ■

Chris Michie is Mix's technical editor.

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The chassis houses Class II amplifier circuitry, with a two-speed fan and an internal limiter to prevent clipping. Front panel LEDs indicate power as well as Signal, Limit and Protect mode for each channel. Retail is \$995.

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RECORDING NOTES



PHOTO: WILLIAM CLAXTON

MARK ISHAM RETURNS TO HIS JAZZ ROOTS

By Blair Jackson

Having lived in the San Francisco Bay Area for more than 20 years, I still think of Mark Isham as a jazz trumpeter, first and foremost. I fondly remember his days with an adventurous acoustic group called Rubisa Patrol, spearheaded by pianist Art Lande, which played local clubs in the mid-'70s and cut two records for Manfred Eicher's then-blossoming ECM Records. Isham had definitely been schooled in Miles Davis cool, but he also brought his own fire and invention to his instrument. A few years later, Bay Area audiences embraced a fresh,

lively fusion ensemble led by Isham and guitarist Peter Maunu called Group 87.

Isham made a number of fine albums under his own name, he's toured with artists as diverse as Van Morrison, the Beach Boys and David Sylvian, and done sessions for the likes of Bruce Springsteen, the Rolling Stones, Robbie Robertson, Willie Nelson and Toots Thielmans. But these days, Isham is probably best known as one of the A-list composers of feature film music. His credits include *Never Cry Wolf*; Alan Rudolph's quirky *The Moderns* (for which Isham received Oscar and Grammy nominations); the Robert Redford films *A River Runs Through It* and *Quiz Show*; Jodie Foster's films *Little Man Tate* and *Home for the Holidays*; the Sandra Bullock vehicle *The Net*, and many others. (He also received an Emmy nomination for his theme for the

TV series *Chicago Hope*.) It's been a varied career, to say the least, but always on an upward spiral.

"You make interesting choices when you decide to make music a profession," Isham comments. "I was never one of those people who chose to drive a cab but play only jazz. I have a deep enough education in

—CONTINUED ON PAGE 190



PHOTO: LORI KRAUSE

Stephen Krause

SEPULTURA

METAL MAYHEM FROM BRAZIL

by Robyn Flans

Hanging out in the studio with Sepultura is a study in contradiction. The bandmembers are almost mild-mannered in the idyllic and serene setting of Indigo Ranch, which overlooks the Pacific Ocean. In the studio, there is an overpowering smell of stale incense from the day before, as producer Ross Robinson describes the guys as "angels." But play back the tracks they've been working on for their new project, *Roots*, and you hear manic musical and political warfare.

"When they get with their instruments, all their eye-



PHOTO: GEORGE CHIN

L to R: Andreas, Igor, Paulo and Max



PHOTO: KEVIN ESTEVAZ

Carlinhos Brown

brows point down," comments Robinson of the Brazilian metal band that has broken down language barriers with a common de-

nominator of music and sold more than 300,000 copies of their last album, *Chaos A.D.*, in the U.S. alone. They've gone Gold in such countries as Australia, Indonesia and the Czech Republic after touring the world, and the release of their new album in March is eagerly anticipated by fans all over the planet. "There's no holding back in this band," con-

tinues Robinson. "Igor [Cavalera] is the baddest drummer I've ever seen in my life. He's like a monster hunched over his drum kit. He slams so hard, and I feed off it so much."

Robinson, the 28-year-old producer who brought Korn to the foreground and has also worked with For Love Not Lisa, Funk Junkies, Deftones and Beats the Hell Out of Me, is of the theory that recognizing each individual

—CONTINUED ON PAGE 192

BRYNDLE

A SUPERGROUP 25 YEARS IN THE MAKING

by Robyn Flans

The year is 1970. Four unknown young talents by the names of Wendy Waldman, Karla Bonoff, Andrew Gold and Kenny Edwards cut their debut album for A&M Records with newcomer producer Chuck Plotkin at the helm. The group calls itself Bryndle, as in a brindle animal with many colors, changing the I to Y as is the vogue of the era. When the project is shelved, never to see the light of day, hearts are broken, and the foursome go back at the Carolina Lanes, a

nude biker bar near LAX, playing top 40, until they decide to call it quits.

Cut to 25 years later, Wendy Waldman moves

back to L.A. from Nashville after success as a hit songwriter ("Save the Best for Last" and "The Sweetest Days" by Vanessa Williams;

"Fishin' in the Dark" by the Nitty Gritty Dirt Band), a producer (Suzy Bogguss, Forester Sisters, Jonathan Edwards) and seven critically acclaimed solo albums. She runs into the other three former members of Bryndle.

Karla Bonoff also has been writing hits such as "Someone to Lay Down Beside Me" and "Lose Again" for Linda Ronstadt, "Home," for Bonnie Raitt and Wynonna's "Tell Me Why." She scored with her own hit, "Personally" in the early '80s, and more recently with "Standing Right Next to Me," and put out her share of successful albums.

—CONTINUED ON PAGE 194



(L to R) Kenny Edwards, Wendy Waldman, Andrew Gold, Karla Bonoff

THE EVERLY BROTHERS'

"CATHY'S CLOWN"

by Blair Jackson

Bob Dylan once said of the Everly Brothers, "We owe those guys everything. They started it all." John Lennon and Paul McCartney were Everlys fanatics who modeled their own vocal blend after the tight harmonies of Don and Phil Everly. Before the duo known as Tom & Jerry became Simon & Garfunkel, they recorded a song that was clearly inspired by the Everlys. The Byrds, The Hollies, the Flying Burrito Brothers and The Eagles all acknowledged their debt to the Brothers' unique sound, and the number of singers and bands influenced by those groups is incalculable.

Though the Everly Brothers have historically been linked with other pioneers of rock 'n' roll's first Golden Era, they always stood apart from the other great innovators because their roots were more in rural Southern white music traditions than the blues and R&B that drove so many of the first-generation rockers. Indeed, Don (born 1937 in Brownie, Kentucky) and Phil (born 1939 in Chicago) were born into a family already steeped in country music. Ike Everly, their father, was a well-respected guitarist who had been raised on both white and black country styles; indeed, he is frequently cited as one of the major influences on the great country axeman Merle Travis. After many years of traveling the mid-South and Midwest, being based first in his home state of Kentucky and then in Chicago, Ike Everly landed a show on radio station KMA in Shenandoah, Iowa, in 1944, and he moved the family there. Shortly after that, Don and Phil began appearing on Ike's program, and by 1949, they were regulars on the show, lending their angelic harmonies to traditional mountain tunes popularized by influences like the Blue Sky Boys, the Stanley Brothers and the Louvin Brothers.

In 1953, the family moved back to Kentucky (this time Knoxville), and the following year Don and Phil got their first break when a family friend, guitarist Chet Atkins, picked one of Don's early compositions, "Thou Shalt Not Steal" for Kitty Wells to record. Atkins further convinced the brothers to move to



Phil and Don Everly

Nashville to try to break into the business as a duo act. It was tough sledding in Music City for the Everly Brothers until Wesley Rose, the famed Nashville music publisher, heard a tape of the boys and convinced Archie Bleyer, the owner of the New York label Cadence Records, to make a record with them. Bleyer had made his name and fortune arranging and producing mainstream acts like Arthur Godfrey, but he wanted to open a Nashville office for Cadence, and the Everlys provided him with a much-needed foothold in that city.

The first song Bleyer cut with the Everlys was recorded at RCA Studios in Nashville on March 1, 1957—"Bye Bye Love," written by the hitherto unknown local husband-wife songwriting team of Boudleaux and Felice Bryant, became an instant national smash for the Everlys, making it to Number Two on the pop charts, Number One on the country charts and even Number Five on the R&B charts. Over the next six years, the Everlys would land a staggering number of tunes on the upper reaches of the charts, including a passle by the Bryants—"Wake Up Little Susie," "Bird Dog," "All I Have to Do Is Dream," "Devoted to You," "Problems," "Poor Jenny," "Like Strangers"—and a handful penned by Don or Phil, such as "(Til) I Kissed You," "When Will I Be Loved" (which was an even bigger hit

for Linda Ronstadt in 1975), "So Sad," and this month's Classic Track, Don's stirring paean to teenage romantic angst, "Cathy's Clown."

By the time the Everlys recorded "Cathy's Clown" in early 1960, their recording style was already very well-established, and with just a couple of exceptions, all their hits had been recorded at RCA Studios in Nashville. Archie Bleyer generally liked a spare instrumental sound surrounding the brothers' reverb-laden harmonies. And he and Wesley Rose hired some of the best Nashville players of the day to accompany the singers, including guitarists Chet Atkins and Hank Garland, pianist Floyd Cramer, bassist Floyd "Lightnin'" Chance and drummer Buddy Harman. When the Everlys jumped from Bleyer's Cadence label to the fledgling Warner Bros. (signing a ten-year deal worth more than a million dollars, very big bucks for the day), their association with Bleyer ended, and Phil and Don began producing themselves with the assistance of engineer Bill Porter, who came to RCA Nashville in March of '59, and their manager, Wesley Rose.

Porter (who also engineered January's Classic Track, "Only the Lonely" by Roy Orbison), almost didn't get the opportunity to work with the Everlys. On the evening in May 1959 when Archie Bleyer brought the duo into RCA Studio

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cally, I drove the EMT very, very hard—technically incorrect. The EMT was in a room all by itself, and the air conditioning kept that part of the building very, very cold, so the sound just sparkled. I had [the EMT] so tight that the springs would break on a frequent basis. I'd have to go back and put new springs on, because I had it as tight as it would go, literally. But I wouldn't tell New York what I was doing. I wasn't going to tell them a damn thing!"

Porter did try one interesting sonic experiment on "Cathy's Clown": "If you listen closely," he says, "the drums sound like two drummers playing. I had gotten a tape loop from RCA New York that ran 60 ips, and there were four different playback heads which you could switch in and out and then move them around the tape path. So I heard this rhythm pattern and I thought, 'God, this would be great for this song,' so I asked Wesley Rose if I could use the tape loop on the drums. He said, 'I don't care.' So I hooked it up, fed it back into the console and got the balance, and then I switched it off on the verse and on during the bridge. I just did it manually with a switch. It's right in tempo and right in sync, so it gave the effect of two totally different drum sounds. That became the biggest record they ever had."

Indeed, "Cathy's Clown" marked an auspicious start for the Everlys' relationship with Warner Bros. The record was released on April 4, 1960, and by May 23 it had nudged Elvis Presley's "Stuck on You" out of the Number One slot, and it remained at the top of the charts for five weeks. For the next three years, the Everlys would score a number of other hits for Warner Bros., including "So Sad (to Watch Good Love Go Bad)," a version of Little Richard's "Lucille," "Ebony Eyes," "Walk Right Back," "That's Old Fashioned" and, another personal favorite of mine, "Crying in the Rain." Archie Bleyer continued to cash in on the duo for a while by releasing tunes from the Cadence vaults, including "When Will I Be Loved" and "Like Strangers."

By the end of 1964, though, the phenomenal string of hits had ended for the Everlys, as the British Invasion swept America, and the Brothers' look and sound suddenly seemed quaint and dated to many people (even though the brothers were still only in their mid-20s). Ironically, the Everly Brothers continued to be wildly popular in England all through the '60s and up until their acrimonious break-up in 1973. When

Don and Phil reunited in 1982, after a decade of solo work, they made their performing debut in London, and one of the first albums they cut after their comeback was produced by British rocker Dave Edmunds (who had once cut an EP of Everly Brothers songs with his buddy Nick Lowe).

The Everly Brothers' place in history is secure, and their influence on the popular music of the second half of this century is pervasive. There are a

number of fine anthologies of their work on the market, with the best clearly being the Rhino 4-CD *Heartaches & Harmonies* box. Before hearing that set, I was familiar with most of their hits and a few other tracks here and there, but the Rhino box shows the incredible depth of their catalogue, and the quality of the material from the mid-'60s to the early '80s was a real revelation to me. It's a glorious trip down memory lane. ■

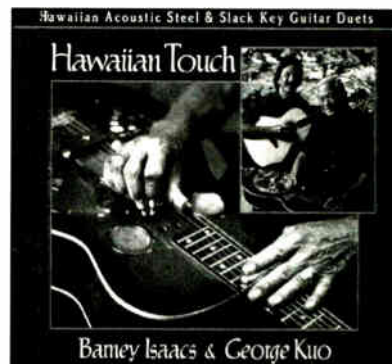
—FROM PAGE 186, TEN NEGLECTED GEMS

cording (Atlanta). Mastering: Howie Weinberg, Masterdisk.

Richard Greene: *The Grass Is Greener* (Rebel). Sprightly, beautifully executed album of bluegrass instrumentals (of all things) by one of the genre's best fiddlers (Greene), modern banjo pioneer Bill Keith, guitarist David Grier, mandolin ace Kenny Blackwell and bassist Tim Emmons. A nice range of musical feelings. Producer: Richard Greene. Engineers/Mixers: Bil VornDick, Larold Rebhun. Studios: Music Row Audio (Nashville), Stagg Street Studio (Van Nuys, Calif.). Mastering: Not listed.

Linda Ronstadt: *Feels Like Home* (Elektra). Linda Ronstadt "neglected"? Well, not compared to these others, but compared to her salad days, yes. And this is one of her best ever—great songs (including Petty's "The Waiting" and Neil Young's "After the Goldrush"), wonderful guests (Emmylou Harris, Valerie Carter, Alison Krauss, David Grisman), all immaculately recorded. Producers/Mixers: George Massenburg, Linda Ronstadt. Engineers: George Massenburg, Nathaniel Kunkel. Studios: The Site (Marin County, CA), Jim Brady Recording Studios (Tucson), Conway Recording Studios (L.A.), Studio F (L.A.), Skywalker Studios (Marin County, CA). Mastering: Doug Sax, Gavin Lurssen and Ron Lewter of The Mastering Lab.

Barney Isaacs & George Kuo: *Hawaiian Duets* (Dancing Cat). Incredibly enough, this is the first album ever made of Hawaiian acoustic steel and slack key guitar duets. Beautiful, lilting Island melodies recorded impeccably, as is everything on the Dancing Cat label. Producers: George Kuo and George Winston. Engineer/Mixer: Howard Johnston



(additional engineering by Mark Sledge and Mike Makino). Studios: Audio Resources (Honolulu). Different Fur Recording (S.F.). Mastering: Bernie Grundman.

Sonny Landreth: *South of I-10* (Zoo Entertainment). A tasty gumbo of New Orleans and other roots-rock influences from one of the great young guitarists on the scene. Guest appearances by Mark Knopfler and Allen Toussaint. Producers: R.S. Field and Sonny Landreth. Engineers: Dave McNair and Tony Daigle (additional engineering by Judie Stephens). Mixer: Dave McNair, Richard Dodd (one song). Studios: Dockside Studio (Maurice, La.), Cedar Creek (Austin, mix only), House of David (Nashville, one song). Mastering: Randy Kling and Richard Lescallete, Disc Mastering.

Bill Frisell: *Music for the Films of Buster Keaton—"Go West"* (Nonesuch). Strange, moody, atmospheric and always interestingly moderne instrumentals from master guitarist Frisell, bassist Kermit Driscoll and drummer Joey Baron. Makes me want to see the film *Go West*. Producer: Lee Townsend. Engineer: Oliver DiCicco. Mixer: Judy Clapp. Studio: Mobius Music (S.F.), Different Fur (S.F., mix only). Mastering: Greg Calbi, Masterdisk. ■

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—FROM PAGE 182, MARK ISHAM

music that I decided to use that ability to make it my profession. So when an opportunity to do something like film scoring arises, it's hard for me to say no."

Though scoring work pays the bills nicely for Isham, he has not abandoned his roots. In fact, he's finally made the first straight jazz album of his career, *Blue Sun*, for Columbia, and it's a beauty. Isham unflinchingly says that Miles Davis' towering 1959 LP *Kind of Blue* was a model for making *Blue Sun*, which Isham and his band cut mainly live over the course of six days at Conway Studios in Los Angeles. "*Kind of Blue* is one of the greatest albums of all time because everything on it is so simple and so strong," Isham says. "It's lean in a cool and sensual way. I set out to do something similar with *Blue Sun*. I wanted to write cleanly and simply and let the sound of the instruments tell the story. It's got that '50s cool, but obviously the band is playing with today's sensibilities. There's a great vocabulary of music we all know and use—from the 'cool jazz' guys to groups like Weather Report and great musicians like Keith Jarrett—as a means of interacting and conversing with one another. I wanted to get a mood, a vibe and a concise statement with my band instead of documenting the virtuosity of our performances, and this recording does that."

Considering how much of Isham's time is taken up by his film work, it's remarkable that he's also been able to keep a group together. In fact, it hasn't been easy. "I started the band about three years ago, and actually this band, without [sax player] Steve Tavaglione, went out to support my last Virgin record. We were playing our electric instruments. Then when the deal with Virgin sort of collapsed, I said to the guys, 'Look, I really love playing with you, but I no longer have any record company support.' I said, 'Do you feel, as I do, that this is a pretty interesting band?' And they all said yes, so we tried to keep it going as a local, bring-your-own-stuff band, and in fact, we became an acoustic jazz band—that's what we all started off doing anyway. So we started playing in clubs down here [in Los Angeles]—places like Le Cafe and the Belle Age, the Baked Potato, doing a weekend every month, and now we've been doing that for a couple of years. A couple of saxophone players have come through, but

Tavaglione ended up sticking. The band has really developed its own personality." Besides Isham and Tavaglione, the group consists of pianist David Goldblatt, electric bassist Doug Luna, and drummer Kurt Wortman, who goes all the way back to Isham's Group 87 days.

With its muted trumpet lines and spacious arrangements, *Blue Sun* does harken back to some of Miles Davis' best records from the '50s and '60s, but I should stress that this is neither a rip-off nor a "tribute" per se. Songs like "Blue Sun," "Tour De Chance" and "The Beautiful Sadness" are brilliant compositions on their own merits, and the performances by the quintet throughout the record are inspired enough that the music defines its own "cool" form. And, of course, as was the case with the classic Miles sound, the "cool" here is actually warm and inviting.

The album also has its own sonic aesthetic, designed by Isham and his engineer of eight years, Stephen Krause, and drawing on several different traditions. As Isham explains, "I love what Manfred Eicher did for the recording of jazz music [on his ECM label]. He brought a sense of space to the recording. The classic Blue Note [Records] sound is great, too. It has an intimacy, and the quality is so high that the sort of dry, intimate quality is very appealing. You really do feel as though you're right there with the musicians. On the other hand, if the actual recording quality wasn't so good, the dryness wouldn't be so attractive. What Manfred did was take that same purity and clarity of recording and added some depth and space to it. That really appealed to me, because I'm also a big Eno fan and a processing fan and an electronic music fan. So the marriage of these ideas is wonderful to me. I look to Manfred's recording style as sort of an ideal, in a sense, but in the mixes for this record, I actually asked Steve to pull the ambiences back a little bit more than I would have in the past, or than Manfred might have, because I wanted the band to keep sounding like a real jazz band, and come back a little more to the Blue Note feeling.

"To me, the big question was, what are you going to do with those horns? Are you going to have them up front leading the band, or are you going set them back in the band to get a bigger band sound? I opted for the slightly more old-fashioned approach where the horns are a bit louder than you might have them on modern records.

At the same time, our approach on piano was probably more like Manfred's—that beautiful, almost classical sound, but closer than the classical purists would do it."

The album was recorded in Conway's Studio C, on a Focusrite board (with GML automation) and Studer 24-track with Dolby SR. "It was analog all the way. Digital is a nice storage medium for a computer," Stephen Krause says dryly. "I love the Focusrite board at Conway," he continues. "I've carried around Focusrite modules for years. I view the Focusrite as sort of the logical successor to the 8078, which was the last board Rupert designed for Neve. Also, in the last few years I've been buying some wonderful microphones that I got to use on this record. I got some of the [Neumann] 67 reissues, which I love, and then I have some of the new [AKG] C-12VRs, which is a beautiful microphone. It's not the same as the original; it's actually probably better, but it *is* different.

"I also used some older Neve modules, 1073s, for the saxophone and the trumpet. So the trumpet is U67 through one of the Neves, through an LA-2A. Saxophone was a C-12 through a Neve through an LA-2A. Bass was electric, so it was direct through the board, to a dbx 160. The horns and bass player were together in the main room, while piano and drums were isolated in adjoining small rooms. For drums, I mainly just used three mics: two [Neumann] KM130s in front, and a C12VR as an overhead. Piano was two 67s into the Focusrites [modules] direct to tape.

"We went for isolation in case somebody made a mistake, but we ended up doing almost no fixes on the record; really just a couple," Krause continues. "Most of what's on the record is second or third takes. In that way it had that traditional jazz attitude. It's not live-to-2-track, but at times it was almost treated that way. The other thing is that when you have five guys who play together live that much, if you try to change something [later] that was done live, you find out that the other guys were reacting to what was happening live and it loses its cohesiveness [if you change one part]."

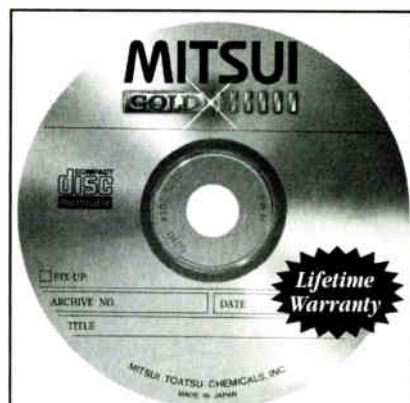
Krause says that nearly all the ambience we hear on the record was created, rather than capturing Conway's room sound. "On the drums, I used an EMT 250," he says. "Piano was a PCM80; sax and trumpet were PCM80 with a little AMS 1580—just a little bit of delay, not so much for effect as for

ambience." Part of one piano track also featured a long reverb from a Prime Time 2 "for that Harold Budd-Brian Eno-Roger Eno effect," he says with a chuckle.

Another element that gives several songs an interesting textural depth is the subtle use of trumpet loops by Isham, guitar loops by Peter Maunu and David Torn and vocal loops by Lisbeth Scott, the last recorded at the Sound Chamber in North Hollywood. "The trumpet loops I made live," Isham says. "I had a [Lexicon] JamMan hooked into the signal path, and a foot pedal that could turn it on and off and put it onto another track [of the 24-track]. Some of the Torn stuff came off a CD-ROM he made. I had a little Powerbook set up while we were playing, and each key would fly in a different loop. Lizbeth's vocal loops and Peter's loops were made afterward, but I didn't let them hear anything. I went in with a DAT machine and just made a whole bunch of loops with them, and then I flew them in later."

Krause reveals that one sonic experiment he and Isham tried on the record didn't go as planned, however: "The song 'And Miles to Go...' was supposed to have some computerized sequenced elements to it. It had been conceived that way and rehearsed that way. For some reason, though, the first time we tried that, it got into computer hell. There was a little drum loop, and Kurt [Wortman] was supposed to play around that and then there were some ambient things going on. But it just didn't happen. We spent three or four hours on it—which we didn't do on any other song—and it got really frustrating, so we ditched it for a while and went on to something else. We came back to it two or three days later, tried it again and the computer just kept trashing it. So finally we just did the tune without the computer, and it came out beautifully. In fact, it was the best thing that could've happened to that tune. Everybody just played what they felt instead of following a pattern and a click and all that stuff. Technology—sometimes it's better to throw it out the window and play it live."

Generally speaking, ten days to record and mix an album sounds like speedy work, but according to Krause, the pace seemed leisurely compared to how he and Isham work on film scores. "Films are so fast," he comments. "When we finally got around to *Blue Sun*, it was like, 'Wow, I can take an hour to get a drum sound?' With a film



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you have an orchestra that downbeats at 10:00 a.m., and you better be recording by 10:20. It's not always that strict, but generally you don't have time to fuss with sounds. It's a much different pace. The other thing is that Mark has gotten so much faster through the years."

So fast, in fact, that Krause is increasingly looking for projects outside of his work with Isham to fill his days. But while he's exploring those avenues, there's a new Bruce Beresford film with Sharon Stone called *Last Dance* to do with Isham, and then there's *Large as Life*, starring Bill Murray, and other films and projects that keep stacking up, like jumbo jets waiting to land at O'Hare. *Blue Sun* was a little island of calm in between storms, a lovely way to spend ten days—or if you're a listener, 60 minutes. ■

—FROM PAGE 183, SEPULTURA

soul creates a unique expression. "I hone in on the inside of the person," he explains. "Andreas, Max, Paulo and Igor have such a flavor inside of them that if my eyes are open and I can see what they have to offer, I'm able to know which way to go intuitively, rather than what I know from the brain. I'll be on a talk-back, not even knowing what I'm saying, but it just comes out in the moment," says Robinson, who actually leaves engineer Chuck Johnson in the control room while he "freaks out" with the band in the studio while they're tracking. "I try to make it as deep-root-oriented as possible. It's incredible that this album is called *Roots*. That's totally where I come from and where they come from."

The combination of producer and studio has turned out a project that lead guitarist Andreas Kisser says is very different from the group's previous work. "We've always recorded with new technology and equipment, and in this studio we have all this old stuff, which is what the new equipment tries to imitate. I am messing around with different tunings on the guitar. We're tuning very low now. A sharp, which is about a thousand steps below normal tuning," he explains. "We're trying a lot of different effects like phasers, delays, old MXR pedals and some stuff the owner of the studio, Richard Kaplan, does himself. One pedal that we used Richard calls Bigger Muff, which is a big muffler with a lot of sustain and a lot of distortion, together with some

DOD pedals, phase and delays. It was very dirty, but at the same time clear—controlled dirt. The other great thing is that we have never had the kind of fidelity from amp to tape as we have in this studio."

Igor Cavalera echoes Kisser's sentiments: "The sound was like I never had before. When we walked into the room, it scared us for a minute. It's a very little room to record drums and everything. We're used to recording our albums in huge rooms. I play with very tiny and short 20-inch kick drums, so it was sounding really big inside this little room. Then it had to do with the mics and their skills as producer and engineer."

"Recording the band is tough because they're so overblown," explains engineer Chuck Johnson. "To try to capture that on tape is a real feat. We're right on the edge. We're pushing everything to the limit—tape, equipment, everything. It's pretty aggressive. For us, the best sounds are going to be the brightest, most aggressive. The Dean Jensen custom console here is really clean. We're using all this old outboard gear, the old tube Pultecs, the LA tube limiter, all the good old tube gear for the bass guitar and drums. Our big thing is bottom. If you get enough bottom on tape, then the high-end stuff should just fall into place without having to over-EQ. We do all sorts of wild things. Sometimes we'll just totally distort the drums, over-compress things. On every session we do, we'll do something out of the ordinary."

Which is Sepultura's notion as well. The band recorded their last LP at Rockfield Studios in Wales with Andy Wallace, and cut the song "Kaiowas" live in the ruins of a castle. On this project, they have undertaken several new creative journeys, the first in Corral Canyon, adjacent to Indigo, where they recorded pieces that will be inserted into "Ambush," plus the record's hidden track tag of a lengthy jam with Brazilian percussionist Carlinhos Brown. Robinson had the honor of climbing 200 feet down into the canyon to place the microphones, and two jams ensued, complete with wind blowing and cricket noises

"The mic distance was about 600



yards apart," Robinson recalls. "We had one strung all the way down at the bottom of the canyon, which caught a delay. We had a shotgun all the way toward the studio, at the beginning of the trail, and all the mics in the middle, so we got three hits for every one time. It was a total accident that it was all in-time."

They also took single-engine planes into Mato Grosso, a state in Central Brazil, to record the Navantes tribe. "There was a guy down there with a Fostex 8-track machine that he runs off of a car battery. We recorded onto quarter-inch tape, and we used all eight channels," Robinson says. "It's not supposed to sound perfect. Most jungle recordings are crusty and grimy. But the moon was out, it was summertime and it was magic. Sepultura jammed with them on a song which translates to 'Father God,' that was probably a thousand years old."

Spontaneity is the key for both the band and the producer. "It's usually an accident when I get a sound," Robinson states. "Those are the inspired things, and we keep them. There are no rules, no mistakes. The record is rough, but it makes you feel something. As far as guitar sounds, I hear mixing pedals and distortion pedals, and as far as drum sounds, we don't sample kicks or snares. We just try to get it all real."

For Sepultura, the road to becoming the first Brazillian rock band to make an imprint outside their country has been a long and sometimes arduous one. "In the beginning there would be a gospel festival, and we'd get in it with a fake name, just to get a chance to play," recalls Cavalera. "When we would get on stage, we would scare the shit out of everyone there. You have to be creative there because there is no club scene."

"Sao Paulo had a band called Vulcano and in Rio there was Dorsal Atlantica," adds Kisser. "In Belo Hori-

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zonte there was Sepultura. Only Sepultura survived because we put everything we have in the band. We even left school, and I moved out from Sao Paulo and went to their hometown to live with them in their house for two years when I joined the band in 1987. The most important thing was the family support. If we hadn't had the family and we had to work, we couldn't have had the same luck. That was the difference between the other bands and us. Everyone used to sleep in Max and Igor's house. One time they had 60 people sleeping on the floor, the sink, the kitchen. Max's mom always supported that. My mom supported me when I had to move, and we used to rehearse at Paulo's."

Kisser admits that at first the band sounded a little too much like Slayer, but listening to a variety of music through the years has influenced their sound, and they broadened their lyric perspective considerably since their "death metal" days in the late '80s.

"We always feel we have the challenge to break down another wall," says Cavalera. "There is no compromise with lyrics or music, and whatever we want to do, we can do it in a way that we still sound like Sepultura, and not sound like us trying to be another band."

"Those guys don't people-please," Robinson says. "They stand on their convictions. They don't change, and they don't sell out for anything." ■

—FROM PAGE 183, BRYNDLE

Andrew Gold has had such top ten hits as "Lonely Boy," "Never Let Her Slip Away" and "Thank You for Being a Friend," which became the theme for the TV series *The Golden Girls*. With 10CC member Graham Gouldman, Gold formed Wax UK, who had a series of international hits in the late '80s. Currently, he's heard singing the *Mad About You* TV theme song.

Prior to the first Bryndle, Kenny Edwards had been a founding member of Linda Ronstadt's Stone Poneys. After Bryndle's demise, he returned to work with her on her groundbreaking *Heart Like a Wheel* album. He also produced Bonoff's early solo albums and frequently contributed music to the *Miami Vice* TV series.

Upon reconvening in 1991, the four musicians looked at each other and pondered what would it be like if Bryndle got back together. "I always had wanted to put it back together," Wendy Waldman states. "I felt it was a very

powerful union, that it had a magic and had never had its day in the sun. Strangely enough, everyone wanted to put the band back together, and I said to my husband Brad, 'There's probably not much anybody could offer to me that would keep me from risking it all to get Bryndle back together.'"

"Whenever you've known people since you were a teenager and you shared a lot of intensity, there's a common bond," explains Karla Bonoff, who, along with Waldman, takes care of the band business. "We grew up together, so we have a sibling kind of connection that's sort of always been there. There was something very magical about this band. Now we're just better at all of it. It was a great relief to know that we knew what we wanted to do and how we wanted to do it and how to go about it, that we weren't sitting there going, 'How do you make records?' 'How do you sing through a microphone?' That's how young we were [the first time]; we had no idea how to do it. We had a producer who had never produced a record and an engineer who had never engineered a record. They all went on to great things, but no one at that time knew how to take control of the situation."

This time, at the outset, the musicians weren't sure that they should produce themselves. Plotkin had gone on to produce the likes of Bruce Springsteen, so they turned to their longtime pal Josh Leo, who in turn brought along engineer Steve Marcantonio, to help them realize their vision. With four strong personalities producing along with Leo, recording their self-titled debut on the MusicMasters label was a challenge. For a period of about three weeks prior to Christmas, 1994, the six worked at O'Henry's in Burbank, trying to beat their own demos.

"O'Henry Studios was great," Marcantonio says. "They had one very large tracking room with a custom API console and the smaller overdub room with a custom Trident 80D console. Everything sounded nice and clean and warm, and the maintenance guy there was really together. They had an incredible selection of microphones, and I used a tube Neumann U67 on Andrew and Wendy, a Telefunken 251 on Karla, and basically used as many tube mics as I could, and tube compressors, tube EQs, and we recorded analog."

But when Christmas neared and Leo and Marcantonio left to spend the holidays at home in Nashville, Bryndle returned to the scene of the original

demos—Gold's home studio, where he has four ADATs, a Soundcraft Sapphire board and a multitude of instruments (all of which he plays).

"When we were putting down the demos, I was actually working on a Fostex 16-track analog," Gold explains. "On 'On the Wind,' for instance, we ended up not only using the demo recording, but the mix as well. When we took the demo, we transferred it to 24-track analog and then added real drums and real piano, but something about it just wasn't the same. The original drum track was just this little loop we had going, which we never intended on using. When we tried to record new stuff, though, it didn't sound as good. Then we thought we'd just mix the original demo, but that still didn't sound as good as the original mix. I mix everything to the Panasonic DAT 3700 I have at my house."

"There's something about the informality of being at someone's house," Kenny Edwards says. "You're not under the clock. It was really fun to get under the hood and take the stuff apart, such as on 'Walk This Road.' We originally had the drums and bass from the very top, with a more conventional arrangement. It rocked very nicely, but we felt there was something about the rawness that was missed from just doing it acoustically. So we stripped the whole front of the song down, took off all the drums, and the bass doesn't come in until the instrumental and the song is pretty much over with."

"We took the drums out of the front of 'Lucky One,' too," Edwards continues. "When we did the tracks, we did them in a more conventional way. We didn't really think of the architecture of the songs because we had high-priced musicians that we were paying. But later on, we thought, 'Why not use this as we would at home? If we don't like the way that sounds there, we just take it out.'"

"Josh and I were really thrown when we heard what they did to 'Lucky One,'" Marcantonio admits. "Quite honestly, we didn't like it at all. But as it turns out, I think it's a really strong part of the record."

Perhaps the strongest, most stunning part of the record are the vocals and harmonies. Marcantonio describes the recording of the lead vocals at O'Henry's as "intense. The balance of the vocals was hard because Andrew might be singing the lead vocal, and all of a sudden Wendy is singing the lead vocal in the chorus and that

would have to get pushed up louder than everything else. There was an intricate balance of vocals on every song that took quite awhile to get just right.”

“We recorded most of the background vocals at my house,” explains Gold. “We knew all the parts because we had been singing them live already, so it was easy. I just have one room, and I have a reissue Neumann U67, which is a mic I always used throughout my career. When I got the reissue, it sounded just as good as the old ones. I tend to really love to compress everything,” he says with a laugh. “I particular love—which I think is also a Jeff Lynne thing—the UREI 1176. I turn it to 11, fast attack, fast release. I record everything like that. When we were doing background vocals pretty much anytime anybody would speak, the needle would go all the way down,” he laughs. “That’s something I did back when I was working with Val Garay and Linda Ronstadt at the Sound Factory.”

For Marcantonio, balance in the vocal mixing was a cooperative effort. “I had four people sitting around me going, ‘Louder, louder.’ That’s no lie,” he says of the process. “Wendy really sat down and scrutinized a lot with me and made sure that I got all the intricate things. It had to feel right; there was a whole groove involved in the record.”

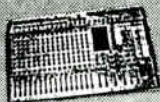
Waldman agrees that the four-year-long project has certainly not been without its difficulties. “Even though we all wanted to put it back together, there were points where each individual was thinking. ‘Oh my God, this wasn’t as easy as I thought it would be. This is a world filled with angry alternative 22-year-olds and record companies that only want that kind of music. Will there be a place for us?’” says Waldman, marveling at the fact that they are now discussing the recording of the next album. “When we started, A3 [Album Adult Alternative] wasn’t a format yet. We were shooting blind.

“Let’s face it, we’re not 20-year-old artists, which I personally think makes us unbelievably bitchin’,” Waldman asserts with a laugh. “We kick ass; we’re a very good band, and we can rock in the ways that 22-year-olds can’t. I know, because I was a 22-year-old artist trying to rock, and there is a difference. I think when Mick Jagger gets up now, it’s a whole other ball game. When you’re older, you know how to lay it down. You know how to pull it out of yourself and control it, which gives it that much more impact.” ■



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COAST TO COAST

L.A. GRAPEVINE

By Maureen Droney

South Glenwood Place in Burbank is jumping these days with Encore, Mondophonix and Red Zone Studios all on the same block. Although all three businesses are in buildings that were originally part of the large, '70s-era Kendun complex, these smaller concerns have created a vibe of their own on the street.

I stopped in to visit with producer/engineer Denis Degher, owner of Red Zone, who filled me in on the latest at his facility. On the day I was there, he'd been going nonstop—he'd already finished two sessions and was starting on a third, vocals with Robby Robb for an upcoming Intercord release. Degher, who took over two rooms of the complex in 1987, spent most of the last few years teaching recording arts and letting his studio be booked by the outside world. But lately he's found himself ensconced in his own Tom Hidley-designed room producing and engineering for a number of alternative supergroup bands.

—CONTINUED ON PAGE 199

Below: Denis Degher in front of the Trident 80C at his Red Zone Studios in Burbank.



NY METRO REPORT

by Dan Daley

The theme this month, happily, is facility expansions and additions. **Kampo Cultural Center** in the East Village added a second SSL console to its audio and video facilities. The 4056G with Ultimatum was purchased for Studio A in January, along with a Sony 3348 digital multitrack. This technology addition kicks



*Actress Loretta Swit recently visited the studios at New York's Kampo Cultural Center to record songs for the cast soundtrack album of off-Broadway hit *Song of Singapore*. Standing in Studio A are (L to R) house engineer Dave Robbins, Swit and KCC marketing director Arthur Steuer. Seated are engineer/producer Cynthia Daniels and show director Ron Nash.*

off the facility's 15th anniversary year, and outside of San Francisco it's hard to think of another place where you can do music and audio

—CONTINUED ON PAGE 206

PHOTO: MAUREEN DRONEY

SESSIONS & STUDIO NEWS

SOUTHEAST

Twila Paris mixed a new release for Sparrow Records at Sound Emporium Recording Studios in Nashville. Brown Bannister produced, and David Thoener and Carl Meadows engineered. Sam Bush was also in, tracking and overdubbing on a self-produced effort for Sugarhill Records. Dave Sinko and Brad Hartman engineered...The widely reviled and much-lauded Hole were in tracking demos at New Orleans studio The Egyptian Room with engineer Jeff Moleski...At Criteria Recording Studios in Miami, RMM Records cut tracks for a live Latin jazz LP titled *Super Cuban Allstars*. The project (recorded before a live audience) includes many of the island's greats and was produced by Juan Pablo Torres. Jon Fausti engineered with help from assistants Chris Carroll, Scott



PHOTO: JIMMY BELAY

Dr. Obvious at The Plant's Mix 01 room. Clockwise from front left are Jeff Piehl (drummer), co-producer/guitarist Robin Pfefer, Mike Leyba (bassist), producer/engineer Devon Rietveld and vocalist Adolfo Foronda.

cent sessions at Phoenix include Government Mule (whose members include Warren Haynes and Matt Abts from the Allman Brothers Band) tracking material for an Alligator Records release honoring bluesman Hound Dog Taylor...

SESSION SPOTLIGHT

DR. OBVIOUS, THE PLANT

Rockers Dr. Obvious were recently recording at The Plant in Sausalito, Calif., with Devon Rietveld engineering and co-producing with the band's guitarist Robin Pfefer. The sessions were held in The Plant's "Mix 01" room (which is normally used for mixing and vocal overdubs) because both studios A and B are locked out by Metallica.

All the basics were cut live. The bass amp was gobo'd off in the machine room, while the guitar amp sat in an air lock between control room and recording room. The vocalist sang into a Telefunken 251 situated at the back of the control room, while the main monitors roared away for the benefit of the guitarist and bass player (one of these reference vocals made the final cut). Tracking and mixing was done on the room's SSL G Series console to an Otari MTR-100 24-track running at 15 ips with Dolby SR.

Rietveld mixed the LP at The Plant and mastered it with Bernie Grundman in L.A. At present, the band is self-releasing the album (titled *Vinyl*), as well as shopping a to labels.

—Rudy Trubitt



Guitar wizard Jef Lee Johnson (l) and engineer Wes Naprstek are shown mixing Johnson's Blue (now available on Coconut Grove Recording) on the SSL 6048E at Criteria in Miami.

Kieklak and Paul Gordon...Three years ago, the legendary Capricorn Records studio in Macon, GA, was reborn as (appropriately enough) Phoenix Sound Recording, and these days the studio is going strong. Re-

Madonna was in tracking and mixing a Spanish version of "You'll See" at Miami's Crescent Moon Studios, with producer David Foster, engineer David Reitzas and assistant Sean

—CONTINUED ON PAGE 207

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NASHVILLE SKYLINE

by Dan Daley

RCA Studio B Lives Again—RCA's original 1956 Nashville recording studio (the second studio ever to be built in Nashville and now run as a museum by the Country Music Foundation) will reopen sometime this spring as both a museum and fully functional recording studio. Warren Peterson, owner of Javelina Studios (located in RCA's former second studio, built in 1963), is doing the restoration jointly with the CMF. As they pass through, tourists will be able to watch sessions going on using the same equipment the studio originally used on dates with artists like Elvis Presley, the Everly Brothers, Patsy Cline and Roy Orbison, including a custom main console designed and built by RCA engineers that uses API EQs and mic preamps.

A 3-channel tube console, also custom built, will be used as a side-car, and three stereo EMT plates and a live chamber have been reconditioned. Both consoles are getting extensive cleanings and will be fitted with new caps and other components; the original transformers remain. The sound-deadening carpeting (which was put on the walls and floor in the late 1960s and which helped define the Nashville Sound of the 1970s) will be removed and replaced with livelier ceiling tiles and area rugs for an ambience that better reflects the studio's original sound. A Studer multitrack deck with 16-track heads will be one of the few nonoriginal items used in the restoration.

Peterson says he believes the studio can be successful as both a museum and a studio. "One of the main attractions will be the vibe," he says. "This was the second studio built in Nashville [after Owen Bradley's Quonset Hut studio for Decca Records], where Chet [Atkins] had his office. And when you list the people who made records here, that's a hell of a marketing tool when you think about it." As is, perhaps, the idea of an audience of 300,000—the number of tourists who passed through the

museum last year. The studio will also operate after the 5 p.m. closing time of the museum, thus enabling extended sessions, said Peterson. Once it's up and running, Javelina will manage and book the studio.

In related news, **Javelina itself now has a new API Legacy console** for its main room. The 48-input/48-monitor desk replaces the Calrec console, which was moved to Peterson's satellite studio, Little Javelina. That studio's Trident 80B is being sold.

Richard Speer, son of Home Shopping Network founder Roy Speer and head of Speer Productions, is relocating his **MOR Music video channel to Nashville**. It will be housed in a massive complex on Dickerson Pike and will include four video stages, a satellite farm and other video post options. Although Speer also owns Magnatone Records (headed by Nashville producer Brent Maher [The Judds]), the new complex will have a minimal audio component, said VP of production Dominick Ambrosio, a New Jersey native who worked for Speer and MOR at its Florida site. There is one Studer Dyaxis Postrio suite planned, which was expected to be ready sometime in February. The suite will be available for outside hire, as well as for in-house Speer and MOR projects.

For a city that had few home studios five year ago, Nashville now has plenty, and services to support them are springing up. The most recent is **Have ADATs, Will Travel**, a transfer service for the format started by former Emerald Recording studio manager and freelance engineer Nick Sparks. Sparks will transfer ADAT-based data between studios, supplying transfer decks and cabling. A maintenance service for ADATs is also being planned, Sparks said. Contact him at 615/383-5440.

Carl Tatz's Recording Arts now has Nashville's second SSL G-Plus up and running. The first session was Garth Fundis doing vocals with Trisha Yearwood. ■

Fax Nashville Skyline info to Daley at 615/646-0102, or (preferably) e-mail to danwriter@aol.com.

He's particularly proud of his work with Themador, signed to Holiday/Atlantic Records and featuring members of Pearl Jam, the Red Hot Chili Peppers and Mary's Danish. In that '60s and '70s tradition of great rock, a lot of the songs were composed in the studio. Degher tells us, "Rob [Rule] would bring in a few chords, and Stone [Gossard] would bring some ideas. They'd start jamming and work out structures, and we'd just record them. We cut four tracks in one night, so we made this record fairly fast. Everybody had a great time, because nobody had really done a record like this—where they didn't spend three months or six months. It was, 'Let's go in and have some fun and see if it comes out good.'" About working this way, he adds, "I like to work with people who can really play. There's a lot more spontaneity and edginess to it. So it's more enjoyable for me. I don't like to sit around punching all day long!"

Rock has a long legacy in Red Zone's large room, where '70s hits included the multi-Platinum REO Speedwagon LP *Hifi-Fidelity*. More recently, the studio has been home to top blues artists, including a Grammy-winning album for Buddy Guy. The 21x26-foot control room was recently updated by Vincent Van Haaff, and the current console is a glossy 48-in Trident 80C with custom automation and eight outboard Neve 1073 pre-amp/EQs. Besides blues and rock, the studio has recently done work on soundtracks including *The Lion King*, *Picket Fences* and the theme song for TV's *Partners*.

Back on the L.A. side of the hill, 56 Entertainment has expanded, adding to its Hollywood studios with another set of offices in Santa Monica's Lantana Center. According to president Gilles "Frenchy" Gauthier, 1995 was the company's biggest growth period since its inception in 1987. The new offices were opened to enhance the company's film and television division, where recent projects have included music for director Linda Yellen's Showtime releases of *Parallel Lives* and *Chantilly Lace*, and for the House of Blues' television commercials.

"It got so busy at our Hollywood location that we needed to expand," says Gauthier, "and we wanted to make a foray into television, film and interactive media. A lot of that business is based on the Westside, and the Lantana Center gives us a great location. We have several in-house composers, such as Jeff Fargas, a great writer and musician who has

worked with the likes of Evelyn Champagne King, Smokey Robinson, Van Dyke Parks and Ringo Starr and Pat Seymour (who played keyboards with the Eurythmics). We have scored three films in the last year and are looking to do more. We also do cues. Sometimes a composer will do the main theme and turn over the cues to us. We're also feeling our way into the interactive world. And we have a library of songs, a catalog that we have built up, that can be useful when people require a feel for a soundtrack that is based on a certain style of music, but they don't want to use an already-recorded version of a song."

Meanwhile, Hollywood's Studio 56

on Santa Monica Blvd. has been keeping busy with projects that Gauthier calls "R&B at its best." Engineer Booker T. Jones III and producers Keith Crouch, James Abney, Derrick Edmondson and Kenneth Crouch are in permanent residence. Some of their recent projects have included Brandy, Toni Braxton, Boyz II Men, Jody Watley and Coolio. Says Studio 56 owner and 56 Entertainment CEO Paul Schwartz, "I'm from Philly, and I've always wanted to have the kind of scene here that Philly was famous for. I've been working at it in this location for nine years, with the help of my longtime VP of studio operations, Claudia Lagan, and chief engineer Tom

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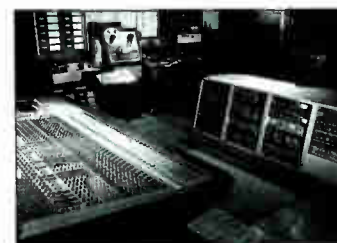
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A studio born from years of hard work by two brothers: one an engineer, the other a musician, both with an ear for music and a dream of making it their business. The control room glows with the power of outboard gear and the studio boasts vintage amps and premium mics. Notable artists include: Bottle Rockets, Del lords, Eric Ambel, Blood Oranges, Ramones, Guided by Voices, Mojo Nixon and other musical luminaries. The studio rocks. Pure and simple.



The control room at Mesmer A.V. in Culver City, Calif. (designed by Peter Maurer of studio bau:ton), is equipped with a 32-in Mackie mixer, Genelec monitors, a host of MIDI equipment and a Pro Tools system with expanded TDM capability.

a bellhop. For that project, they composed five pieces of music that were used in the series of 20 national spots.

Sudakin and David Blau, president of Mesmer, work with an additional roster of composers, providing clients with a plethora of style choices. Says Sudakin, "When a client calls for a spot, we can quickly give them a variety of ideas and versions to choose from. That enables us to keep the ball in the air!"

And, now Design FX Audio has it covered on both sides of the hill. The busy rental house and remote recording company has kept its original Culver City location and added a facility in Burbank. Owner Gary Ladinsky says it was "to better serve the whole Los Angeles recording community. We needed more space, but we didn't want to desert our Westside business, because there's a lot going on. So we kept our original space and got a 5,200-square-foot building that will give us the room we need, as well as a stronger presence with the Valley studios."

The relatively new division of the company, Design FX Systems, has also been busy. Design FX Systems offers for-hire digital audio editing systems from most of the major manufacturers, including Sonic Solutions, TimeLine, Digi-design and Studer. They also handle rental of system accessories—hard drives, cables and ancillary gear. DFX Systems users have included Tom Drescher (Wonder Dog Music, New York) working with scoring mixer Shawn Murphy at Todd-AO/East on *Apollo 13*; engineer Paul McKenna editing vocals for Luis Miguel from numerous live remote recordings done with the Design FX remote truck; and engineer Mick Guzauski editing various projects at Conway Studios and The Record Plant. Systems were also supplied for work on the feature films *Assassins* and *Seven*.

In Ladinsky's opinion, Design FX Systems has been off to a successful start because, "Manufacturers recognized that we're a professional company whose business it is to supply a huge variety of top-of-the-line audio equipment to the music recording and film industries, with support. They responded with commitments of training for Design FX personnel in order to make us better representatives of their products. And it's been working out very well." ■

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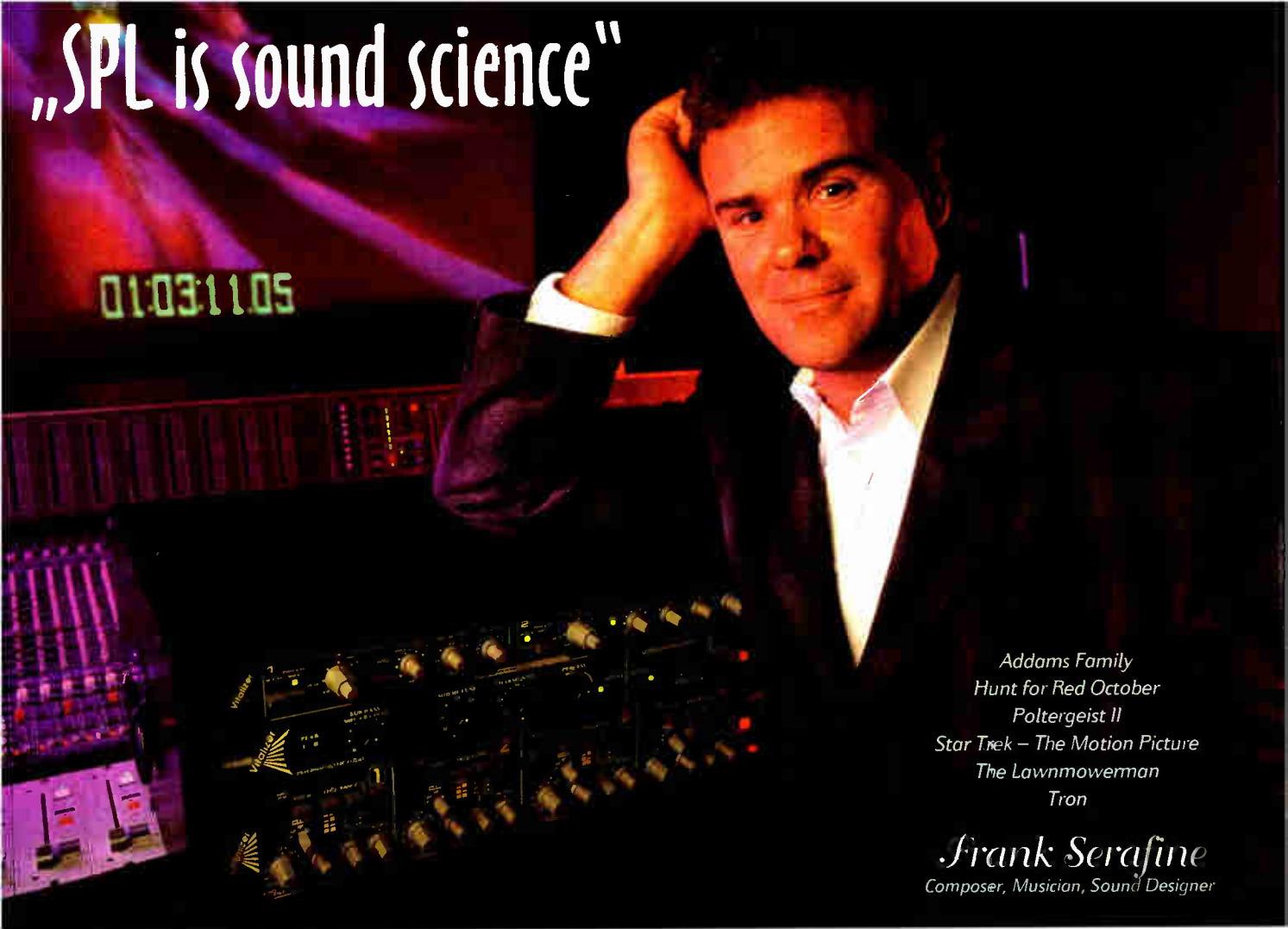
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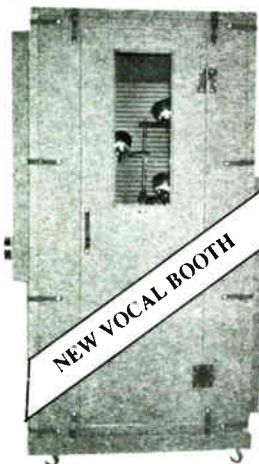
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—FROM PAGE 196, NY METRO

post and learn calligraphy all in the same place. Studio manager Alex Abrash says that the studio has actually been taking over the space formerly reserved for some of the non-audio activities that the Center has sponsored, but that they will continue, even if they do get a bit cramped. Kampo also switched out its DDA console with the studio's other SSL (a 4044E/G). Console installations were done by studio chief tech Adam Paul.

Hit Factory has completed a three-month upgrade of its entire inventory of Studer analog multitrack decks. In total, 11 Studer A800 decks have been replaced with an equal number of new Studer A827 24-track analog decks. In addition, several Studer 16-track head-stack assemblies were also acquired as part of the sale. And Hit Factory is currently evaluating a Studer D827 48-track digital deck.

Bearsville added a new space to its barn. Designed by engineer John Hol-

brook, the addition can be used as a control room or as an additional isolation space within the barn. A 32-input, non-automated API Legacy console was purchased and is set up to be portable for placement within the new addition or within the barn itself. "The whole point is to set the barn up as a very flexible space, configurable for the occasion as an artist or producer sees fit," explained studio manager Mark McKenna. Bearsville now has three full studio/control room arrangements.

Greene Street Recording recently upgraded its API Legacy with Flying Faders automation, applying the package to all 32 channels and 24 monitor channels. Studio manager David Harrington also mentioned that the studio is going to upgrade its control room B, with another API Legacy or a Neve 9098 under consideration. ■

Dan Daley is Mix's East Coast editor. Fax pertinent New York news to 615/646-0102 or (preferably) e-mail to danwriter@aol.com.



PHOTO: ROCK MEYER

Producer/engineer/sorcerer Ed Stasium works his magic on Five-Eight guitarist Mike Mantione's axe in front of the 48-in Neve 8088 at Triclops Sound Studios in Atlanta. Five-Eight were in recording and mixing a project for Walter Yetnikoff's new label, tentatively named Vel Vel International. John Nielsen assisted on the sessions.

Below (L to R) Afghan Whigs drummer Paul Buchignani and singer Greg Dulli relax with engineer Jeff Powell at the Neve VR 48x48 in Ardent's (Memphis, Tenn.) Studio A during mixing of the band's upcoming Elektra release, Black Love.



PHOTO: JODY STEPHENS

—FROM PAGE 197, SESSIONS & STUDIO NEWS

Chambers...Legendary soul man Curtis Mayfield was in Doppler Studios (Atlanta) overdubbing and mixing for a new BMG/Silent Partners release with producer Darryl Simmons, engineer Thom "TK" Kidd and assistant Alex Lowe. Dionne Farris was also in recording and mixing "Truth About Cats & Dogs" for the 20th Century Fox label with producer Randy Jackson, engineer Alan Abrahamson and assistant Mike Wilson...

SOUTHERN CALIFORNIA

Pop sensation Sheryl Crow was at Sound City (Van Nuys) working on her next, self-produced A&M release. Blair Lamb engineered and Jeff Sheehan and Greg Fidelman assisted. Geffen artists Weezer were also in recording a self-produced release with engineer Joe Barresi and assistant Billy Bowers...PolyGram Far East artist Yumi Matsutoya tracked a new release in Studio I at Andora (Hollywood) with engineer Matt Forger. Guest musicians included bassists Lee Sklar and Nathan East, drummer John Robinson, and guitarists Michael Landau and Dean Parks...Tracy Spencer tracked a Capitol release with engineer Milton Chan and assistant Joe "Voodoo" Warlick in Studio B at Encore Studios in Burbank. Warren G. was also in producing Elektra rapper YoYo with Chan and assistant Mauricio Iragorri...Producers Livio Harris, Charles Jordan II, Carl Roland and Al Fouse were at Amerayan Studios (North Hollywood) with engineer Rob Chiarelli mixing "Just a Little Something" for Elektra artist Melieck Britt. Ross Donaldson assisted...

NORTHEAST

Recent sessions at New York's Looking Glass Studios included Michael Riesman and Rich Costey recording the basic tracks for Philip Glass' upcoming None-such release. The two tracked the American Composers Orchestra (Dennis Russell Davies conducting) and the Morgan State University Chorus, with help from assistants Martin Stumpf and Brian Faneli...Young-lion jazz bassist Christian McBride tracked his forthcoming sophomore release for Verve in Clinton Recording's (NYC) Studio A with producers Don Sickler and Richard Seidel. Engineer Jim Anderson was assisted by Adam Blackburn. Guitar virtuoso John McLaughlin was also in working on his new release, *The Promise*, with engineer Ed Rak...Anne Azéma & Boston Camera-ta recorded an Erato release at Sound-mirror in Jamaica Plain, MA. Also in

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Soundmirror were Les Idées Heureuses, tracking Bach harpsichord suites for the Analekta label...R&B artist Case tracked for an Atlantic release at his producer Kenny Smoov's Funhouse Studio in Valhalla, NY. Scott Hollingsworth and Dave Goodermuth engineered...

NORTHWEST

Drummer extraordinaire Ginger Baker tracked an upcoming Atlantic release at Bear Creek Studios (Woodinville, WA) with producer Chip Stern, engineers Malcolm Cecil and Joe Hadlock, and assistant Don Farwell. Musicians contributing their talents included Charlie Hayden, Bill Frisell, Bela Fleck and Jerry Hann...Recent sessions at Seattle's Paradise Sound Recording included Common Man mixing an upcoming release with producer Mike Lynch, engineer Patrick Sample and assistant Rob Nordstrom...Jimmy Dillon and the Gypsies completed a new album at Studio D in Sausalito, CA, with studio co-owner Joel Jaffe engineering and Mike Cresswell assisting...Composer David Lang was in studio A with The Kronos Quartet at San Francisco's Russian Hill Recording. The group was recording Lang's original music score for A.C.T. Theatre's production of *The Tempest*, with engineers Craig Silvey and Bob Conlon...7 Year Bitch mixed their new Atlantic album on the SSL 4056 E/G at Different Fur Recording (San Francisco) with co-producer/engineer Billy Anderson and assistant Adam Munoz...

NORTH CENTRAL

The Smashing Pumpkins were in tracking and mixing B-sides for upcoming singles at Chicago's Soundworks with engineer Jeff Moleski...At Flyte Tyme Studios (Minneapolis, MN), Lionel Ritchie and producers Jimmy Jam and Terry Lewis have been hard at work on tracks for Ritchie's forthcoming release. Engineers Jeff Taylor and Steve Hodge worked the board...

SOUTHWEST

Recent sessions at Houston Sound Studios (Houston) included Kings X with engineer Brian Garcia, Latin super group La Mafia with engineer Randy Miller and country artist Mark Chestnut...Metal Blade Records artists Galactic Cowboys recorded and mixed their new album, *Machine Fish*, at Rivendell Recorders in Houston with producer Alan Doss and engineer Ryan Birsinger...The Butthole Surfers continued work on their next Capitol release at Arlyn and Pedernales Studios (in Austin, TX, and nearby

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Aerosmith prime movers Steven Tyler and Joe Perry spent two days in Flyte Tyme Productions (Minneapolis, Minn.) working with producers Jimmy Jam and Terry Lewis, jamming on song ideas and working out new material for a forthcoming Aerosmith project. Shown in Studio B are (L to R) Tyler, staff engineer/programmer Jeff "Madjef" Taylor, Perry and Jam.

Spicewood, respectively). Guitarist Paul Leary produced the sessions, and Stuart Sullivan engineered. Dale Watson was also in the two studios, recording a new High Tone Records release, produced by Bruce Bromberg and engineered by James Tuttle...

STUDIO NEWS

NRG Recording Services in North Hollywood, CA, opened a new room (christened The Moroccan Room, thanks to its Middle Eastern decor) featuring a custom 64-input Neve 8078, a balanced electrical system and a Private Q headphone system. Jerry Finn inaugurated the new room with Texas combo Magneto USA. The studio also added to its mic collection with a matched pair of Coles 4038 ribbons, an AKG C24 stereo and a Telefunken ELAM 251...Natalie Wingert was promoted to executive vice president at Bad Animals/Seattle, where she is responsible for long-term strategic planning and supervising operations...Producer/engineer John Cuniberti was named studio manager of the recently relocated Coast Recorders in San Francisco. The new studio (which features a custom, all-discrete Neve with GML automation and two new Studer 24-tracks) is located in what was once Golden State Recorders, source of '60s-era records by the Jefferson Airplane, Big Brother and the Holding Company and the Grateful Dead...Famed jazz engineer Rudy Van Gelder purchased an Otari RADAR for his studio, as did Michael Clute, producer and owner of Nashville studio Midtown Tone & Volume. ■

LETTERS TO THE EDITOR

—FROM PAGE 232, FEEDBACK

(.WAV file) and create a playlist in the software's playlist editor. The problem is that the hardware/firmware inserts a two-second gap between tracks when recording the CD-R. None allows control over P and Q codes, except for one shareware package. Some will not record disc-at-once, which is a severe drawback when you want to record a live album with track IDs.

So far, I haven't seen any kind of PC interface from S/PDIF or AES/EBU to the SCSI bus to allow direct recording from DAT to CD-R, except for dedicated CD-Audio recorders.

I bought the Sony 920S that came packaged with Corel CD Creator, and it's totally inadequate for pro audio. Corel says that they have no intention of supporting P and Q codes, so you can't get IDs at the beginning of each track with that recording method. They say they're working on it. The shareware programs called Redbook and DAO don't have a driver (yet) for the Sony drive.

Don't expect to make CD masters with any of these recorders out-of-the-box until the software grows up.

*Simon Garber
sgarber@direct.ca*

CH-CH-CH-CHOICES

Thanks to Paul D. Lehmann for the article on the impact of what we create ("Insider Audio," January '96). We must absolutely guarantee the right of all to express their viewpoints, no matter how repugnant to us. At the same time, we are under no obligation to personally help them spread their messages. These choices present themselves daily, and as with the defense contractor in the article, you have the option of changing your mind as the situation reveals itself.

Morality isn't something that is sprayed on, or provided externally by government; it comes from within. We all create the moral culture by making these decisions, on our own, every time. Without that, we're only functioning as machines.

*Steve Gordon
Hollister, Calif.*

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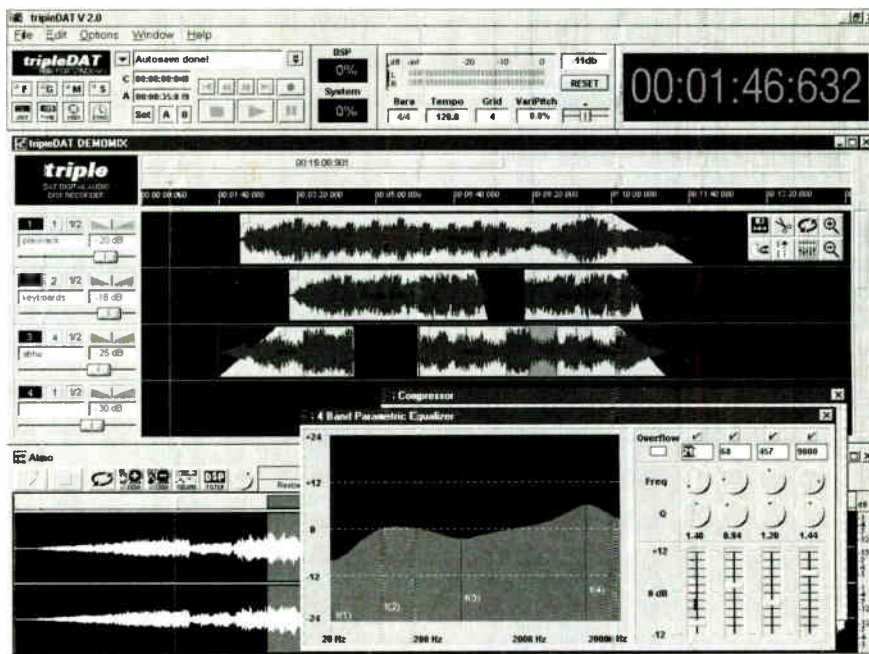
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The SoundLink DRS 1212 I/O PCI Multi-Channel Audio Interface is a PCI bus card with two analog I/Os, S/PDIF I/O and 8-channel ADAT optical I/O ports, packaged with OSC's DECK II digital editing software. The card opens a world of possibilities to users of digital audio sequencing and editing programs who previously had to use either Digidesign hardware or the onboard converters in PowerPCs and A/V Macs.

With more than 5,000 systems installed in Europe, MediamagiX (Toronto) brought **CreamWare's TripleDAT** Windows PC workstation to North America. TripleDAT has a capacity of 2 to 24 tracks (depending on your CPU, RAM and disk drives), with a huge selection of editing and DSP tricks, such as room simulators, 4-band parametric EQ, phase correlation meter, real-time spectrum analyzer, nondestructive editing, DAT machine control, and sync to SMPTE or MIDI. This thing screams. Is the retail really only \$1,798?

Digital Wings for Audio, from Metathic Systems (Sausalito, CA), is a hard disk recording/digital audio sequencing system for the Windows 95 platform. The DWA system handles



CreamWare's TripleDAT workstation

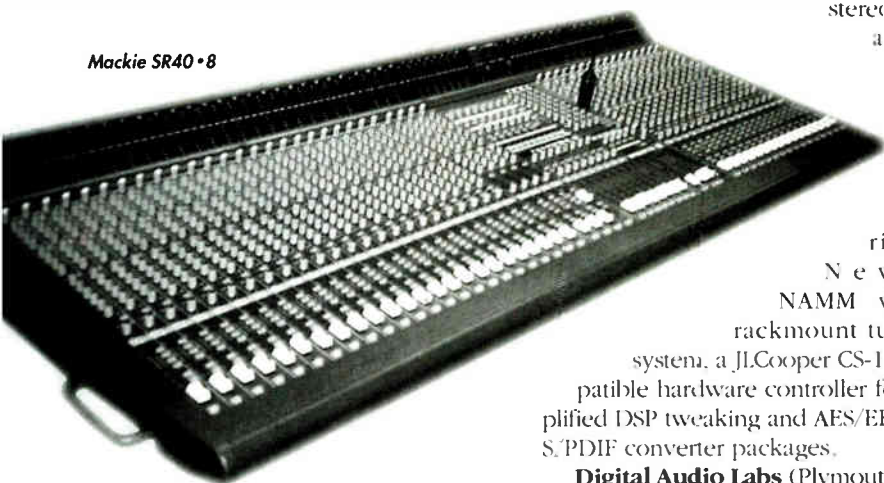
and screen-based control of all parameters via a hardware card and PC/Windows-based software. The Algorithm Visualization feature displays parameters and controls of available processing, which includes stereo pitch shifting, reverb, chorus/flanging, EQ and multitap stereo delay

tion VCAs and a compact controller (locatable up to 1/2-mile away), with eight faders and mute switches and a master section. The unit plugs into the channel insert points on any console.

Last year, everybody at the show touted **Mackie** console clones. This year, Mackie countered with its second-generation designs. The CR1604-VLZ takes the CR-1604 to the next step, with 16 mic preamps, true 4-bus operation, sweep-mid 3-band EQ, control room/phones matrix and AFL/PFL—all at the same \$1,199 retail. Priced at \$599, the MS1404 has 14 input channels (six mono mic/line, four stereo line), with 3-band EQ, alt 3/4 bussing and more. But the big news at Mackie was the debut of its SR40•8, a large-format, 8-bus sound reinforcement mixer with 40 inputs, 4-band EQ (sweepable mids), phase reverse, LCR outputs, mute grouping, 11x4 matrix section, "air" band EQ on all subgroups and main/redundant power supply switching. Retail is under \$10,000, with deliveries expected in mid-'96. And the Windows version of Mackie's popular Ultramix Universal automation system should be available this summer.

Soundcraft debuted Ghost, an 8-bus recording board in 16/24/32-channel versions and priced from under \$4,000. Featured are 4-band EQ with parametric mids, ten aux sends (six mono, two stereo), 128-snapshot mute system with four mute groups and MIDI or timecode control, onboard timecode reader/generator, four MIDI data faders and a transport control

Mackie SR40•8



most of its processing load on the card (rather than the PC's CPU), allowing sophisticated DSP (such as reverb, chorus and delay) and audio preview during processing. Features include up to 128 virtual tracks, nondestructive, real-time editing, three stereo inputs and a stereo output (an optional breakout box has digital I/O and XLR and 1/2-inch analog I/O). The user interface is slick and intuitive. Retail is \$1,495 (\$1,895 with breakout option).

The DSP/FX effects processing system from **Power Technology** (Brisbane, CA) turns your PC into a digital multi-effects box with 32-bit DSP effects

ritems. New at NAMM was a rackmount turnkey system, a JI.Cooper CS-10-compatible hardware controller for simplified DSP tweaking and AES/EBU and S/PDIF converter packages.

Digital Audio Labs (Plymouth, MN) has finally completed its much-awaited V8 workstation hardware for the PC. V8 is a user-configurable 8-channel I/O processor with analog and digital I/O (AES/EBU, S/PDIF, TDIF or ADAT) options allowing users to create a custom IAW setup that meets specific needs. Two Motorola 56002 DSPs are standard on the main board; more can be added for real-time processing. Systems are priced from \$1,895.

MIXING IT UP

Ashly Audio (Webster, NY) showed the VCX-80, an 8-channel, digitally controlled automation package with a 1U rack box containing eight low-distor-

(MMC or Sony 9-pin protocol) section with four locate points and recorder-style transport keys. Moving fader automation will be available this summer.

STEP UP TO THE MIC

Event Electronics (Santa Barbara, CA) is now distributing RØDE products. The RØDE Classic Tube Mic combines a 1-inch gold-sputtered, dual-diaphragm capsule with electronics based on the rare 6072 tube, of which Event founder (and former Alesis CEO) Russell Palmer says the company has procured an ample supply. Nine polar patterns, a heavy, hand-finished brass body, power supply and a flight case are standard with this \$1,799 model.

Distributed by Group One Ltd. (Farmingdale, NY) is the U95 studio mic from post-production specialists **Soundelux**. The U95 is a 9-pattern, tube condenser mic with a 1-inch diameter capsule. Retail is \$2,900, with power supply and shockmount.

CAD (Conneaut, OH) displayed a prototype of its Equitek Surround microphone, a 4-channel mic with four 1/2-inch condenser capsules. The outputs can be recorded as four discrete chan-

nels or combined to stereo through an external controller box. Retail is expected to be \$1,500, with deliveries scheduled for this summer.

Stedman (Richland, MI) offers the SC3, a large-diaphragm condenser mic priced at \$998. The SC3 provides three sonic modes, including a sound modeled after vintage tube mics.

New from **Electro-Voice** Buchanan, MI is the RE1000, a true condenser mic designed for broadcast and project studio users. Priced around \$950, the RE1000 combines a large diaphragm with a transformerless design that is said to offer a self-noise spec of less than 14 dB.

Shure (Evanston, IL) announced the second generation of its Beta Series dynamic mics. The Beta 57A and 58A offer extended frequency response and reduced handling noise over their predecessors, but I was more intrigued by the Beta 56 and Beta 52. Optimized for

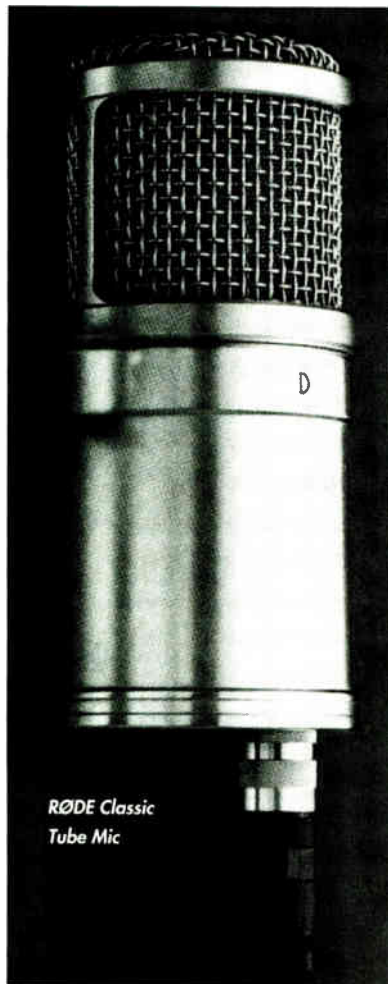


Shure Beta Series dynamic mics

drums and instrument miking, the Beta 56 is a short-body mic on a swivel mount; the Beta 52 is Shure's first mic tailored specifically for kick drums and other LF sources.

YET TO COME...

Of course, there were lots of other cool toys at NAMM, and next month, sound reinforcement editor Mark Frink will look at some of his favorites from a live sound perspective. And continue looking in our monthly product columns for more hits from NAMM. ■



RØDE Classic Tube Mic

—FROM PAGE 139. **TEN INNOVATIONS** products under the "Line6" name. AxSys 212 Digital Guitar System is a twin-12 guitar amp with 128 presets of vintage and modern tube amp sounds, along with powerful DSP effects (reverbs, delays, chorus, phase, EQs, etc.) and 128 user presets. Retail is \$999.

Seer Systems: Synth pioneers Stanley Junglieb and Sequential Circuits founder Dave Smith formed Seer Systems (415/851-7993) and have designed a powerful General MIDI-compatible software synthesizer that is said to be incorporated into the next generation of Intel PC motherboards. This could eventually spell the end of adding plug-in synth cards for consumers who want to access high-quality sounds for multimedia and games applications.

Peavey MAQ 300/600: Peavey (601/483-5365) has taken an innov-

ative approach to monitor amplification with the MAQ™ 300 and 600 systems. These 5U units combine a dual-channel amp (150 or 300 watts/channel) with two 15-band graphic EQs, linked to a patent-pending Feedback Locating System (a series of LEDs above the EQ bands that light when feedback is present).

Tech-21 Trademark 60: These guys aren't just SansAmp anymore, because Tech-21 (212/315-1116) now has an amp in its line. Trademark—so named for its ability to mimic the trademark sounds of other amps—takes the flexibility of the SansAmp processors and puts it in a single-12 guitar amp package with dual-channel switching, effects looping for external effects and direct XLR outs for studio or P.A. interfacing. Retail is projected at less than \$700.

—George Petersen

THE FAST LANE

—FROM PAGE 24. PERSONAL THOUGHTS

(the pseudo-Holy Grail), and it bit still less. Truly a case where more is less. But at 16 bits, we have all apparently bit [ten] off as much as we were going to chewse. The advent of CDs froze the ever-expanding word length in its tracks. True, it only temporarily halted resolution growth in the pro community. Recording studios stopped at 16 bits for the appropriate mourning period, but then went straight through 18 to 20 and 24. Now there is new gear to help preserve as much data as possible from our shining new 20-plus-bit pro universe as it makes the tortuous squish down to the 16-bit CD standard that we so hopefully committed to with the advent of consumer digital audio. But for all its clever noise-shaping, data-bending acoustic trickery, it still has to output only 16 bits, so the real goal here is to output, for the first time ever, a *real* 16-bit word where every bit is legitimate...and consideration is made for how humans really listen to music...and that there is room to make certain adjustments 44,000 times a second to optimize.

So for a while now we will be stuck at 16 bits. Wait. I guess there isn't really much more to say until we break out and decide that consumers have to replace their CD players with new 24-bit models. So I suppose I will have to continue this column at some future date, when this *really* happens. Well, I want to thank my loyal readers for traveling with me down this fascinating (albeit somewhat short) road.

3) Hardly a Davidson Goes by That I Don't Want. I love Harleys. I am totally bored with Rice burners. Next month...

4) Who Makes What That Sucks: The Magazine With No Advertisers. I am not the first starry-eyed kid (radial keratotomy) to try this one, but I may be the first to have tried it seven times, with exactly the results you would expect. I even tried in the USSR; Nadia Kopii Kamout.

5) Wired...oh.

6) Columns That Never Made It. Okay, now *there's* an idea that will work—once.

Oh. It's okay now. I feel better with all those wandering thoughts flushed out. My birthday is in March, so I make it my purge-and-reformat month. Now I feel reborn, and I hope that you will recover in time for next month's column. ■

Stephen St. Croix is a guy.

LUNCHING WITH BONZAI

—FROM PAGE 47. BRIAN WILSON

Wilson: Just now I'm starting on that again—I was really hooked up with Phil Spector's records, and just recently I've started to play "Walking in the Rain" by The Ronettes.

Bonzai: One of my favorites.

Wilson: It's beautiful, like a spiritual experience. I play that every other day. I've tried to imagine how it would be to have ten billion songs in my head all at once. Wait a minute, I said, why don't we just simplify things for a while and spend a month with "Walking in the Rain." And that could be my love, my inspiration, instead of playing "Da Doo Ron Ron," "Be My Baby," "You've Lost That Lovin' Feeling," play this, play that.

Bonzai: So, what about this genius thing?

Wilson: Yeah, because of "Good Vibrations" and all the advanced-type music.

Bonzai: I thought it would never end. I thought The Beatles would keep making albums forever.

Wilson: I did too.

Bonzai: Things are solid now?

Wilson: Things are solid now. Just solid enough. I'm glad you brought *Pet Sounds* over, because people have told me over the years. Brian, this is the best album I ever heard. Man, after about 20 years, it's gotta be a pump-up. Nothing but a damn pump-up for people to say that. It's wonderful.

Bonzai: Do you get a little tired of people calling you a genius?

Wilson: No, actually not. Genius to me speaks very loudly. I heard a definition once, that genius is making something very complex appear simple. Obviously, I believe that is something that has happened to me, and other people. Just that way.

Bonzai: Sure is great to see all the love and friends surrounding you.

Wilson: I know, I have wonderful people around me. They believe in me, I believe in them. It's scary as hell, 'cause we feel like we're responsible to start something good. It's just hard for us.

Bonzai: It probably never ends, though.

Wilson: Right. Exactly. Yeah. Now let me play you this new version of "Proud Mary"—from the combined geniuses of me, Andy and Don Was. ■

Roving editor Mr. Bonzai's album of surf instrumentals is now available on the Kowabunga! label.

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—FROM PAGE 32, TOMORROW'S TALENT

would be a big benefit! It's one of the places we find there's a tremendous difference in the people that we interview coming out of schools. The technical side is often well-covered, but when it comes to business skills or social skills, it's actually—well, "dreadful" would be about the most polite term I can come up with right now. A lot of people think that to communicate well means to talk as loud and as fast and whenever possible, particularly over anyone else whose opinion you don't agree with. And they use as role models any political race.

Mark Parsons: As a consumer of college graduates, if you will, there's something that I'd be happy with that underlies listening skills and selling skills: a measure of politeness and the willingness to listen, and a fascination with the people they'll be dealing with. I find myself again and again taking the time with a new person to portray to them the reality they're facing. If you remember being a young person dealing with older, more knowledgeable, experienced people, you were looking at reality through a fairly narrow viewfinder. It helps to have some old rascal fill them in a little bit.

Lehrman: Are the large number of audio education programs turning out more students than the industry can handle? If so, what can students do to make themselves more employable?

Bill Scheniman: I think what we're running into here is the inevitable fact, and it is not something I mention around work, that this area of work is not suited for everybody. We used to see the apprenticeship or guild system, where you spent a year just sort of being around the business, and observing it, and plugging yourself in and out wherever appropriate, so that your employers—the people already in the guild—could observe your sensitivity and your sense of what was appropriate to the situation. Well, you can't teach that. And people in the business who have succeeded, who have that sense of what is appropriate, don't discuss it. It's like fighter pilots don't talk about how scary it is to land on an aircraft carrier. It's kind of "the right stuff."

I'm not trying to make it too mystical, but to a certain extent, if you don't know how to talk to a tech representative *and* an older advertising client *and* Mick Jagger's girlfriend *and* the guy from UPS, then you're not going to know what a good bass part is, and

whether reverb's a good idea, and where to start getting a snare sound. It's a set of perceptions and reactions to changing situations that not everybody is good for. As educators, and as successful adults in this guild, we have to find a way to impart that: to start talking about the right stuff. The Zen koan for education in our department is that the people I can get through to don't need me. The guys who really get this don't need this, and the people who aren't getting it aren't *going* to get it.

Martin Polon: There are about 220

**We should be
using this industry
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If you can master
this industry roughly,
you can do anything
you want.**

—David Moulton

schools in the U.S. right now that teach audio. We just did a study that found that considerably less than 100 percent of the graduates of these programs end up, after three years of being out, in audio. These are bright kids, but they are not catching on to one thing: Technical skills today are a dime a dozen in any field. We've seen one million technically trained people laid off in America in the last three years; many are engineers with MEEs and Ph.D.s. They can do audio, they have the skills. What there is a shortage of is people who can think, and have the knowledge of what the gig is about.

If someone is going to work in the record business, maybe they should be reading *Variety*, *Mix*, *Studio Sound*, the *New York Times*. In my class I'm a bloody shrew—I keep bitching at them: read this, read that. It's not because I own any shares in *Variety*. Well, you can bring the horse to water, but some

horses will not drink. I'm probably way out to lunch, and they really should be reading *Psychic Horror* #7, but in my classes I ask how many read *Mix*, and three hands go up. They should read *Billboard*, so when they go in for an interview, they know who's doing what session in what studio. People who do the interviewing don't ask, "How do you terminate a 600-ohm audio transformer?" They ask questions that deal with general knowledge of the studio and studio business.

Bill Scheniman: Because I come from a professional background, it's really weird to be in a recording studio with students who aren't sure whether they like this or not. In 20 years, that was one thing I could count on: you could have a head full of coke, you could be a drooling idiot, but this was your favorite place on Earth or you wouldn't be here. Why would you put up with this unless you loved it? Who would stick around for more than three months unless they *had* to? Any more than someone would compose classical music unless they *had* to? It's a horrible job [laughter], but you do it because you have to. I and the people that I know who went through that, making \$150 a week and living in Manhattan, didn't choose this as the way to make big bucks. They wanted to make records. They knew something magical went on in that room, and they would do whatever it took to let them in there, to touch the stuff and learn the spells.

But now we're doing this in colleges, and suddenly I meet 80 people a day who say, "This is okay, this is kinda cool, but I'm not sure yet." Their mom and dad write them a check, and say, "Okay, you can go there if you want to," and they sit there and go, "I don't know, you wanna mix today? Maybe. No wait, *The Simpsons* are on, I'll mix later!"

David Moulton: Something which has bothered me for a while is that we've always tried to train people for this industry very much in a trade school or vocational school way, and I have a sense that we're doing it just backward. What we should be doing is using this industry as a springboard for education, because it's such a wonderful interdisciplinary kind of industry. If you can master this industry roughly, you can do anything you want.

I've seen research that shows that we're all going to change fields at least once, and that if you start in audio it's reasonable to predict that you're going to end up some place else. Here we're training for a prototypical recording en-

gineer, which is a job role that probably won't even exist in 15 years. We should be using this to train students to be as adaptable as possible, and that's liberal arts education.

I tend to look not at what the industry needs but what the students need. We shouldn't be training them to get their *first* job. That's not the business of college education—you go to a vocational school for two months to get an entry-level job skill set. You should go to college to get a job skill set that will allow you to get your twentieth job ten years from now.

Stephen Webber: I think we have to put this into a historical perspective. We have something that came from the European university system, which was developed centuries ago to educate people who were already wealthy. They went to learn about poetry and literature, and maybe architecture if they wanted to get their hands dirty. The underlying philosophy behind higher education in this country for years has been to teach a person not how to get a job, but how to use their mind. It's only been in this last generation that we've been asking the university system to educate everybody. Thirty years ago, only

the brightest and the best and those who could afford it were expected to go to college. But now we are asking the system to educate *everybody* who wants to go to college. And that means people who didn't do very well in high school, people who are only going to college because it's the next thing they're supposed to do. So the role of higher education is changing a lot, and you can see it in these fits of flailing around trying to figure out what it's supposed to be doing. Are educators supposed to be training people to get a job? That seems to be what the government and society are asking them to do. Or are they teaching people how to get a set of life skills together, like Dave was talking about, that will guide them and help them get their second, third, fourth, etc. jobs?

Daniel Rose: I'm sure this is true for any industry, but in the audio industry, since we're more clearly aware that we're selling dreams, it affects us more when people have bought into lies, like they can do anything. I'm an early Berklee grad. I prove a lot of the points around here: I'm a bass player, but they let me into college. It's no longer just the cultural elite that's getting into

school. It's no longer the competent who are getting degrees [laughter].

Our coming in and talking to students about the real world wherever possible lets us find out if they're really interested in supporting themselves with this, or if it's just a hobby. If you want to support yourself, have you thought about how much money you want in your hand at the end of each month, and what particular jobs will accomplish that? There are plenty of people who for the love of it will say, "I only want \$150, but listen to this music!" and other people will say, "Well, I already have a kid, so if I don't see \$2,000 in my paycheck, I'm stuck." So you say to them, "Sorry, you shouldn't go intern at Power Station right now."

Next month: How can manufacturers help the schools do a better job? Are real-world internships useful? Does education have a role in bringing more women into our industry? ■

Paul D. Lehrman finished school 20 years ago, and although he doesn't consider his schooling irrelevant, his education since then has been much more interesting.

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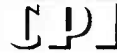
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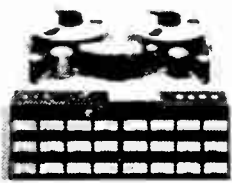
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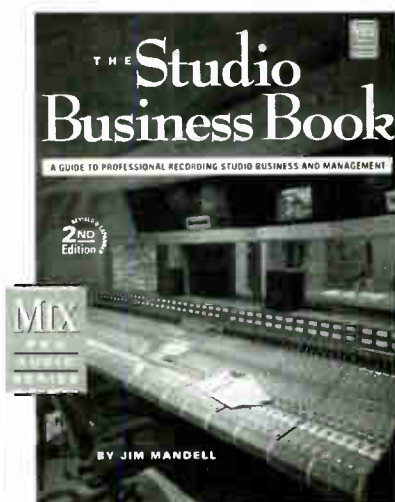
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FEEDBACK

REAMP REVISITED

In his review of REAMP (January '96), Bob Hodas fails to mention that the practice of feeding a signal from tape to an amplifier is an old one, and usually easy to do with a regular passive direct box, used backward (feed the tape signal to the DI via its "output," and connect a 1/2-inch jack from the DI to the amp). More often than not, it works fine! However, the REAMP has one great feature I've often wanted: a trim control. Often, the old-fashioned method overdrives the amplifier input. Smart thinking. I look forward to re-amping!

*Rich Lamp
Hoboken, N.J.*

PRICE CORRECTIONS

I would like to correct an error in your SoundCheck article from the January 1996 issue. The segment that reported on the products from the John Hardy Company (p. 122) confused facts about the Hardy M-1 mic preamp and the Jensen Twin Servo 990 mic preamp. It is true that the Jensen Twin Servo 990 mic preamp is now exclusively available from the John Hardy Company, but it is the Jensen Twin Servo 990 mic preamp that has been reduced by \$100 per channel, not the M-1 mic preamp as incorrectly stated in the article.

To clarify pricing, the Jensen Twin Servo 990 mic preamp is priced at \$1,550, \$2,450, \$3,350 and \$4,250 for 1 through 4 channels, respectively, including the VU-1 deluxe meter, JT-11-BMQ output transformer and the gold-plated XLRs as standard equipment. The M-1 mic preamp is priced at \$1,121, \$1,717, \$2,313 and \$2,909 for 1 through 4 channels respectively, including the VU-1 deluxe meter, JT-11-BM output transformer and gold-plated XLR options. Note that the M-1 can be ordered with or without these various options. A basic M-1 with no options is priced at \$875, \$1,225, \$1,575 and \$1,925 for 1 through 4 channels respectively. These M-1 prices have been in effect since October of 1992.

*John W. Hardy, President
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Evanston, Ill.*

ALIVE AND WELL IN DENVER

I just finished your article on the "flat-lined" music scene in Denver (January '96: "Recording in the Great Northwest") and had to wonder if you were talking about the same Denver I live in. While I agree that the advertising/post scene is indeed very healthy here, and that the amount of work for session players is off, the music scene is as strong as I have seen it in 20 years. In the last year or so, I have recorded the last two Nitty Gritty Dirt Band records, produced a Number One Christian record, recorded a Number 11 Gavin record for Celeste Krenz, a Number Ten kids record for Radio Aahhs and got a Gold record for playing on a Big Head Todd & the Monsters cut. Our three-room "music only" studio complex stays very busy, as do most of the other rooms in town. When one of my clients and I decided to try out the new Euphonix console out at Colorado Sound (which records every one from The Samples to Tim O'Brien), the first three-day slot available was two months out. I'm sure the other music rooms such as Fanfare, FTM and a host of others will tell you the same story.

It's tough enough to make it in a secondary market without the added bad press from a national magazine. So, *Mix*, we love your mag, but let people know that we are alive and well here, and plan to stay that way.

*John Macy
Kerr/Macy Music Group
Denver, Colo.*

MIND YOUR Ps AND Qs

I read with interest your survey of CD recorders (December '95). Considering the audience that *Mix* is aimed at, it should be noted that all of the recorders in the survey, except for the stand-alone recorders, are designed primarily as CD-ROM recorders. None of them has PC software capable of recording audio in the fashion that audio professionals require.

The software packages that are available for the PC deal with audio as .WAV files, and the only way they are prepared to deal with the track IDs is to record each song as a separate track

—CONTINUED ON PAGE 209

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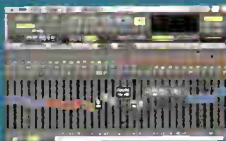


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No wonder hit albums and blockbuster films are mixed via automation. It gives engineers and producers infinitely more control, better mix quality — and the ability to store, recall and fine-tune a mix any number of times.

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Altitude: Three screen shots from Ultramix Pro™. Top to bottom: Main screen, Edit Fader Curves window, Group/Master Section

* If you live in a non-Mackie region from any of the dealers listed, you can get a copy of the video by calling us toll-free. Offer is not available via Reader Response Card — you must call Mackie. Offer expires June 30th, 1996.

ULTRAMIX PRO™ SOFTWARE

- automate up to 128 chs. • plays back standard MIDI files from within the program • MIDI machine control including transport control & 11 autolocate points controlled from UltraPilot™ or software • create & modify up to 8 color-coded subgroups • on-screen metering for all chs. • Auto Mute function mutes unused tracks • solid & "glass" faders show actual level & UltraPilot™ position simultaneously • multilevel event editor • fader curve editor • fader level & mute events • Trim mode merges data between previous & current mixes • Null mode ensures seamless level transitions at punch-in points • prints out studio track sheets • optional integrated control of popular effects processors • fast operation on 030 & 040 Macs¹ • also optimized for Power Macs

Q Why does the Ultra-34 Automation Interface look like a patchbay?

A When used with our 8•Bus console, Ultramix™ operates through the channel and main inserts. A half-normalled patchbay on the Ultra-34 front lets you use your inserts for other purposes.

AutoMute: Possibly the coolest Ultramix™ feature of all!

AutoMute dramatically cuts down on cumulative noise by silencing any section of any track that doesn't contribute to the final mix. It works like 34 separate noise gates — except AutoMute doesn't rely on analog level sensing (and thus never cuts off the important leading edge of a sound). Instead, it scans your tracks, detects the start of a note and then backtimes its muting function so that none of the sound is lost. AutoMuting of up to 128 simultaneous mix channels can be done automatically during just one pass through your mix, a process that would take hours with any other automation system. Plus all mutes are fully editable within Ultramix Pro™'s Event Editor window.

Q What is the Ultramix™ system?

A It's a 3-part MIDI automation system consisting of the Ultra-34 Automation Interface (with 4-patch points per channel on the front and lots more technostuff inside), the UltraPilot™ Control Interface (looks like a fader pack but does much more), and Ultramix Pro™ software.

Q Why no moving faders?

A First, because we designed Ultramix™ to be used with any mixer or line level device without retrofitting. UltraPilot™ reads and transmits physical fader moves. Fader level changes happen electronically and are displayed on the computer screen. Second, because reliable, accurate motorized faders are extremely expensive.

Q Will Ultramix™ degrade my sound?

A Emphatically not! It's a true, pro system designed for use with digital multitrack recorders, workstations and hard disk recorders. Electronic specifications meet

or exceed those of our well-regarded 8•Bus console series. Zipper noise and audible stepping are simply non-existent thanks to our proprietary smoothing circuitry.

Q Is the Ultramix™ system expandable?

A Like many other Mackie products, our

automation system is designed to grow with your needs. You can add more Ultra-34 Interface modules for up to 128 automated channels — and control it all with your existing UltraPilot™ and Ultramix Pro™ software.

Q How do I get more info on Ultramix™?

A Visit your nearest Ultramix™-Certified Mackie dealer (listed at left) for a demo and a free VHS video (while supplies last). Or call us toll-free for our 48-page combination 8•Bus and Automation tabloid.



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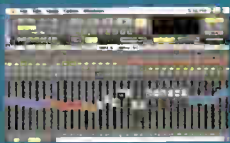
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