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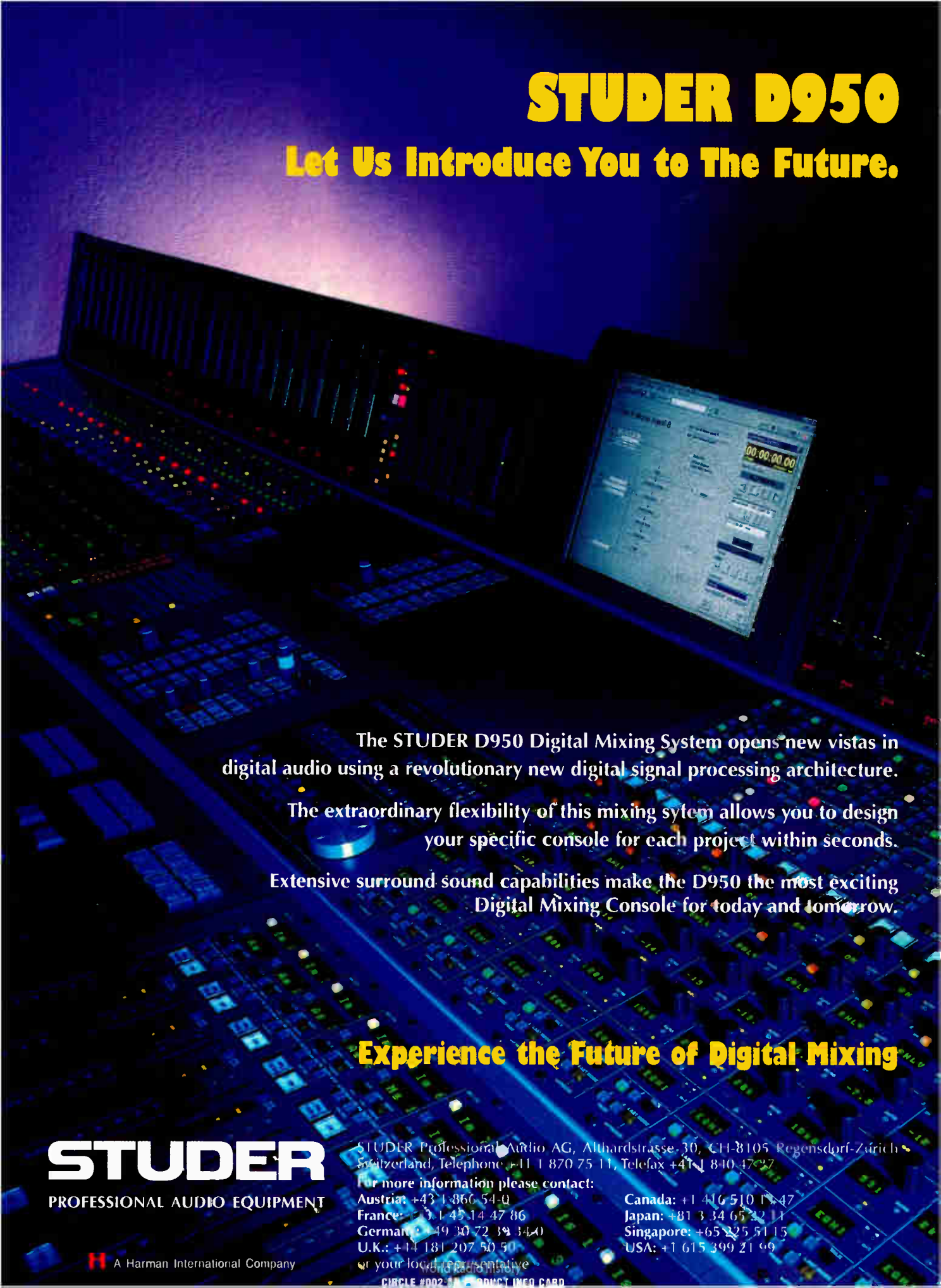

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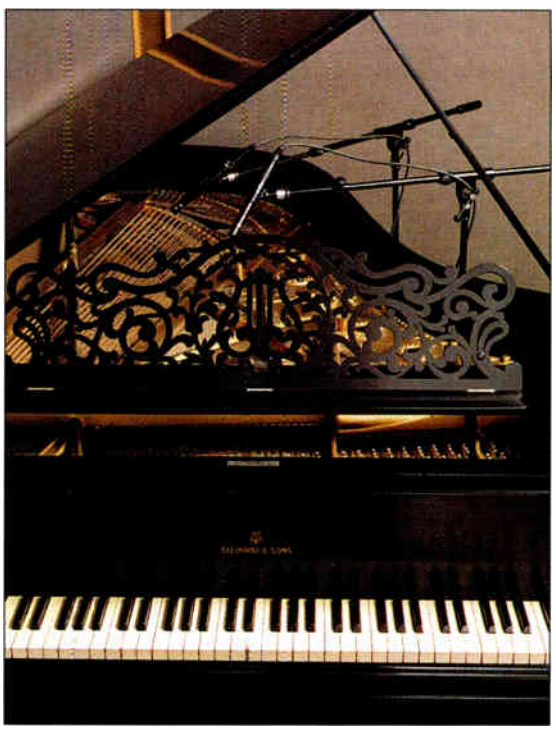
NOVEMBER 1997, VOLUME 21, NUMBER 11

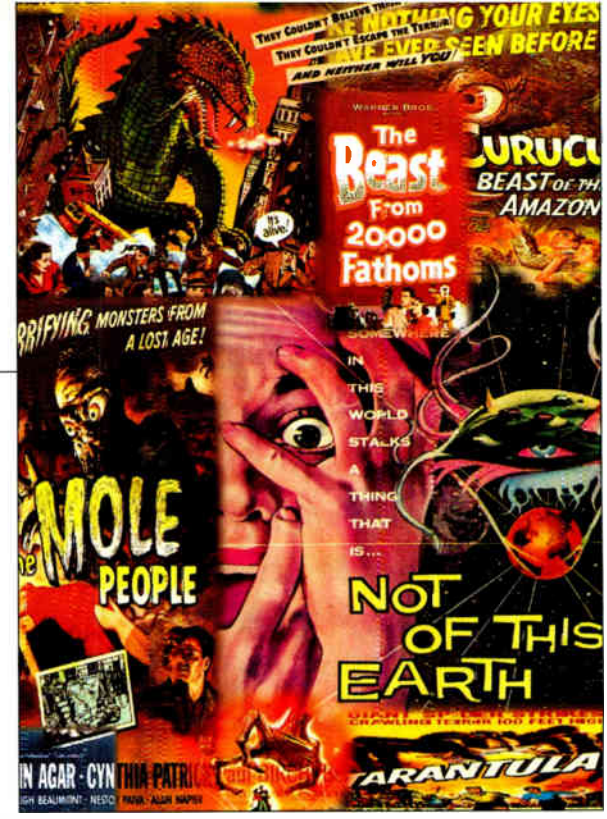
AUDIO

PAGE 169



PAGE 52

SOUND FOR PICTURE



PAGE 64

PRODUCTS

LIVE SOUND

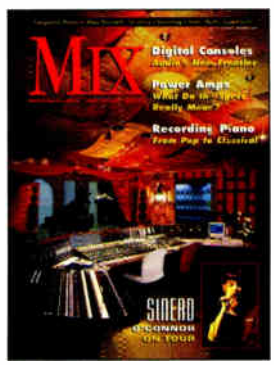
PAGE 162

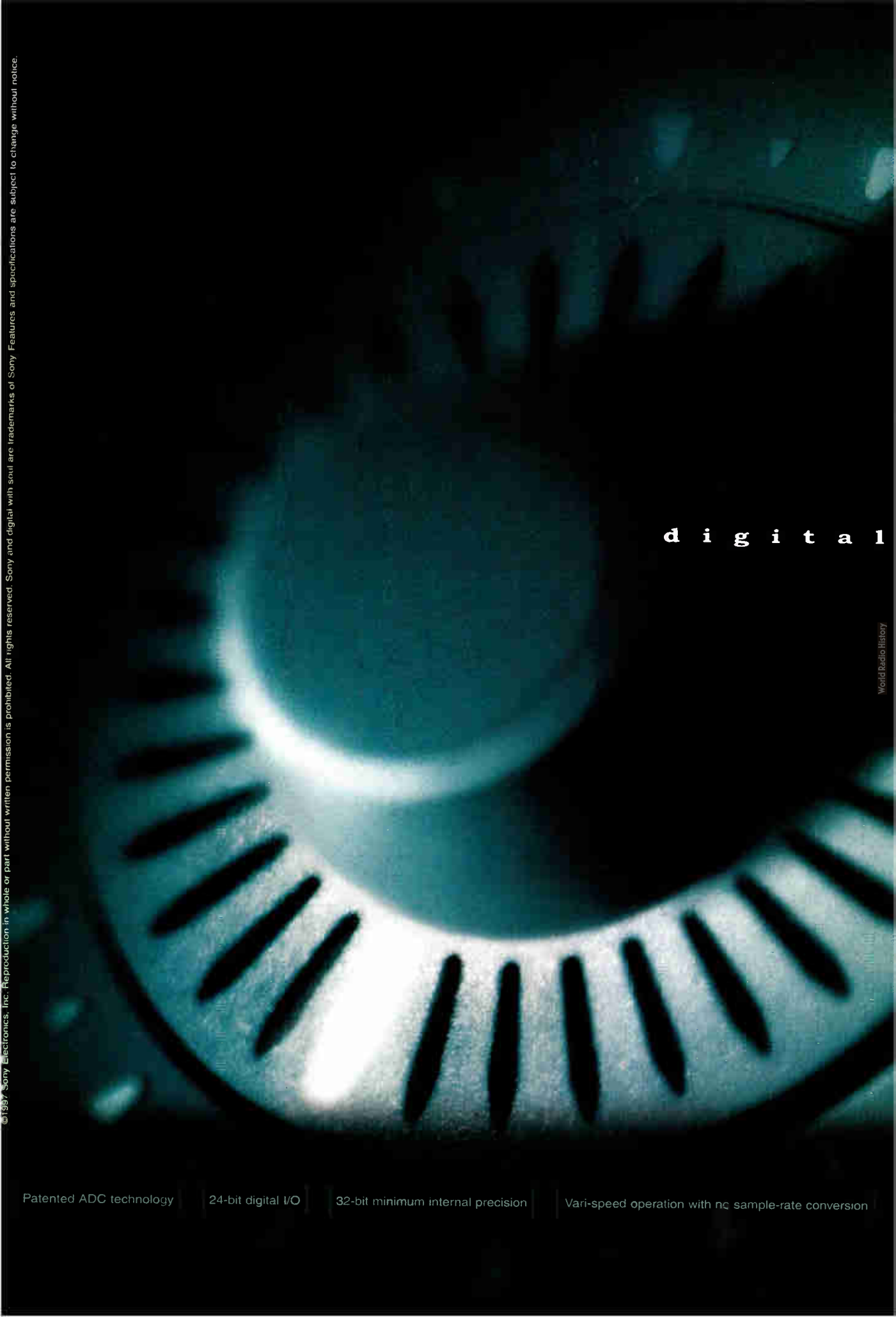
DEPARTMENTS

Check out Mix Online
http://www.mixmag.com

MIX 1977-1997

Cover: Decorated in a Moroccan motif, the popular Studio B at NRG Recording Services in North Hollywood, Calif., has recently hosted sessions for 311, Sean "Puffy" Combs, Sugar Ray and Leonard Cohen. The studio is equipped with a 64-input custom Neve 8078 with Flying Faders, custom, free-standing Dynaudio Acoustics M4-C main monitors (supplemented by four Dynaudio subs) and a Private Q headphone mixing system. **Photo:** Ed Freeman. **Inset:** Steve Jennings.





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FROM THE EDITOR

DVD: BEYOND THE HYPE

I just returned from AES, where there was a lot of talk about DVD. And as we draw closer to an accepted standard for the delivery of audio-only files on this new format, it's too easy to get caught up in the hoopla and the hype. Don't get me wrong—I'm genuinely excited about a format that supports high-sampling-rate/high-bit-rate audio. However, some aspects of DVD-Audio's surround capability really put the chills up my spine.

A few of us are old enough to remember the horrors that resulted when countless fine mono recordings were suddenly "re-channeled for stereo." I don't need to hear some record company's "improved" new versions of great stereo recordings that are suddenly accompanied by a bright orange sticker proclaiming "Re-channeled for DVD." Didn't the world learn a lesson when colorizing—another sort of creative restructuring—was applied to movie classics such as *King Kong* and *The Maltese Falcon*? I guess not.

There are a million ways to use surround in a manner that enhances the listening experience. Engineers have been creating multichannel audio since Disney's *Fantasia* in 1940. In the mid-'50s, CinemaScope and Cinerama productions brought surround to local bijous. By the mid-'70s, blockbusters such as *Star Wars* helped establish the Dolby Surround format from concept to the worldwide standard. With nearly 60 years in surround mixing, the film industry has a legacy of experience on which to draw. But film sound follows visual cues when decisions are made regarding sound placement. No such "rules" apply to surround music production.

There are few easy answers. Will our first releases be like the stereo demonstration records of the 1950s? Is the listener's perspective in front of—or inside—the band? Will today's issues of mono-compatiblity be further complicated by the 5.1-channel "fold down" to a stereo pair, or will all discs actually contain optimum multichannel and stereo mixes? What audio should be routed to the sub? Is seamless consumer playback of 360° panning moves *really* possible? Does a discrete center channel enhance or degrade a stereo soundstage? Who will develop templates for level differences between the main L/R pair, center, surrounds and sub? And in addition to tweaking the tonality of the mix, are mastering engineers also now responsible for adjusting the *balance* of the 5.1 tracks?

Monitoring decisions are difficult enough in stereo, so how do we predict what kinds of systems our audiences have at home or in the car? And will recording budgets suddenly be increased now that producers have to deliver both stereo and 5.1 mixes to the label? As DVD-Audio draws near, it's clear that the format offers tremendous potential, but many unanswered questions remain. For now, just say no to 5.1 re-channeling, and when you do mix, go easy on the joysticks.

We'd all appreciate it.

George Petersen

BPA INTERNATIONAL SPARS ABP American Business Press

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CURRENT

AES SUCCESS

The 103rd AES convention, held September 26-29 at the Jacob Javits Center in Manhattan, broke previous records of attendance and exhibition, befitting the Audio Engineering Society's golden anniversary.

"We were delighted with the show," said Russ Hamm, chairman of the AES convention. "A record 20,730 people visited the Javits Center. Attendance at the workshops, technical papers and special events was above and beyond past conventions. The exhibit hall hosted over 350 exhibitors and was packed with attendees all four days. Everybody had a great time, including myself."

The 104th AES convention will be held May 16-19, 1998, in Amsterdam. The 105th convention is scheduled for September 26-29, 1998, at Moscone Center in San Francisco. For information on future events, visit the AES Web site at www.aes.org.

ARS NOVA BACK ON TRACK

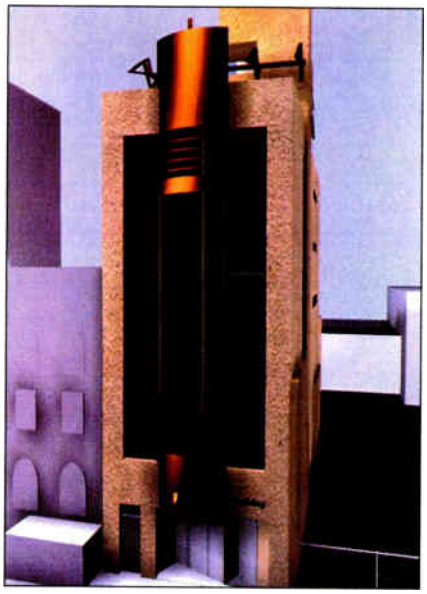
The legacy of Gabe Wiener, who in his short life made an enormous impact on the professional audio industry through his founding of Quintessential Sound and PGM Recordings, will continue in the construction of ARS Nova, his dream facility on West 54th Street and Tenth Avenue in Manhattan.

The project, which had been on hold since the 26-year-old Wiener's death on April 9, has been picked up by his family and modified slightly to include QSI Digital Mastering Labs; PGM Recordings Incorporated, a fast-growing classical recording label; and Mosaic Entertainment, a production company that develops projects for theater, film and television, co-founded by Andrew Kato and Jenny Wiener, Gabe Wiener's sister.

"Gabe had this incredible passion for accurate and high-fidelity reproduction of sound, whatever the genre," said Mike Wiener, Gabe's father. "We thought it was important that his vision be continued through this state-of-the-art facility, which had been the culmination of all his dreams."

The six-story ARS Nova facility, designed by the Walters-Storyk Design Group, will be fitted with the most advanced technology throughout, including high-bandwidth audio networking systems, custom voice and data communications infrastructure, and an advanced media storage vault. Mastering rooms will range from simple editing and transfer rooms to 24-bit/96kHz multichannel audio production for DVD. In addition, the ARS Nova Theater will be used as both a 67-seat theatrical venue (complete with advanced sound and lighting equipment) and as one of the city's premier recording spaces.

Groundbreaking was expected to begin last month; the facility is scheduled to open in the third quarter of 1998.



Final drawings of the six-story ARS Nova structure.

GOLD LINE, CROWN REACH TEF® AGREEMENT

Crown International and Gold Line Connector Inc. have announced a strategic agreement for the development of technologies related to the TEF acoustical and signal measurement system. The agreement provides for Gold Line to manufacture, develop and service the TEF20, TEF Pad and all next-generation software for TEF products.

Blair McNair, formerly Crown product manager for TEF products and now the company's consultant/contractor liaison, will retain responsibility for TEF training in conjunction with Pat Brown of SynAudCon. All TEF classes will continue as scheduled.

"Crown is proud of its role in providing the consulting community with the premier system of acoustical analysis," McNair says. "We are absolutely committed to ensuring that the legacy of TEF will continue for many years to come. Gold Line brings to the equation an energetic engineering department with experience in conversion of DOS programs to Windows and a sales organization that is focused on the measurement needs of the consultant and sophisticated contractor."

Gold Line has already begun work on the development of a user-friendly Windows interface for the TEF20, according to Greg Miller, national sales manager of the audio division at Gold Line. The new product is scheduled to be shown at the NSCA Show in Las Vegas next spring. A new "EZ Test TEF" package is being created and will include a TEF20 analyzer, a lightweight carrying case, a TEF05 measurement mic and a comprehensive training video. The system is expected to weigh in at under 12 pounds—small enough for airline carry-on compartments. Windows-based upgrades will be available to all current TEF20 users.

UPCOMING EVENTS

newMedia98, formerly MULTIMEDIA, will take place at the Metro Toronto Convention Center from May 12-15. It is Canada's largest such event, now in its seventh year and attracting 25,000 attendees. To find out more, visit www.newmedia.ca or call 800/615-1551.

Broadcastasia98, Asia's largest exhibition of sound, film and video equipment and peripherals, will take place June 2-5 at the World Trade Centre Singapore. Phone 65/338-4747 or e-mail info@sesmontnet.com.

A European Broadcast Union production seminar, "Networks in the Television Studio," is scheduled for January 28-30 at the EBU headquarters in Geneva, Switzerland. The seminar will focus on the work of the EBU/SMPTE task force, which aims to harmonize the various standards being developed for pro-

—CONTINUED ON PAGE 12

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CIRCLE #005 ON PRODUCT INFO CARD

INDUSTRY NOTES

EV International Inc.'s (Buchanan, MI) board of directors appointed **Dan M. Dantzler** as acting chief executive officer. Dantzler had been employed by Telex Communications since 1967, most recently serving as vice president and general manager of the company's RF/Communications Group. Other EVI news: **Karen E. Hunt** accepted the position of manager, strategic projects, **Gary Stanfill** was named general manager of Vega (a division of EVI Audio) and **Ouzunoff & Associates** was named Altec Lansing 1997 Rep of the Year...**John Falcone** was promoted to senior vice president, marketing and sales, at Old Lyme, CT-based **Sennheiser Electronic Corporation**. Falcone had been vice president of the department since joining the company in March 1996. Personnel changes at Sennheiser: **Eric Mayer** was named sales representative for the New York/New Jersey area, and **Mark Humrichouser** was named Eastern regional market development representative...**beyerdynamic** (Farmingdale, NY) brought onboard **Jerry Spriggs** as sales manager, systems integration and applications; and **Doug Marhoffer** as sales manager, retail, pro audio and recording products...**Marc Spector** was appointed director of marketing for the THX Division of San Rafael, CA-based **Lucasfilm Ltd. Pascal Sijen** was promoted to technical services supervisor for the THX Theatre Program... **Martinsound Inc.** (Alhambra, CA) hired **Steve Harvey** as Eastern sales manager, with special responsibility for coordinating sales and support of Neotek, Martech and related products...**Leslye Faulk** was hired as director of new media, and **Joe D'Ambrosio** was named director of operations, at N2K **Encoded Music** in New York City. N2K also announced an alliance with **PointCast Inc.**, in which N2K will be the advertising music sponsor of the Music Zone channel on the new PointCast College Network, and also provide music news and information to both the PointCast Business Network and the PointCast College Network...**John George** joined the sales staff of **Audio Broadcast Group** (Grand Rapids, MI) to serve as sales engineer for RF, digital and audio products for the Southeast U.S....Japan-based **Microboards Technology Inc.** appointed **Joseph F. Alfonsi Jr.** manager of the company's new East Coast office in Pottstown, PA...**Liquid Audio** (Redwood City, CA) announced a distribution agreement with **HHB Communications Canada Ltd.**, a subsidiary of HHB Communications. HHB will distribute Liquid Audio products including the Liquifier Pro™ and MusicServer™ throughout its Canadian dealer network...**Barbara Williams** was promoted to director of marketing communications at Bedford, MA-based **Lexicon Inc.**...**Otari Corporation**, Foster City, CA, announced the completion of a new demo room and product display area. Demonstrations can include all types of equipment systems, cassette tape loading, pancake handling and CD-R writing and replicating...**Selenium Loudspeakers USA** moved to new offices, warehouse and services facilities at 15 East Uwchlan Ave. #424, Exton, PA 19341. Phone 610/280-3595...**Dell Computer Corporation** signed a licensing agreement with **Yamaha Corporation** (Buena Park, CA) for use of the Yamaha S-YXG50 software wavetable synthesizer in their Windows 95-based computer systems...Placerville, CA-based **Millennia Media Inc.** announced the acquisition of Forssell Technologies, a U.S. manufacturer of vacuum tube and discrete solid state pro audio equipment...**Motionworks** (Oxford, UK) terminated its worldwide exclusive distribution agreement with HHB Communications Ltd. ■

—FROM PAGE 10, CURRENT

cessing and distributing digital television signals; call 41/22/717-2721 or e-mail peters@ebu.ch for more information.

The 1998 Live! (International Performance Production) show and awards will occur on February 5-6. West London's Royal Lancaster Hotel will host the awards ceremony, and exhibition is at the Roundhouse Theater in Camden, North London. For details call 44/1322/660-070.

NEW WEB SITES

The WorldDAB Forum Online displays some of the new projects under way in digital audio broadcasting at www.worlddab.org.

Littlelite/CAE, a manufacturer of work lamps and accessories for the pro audio and lighting industries, has a new site at www.caeinc.com.

San Francisco/London-based Res Rocket Surfer has created technology making it possible for musicians in different locations to jam with each other live over the Internet. Visit www.resrocket.com.

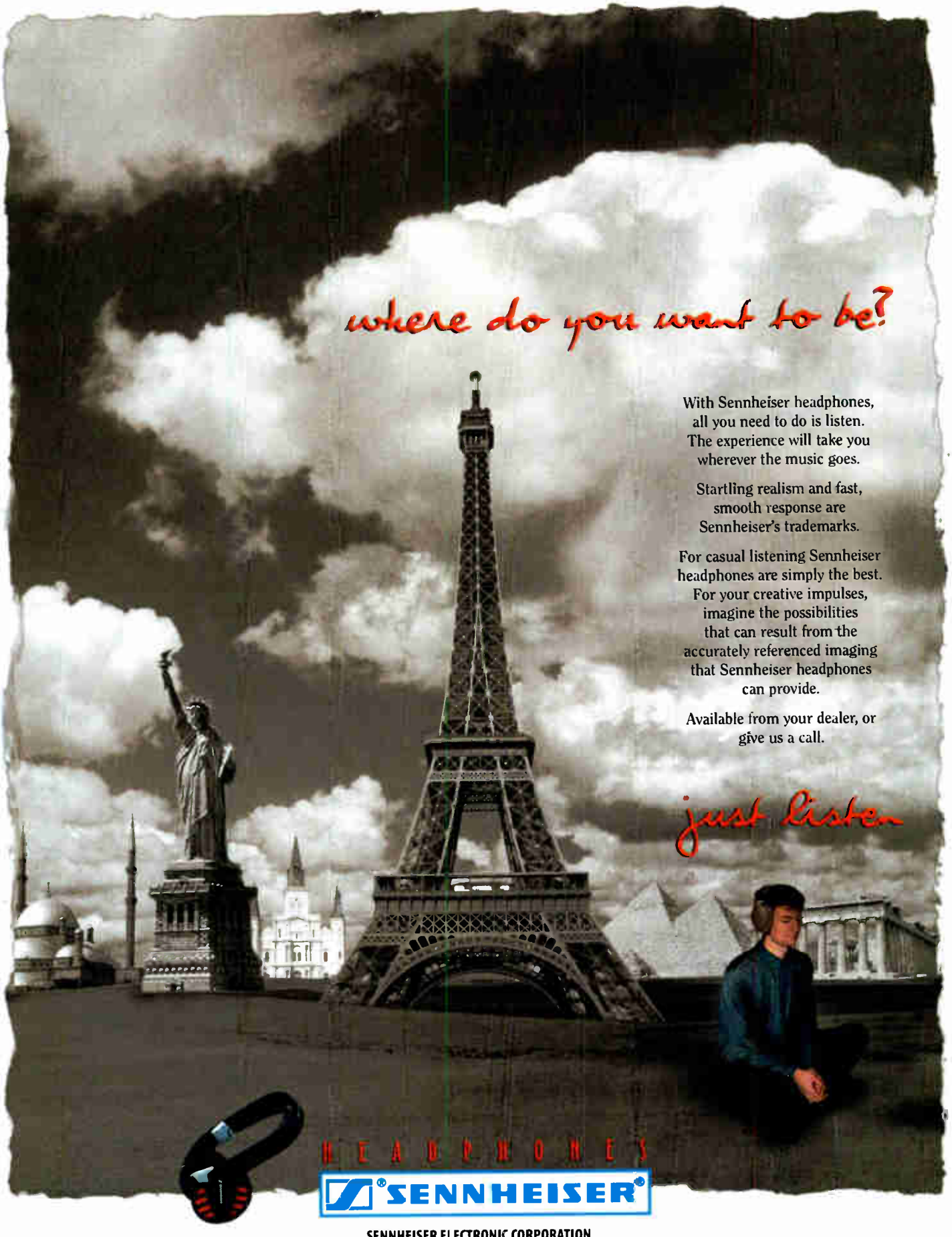
Biamp Systems' Web page provides access to a variety of information on the company's extensive line of pro audio electronics. The site includes product literature, A&E specifications, CAD files and more. Visit www.biamp.com.

CORRECTIONS

In the October feature "Prime Time for New York Post," we incorrectly gave the impression that The Edison Recording Studio is under the direction of National Sound. The Edison is headed by longtime New York engineer Gary Chester, and while both The Edison and National Sound are divisions of National Video Center/Recording Studios, they operate as independent companies.

In the September 1997 article on Ben Folds Five, the bandmembers were incorrectly identified. The caption should read, left to right: Robert Sledge, Darren Jesse, Ben Folds. Sorry, guys!

A publisher has been selected for the Charles Salter Associates book, excerpted in the August 1997 *Mix*, entitled *Acoustics: Architecture, Engineering, The Environment*. The publisher will be William Stout Publishers of San Francisco, and the book is expected out in mid- to late December. ■



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HR824 ACTIVE MONITOR

"Overall frequency was almost hard

Logarithmic wave guide helps accurately propagate high frequencies over a wider area. Result: better dispersion, more precise imaging and a far wider sweet spot.

Edge-damped 25mm high-frequency transducer is directly coupled to its own 100-watt FR Series™ Low Negative Feedback internal power amp.

Alloy dome is free from "break-up" that plagues fabric domes, causing high frequency distortion.

Signal present and overload LEDs.

Instead of a noisy port, a passive honeycomb aluminum transducer on the rear of the HR824 almost doubles the low frequency radiating surface.

"This allows the HR824 to move a large volume of air with minimal low frequency distortion & power compression."
EM Magazine*

Specially-designed 224mm low frequency transducer has a magnet structure so massive that it wouldn't even work properly in a conventional passive loudspeaker. But servo-loop-coupled to a 150-watt FR Series™ amp, it's capable of incredibly fast transient response and extremely low frequency output.

Inside, the HR824 cabinet is 100% filled with adiabatic foam. Result: Unwanted midrange reflections from the low frequency transducer are absorbed **inside** the enclosure instead of being reflected back out through the cone into your listening space.

"The enclosures — dressed in a conventional yet classy black — are shielded."
EM Magazine*

Inside. Two separate FR Series™ power amplifiers with a total of 250 watts rated power — the most of any active monitor in the HR824's class.

On the back. HF Boost/Cut, Acoustic Space, Roll-Off and sensitivity controls, balanced 1/4" and XLR inputs. *"The Mackie HR824 is the only system* (in the comparative review) *that doesn't require the user to fumble around with tiny tools in order to make adjustments."*
EM Magazine*

Actually this paragraph doesn't have anything to do with the HR824. Mackie is further expanding its R&D/Engineering department and is looking for more analog and digital engineers with experience in pro audio. Log onto our web page for particulars.

*** Electronic Musician, October 1997, All quotes are unedited.**

response was so flat that it to believe." Electronic Musican Magazine*

Ready to confront reality? The HR824 Active Monitor is now in stock at Mackie Dealers.

Owning a set of HR824 near field studio monitors has the potential of seriously altering your perception of sound.

For the first time, you'll be able to hear **precisely** what's going on all the way through your signal chain — from microphones right through to your mixdown deck. You'll suddenly discern fine nuances of timbre, harmonics, equalization and stereo perspective that were sonically invisible before.

Some tracks you've recorded will amaze you; others may send you back for an immediate remix.

But either way, for the first time, you'll be hearing **exactly** what was recorded — not what a conventional loudspeaker may or may not have been capable of reproducing.

> "In fact, all the sonic details that I can discern on a $45,000 reference system were very well reproduced, although not identically, on the HR824s. That was very impressive."

> "The precise resolution is a major boon for finicky sound sculptors."

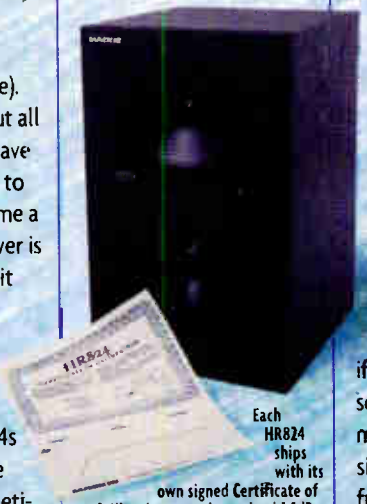
> "The imaging and high frequency dispersion is brilliant. I was amazed at how far off-axis I could scoot my chair and still clearly hear what was going on in both channels."

Admittedly, these are pretty brazen claims (which is why we're backing them up with comments from a credible, third-party source).

But all you have to do to become a believer is to visit your nearest Mackie dealer. When you compare HR824s to the competition, you're going to hear some dramatic differences.

First you'll notice far more openness and detail. Critical listeners tell us that it's as if a curtain has been lifted between themselves and the sound source.

Next, you'll notice low frequency output so accurate that you might look around for the hidden subwoofer (some of the world's most experienced recording engineers have done this, so don't be embarrassed). The HR824 really IS capable of flat response to 39Hz. Moreover, it's capable of **accurate, articulated** response that low. Rather than a loudspeaker's "interpretation" of bass, you can finally hear through to the actual instrument's bass quality, texture and nuances.



Each HR824 ships with its own signed Certificate of Calibration attesting to its ±1.5dB 39Hz-22kHz frequency response.

Next, if you can "unlock" yourself from the traditional, narrow "sweet spot" directly between the monitors, you'll discover that the HR824s really DO live up to our claim of wide, dispersion.

> "The low end was robust and present; the electric bass and kick drum thumped into my chest the way those huge URE monitors did back in the old days."

Their sweet **zone** is so broad that several people can sit next to each other — or if you work solo, you can move from side to side in front of large consoles — and still hear a coherent, detailed stereo panorama.

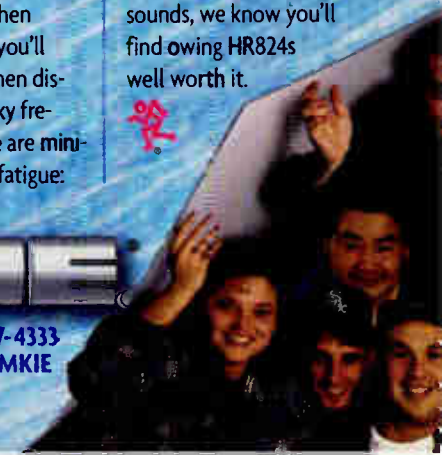
> "Overall, the response was so smooth that I wasn't even aware of a crossover point."

Finally, let the salesperson go wait on somebody else and enjoy an extended session with one of your favorite CDs. When you're through, you'll discover that when distortion and peaky frequency response are minimized, so is ear fatigue. You can listen to HR824s for hours on end.

> "Stereo imaging and depth were fabulous."

One final point... your monitors are the only part of all your studio equipment that you actually **hear**. Along with good microphones, HR824s are the best investment you can make, no matter what your studio budget. And, like premium mics, HR824 monitors cost more than less accurate transducers.

But if you're committed to hearing **exactly** how your creative product sounds, we know you'll find owing HR824s well worth it.



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CIRCLE #007 ON PRODUCT INFO CARD

AMERICA TODAY

HERE ARE SOME OF MY FAVORITE THINGS

BY STEPHEN ST.CROIX

Let's start with The American Educational System. Yesterday, I found myself, as I do on occasion, on the road in search of the Perfect American Meal. Usually this means sushi, but this time I had a powerful urge for something truly American, yet a bit more sophisticated and cosmopolitan than the normal fare. I knew I would find it, as I was cruising a rather upscale neighborhood.

As I pulled into Taco Bell, I mentally rehearsed my order so as to assure a smooth, rapid delivery when faced with the query at the register. "What a country!" I thought as I approached the moment of truth. "Fine cuisine as fast as I can ask for it." I ordered with joyful abandon—for, as many of you might have already guessed from my elitist attitude in previous columns—price was no object.

But, my cavalier disregard for the financial ramifications of my culinary abandon proved problematical after all. I racked up a grand total of $7.32. As I had recently fed the car with small bills, I had only hundreds left in my wallet. I produced one and handed it to the woman at the register with my apologies for any inconvenience. She informed me that their policy was to call a manager to break large bills, and then I could pay with a twenty. She called him, and he told her she could do it. She carefully counted out six twenties and handed them over. I counted them, recounted and fanned them out like the six-of-a-kind that they were. She didn't get it. I told her six was too many and gave her one back. Everybody thanked me. Even a woman at a nearby table said it was refreshing to see such honesty. In fact, there was so much commotion about it that I began to feel I had perhaps done the wrong thing—there was *way* too much reaction. I guess next time I'll just keep it.

This got us to the payoff—I then had five twenties and an outstanding financial commitment of $7.32. She, on the other hand, had a digital touch-screen register showing $7.32 out of the original hundred. I gave her a twenty, and the world came to a screeching halt. You see, the register was telling her that she should give me

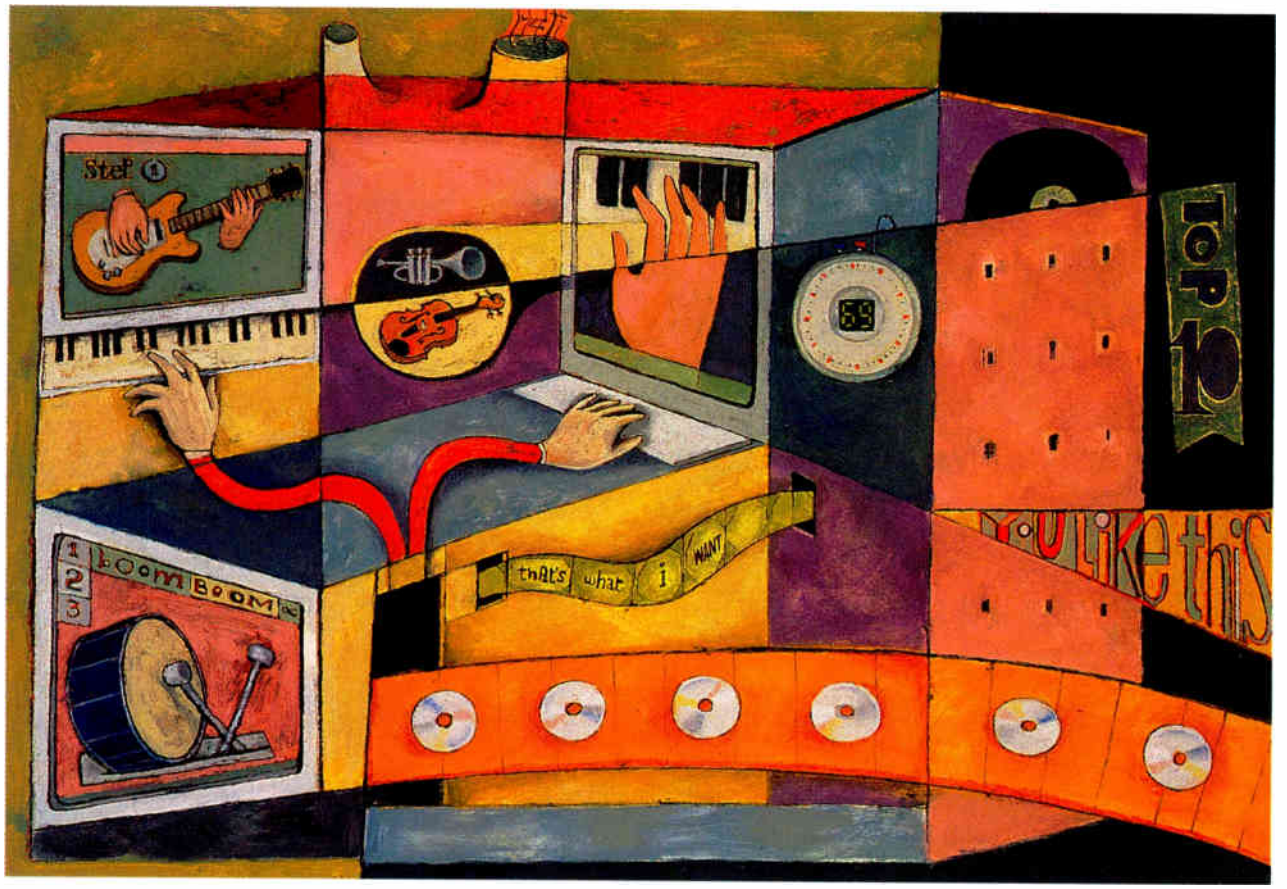
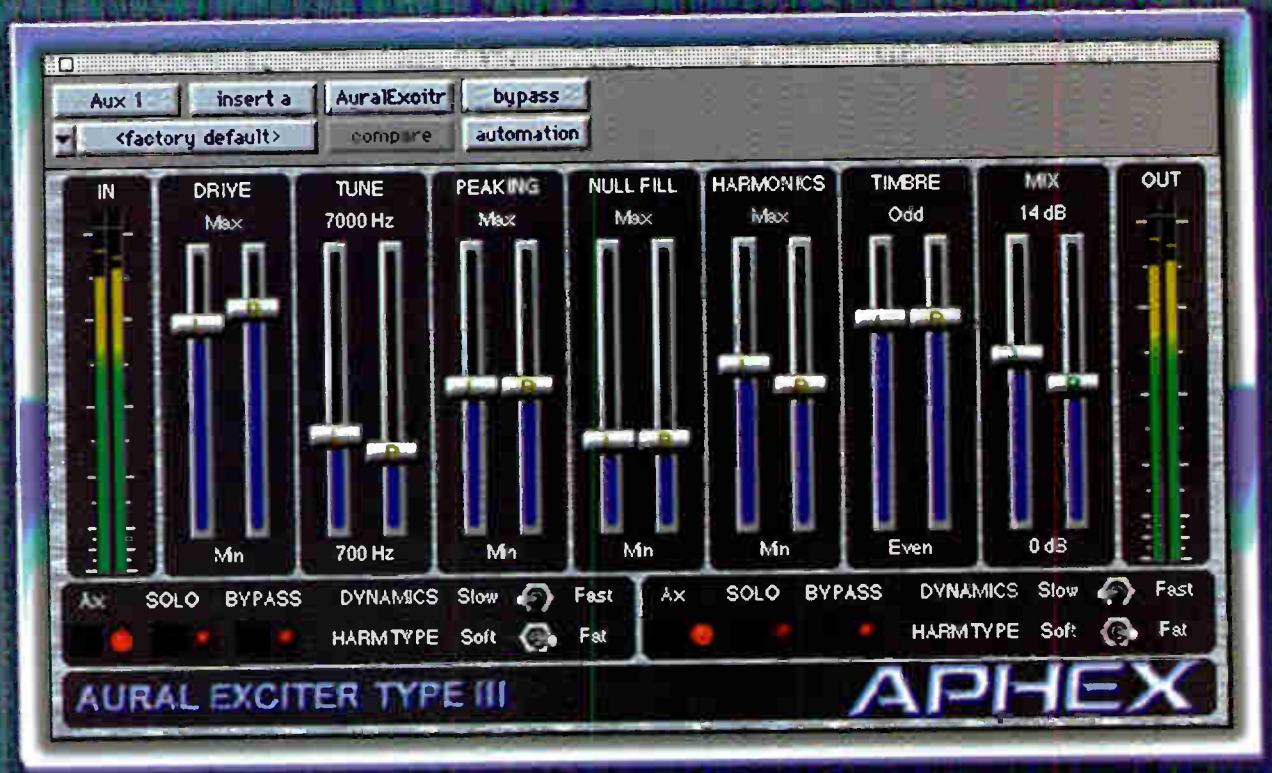


ILLUSTRATION FERRUCCIO SARDELLA

Plug-in Aural Excitement



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CIRCLE #009 ON PRODUCT INFO CARD

$92.68 change from the original hundred, yet she only had twenty in her hand. She overheated. She clipped. She locked the register and went to get the Grand Poobah.

He eventually showed up, and after much consult with the spirits, did in fact manage to compute the $12.68 change.

I used to laugh at stories about today's generation being unable to function if their little portable calculators broke—but I laugh no more. This woman was totally incapable of subtracting 7.32 from 20! She was dead in her tracks. You should have seen the look on her face as she realized that there was no known solution to the problem.

We aren't hearing a Top 10 based on skills and abilities; we are hearing the winners of a funding war.

Doesn't this scare you just a little? I think she might have been the one who did post-pro and editing on a few of the TV shows I saw last week.

BUT THAT'S NOT ALL

And then there's this month's *Macworld* magazine. They talked about the new fast computers, and I read the following (verbatim): "...when compared with a slower-megahertz machine." Arrrgghh! I *hate* this! But I guess I shouldn't be surprised. In a country where technological advancements have completely eliminated both the nuclear bomb and the nuclear family and replaced them with the much more up-to-date nucular bomb and nucular family, I guess anything is possible. Still, what a strange way to learn that we have now mastered time itself.

Yes, what wondrous technology it must take to manufacture a "slower-megahertz machine"! But the ramifications!

You know, I would have settled for reading about a slower machine, or a lower-speed machine, but my turn-of-the-century educational background

—CONTINUED ON PAGE 210

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CIRCLE #012 ON PRODUCT INFO CARD

HANDS ON THE PAST

A HISTORY OF TECHNOLOGY AND TECHNIQUES SHAPES THE PRESENT

ILLUSTRATION: DAVID PLUNKERT

I switched MIDI sequencers last week. It's the first time in ten years I've done that. I'm not talking about the one I use in my studio—there, I've gone through any number of software and hardware sequencers as they've progressed and become more complex and wonderful. I'm talking about my college, and the software I use for the intermediate MIDI classes I teach there.

The sequencer I've been teaching with has been a terrific introduction to the art of making music with MIDI. It's simple, intuitive, has a straightforward user interface and is based on concepts familiar to anyone who's done recording. While it's easy to understand right away, it has enough depth to keep the students occupied for at least a semester. And that's how long I have them work on it—after that, those who survive the course and make it into my advanced seminar get to use a much more powerful sequencer, with a much more intimidating user interface, but with all the bells and whistles we've come to expect from professional software in the age of the 200MHz CPU.

It wasn't easy to make this change. After all, I know the old program so well I could (and have occasionally been known to) teach it in my sleep. There are a lot of similarities between the old and new programs, but a lot of differences, too, in how features are implemented and where they are located. It took me several days to rewrite my curriculum around the new program.

BY PAUL D. LEHRMAN

Why am I bothering? For one thing, the students, coming into the course with an ever-increasing level of knowledge about electronic music (or at least having been exposed to a lot more hype and advertising), have of late been asking, "Can it do such-and-such?" referring to some esoteric feature. For a long time I was able to stave them off with a terse, "You don't need that," but lately my response has more often been a slightly embarrassed "No."

A much bigger problem, however, is that the old program is

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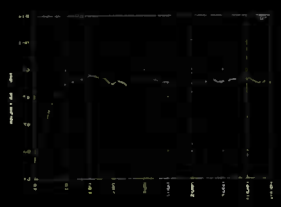

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buggy, and the bugs have started to really get in the way. You'd think a ten-year-old program would be pretty clean, but that's only true if a certain amount of maintenance has been practiced, so as to keep up with the environment it has to run in. In recent years, the manufacturer tried to include in the program recognition for new MIDI commands like Bank Select and MIDI Machine Control, and compatibility with various system extensions that allow for multiport MIDI interfaces, but they never quite got it right. Then, before they could fix everything, they stopped development in order to concentrate on supposedly more lucrative markets, and the program lost the stability it once had. (No, I can't go back to an older version, because I *need* the features they added, even if they're flaky.)

I suffered with this for a few years and screamed at the developer (with whom I once had a close relationship), but I have been told in no uncertain terms that this was the end of the line for this program. So this year I bolted. The new program I'm using is not quite so simple, not quite so clean, has a few idiosyncrasies that may well drive me nuts, but it has a lot of features that the old one was missing, and, most important, the developer is committed to perfecting the product, which means in part (I hope) that they will listen to me when I tell them how to make it more usable in my classroom. It's slick, it's colorful, it's cool.

WHY ARE WE HERE?

But I didn't write this column to condemn an unnamed software company for being uncool. I'm writing it because a voice is telling me that by *not* teaching them the old software, I'm cutting my students off from a very important phase in the development of MIDI. They'll see a sophisticated modern sequencer, dealing with looping, bank switching, SMPTE, system exclusive, and multiport interfaces with ease, but they don't get to see how software designers struggled for years with the whole concept of sequencing, and what the various solutions have looked like as the art and science of electronic music production have progressed.

In education, in a technical field, this is always going to be an issue. And as the rate of progress continues to accelerate, it's going to get worse. Whether we're teaching a six-week crash course or a four-year degree program, we only have a finite amount of time to indoctrinate our students. As the technology gets more complicated, and we need to stuff more information into our students' heads to keep them up to date, what are we losing out the back end? If the finish line—the state of the art today—keeps moving, and the length of the course doesn't change, how do we maintain the same starting line?

The same dilemma is faced by grade-school history teachers every year. When I was in school, history stopped some time between World Wars I and II because that's how far we had gotten in the textbook when the school year ended. The fact that we happened to be in midst of the Vietnam War didn't account for much—everything after Hiroshima was considered "current events" and treated separately (and badly). That the same historical forces that blew Europe up twice were about to send some of us off to become cannon fodder didn't seem to be important enough to tell us.

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It was more important that we learn about George Washington's wooden teeth, the Boston Tea Party, and the principle of Manifest Destiny (without which this magazine might be located in Kansas City).

But students in an audio engineering program wouldn't put up with this. If we stopped their education after the introduction of the 8-track tape deck simply because we ran out of time, they would be suing for their money back. We have no choice but to teach hard-disk editing, DSP, A-to-D conversion, MIDI, automation, word clock, and the rest of the new tools that are *de rigueur* in the modern studio. But what do we do about the old stuff?

Some say that we should abandon teaching the really old and outmoded technologies, that they are irrelevant to the challenges students will face today. True, most students venturing out into the real world will not have to deal with the exigencies of vinyl mastering and where to put the program breaks on an 8-track cartridge, but even though the solutions have evolved, the problems of the recording business—namely, how to get the best performance or production onto the recording medium, with the highest possible fidelity—have not changed at all.

Certainly, there are technologies from the past that students don't need to spend time with, to learn so well that they can actually *use* them. We can tell students about Edison cylinders and 78 rpm shellac discs without forcing them to make recordings with them. We can discuss pre-SMPTE sync formats without making them link up devices with rubber bands, bicycle chains and chewing gum (although it's fun to try). We can explain and demonstrate the principles of analog synthesis, but there's no need to have them build sawtooth generators and ring modulators from scratch.

KNOWING YOUR ANCESTORS

But if it's being taught right, an important part of learning about technology is learning the *why* in addition to the how. What problems have the makers of recordings been faced with in the past, and how did they solve them? What new problems did the solutions create? Sometimes those lessons can't be learned without hands-on experience. The relationship between tape speed and high-frequency response is an abstract notion until you try to record a ride cymbal at 3¾ ips. Wow and flutter, and why you need to avoid them, have a lot more meaning to a student once he or she has recorded a piano on analog cassette. Why someone would want a "plate" program in a digital reverb seems silly, until you experience what a real plate sounds like and see the kind of dimension it adds to a track.

Of course, in the "We-never-had-it-so-good-when-we-were-your-age" category, I don't think any student can appreciate the glory of nondestructive digital editing until they've spent a week learning the difference between butt and angle splices, while picking their hair out of the splicing tape and trying to remember which side of the tape to keep their fingerprints off of. Yes, at my school we make them do this. Of course, like my late, lamented sequencer, the tape decks we use for this exercise require maintenance, and so a decent amount of our time is spent keeping these old war-horses up to snuff. That time is hardly wasted: we teach the students maintenance, too, and have them watch over our shoulders and sometimes even do the work themselves.

—CONTINUED ON PAGE 211

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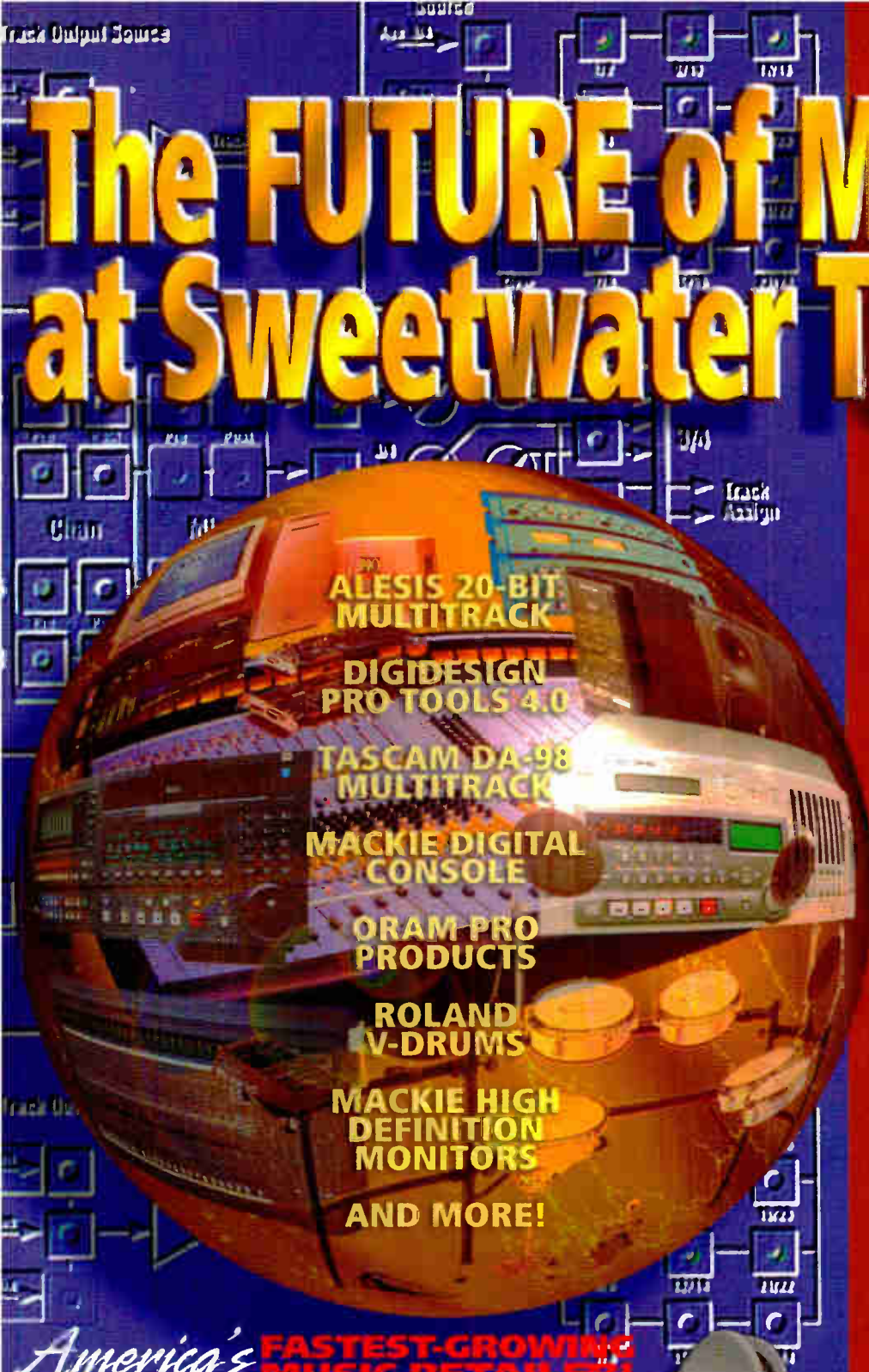

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DIGITAL CONSOLES

Audio's New Frontier

by George Petersen

The introduction of audio products follows a cyclical pattern. Last year it was powered monitors. Before that it was mic preamps, and before that, tube mics were the rage. But, without a doubt, the hottest trend this year is digital consoles. And it seems that every manufacturer is bringing out new models, unveiling hardware or software enhancements for existing boards, or announcing new mixers to be unveiled in the months to come. In fact, seven of the consoles in this article—the Otari Advanta Console, Soundtracs DPC II, Ramsa WR-DA7, SSL Avant, SSL Aysis Air, Amek Soho and Studer D950—made their U.S. debut in New York last month!

At one time the analog/digital choice was easy: As long as your family owned a Fortune 500 corporation, you could consider digital. But these days, everything's changed, and digital consoles are available in every price range, whether it's $4,000, $40,000, $400,000 or more. With that in mind, here's a look at more than 30 digital consoles now on the market. Note: Because many consoles are configured on a custom basis per user needs, prices are not included for all models in the article.

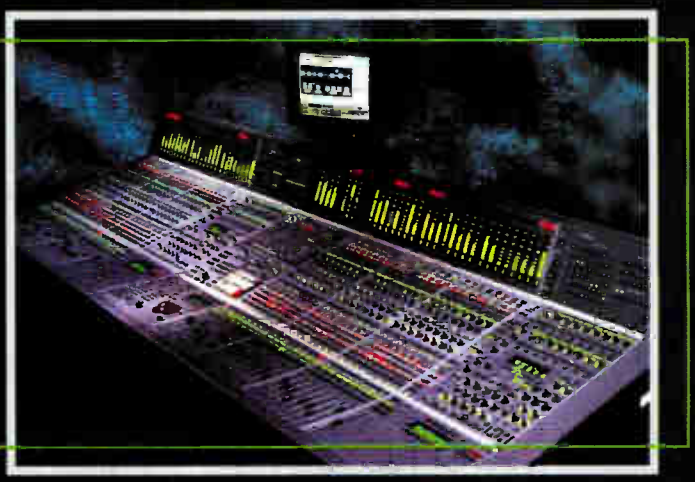
AMEK DIGITAL MEDIA SYSTEM

The Digital Media System from Amek Systems (now owned by Harman Pro Audio) supports up to 160 channels from any size controller; even a simple 8-fader configuration can control a 40x24x2 mixer. Amek has also shown the DMS in a large-format version with sidecar bays of additional faders and controls to approximate the number of available signal paths. Inputs can be defined as mono, stereo, LCRS or 5.1 sets.

The control surface combines moving faders with rotary controls (and LED positional indicators) for sends, aux, dynamics and EQ (4-band, with sweep LF/HF and parametric mid bands). Up to 18 aux buses are standard, all pre/post-switchable. Less-often modified parame-

Soundtracs DPC II

Studer D950



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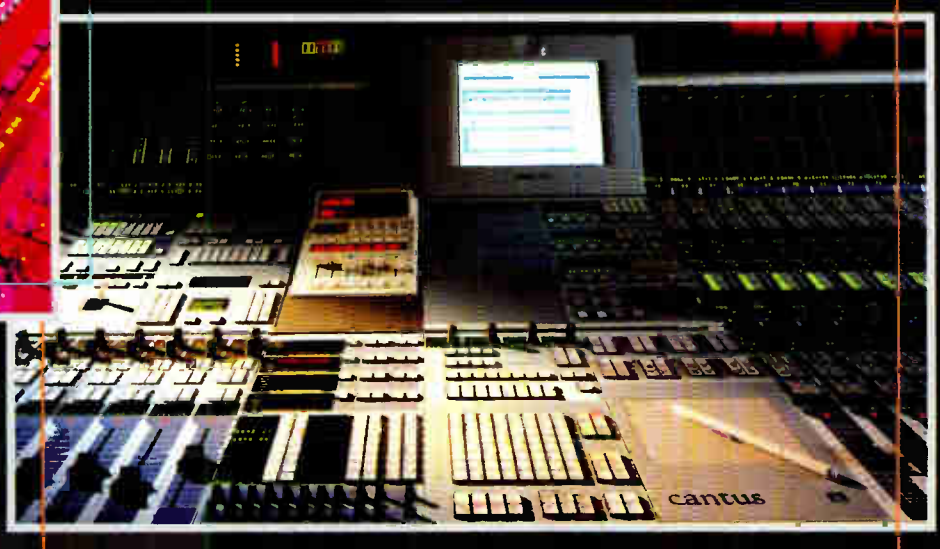

Stage Tec Cantus

Amek DMS

ters—such as MS decoding, phase reverse, mix-minus select, individual channel delay (up to 265 ms), phantom power and signal routing—are controlled via the high-res, color touchscreen display. DMS runs on Amek's familiar SMPTE-driven SuperTrue automation, with dynamic control of DSP, EQ, faders, mutes and up to ten VCA-style groups.

The mix controller has alphanumeric displays for naming track/input sources and recorder-style transport keys for sending MMC data. Metering is via onscreen meters and/or an optional meter bridge with VU, plasma or digital meters. Onscreen phase metering is standard. Any analog or digital format (mic/line analog; AES/EBU or S/PDIF digital; and multitrack digital) may be accommodated by swapping various modules in the rackmount I/O system. A/D and D/A conversion is 20-bit. Amek's Automated Crosspoint Matrices—software-controlled 16x16 routers for instantaneous input/output reconfigurations—are optional.

The console's DSP Core may be expanded by adding more cards, and the amount of DSP available at any time is allocated to the particular task at hand. For example, multiple controllers in different rooms could access the same DSP Core, with one system mixing while the other tracks. Other than track delay, no time-domain DSP—such as reverb—is currently available. However, a Visual Effects system can tweak parameters of 28 popular outboard devices directly from the DMS touchscreen. Amek DMS prices start at about $150,000.

AMEK SOHO

Announced at last month's AES convention in New York, Soho is specifically designed to be integrated with various digital audio workstations in post-production applications. Details were sketchy at press time, but Soho is derived from the technology used in Amek's DMS console (including dynamic SuperTrue automation) and will be priced about $48,500.

AMS NEVE LOGIC SERIES

AMS Neve (U.S. offices in New York City) shares a common DSP engine within all models of both its Logic Series and the large-format Libra digital consoles. The new Version 1.8 software for all Logic and Libra models includes additional hardware support and features aimed at a wide range of users.

Version 1.8 also provides up to 16 groups and eight auxes on the Logic 3 digital mixer. Another Version 1.8 enhancement is an improved color graphic environment for DSP and I/O configuration on the automation screen itself, useful on consoles—such as Libra, Capricorn and the Logic DFC—that use Encore (AMS Neve's cross-platform, Flying Fader-based automation system).

New 20-bit delta-sigma A/D and D/A converters are available and can be fitted into existing console I/O racks.

All Logic consoles are capable of surround panning in any of the current or foreseeable formats. Panning is achieved either locally on a channel strip or via assignable joysticks that can control any channel for complex moves.

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post-production system, features a compact control surface, with support for up to 48 stereo inputs, eight stereo subgroups and eight aux sends with surround panning, all from a footprint approximately one meter wide.

Audio is handled via internal 32-bit floating-point calculation processing; and the system offers integrated AudioFile hard disk recording/editing, with 24-bit recording capability and waveform display. Up to eight external transports can be controlled in a group with offset and record capability.

Recent Logic 1 system enhancements include automated insert point switching, which allows external devices to be switched in or out of the signal path under automated control, and enhanced control of dynamics and global detection of converter input overload. The latter feature provides scanning of all incoming systems in the MADI domain, with "overs" flagged on an indicator on the console meter bridge.

AMS NEVE LOGIC 2

Logic 2 is a large-scale automated digital recording system that integrates a fully featured mixing console with an AMS AudioFile, yet offers a relatively compact profile. The console can be configured in numerous ways for recording, broadcast, live theater, post or film applications. Up to 60 channel strips with four-layer operation provide 240 fully equipped mono/stereo channels, with as many as 48 aux and 64 multitrack record buses.

Featuring 32-bit floating-point internal signal pathways, the console's signal processing resources are determined more by available digital processing horsepower than input strip layout. Equalization is 4-band with 2-band filtering and full dynamics control (compressor, limiter, expander, gate with sidechain) on each channel. Joystick controls are optional; multiformat surround monitor mixing is standard.

Ergonomically, the board can be configured as an in-line or split design, with different layers for channel and monitor paths. Many complex functions may be assigned and controlled at a central control panel, and Total Dynamic Automation of all controls may be linked to timecode, or stored as a static setup for each mix. Among the Logic 2's many notable features are setup/recall automation, comprehensive machine control, moving faders, touch-sensitive Logicators (rotary controls) with built-in status light and alphanumeric naming displays.

AMS NEVE LOGIC 3

The Logic 3 is a compact digital console designed to work with AudioFile DAWs in facilities where space is at a premium. Principal features include 4, 8, 12 or 16 faders—for up to 32 input channels—eight subgroups, one main output and four auxiliaries.

The signal path is all-digital, with 32-bit floating-point internal processing and Total Dynamic Automation of all controls to timecode, or stored as a static setup for each mix. DSP includes 4-band EQ, 2-band filters and full dynamics (compressor, limiter, expander, gate with sidechain).

Standard amenities include moving fader controls, touch-sensitive Logicator controls with built-in status light and alphanumeric naming displays, and multiformat surround sound panning. Joystick controls are optional. All Logic 3 mix setups are compatible with Logic 1 and Logic 2 automation files.

AMS NEVE LOGIC DFC

The result of extensive research and de-

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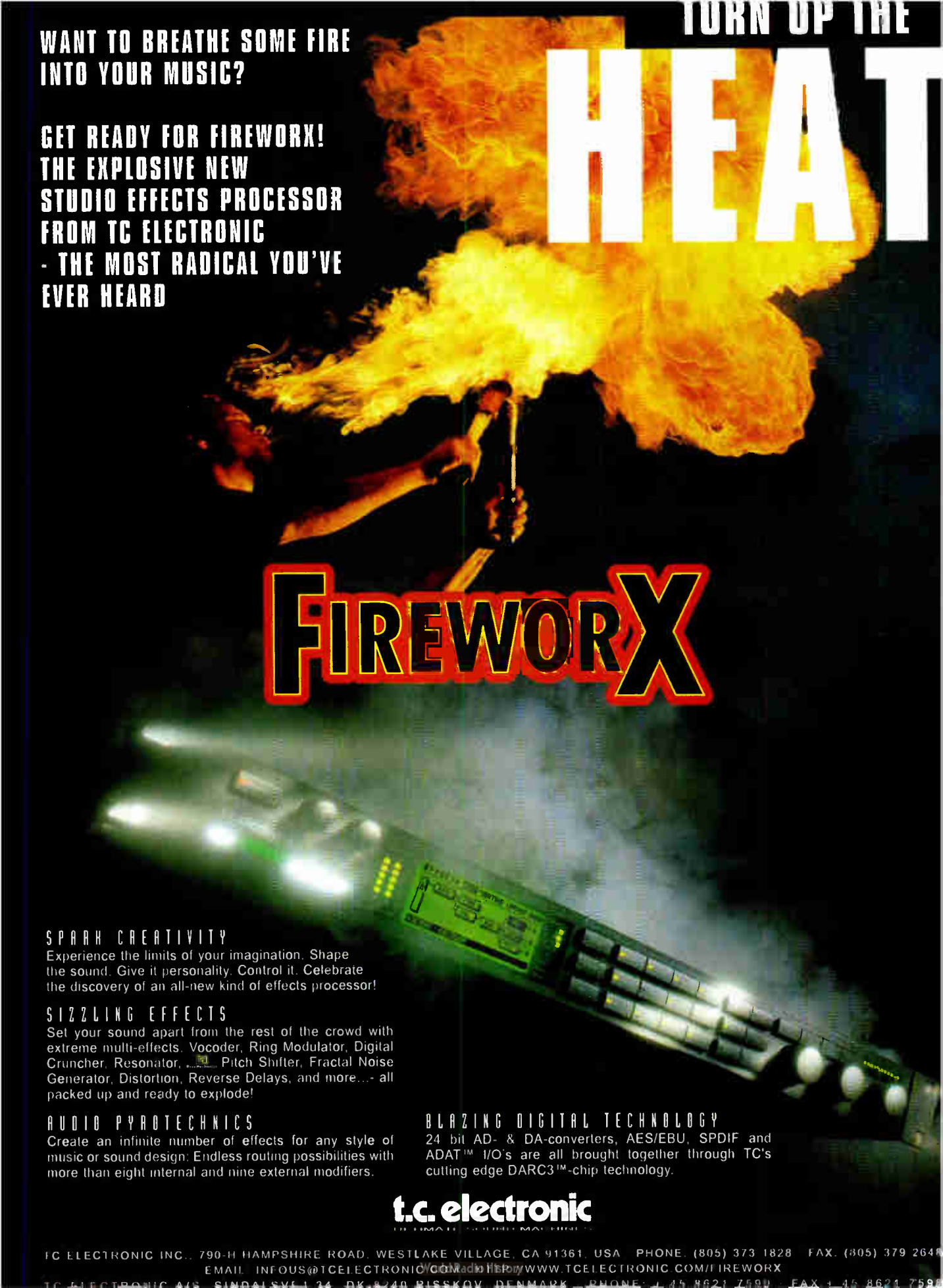

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velopment work with major facilities in the motion picture industry, the Logic DFC is the first fully automated digital mixing console designed specifically for multiformat film dubbing and post-production. Based on the Logic audio processing engine, DFC is available with up to 256 audio paths in any combo of mono/stereo channels or 4-, 6- or 8-wide predub inputs and multiple format outputs, plus a range of stem mix options.

Features include one- to three-operator positions, "one-touch" routing, mappable EQ and dynamics, surround panning in any format, up to six 8-track stems, 9-pin and bi-phase control, Encore automation and configurable mix buses for multiple formats. I/O choices include 16- or 20-bit ADCs/DACs, 24-bit AES/EBU, SDIF, MADI and TDIF. An integral AudioFile MT multitrack disk recorder/editor is optional.

To accommodate a large number of inputs within a realistic working footprint, the console surface is semi-assignable; signal paths and functions such as EQ and dynamics are mapped to provide intuitive operation. There is no fixed busing structure, so users may configure the console with as many tracks as required by the project.

Logic DFC's dynamic automation software, Encore, has evolved from Flying Faders and runs under a Windows NT interface. Encore allows multiple operators to run sections of the console in different automation modes and provides independent save, undo and mix conform functions.

AMS NEVE LIBRA

The AMS Neve Libra is a fully automated digital console designed specifically for music production. Priced attractively, the Libra represents a midpoint between Neve's Logic Series and the flagship Capricorn. An in-line console available in 24- and 48-channel frames, Libra incorporates aspects of both Logic and Capricorn, including integrated machine control and a wide range of digital and analog interfaces.

The tactile control surface combines moving faders with AMS Neve's "double press" automation switches and patented Logicator rotary encoders. Most functions are on the surface at all times; most of the rest are a keystroke away. All are accessible from the sweet spot at the center of the console.

Full dynamic automation (including snapshots) of all controls on Libra is provided by Encore. Mix information can be transferred between Libra, Logic 2, Logic DFC and V Series consoles.

AMS NEVE CAPRICORN

Capricorn, Neve's flagship digital console, is available in three standard 48-track recording configurations, although a wide degree of customization is possible, as the console can be expanded in 24-channel increments to its upper limit of 256 signal paths. A typical configuration, the System 112 offers 32 mic/line inputs, 24 AES/EBU stereo digital inputs and outputs, 48 track sends, 64 track returns, 16 auxiliaries and eight cues.

Signal processing is selected and assigned via a screen and trackball, and selected parameters are controlled through multipurpose rotary controls. Capricorn provides enough tactile controls for quick operations without cluttering the control surface with dedicated switches and pots.

The console's extensive digital routing capabilities have been enhanced, and any input source can be routed to any number of input paths simultaneously. Track sends can be routed to up to four destinations, analog or digital,

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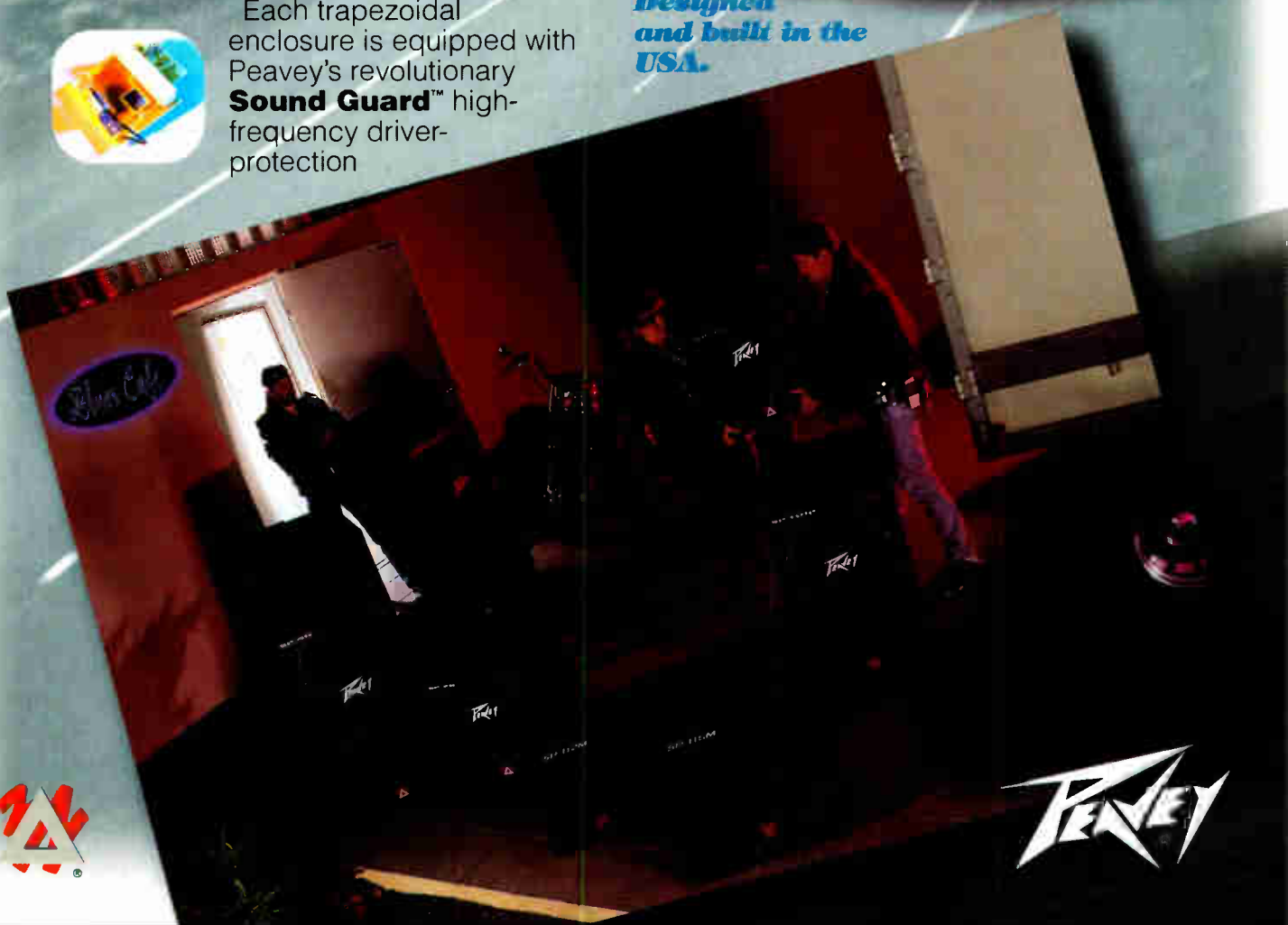

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and a track return can now come from any type of source, including a mic/line rack.

The new Version 2.8 software provides several key automation enhancements. Automation of all console controls (except faders and mutes) has been improved to offer an even more flexible and intuitive approach. The engineer can refine a control without making unwanted automation passes, but can also easily automate an EQ or an aux when required. Automation modes are now saved as part of the console configuration, and a new list editor allows snapshot stores to be arranged into a specific running order. Version 2.8 also offers a range of multiformat mixing features (up to 8-way and IMAX) when used with the optional CSP hardware upgrade. These include double-resolution panning, three panning controls, joystick support and software linking of all pans in one group.

EUPHONIX DIGITAL CONSOLE

Euphonix has been researching digital consoles for several years and plans to debut a product sometime in 1998. This next generation sound production system will feature digital and analog signal paths, sophisticated graphics and user interfaces, and advanced audio processing, while priced similar to equivalent analog systems.

The console will offer 24-bit analog and digital interfacing, 40-bit floating-point internal signal processing and the capability of handling 96 kHz. One of Euphonix major contentions, however is that the new systems be modular, scalable and field-upgradable, just as owners of Euphonix 1991 CSII consoles can upgrade to 1997's CS3000 model.

The mixer provides a choice of both analog and digital signal paths and processing. Combined systems will optimize each application using analog processing and I/O when both sources and destinations are analog. Digital sources with analog destinations will benefit from minimum conversions while digital sources with digital destinations are handled directly in the digital domain.

Euphonix expects to further its developments in digital control and automation—such as the CS3000 Total Automation, SnapShot Recall and sophisticated machine control—with the digital board featuring advances in the level of automation and resetability available from the console surface. Additionally, it will implement current PC technology to provide real-time graphical displays and user interfaces that previously would have required supercomputers.

GRAHAM-PATTEN D/ESAM SERIES

Graham-Patten Systems (Grass Valley, Calif.) offers a variety of digital mixers designed for video post and edit suite applications. As the D/ESAM name implies, all of the mixers in the line support ESAM II and D/ESAM IV operating protocols for intuitive control in the edit bay environment. The mixers retail from under $8,000 to $20,000.

The rackmount D/ESAM 820 has 4-channel outputs, 16 inputs (analog or 20-bit digital), 600-snapshot memory and integral sample-rate conversion. A modular design offers expandability (up to 56 inputs) and optional parametric EQ and delay. Available options include parametric EQ, delay, assignment panel, processing loop, and digital or analog metering. An upgrade path for D/ESAM 800s is offered.

The D/ESAM 400 is an equally capable 32-input mixer designed for rooms requiring fewer signal sources. The newest member of the line, the D/ESAM 230, is a low-cost but full-featured unit with all the editing power of its larger cousins. Offering 24 inputs, it is ideally suited for smaller two- and three-machine edit bays.

HARRISON SERIES TWELVE/MPC

The Series Twelve/MPC from Harrison (by GLW of Brentwood, Tenn.) is the company's flagship console system, available in any configuration of analog or digital I/O, including hybrid combinations. Based on common audio processing hardware, the MPC desk interface is designed for film re-recording, while the Series Twelve desk offers user-customizable configurations for film, broadcast, post-production and music recording/mixing.

Both the Series Twelve and MPC systems are available in frame sizes from 24-input to more than 300-input configurations and offer a Macintosh-based full automation (both snapshot and real-time dynamic) system. Also available is an automated joystick for surround panning.

The control surface is designed for flexible configuration and can control as many as 244 audio channels, either analog or digital: The Traditional control surface has the look and feel of a traditional large-scale mixing console, with familiar channel controls and large and small faders; the Layered control surface allows a single input strip to control up to four different audio channels—layering may be switched locally or globally. An Assignable control surface is also offered.

KORG SOUNDLINK DRS 168RC

The SoundLink DRS 168RC from Korg (Melville, N.Y.) is 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.

Other features include an assignable digital routing matrix; 12 channels of 3-band EQ memories; 32 types of on-board algorithms (reverb, delay, distortion, pitch shifting and speaker cabinet simulation); full automation with 100-scene memory; and channel strip control of input interface select, level control/metering, panning, two aux and effects sends, muting, soloing and output bus. Multiple mixers can be ganged for more inputs. The 168RC has a street price of under $1,000.

Korg SoundLink DRS 168RC

MACKIE DESIGNS DIGITAL 8•BUS

Shipping later this month from Mackie Designs (Woodinville, Wash.), the Digital 8•Bus is a 48-channel console—complete with meter bridge, built-in hard disk storage for effects libraries and automation sequences, 8 MB of RAM, 24 channels of analog tape I/O and UltraMix II automation. Add a standard PC-compatible SVGA color monitor, mouse and keyboard for ultimate control of DSP parameters and automation. A DOS-compatible floppy drive lets you back up and recall automation sessions—and instantly add DSP algorithms and future upgrades.

Other features include 12 mic pre-

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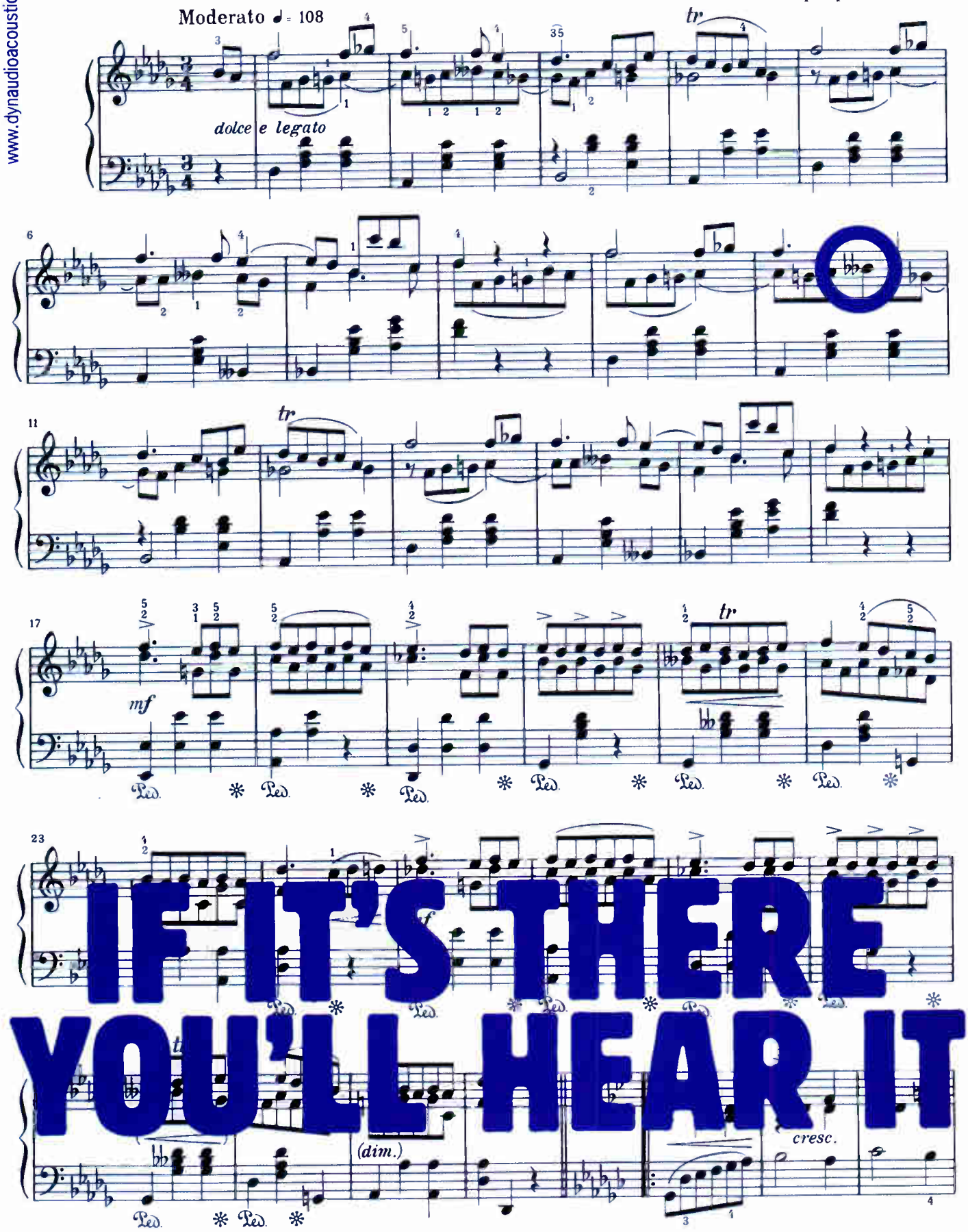

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Based on Mackie's proven UltraMix software, the automation is extensive, with recall of every control. Other features include 100mm long-throw moving faders and disk storage of mix data. Standard interfaces include ports for connecting a QWERTY keyboard and VGA monitor for high-res display of all automation data, status, EQ curves, etc. The console's most unusual feature is an internal 33.6kb modem, for downloading software upgrades, third-party updates or auto-diagnostics via any phone line. The Mackie Digital 8•Bus retails at under $10,000.

OTARI ADVANTA CONSOLE

The Advanta console from Otari (Foster City, Calif.) uses a 40-bit DSP architecture and an ultra-fast communications network, and is scalable to handle all present and future formats up to 24-bit/96kHz. Music recording and film/post versions are offered, with a choice of dedicated or mapped control surfaces and 128 channels per position in a three-operator version.

The Control Surface provides the user interface, faders, switches and display, connected over short or long distances via standard 100Mbit Ethernet to a Processing Rack containing the Digital Engine, I/O Processors and power supplies. The Digital Engine has DSP cards, master computer and system sync card (SMPTE/Sony 9-pin/MMC). I/Os include digital (AES/EBU, MADI, etc.) and mic/line amps with 24-bit DACs/ADCs, remotely controlled from the console.

All subsystems are modular, allowing simple field upgrades/expansions, and as the mixer is shipped in smaller boxes, a large system can be brought in a piece at a time and easily assembled onsite.

Each Input Section has 16 physical paths—each having a path controller with 100mm moving fader, LED "scribble" strip, access to dynamics, 4-band EQ, solo/mute buttons, routing, effects sends, 40-segment metering, a 12-inch color SVGA active matrix LCD readout and set of Mapped Controls for setting path parameters on that section. Console configurations can be stored/recalled in a few seconds. Session Management is handled by a special version of Otari's Eagle Automation.

Bus and path resources are allocatable. For example, 88 buses might be broken down as follows: 48 for track assign, eight for multiformat pan outputs,

42x2 (stereo) buses, 20 aux sends and eight for monitoring.

Music and Film versions of the master section are offered, with the differences most apparent in the monitor system. For example, there are application-specific controls for monitoring multiple outputs—i.e., control room, studio, near-field speakers and surround formats. Multi-Format monitor can be configured to monitor sources up to 8 channels wide and supports all popular formats such as LCRS, 5.1, 7.1, etc.

The console will be available in the first quarter of 1998.

RSP Project X

RAMSA DA7

Spotlighted in this issue on page 162, the 32-channel DA7 digital mixer from Ramsa (Cypress, Calif.) uses proprietary 114dB signal/noise A/D and D/A converters in a compact, affordable design. Each channel on this 8-bus, fully automated moving-fader mixer features a 4-band fully parametric EQ and compressor/limiter, gate, expander and delay. Other features include digital aux sends, MIDI Machine Control, 50 scene memories and 5.1 surround mixing capability. Shipping is expected to begin in January. The DA7 will retail at less than $5,000.

RSP TECHNOLOGIES PROJECT X

RSP Technologies' (Rochester, Mich.) Project X is a large-format, full-function digital console that offers direct interfacing with ADATs or DA-88s. The system consists of a desktop surface that controls audio and DSP functions in a separate rack. Features include recall of all console settings, dynamic, SMPTE-based automation (faders, mutes, pans, auxes, effects parameters, etc.) and control of all operations without leaving the sweet spot.

The base Project X system offers 32 inputs, 16 outputs, dynamic automation, EQ, dynamics, digital effects and Circle Surround, with encoding capabilities via joystick for 5.1-channel or LCRS copy functions. Eight aux sends and stereo returns are standard. Two sends are internally routed to the two effects processors. Two AES/EBU sends and returns and four analog sends and returns complete the standard configuration. A fully digital implementation is available. In excess of 24-bit, dynamic processing include: stereo channel links, phase reversal, high/lowpass filtering, HUSH® noise reduction/gating, compression (with sidechain), 4-band parametric EQ and a delay line for every input channel. Two 24-bit DSP processors provide time-domain effects such as delay, chorus, reverb and pitch shifting.

All I/O connectors and interface cards are housed in a rack cage. A single serial cable connects the control surface module to the rack cage, and like the single cable for the control surface power supply, it can be up to 30 feet long. As no cooling fans or additional computers are required, the rack units can be located in the control room. The outboard Project X 8-channel microphone preamplifier offers 48V phantom power with gain, trim and mic/line selection from the control surface.

Project X includes complete dynamic mix automation and snapshot setup recall, and Project X can also serve as a master or slave to MIDI or SMPTE timecode. Five automation modes include Manual, Read, Write, Update and Rehearse. Read and Write switches are provided on every channel. Global arming of Read and Update/Write of all faders and data encoders is available. Further automation enhancements include: To End, To Start, Undo and Rehearse switches. While timecode is running, all fader automation changes are animated via the Virtual Fader Meter LEDs adjacent to the faders.

Project X ranges from $30,000 for a basic mixer up to $55.000 for a fully loaded, 64-input system.

SOLID STATE LOGIC AXIOM

Reviewed in the September 1996 *Mix*, the Axiom Digital Production System from Solid State Logic (U.S. offices in New York City) is a tapeless digital recording/mixing system available in 48-, 60-, 72-, 84- and 96-input configurations and is capable of recording up to 95 tracks on the DiskTrack™ hard disk system.

Motorized faders and familiar channel strip controls suggest the appearance and feel of an analog console, yet the Axiom offers all of the signal processing and dynamics control one would expect from a state-of-the-art all-digital console. Exact routings and settings may be instantly recalled, digital resources may be shared among multiple rooms and consoles, and multiple digital and analog sources may be integrated and controlled.

SOLID STATE LOGIC AYSIS

Designed for remote broadcast vehicles and smaller control rooms, Aysis delivers the power and flexibility of Axiom in a configuration precisely tailored to users' needs.

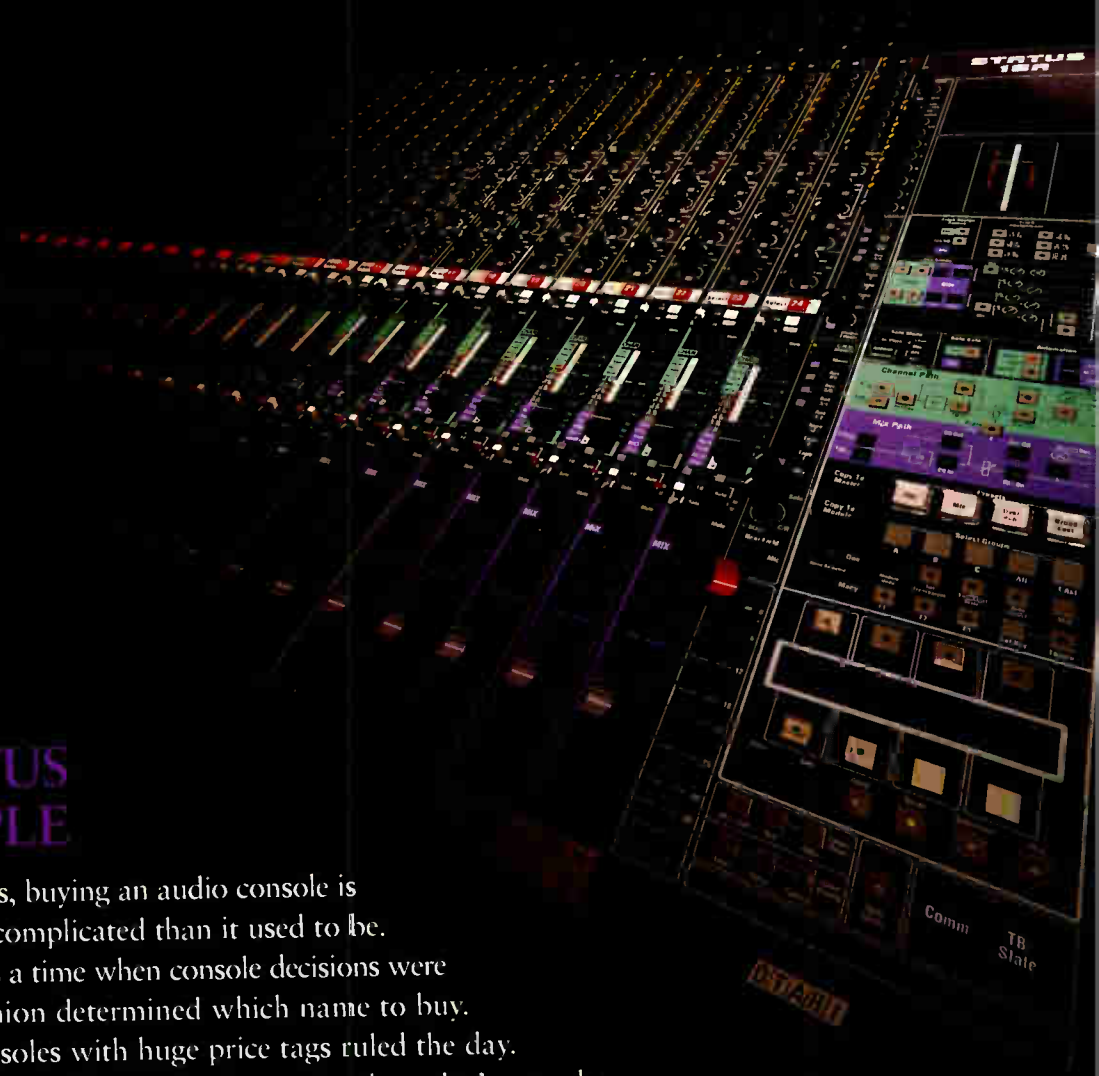
Aysis provides a dedicated control surface optimized for real-time mixing operations with up to 96 processing channels. It may be user-configured to incorporate the controls specifically needed for any particular application or preference. As with Axiom, all console controls are fully automated and may be snapshot reset. Standard on the Aysis is a Hub Router Resource Manager, providing a wide range of I/O options and access to SSL's DiskTrack. In existing Axiom installations, Aysis may be used as a complementary, fully integrated subsystem sharing sources and mixes freely.

SOLID STATE LOGIC AYSIS AIR

Unveiled at last month's AES in New York, Aysis Air is a 48-channel digital console designed for the needs of live broadcasting, with a dedicated control surface optimized for real-time mixing. All console controls are fully automated, either dynamically or via snapshots, and all settings—whether routing assignments, faders, EQs, dynamics and effects—can be stored or instantly recalled, selectively or globally.

Various frame sizes are available; features include multichannel surround

SSL Aysis Air



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capability, four stereo subgroups (each with inserts and master dynamics), 20 mix-minus feeds, 48-channel direct output sends (pre/post-switchable), eight aux sends per channel, channel insert points and stereo AFL and PFL.

The console incorporates its own router for stand-alone studio applications or can be expanded via the Hub Router for fingertip control of more than 2,000 sources and destinations.

SOLID STATE LOGIC AVANT FILM SYSTEM

Also unveiled at last month's AES in New York, SSL's Avant Film System is an all-digital, multi-operator console designed for high-end motion picture mixing/dubbing stage applications, offering up to three motion control panels, three monitor panels and multiple joystick control. Additionally, the AFS is compatible with all SSL digital products and can share resources with systems such as Axiom, Altimix, Aysis or 9000J installations.

Available frame sizes range from 48 to 96 channels with control surface layering permitting up to 196 channels to be controlled from the smallest frame. Other features include automated 4-band EQ (with access to a library of EQ curves), automated dynamics, 48 automated digital delays, 24 digital reverbs assignable to any channel, automated bus routing and eight aux sends per channel.

Rather than a scalable allotment of resources, the Avant Film System uses SSL's Real Time Resource (RTR), so EQ, dynamics and routings are always available to every channel, regardless of console size.

For multiple-stem mixes, 32 record buses are available, allowing each of the three mix engineers to perform an independent surround mix for each MDE stem, whether in 7.1, 5.1, 4.1 or LCRS. AFS offers comprehensive control of traditional sprocketed transports or the new serially controlled digital 8-tracks and, via separate recorder panels (with paddle-type switches), engineers can punch in or out of master recorders on individual or multiple tracks. Avant Film System also includes the SSL DiskTrack™ and Hub Router.

SONY OXF-R3 OXFORD

An all-digital console designed primarily for music production, the OXF-R3 Oxford from Sony (Montvale, N.J.) is the result of a collaboration between Sony's research and development center in Atsugi, Japan, and Sony's Oxford Group in the UK. The hardware is based on a flexible, scalable digital signal processing system, and bus structure and processing capabilities are software-defined. Emphasis has been placed on A/D conversion precision, with Sony 20-bit converters; internal processing is 32-bit, using 24-bit data highways between digital I/O ports. The console can be configured with up to 120 analog or digital (AES/EBU, SDIF-2 and MADI) inputs, with up to 48 multitrack outs (96 optional), 24 aux send buses and 16 independent submix stereo outputs.

Sony OXF-R3

Color front panel LCDs show console functions, including EQ response curves, dynamics envelopes, multitrack routing and subgroup output assignments. Signal processing includes 5-band, fully parametric EQ and sidechain processors for gating, expansion, compression and limiting, which act simultaneously at the same point in the signal path. An optional multiformat monitor panel provides control for surround formats up to eight channels.

A Session Management System manages the multiple audio channels within the assignable control surface and handles static and dynamic automation (including snapshot automation of EQ, dynamics and I/O routing), automation editing, project setup and notes, machine control and housekeeping functions.

The OXF-R3 is priced around $800,000 for a 120-input/48-fader configuration, and smaller frame versions were unveiled at AES.

SOUNDCRAFT

Soundcraft is now in the final phase of a three-year program in digital consoles, based around a DSP core developed at the company's headquarters outside London. Products will be designed for the live sound, post-production, recording and broadcast markets, and the launch of the first product will coincide with its shipping date in early 1998.

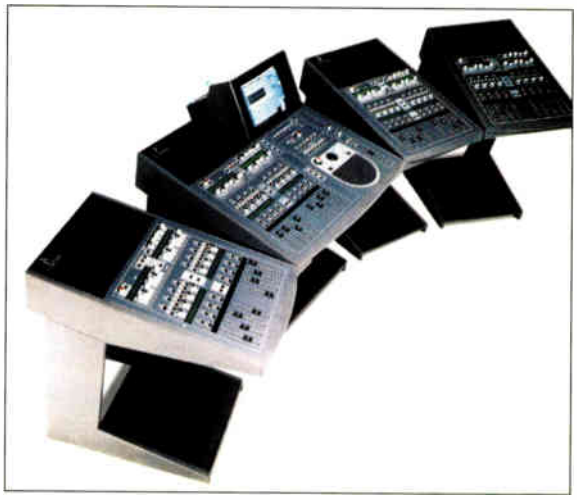
SOUNDTRACS VIRTUA

In production for over a year, with well over 100 systems in place or scheduled for delivery, Virtua from Soundtracs (distributed in the U.S. by Korg) is a fully digital 48-channel mixer (64 channels in mixdown) with eight aux sends, 4-band parametric EQ, and compressors and gates on every channel.

Intended for the music and post-production markets, Virtua features full dynamic automation with snapshot recall and LCRS panning. Interfaces include analog XLRs and ADAT optical, AES/EBU and S/PDIF digital ports. The console is also available with optional "wings" that expand Virtua's work surface, providing more physical faders and control buttons for easier access to the system's 64 channels.

Its 16 return inputs are configured as eight stereos with level, balance, mute and master output only. The 48 full inputs comprise 32 analog mic/lines and 16 digital inputs. The 32 analog inputs are individually remotely switchable between mic (on XLR) and line (on ¼-inch jack) connectors.

Version 2.0 software adds highpass filters, dynamic EQ, gate keying, autosave, power failure recovery, bus reconfiguration, external talkback, touch update in automation, MS decoding and



Soundtracs Virtua

NOT THE STANDARD. THE EXCEPTION.

Charlie Daniels Celebrity Golf Tournament.
System provided by RTA Production Services, Tampa, FL.

Montreux Jazz Festival.
System provided by Hyperson Sonorisations, Switzerland.

We Festival.
System provided by Blackhawk Audio, Nashville, TN.

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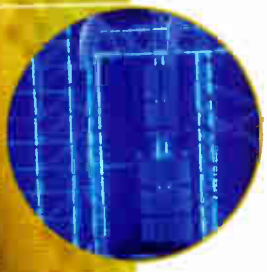
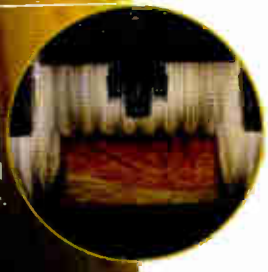


"Globe" concert, Tokyo Dome, Japan.
System provided by Arte, Japan.



Nakano Sun Plaza, Tokyo, Japan.
System installed by Yamaha Sound Technologies, Inc.

Promise Keepers.
System provided by Spectrum Sound, Nashville, TN.

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in-place solo. Virtua pricing begins at $35,000.

SOUNDTRACS DPC II DIGITAL PRODUCTION CONSOLE

The Soundtracs DPC II digital production console is an extension of the Virtua technology, and offers a "one-fader-per-input" work surface and a scalable processing structure from 64 to 160 channels. Features include dynamic automation, extensive editing, 64 or 96 motor faders, LCD touchscreens and hi-res meter bridge.

Designed for applications in film, audio dubbing, post and music production, the DPC II has two components, a modular work surface and a dedicated rack for the analog and digital electronics. The console is essentially laid out in an in-line format with up to 128 inputs, each with 4-band fully parametric EQ (with switchable bell/shelf characteristic on the HF and LF bands), sweepable highpass filter, compressor/ducker/gate, 16 aux sends (or up to 40, depending on group buses) and a joystick in each block for LCRS and 5.1 panning.

A transport control section offers recorder control via MMC and Sony RS-422 protocols, and during tracking the record buttons in the channels can be used to control a multitrack's record-ready status. Dither is selectable individually for different bused outputs and stems (and globally for directs), to 16, 18, 20 or 24 bits. Both dynamic and snapshot automation are standard.

STAGE TEC CANTUS

Manufactured by Stage Tec of Berlin, but available in North America through Sascom Marketing (Oakville, Ontario), Cantus is a fully automated, all-digital console capable of handling up to 480 inputs from a 7-foot-wide control surface. Currently, there are more than 30 Cantus consoles in use worldwide, with more than a dozen in production for existing orders. Console work surfaces are available for general recording, broadcast, theater and film/video audio post-production.

The control surface is fiber-optically connected to any number of rackmount "base devices," where the actual DSP and audio signal flow take place; each base provides up to 96 input channels and 64 mix buses. I/O options include any combination of analog mic/line sources and digital formats: AES/EBU, S/PDIF, Yamaha Y2, SDIF-2 and MADI. Signal processing can be assigned at any point in the system and includes

Romance

[but calculated]

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24-bit digital vacuum tube preamp

1962

- Full 24 bit A/D conversion with 48K/44.1K sample rate.
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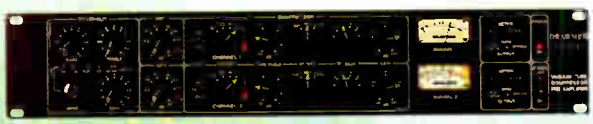
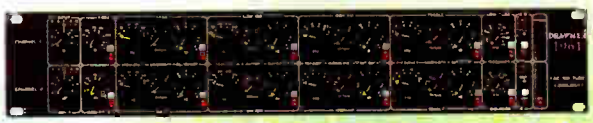


vacuum tube preamp compressor

1960



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1961

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CIRCLE #031 ON PRODUCT INFO CARD

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EQ, delay, level change and pan. One of the mixer's key strengths is its sonic quality, which stems from its 40-bit floating-point DSP and proprietary 28-bit (!) A/D converters.

The onboard computer handles all SMPTE-driven automation functions (static and dynamic) with near-instantaneous (10 ms) recall of any console setup or snapshot; data is archived to magneto-optical media. A central machine panel provides control of two tape transports, with recorder-style transport keys and a jog/shuttle wheel. Moving fader automation is standard.

Cantus can also be combined with optional DARIS (Digital Audio Routing and Interconnect System) signal routing/matrixing/distribution devices, which can form the basis of a large, decentralized, multistudio system or be used in situations where multiple feeds need to be routed to various consoles—i.e., broadcast mixers, recording mixers and sound reinforcement mixers.

Because it can handle large systems with 400-plus inputs and more than 300 mix buses, pricing obviously depends on configuration and needs.

STUDER D950 DIGITAL MIXING SYSTEM

Announced at AES and slated for shipping next month, the D950 digital mixing system from Studer (U.S. offices in Nashville) offers up to 256 channels and a scalable DSP Core with a maximum of more than 5 billion floating-point calculations per second. Up to four console control surfaces can share a single DSP core, for maximum flexibility in multiroom installations.

The central DSP Core allows users to configure the console for a given application, yet the control surface itself retains the clean, accessible layout of an analog console design. Each channel strip has a plasma bar graph meter, configurable to display several different modes in mono or stereo.

The D950 can be configured as a conventional-looking console, with one signal path per channel strip. Alternatively, the console's "layering" capability can be invoked to allow up to ten virtual layers to overlay the physical control surface, any two being accessible without changing layers. It would be possible, for example, to control 160 channels with 16 channel strips—ideal for remote trucks and other confined spaces. Up to 40 aux sends can be defined if desired (four mono and four stereo auxes are the default).

—CONTINUED ON PAGE 212

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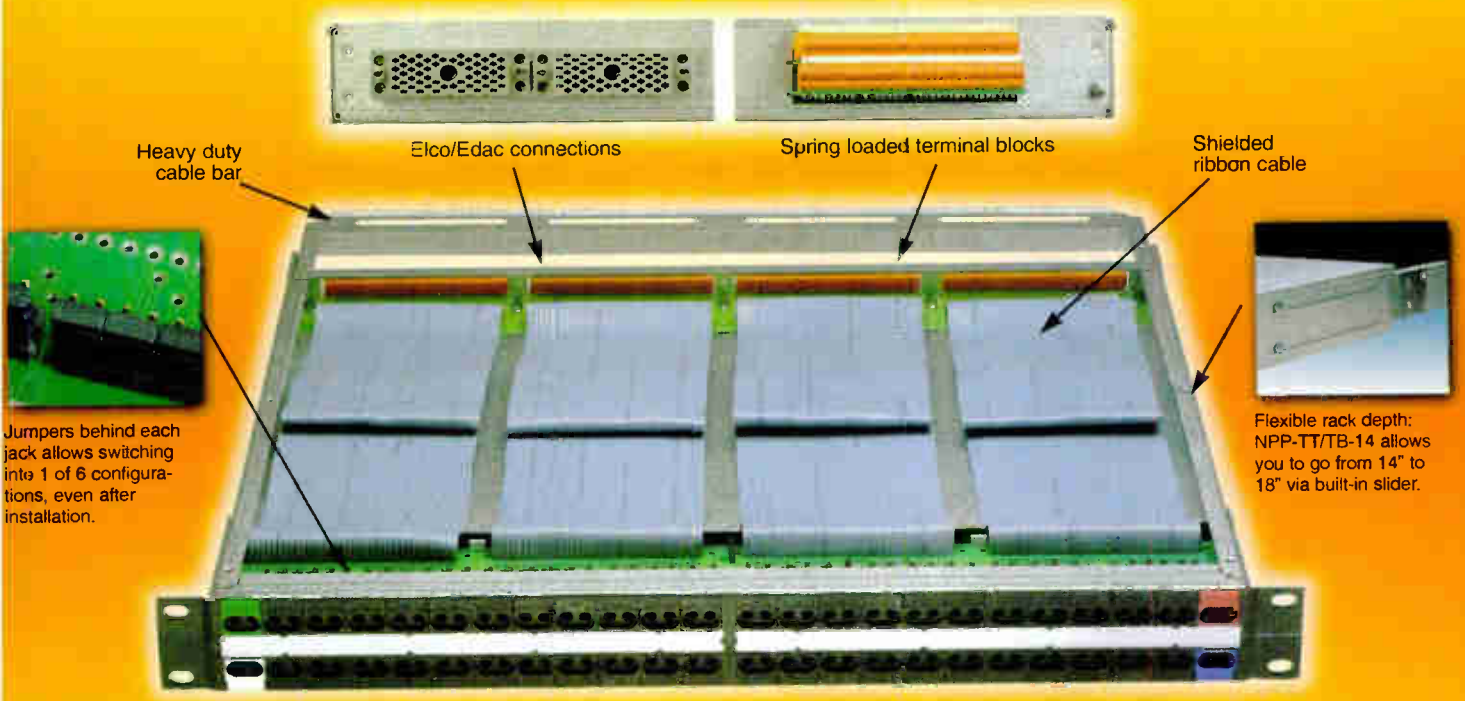

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CIRCLE #034 ON PRODUCT INFO CARD

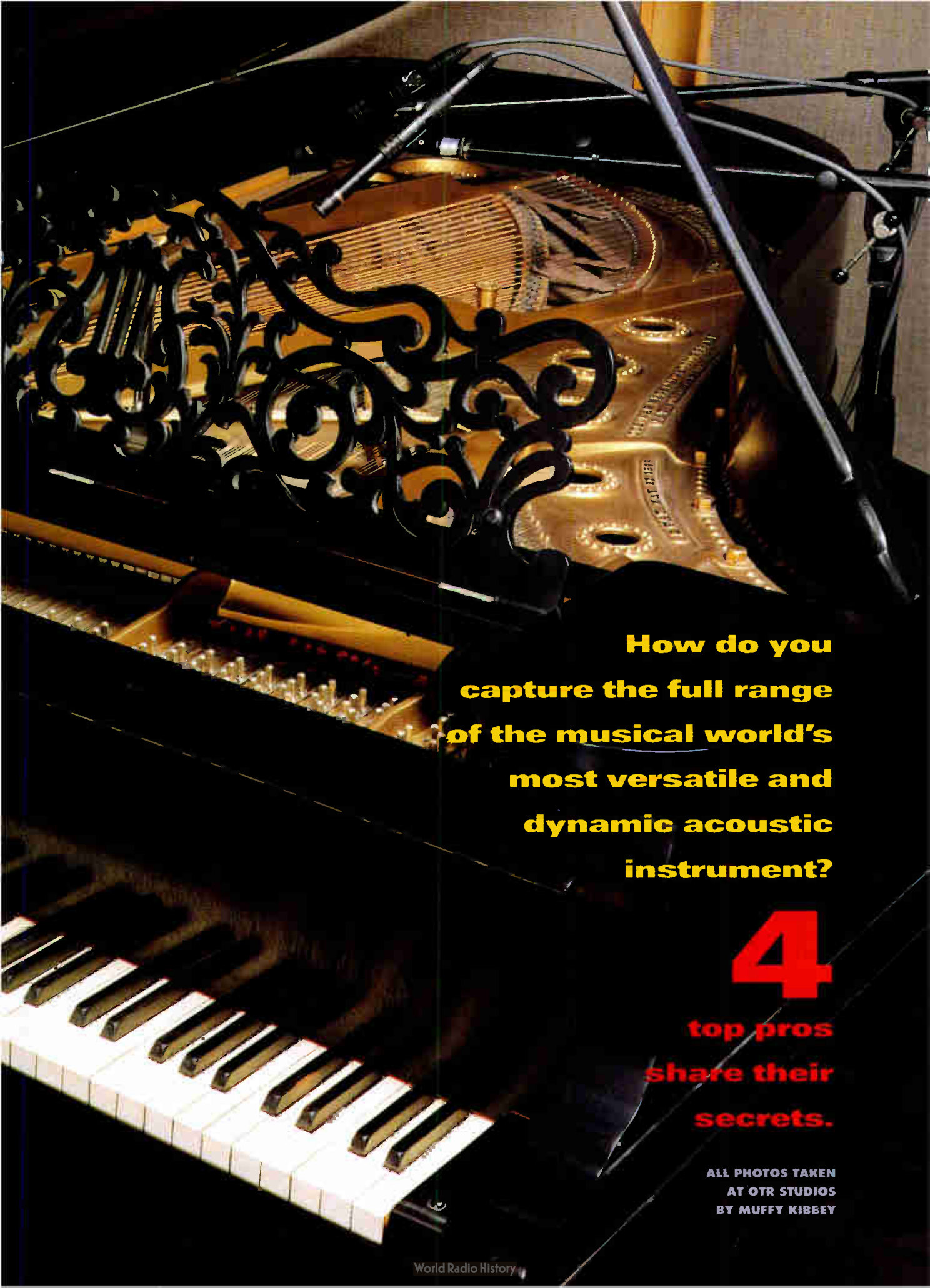
Recording PIANO

by Rick Clark

One of the most amazing creations in the universe of musical instruments, the piano is capable of everything from delicate melodic expressions to brute percussive attacks. It has been the vehicle for timeless classics like Brahms' transcendent Concerto for Piano & Orchestra No. 2 and for the jazz playfulness of Chick Corea's "Spain." Rock 'n' roll, blues and R&B's finest moments have also been served well by the piano, thanks to Jerry Lee Lewis, Charles Brown, Fats Domino, Allen Toussaint and many others.

Capturing piano on tape is an undertaking that requires a good understanding of the instrument at hand and its effect on the room in which it is being recorded. *Mix* rounded up four experts, two of them professional pianists, to talk about some of the subtleties of recording piano. The points of view range from classical to rock, and the philosophies include seeing mono as the best way to present the instrument and touting the virtues of dead strings.

Thanks to Jim Dickinson, John Hampton, Richard King and Cookie Marenco for their insight and enthusiastic participation in this piece. Thanks also to Ellen Fitton and Michael Omartian for their input.



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ALL PHOTOS TAKEN AT OTR STUDIOS BY MUFFY KIBBEY

JIM DICKINSON

Memphis-based producer and session keyboardist Jim Dickinson has produced critically acclaimed albums for Ry Cooder, Big Star, The Replacements, Mojo Nixon, Toots Hibbert, Jason & The Scorchers, Claw Hammer and Mose Vinson. Dickinson has enjoyed a successful piano and keyboard sideman career on notable releases by the Rolling Stones, Dr. John, Eric Clapton, The Cramps, Arlo Guthrie, Los Lobos, Aretha Franklin, Carman McRae and, most recently, Bob Dylan. Dickinson engineered Phineas Newborn's Grammy-nominated jazz piano album, Solo, *and has worked with Ry Cooder on 11 movie soundtracks.*

First off, I want to dispel some mythology, which is that you should mike the piano from the inside. I've gone back to recording piano mono. I did record stereo piano for years, which I now think is incorrect, because you simply don't listen to the piano with your head inside it. The whole idea of stereo piano, which is a '70s idea, is totally incorrect. You can create a kind of false stereo, if you're interested in the horrible idea of separating the left hand from the right hand, which of course, no piano player would want to do. You're trying to create the illusion of one big hand anyway.

When you sit behind the piano, you do hear the treble in your right ear, and the bass in your left ear, but no one else does. It really depends where you think the piano image goes in the stereo spectrum. If you see the stereo spectrum as 9 o'clock to 3 o'clock, I think the piano goes at 1:30, for instance.

The lid of the grand piano is designed to project the sound out horizontally to an opera or concert hall, and the sound of that piano actually focuses about ten or 12 feet in front (meaning the audience side of the piano that the lid is open to) of the instrument, which is why it's idiotic to put the mic inside it.

The best textbook example of concert hall grand piano recording that you could ever want is found in a documentary from the late '50s of the Glenn Gould Columbia sessions. There are microphones all over the room, but they are recording in mono. There isn't a microphone any closer than eight feet. There are some microphones considerably farther away. [The engineers] recorded with no EQ and no compression, and when they wanted more top end, they simply turned up the microphones that were close to the top end. It was just a beautiful thing to watch. They were recording with a mono unit and a stereo unit, which was really a safety, because the needle moved in unison on both tracks. Even with the multi-microphone approach, these old-school Columbia recording engineers were making a blending of the different mics. That's what a grand piano sounds like.

The best example of concert hall grand piano recording that you could want is a documentary from the late '50s of the Glenn Gould Columbia sessions. There are microphones all over the room, but they are recording in mono. —Jim Dickinson

Much of vintage rock 'n' roll is an upright or a spinet piano, which is of course a vertical harp rather than a horizontal harp, and a whole different miking technique. The Jerry Lee Lewis records were cut on a spinet piano, with a microphone placed behind it, because on an upright or spinet, the sound comes from the back of the sound board. There is a place between the struts there, to the treble end of the keyboard, behind the third brace, where there is a sweet spot on any upright or spinet piano. That is where I mike it.

The Jerry Lee Lewis piano recordings were interesting in that part of the piano sound was coming through the back of the vocal mic, as well. On my recordings of old blues musicians, I like to mike the front of an upright piano so I can get the sound of the fingernails on the keys. That is a subtle thing, but to a piano player, it makes a big difference. Some players click louder than others. It adds personality. It is a question of what you think you're recording from a keyboard player.

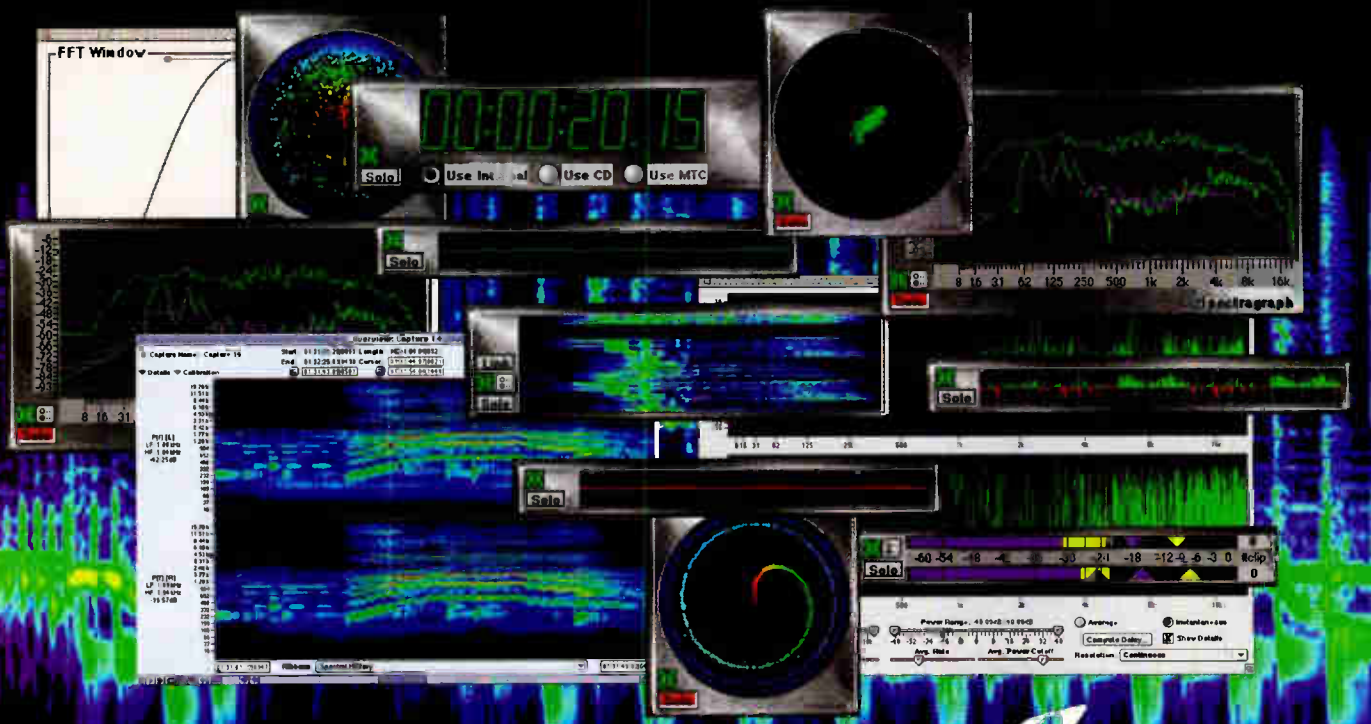
On the movie soundtrack of *The Border* we had an old piano that came out of Amigo Studios, and it had a sticker on it that said, "This is the property of the Los Angeles County School System." It had been painted white with house paint. Nobody used it, except for us. Nobody cared what I did to it, so I could cover the strings with duct tape and tinfoil, and whatever else I wanted to use. The strings were all really dead, so there weren't any overtones, which is what I wanted it for. I wanted the piano that way to ensure that its sound would not interfere with the guitar's tonalities. Someone might wonder why I would choose dead strings. Why not just EQ out the clashing frequencies on the piano? Well, I'd rather listen to signal than EQ.

The overtone series of a piano is very complex. The longer the strings, the more dominant the overtones are going to be. With dead strings, the first thing that goes are the overtones. The deader the strings, the more prominent the principal frequencies. With Ry, the guitar is a dominant instrument, so it is imperative that the piano is out of the way. Conversely, if I was making just a piano record, I would want a strong representation of overtones from a piano.

My personal favorite piano is an old white Bush & Gerts that was made in Chicago before World War II, that I took out of Stax Recording. The best piano that I ever put my hands on is Willie Nelson's sister's full-sized grand piano at Arlyn Studios in Austin, Texas. I can never remember the name of it. It was just this fabulous instrument, that made a Bosendorfer sound like a Kimball. It is exactly the kind of instrument I normally don't like, but this one is wonderful. I have known that piano for 15 years, and it has gotten better. Steinways are really best-suited for classical players.

There is a piano down on Beale Street in Memphis that is absolutely

If You Think You've Seen Everything... It's Time To Look Again.



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whipped; yet every time I sit down and play it, I enjoy the experience. Here is this old piano that Mose Vinson and God knows who else has played since Year One, and you can feel the humanity through the ivory keys...something that plastic can never convey.

You can be "Save the Elephants," and all that, but I'm sorry, man, give me ivory keys. I like elephants as much as anybody, but I hate to put my fingers on plastic keys. It feels like a synthesizer. Ivory feels so much better. You can feel the ivory feel, the wood and the felt on the hammer and the metal on the string. It's all part of what's in your hand, and it's a wonderful feeling. Now *that's* a piano, and there is not a real piano player on Earth who won't understand what I'm saying.

JOHN HAMPTON

Since the late '70s, John Hampton has worked with a wide range of artists, including B.B. King, Travis Tritt, The Replacements, Vaughan Brothers, Lynyrd Skynyrd, Robert Cray, Alex Chilton, Little Texas, the Bar Kays and Afghan Whigs. Hampton's productions of the Gin Blossoms have gone multi-Platinum, and for a number of years many of Nashville's most successful country artists have come to his home base studio, Ardent Recording, in Memphis for his engineering and mixing expertise.

A piano was meant to be heard phase-coherently. When you listen to a piano, you're hearing the piano hammers hitting the strings, and the sound reflecting off the lid and coming to your ear. It's all pretty phase-coherent out there where you're standing, because it's all hitting your ears at the same time.

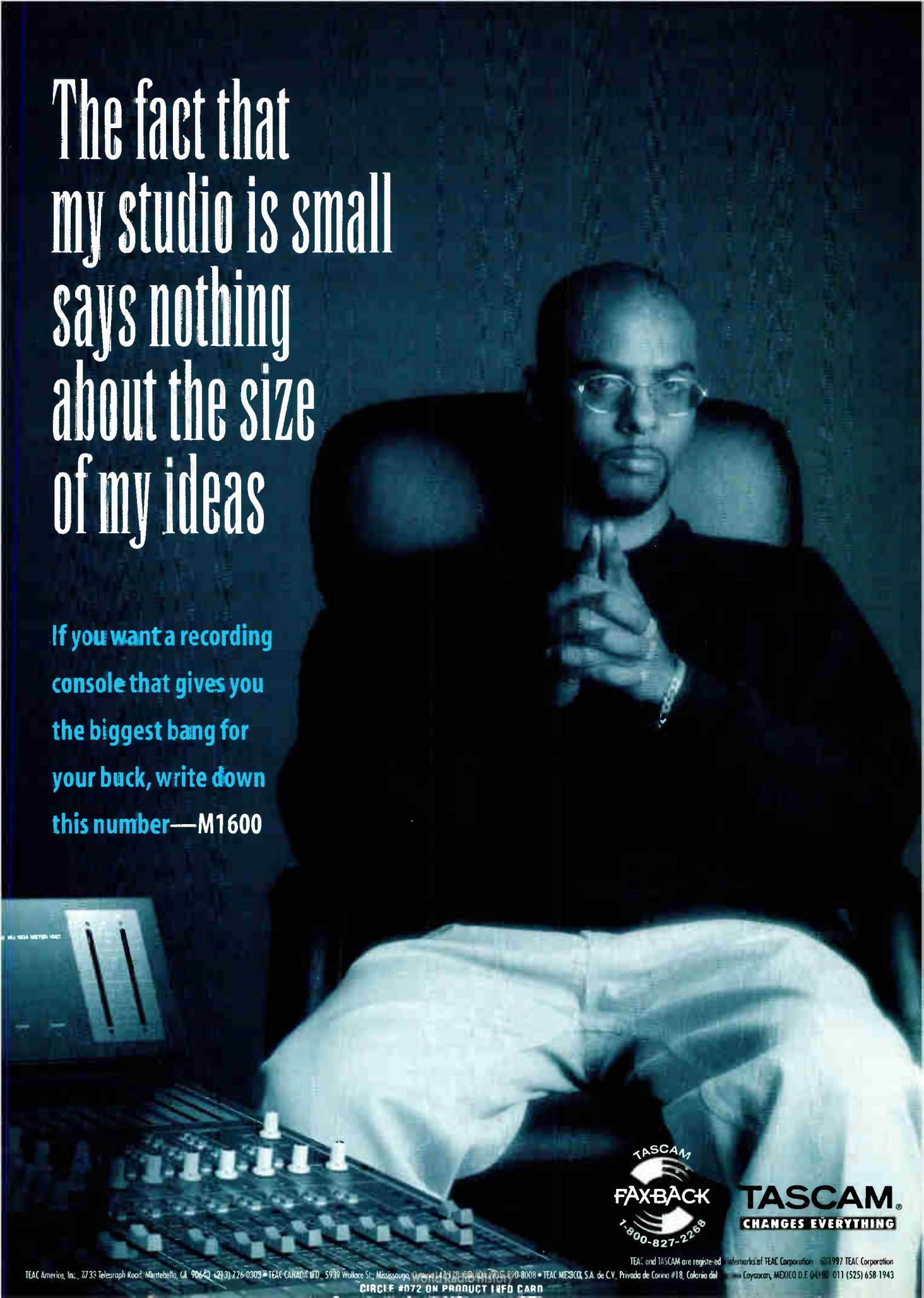
There are a lot of people who'll put one mic on the bass strings, and then about three-and-a-half feet away, another mic on the top strings. Now, you've got your low end happening in one speaker and you've got your top end happening in one speaker, but what about the strings in between, which is the main part of the piano where most people play? You've got the sound meeting these microphones at all these different timing intervals, and it's totally not coherent. In a mix, if you pan it left and right, it sounds like it's coming from behind your head. That's not correct.

There are several ways to obtain a phase-coherent piano recording. If you want the low end of the piano on one side and you want the high end of the piano on the other side, that's fine; but there are a lot of ways to obtain that and still have phase-coherency to where the strings in between don't sound like they're coming from behind your head. One of them is MS stereo, or mid-side stereo. I love mid-side stereo. An MS recording of a piano can give you a truly phase-coherent, left-to-right picture of the piano without all the weird phase distortion on the keys between the low and the high.

The best microphone I have found for that application is the Shure VP-88. Put the mic over the hammers, but not too close, because you don't want the mid-strings to be louder than the low strings and the high strings. Pull it back a foot or so from the hammers and put it on the "M" setting, which is a medium MS picture. If you do that, then you will have a phase-coherent picture of the piano. You also don't need to EQ the VP-88 because it's such a natural-sounding microphone.

There's a French method of miking a piano, called ORTF, that was developed

A mid-side recording of a piano can give you a truly phase-coherent, left-to-right picture of the piano without all the weird phase distortion on the keys between the low and the high. —John Hampton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CIRCLE #072 ON PRODUCT INFO CARD

back in the '70s. You take a couple of mics, like [Neumann] KM84s, and put them in an X-Y setup with the capsules seven centimeters apart. That's the magic number. It's actually not phase-coherent on the frequencies that are seven centimeters long, but it gives a fairly phase-coherent picture of a piano, low to high.

My favorite method, believe it or not, is to put two PZMs back to back—just tape them together. I will put them 12 to 15 inches above where the hammers hit the strings. They need to be the kind of PZMs with the high-frequency boost. With those, you never need to EQ the piano.

Those are the three ways that I have recorded piano and consistently experienced the most satisfying results.

RICHARD KING

Richard King has traveled all over the world recording symphonic, small chamber group and solo piano music. As a senior recording engineer for Sony Music Studios in New York, King has worked with Yo-Yo Ma, Riccardo Muti and the Filarmonica della Scala, the Los Angeles Philharmonic, the Philadelphia Orchestra and many revered classical pianists, such as Yefim Bronfman, Emanuel Ax, Murray Perahia, as well as other renowned artists and ensembles.

The two main elements needed are a good piano and a good hall. After agreeing on a recording venue, the producer and artist will choose a piano, out of many pianos, so they are really deciding on what piano sound they want based on the instrument. I only use two omnidirectional microphones, and I really rely on the piano sounding exactly the way the artist and everyone is expecting it to sound. From that, I try to duplicate exactly what we are getting in the hall.

Most piano records that I have done have just been two mics and that's it—no EQ and no additional reverb. —Richard King

Very rarely will I add any additional mics to enhance the hall sound.

For mics, the B&K 4009 is my choice, which is a high-powered, 130-volt input mic that has been matched at the factory. People would probably be more familiar with the 4003, which is a powered omni. The 4009 is a matched pair of those. They match them throughout production, choosing pairs of caps and other elements to build them. They are a true stereo pair. The serial numbers are an A and a B. B&K 4006s are good, too.

On a number of occasions, I have also used the Schoeps MK2S, which is again an omni with a high-frequency shelf. The B&K has a peak way up high, around 18 kHz. So it has more of a sparkle on the top end, rather than the brightness characterized by the Schoeps. The B&K is a little tighter than the Schoeps on the low end.

I will use outboard preamps and go straight to tape, so there is no console involved. I have used, with great success, fully discrete Swiss-made preamps made by Sonosax. They are solid-state, and they're very fast. The extension to the low and high end is very good. Like the B&K mics, it's incredibly quick, which is a sound that I like.

I've also used the Millennia preamp, which is very good. It has a 130-volt input on it, so I can use the high-powered B&Ks without their own power supply, which I think is inferior. I can go straight into the Millennia with a 130-volt line, which is kind of nice. We've customized the input gain stage to 1½dB steps on the Millennias in order to optimize level to tape. Millennia did the mods for us.

The other thing that I've done on occasion is put my A/D out on the stage with the piano, and then just run an AES snake back to the control room to the

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tape machine, so that I'm converting digital on stage, so the analog line is getting pretty short.

We record 2-tracks. We've used the Nagra Digital tape machine with great success. It's a 4-track machine, but I just put stereo down on it twice, for redundancy. Lately, we've been experimenting with 96kHz, 24-bit stereo, which we also store across four tracks of the Nagra. We've also used the Sony PCM 9000, which is a magneto-optical recorder, and also the Prism set up with the PCM 800, which is the same as the Tascam DA-88. It'll do four tracks at 24-bit, but I'm just printing two mics again. So I just put the two mics down twice for redundancy.

I tend to prefer a liver hall. For my mic positioning, I could be anywhere from four feet to eight feet away from the piano. The mics are set, from the audience's perspective, somewhere around the middle of the longest string on the piano, halfway down the instrument. The mics will be pointed, however, toward the hammers and are normally set up parallel to one another. For spacing the mics, I sometimes tend to go as tight as 18 inches apart, and I've been as wide as four or five feet. The mic spacing directly correlates to the desired image of the piano recording. The deciding factor depends on the repertoire and the sound that the producer and the artist want. It is always subjective.

I just did a record with Arcadi Volodos in England of all piano transcriptions, which means that orchestral scores were reduced to being played on a piano by one player. For that, it seemed right that we had a much larger piano image, so there was a much wider spread on the microphones. Prior to that, I did a record of Prokofiev piano sonatas, where I really wanted a good, solid center image, so I went with a tighter mic spread.

Obviously, with omnis you can't pan them in at all, because there will be phase cancellation, so I always leave them hard left and right. In fact, I'm not even going through a console most of the time, so it really is just left and right. If I want more of a mono image, I'll place the mics closer together.

If the hall isn't so great, then I will also go a little tighter with the mics and add a little reverb. But generally, it's all-natural recording, if I can get away with that. When I need to apply reverb, I like the Random Hall setting found on the Lexicon 480L. I also like the Small Random Church. Between the two of those, I can usually find something that I can work with. I always change the parameters and customize the settings—they're just the settings I usually start with. I tend to pull down the Random Hall in size to around 31 or 34 meters, depending on the recording. Again, I'm trying to bring in something that matches the existing hall sound, because these recordings are never dry. I try to sneak in something where you can't actually tell that I've added additional reverb, so I am very careful to match the characteristics of the existing room reverb.

On a 480, I find that the Shape and the Spread controls offer a lot of flexibility. There is also a high-frequency cutoff, which enables you to change the basic overall sound of the reverb without actually running an additional EQ stage. I only do this if the hall isn't so adequate. Most piano records that I have

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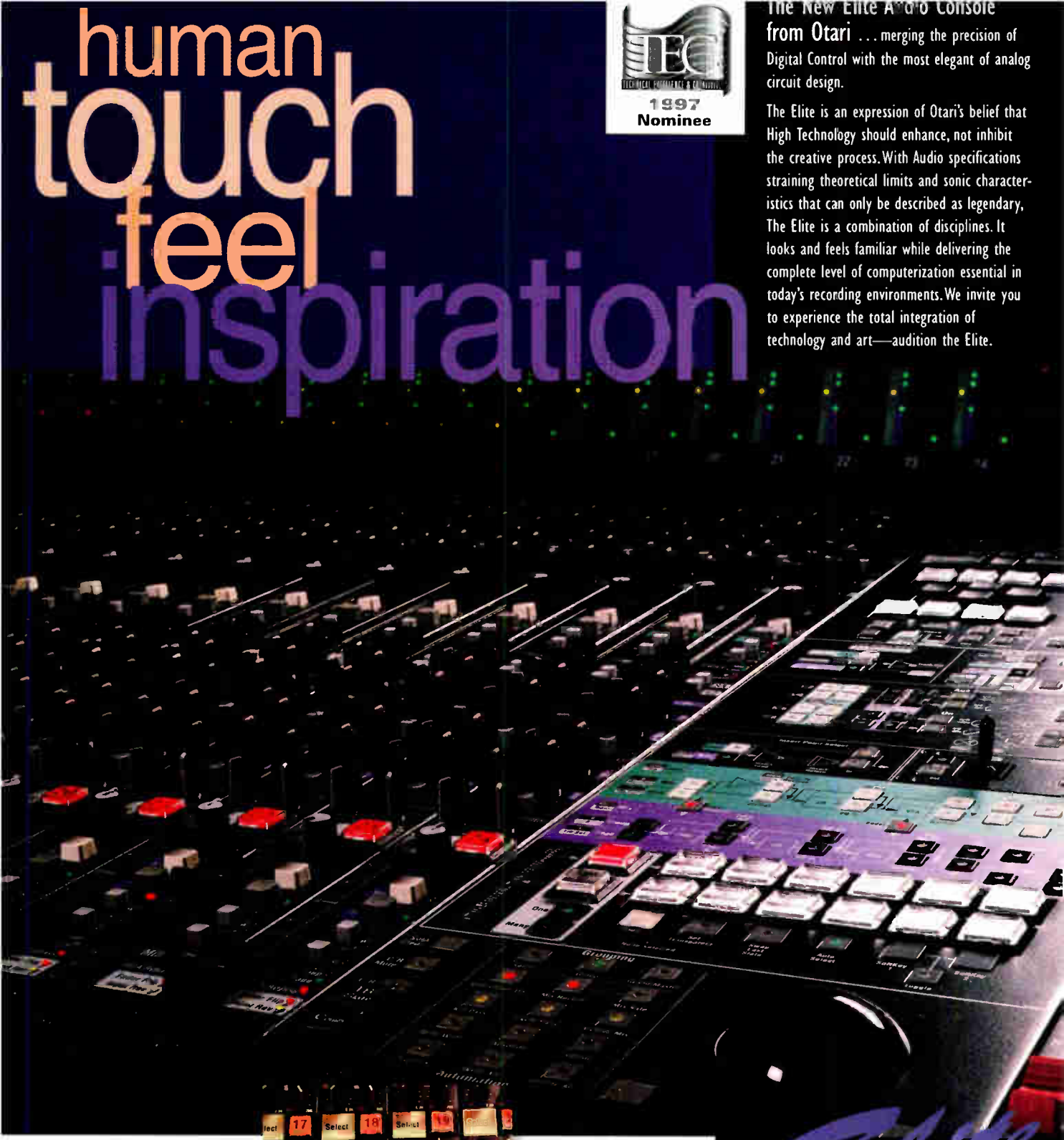

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done have just been two mics and that's it—no EQ and no additional reverb.

Sometimes, if a grand piano sounds a little "covered," I'll extend the stick [the prop that holds up the lid]. I'm always on a full stick [the piano lid fully propped open] anyway, but if I want the piano to sound a little more open, I'll bring a piece of wood that is maybe another four inches longer than the regular stick, and put the lid up slightly higher. I've used a pool cue with great success, because of the rubber base of the stick and the felt tip. It doesn't damage the piano, and it gets the lid open a little bit more.

Concerning panning, I always go with the image of the lower notes to the right side and the high notes coming out of the left, so it's always audience perspective for me. There are usually some tell-tale extreme low notes that come from the right, and extreme high that comes from the left, but the main sound of the piano comes from the middle. I think that most people in jazz and pop do the opposite panning, which is from the player's perspective.

My absolute favorite hall to record in is on the east coast of England. It's called Snape Maltings. It used to be the malting place, where they created the malt that then would get shipped out to the brewery. It is an old brick building with a wooden roof, and it has a really great reverb. Even the higher notes of the piano ring into the room with a great sustain, but it's still a very warm sound.

My favorite pianos are Hamburg Steinways. I think they record the best. For classical, the Hamburg Steinway has a better balance of low and high notes. The Hamburg Steinways also seem to be a little better for me than the New York Steinways. I find that Bosendorfers sound great, but for some reason I've had real trouble recording them. It's kind of a wild instrument. The Steinway sounds the most even over microphones. I've used Yamahas for pop and jazz, and they are really great for that, but for classical I find they're a little too bright.

COOKIE MARENCO

Before Cookie Marenco entered the wonderful world of engineering and producing, she was a professional jazz keyboardist who had been classically trained since the age of 4. Since 1981, Marenco has owned and run a San Francisco Bay Area studio called OTR, and she also worked as an A&R person during Windham Hill's '80s glory years. Her credits as an engineer include Mary Chapin Carpenter, Charlie Haden Quartet West, Ladysmith Black Mambazo, Brain & Buckethead, Mark Isham, Turtle Island String Quartet, Phillip Aaberg, Steve Swallow, Carla Bley, Glen Moore, Ralph Towner, Oregon and Clara Ponty.

On a lot of the 9-foot pianos, I'll even put up a couple of other floor mics, as sort of "insurance" mics, to capture the range of the instrument. —Cookie Marenco

One of the hardest things to find is a good piano in a good studio. At my studio, I have a 7-foot Steinway that was built in 1885. A lot of people from all over come to play on it. As a player, I like the Steinway for the touch and because there is a roundness to the sound that I prefer. We keep the piano brighter than most Steinways. We don't voice it down as much as a classical instrument for a concert, but it wouldn't be as bright as a Yamaha, which tends to be a brighter-sounding instrument.

You can hear the difference between the various pianos once you get familiar with all of them. You can hear a recording and tell if it's a Yamaha, Steinway or Bosendorfer. Sometimes Steinways get a little muddy in the midrange, between the octave below middle C and the octave above it. That's the only thing you have to watch for in a Steinway.

Usually, when I record a piano, I'll use two B&Ks, the 4011s or the 4012s, placed in sort of a "V" position, about eight or nine inches apart, with one mic pointed toward the keyboard and one pointed toward the back end of the piano. They'll be placed at more of a 45-degree angle, somewhere in the center of the instrument, where the midrange is, about halfway up, between the piano lid and where the strings sit. If I do that, I get a lot of clarity in the middle.

If I'm doing more of a classical session, the mics may be backed off more—not even inside the piano—to get more of the room. It depends more on the sound that the artist is looking for. If I was in a situation where I didn't have B&Ks, then [Neumann] KM84s would be another choice. The Schoeps mics work well, too.

You really have to listen, because every player attacks the piano differently. Even slightly different positioning or placements in a room can change the phase relationships. On a lot of the 9-foot pianos, I'll even put up a couple of other floor mics, as sort of "insurance" mics, to capture the range of the instrument. I'm a big fan of stereo piano. Mono piano drives me crazy. I know a lot of classical engineers will record with one mic, but if there aren't two tracks of piano, then what's the point? [Laughs]

You know what drives me nuts is that whole low/high issue—with the bass of the piano on the left side and the treble end of the piano on the right. When I get that in reverse, my whole world goes bananas. There's nothing wrong with it; it's just me psychologically. I just can't handle it. Unless it's a solo piano record, I rarely hard-pan left and right. It depends on the instrument and the instrumentation, because I don't necessarily pan at "10" and "2." If I have a lot of guitars going on, I might do an "11" and "5."

When I am laying down tracks, I try not to EQ anything. I try to go flat. Almost always, I am using Dolby SR. I prefer everything analog. With digital, I find that the transients are compromised. I don't like the sound of what digital does to an instrument like a piano, or any kind of plucked or attacked instrument. Every generation of digital gives you more unpleasantness on the top end. ■

Contributing editor Rick Clark is a Nashville-based writer, songwriter and producer.

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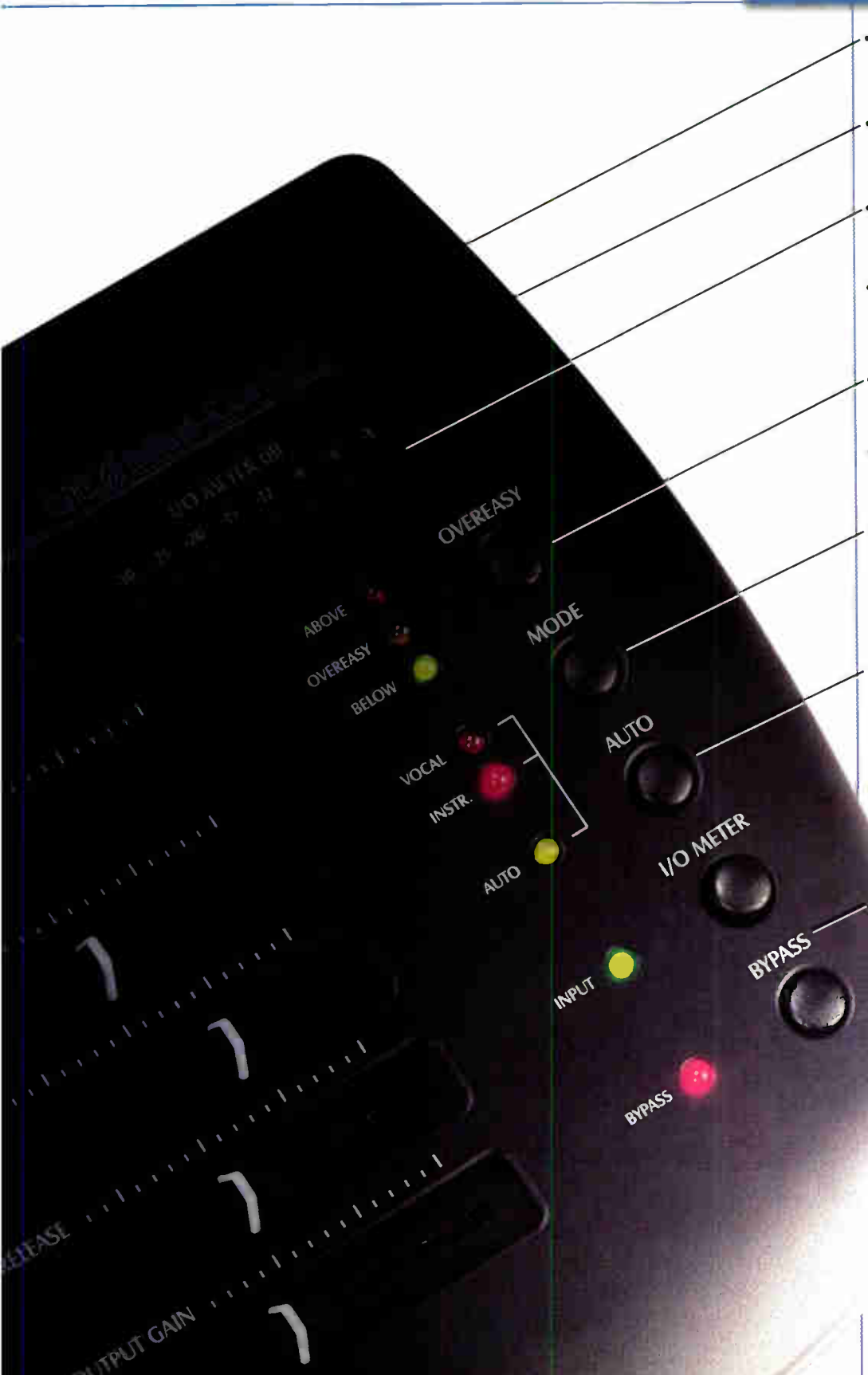

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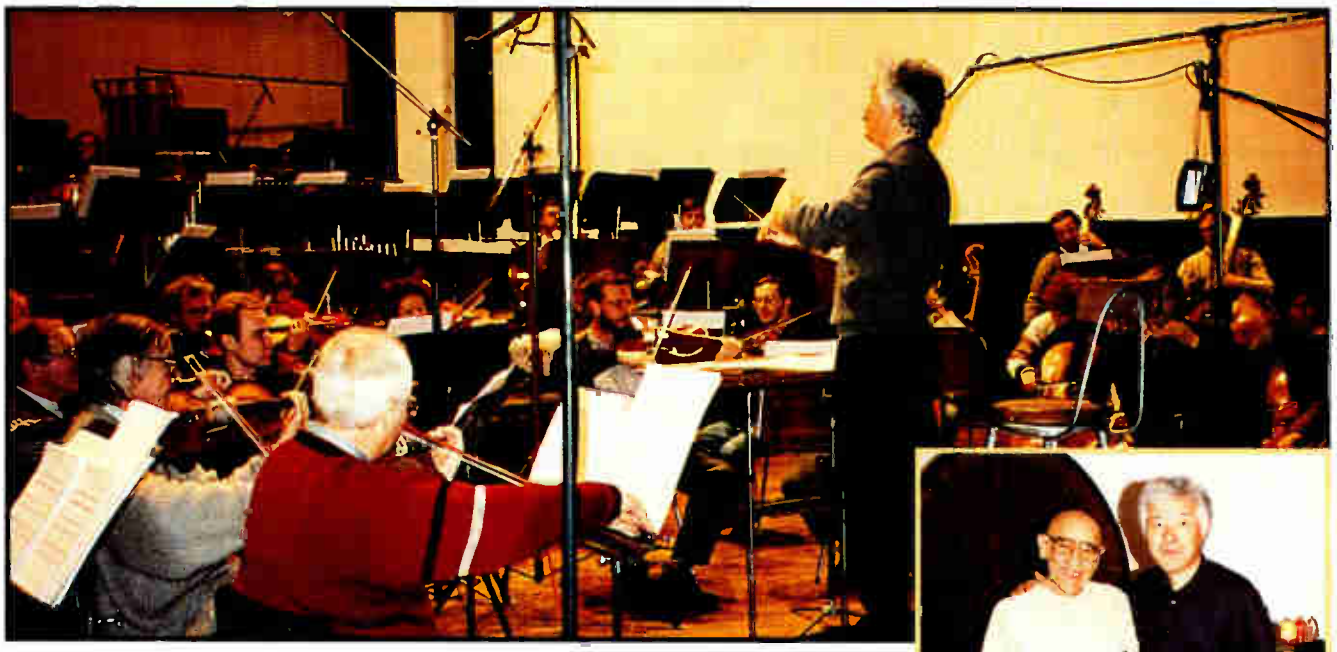
Shocker SOUNDTRACKS

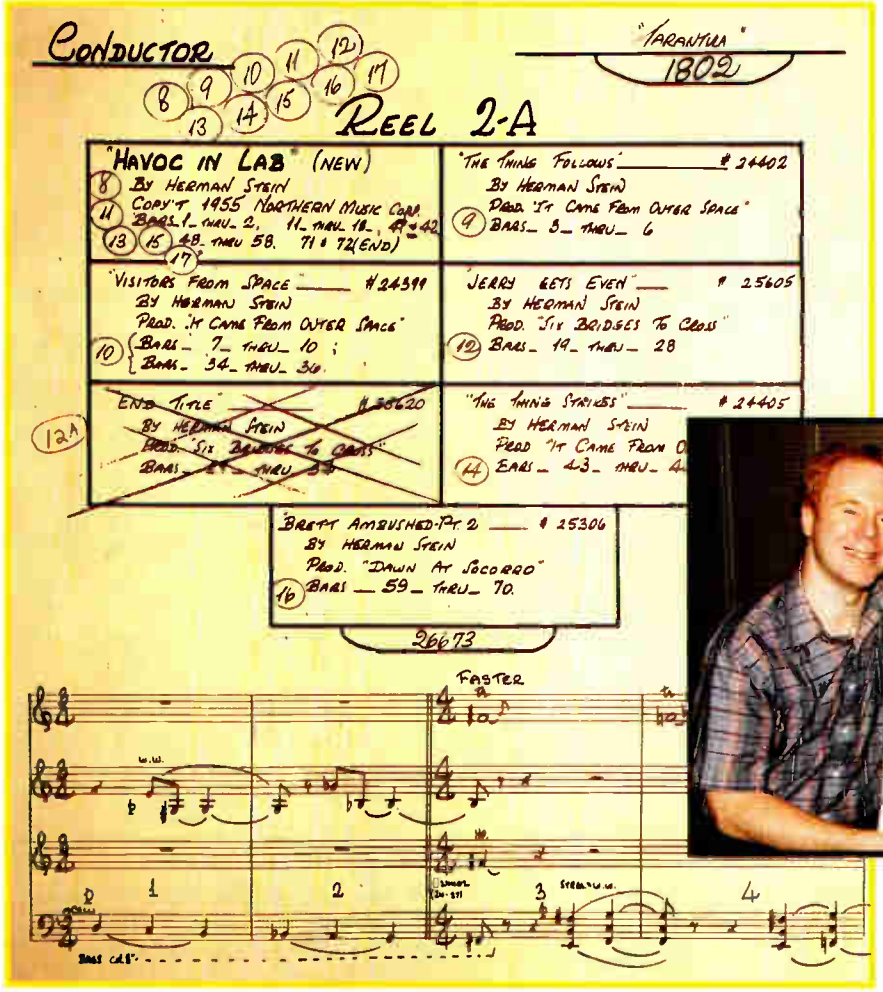
Monstrous Movie Music Comes Alive Again

by Rick Clark

Back in the days when Cold War paranoia ran high, and "duck and cover" had more to do with avoiding being caught in an atomic explosion than the preparation of fowl for dinner, Hollywood and the science fiction community offered us an endless stream of cinematic freak shows; creatures ran rampant in the form of giant insects (*Them!*, *Tarantula*), dinosaurs (*Gorgo*, *Godzilla*, *The Giant Behemoth*) and aliens (*Forbidden Planet*, *It Came From Outer Space*, *Robot Monster*), and the human race learned valuable lessons about attempting to play God. The days when monsters were tragic figures that elicited some compassion, like Wolfman or Frankenstein, were gone. In their place, the new monsters offered destruction and spectacle on a grand scale.



Masatoshi Mitsumoto conducts the Radio Symphony Orchestra of Kracow, Poland and poses with original film composer, Herman Stein



Producer David Schecter and producer/composer Kathleen Mayne

Besides providing eye-opening new special effects in glorious black-and-white, these movies also broke ground in the realm of soundtrack music. After all, who would've thought to use a Theremin as Rhett told Scarlett, "Frankly, my dear, I don't give a damn?" But for those strangely very human-looking "aliens" in *It Came From Outer Space*, a Theremin was perfect—and innovative.

One lover of these movies and their soundtrack music was producer and writer David Schecter, a self-professed horror/sci-fi film junkie, who with his composer wife, Kathleen Mayne, decided that recording the music from these movies was not only a long overdue idea, but one that would have a very appreciative audience.

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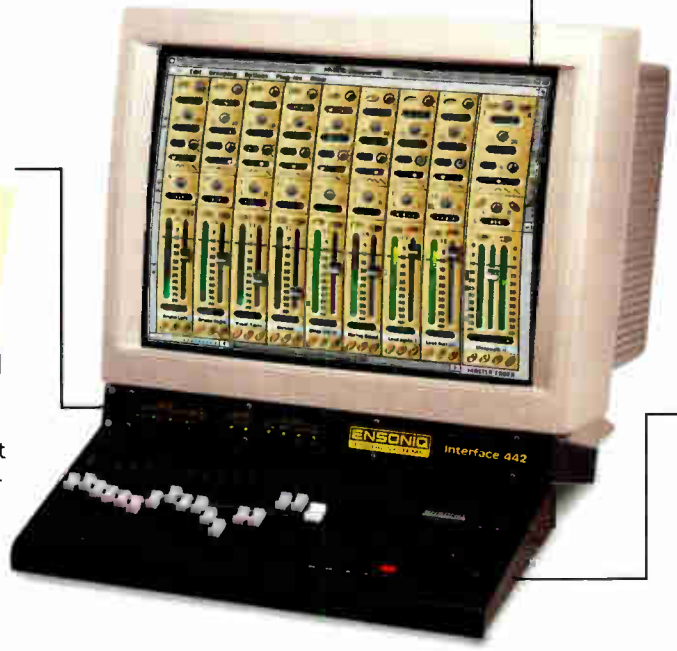

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Irving Gertz and Herman Stein

horror and sci-fi movies," Schecter says "A lot of the titles that were licensed were Universal films. Like a lot of kids from around that time, I just loved them and watched them all the time. They became part of my upbringing."

As a fan of those films, Schecter noticed that while many old soundtracks were being released or re-recorded, no one was addressing the horror and sci-fi film soundtracks he loved. "Most of the music producers we knew in the film industry grew up in an earlier generation, and the movie music they loved and were recording were things like the original *King Kong* or *Gone With the Wind*," says Schecter. "For years I thought, 'Wouldn't it be nice if somebody would put out an album of music from monster movies that I loved'?

One day, while assisting a friend in the Warner Bros. vaults on a recording project, Schecter decided to see if some of his favorite film scores were in storage. "I was there looking around, and there was *Casablanca* and all these great Warner pictures, so I went over to the 'B's' and found *The Beast From 20,000 Fathoms*. I was amazed that something like that had survived," Schecter recalls. "I then went over to look for *Them!* and saw that score, too. I got excited, because I didn't really think that this music still really existed. I figured that the studios would only be saving the 'important' stuff. What I subsequently found out was that the studios who cared really tried to save everything. The studios that didn't care, no matter how big or small the picture was, wouldn't save it."

Schecter and Mayne decided to take the idea of recording this music around to a number of labels. The positive response they got inspired them to go ahead and form a label, which they called Monstrous Movie Music, to produce and release this music themselves. The results of this endeavor, so far, are two CDs titled *Monstrous Movie Music* and *More Monstrous Movie Music*.

Very quickly in the early stages of the project, Schecter realized that locating publishers and composers and obtaining clearances would be a difficult undertaking. Many of the film studio execs who were in a position to help were so young that they considered *Star Wars* an old movie. Schecter not only got the clearances, but he gained the support and friendship of two key composers of some of his favorite films—Herman Stein and Irving Gertz.

To Schecter's surprise, both composers were delighted that anyone would remember or care about recording these scores. "These composers had written music for hundreds of pictures, and they had no recollection of some of this music," Schecter says. "Once you got their memories triggered, they could call me up and tell me things that provided a great insight on how things

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worked.

"We talked with Henry Mancini about this music, and even Henry kind of downplayed his monster movie work. To him it was, 'Oh yeah. I did that *Abbott and Costello Meet the Creature* stuff and *This Island Earth*,' but they weren't considered prestige pictures," Schecter continues. "Personally, I think Henry's music for those monster movies was as strong as his work for anything else. In a lot of cases, I feel that his music and the work of the other composers was actually better, because it took a lot more creativity in order to convince the viewer that giant rocks from outer space were taking over a town, or that there was a half-man/half-fish in the Amazon bent on keeping these explorers from escaping back to civilization. It was a lot easier writing music for Westerns, because you already knew what Western music sounded like; it was already a part of the vernacular."

While Schecter obtained the clearances, Mayne spent almost a year painstakingly re-creating the orchestral scores of the music in the films, by studying originals and copies of scores (often only having access to the Conductor's Book—a shorthand of the complete score) and using the software program Finale.

The goal for Mayne and Schecter was to faithfully re-create the music exactly as it was heard in the movies. Schecter felt that many re-recordings of soundtrack music fell short of their intended effect. In the realm of monster and sci-fi flicks, it was crucial to record the orchestra in more of a close-miked "pop" approach, rather than a "classical" approach, which employed just a few mics set back in a concert hall.

"From the very beginning, the sonic representation of the orchestra was as important an element as anything else in the final result of whether this would be an accurate reflection of the original score," Schecter says. "I think a lot of people who have recorded film music over the years have gone into the concert halls and miked the music classically, and the result would be this very distant, reverberant sound. That might be enjoyable to listen to as music, but the 'classical' glossiness is the antithesis of how this film music was recorded.

"Visually, film has a lot of close-ups, and film music has a lot of audio close-ups in it, as well," Schecter points out. "There is something very unthreatening about monster music when it sounds like it was recorded two blocks away. You want the monster to sound like it is three feet away and reaching out to you."

Schecter and Mayne hired Masatoshi Mitsumoto to conduct the project, and they chose the Radio Symphony Or-

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chestra of Kracow, Poland, to perform the scores. The orchestra had been highly recommended, and the cost of recording was much cheaper than in the U.S. Nevertheless, there were some problems that arose that made the Polish experience unique.

The week-long morning and afternoon sessions took place in the dead of sub-zero winter, in an old Kracow theater that for two days didn't have a heater. The players had to wear parkas to be comfortable, but those jackets occasionally made noise when they played, so the engineer had to work around that. Another miscalculation concerned producing a symphonic session with an orchestra of mostly non-English speaking players, without the aid of a translator.

That aside, though, the players and recording engineers became especially enthusiastic about the project, once they realized that the music they were playing was from old monster films. "The musicians were so interested in the monsters," Schecter says. "I wanted to tell them what the films were about, but I didn't have a translator, so we would pass a poster around of maybe a giant spider carrying around a semi-naked girl, and they would smile.

"This was so bizarre to them, because they had only played classical music. They were fascinated with the idea of giant ants, and they'd ask, 'What they are doing [during this music]?' We might say, 'The ants are being destroyed by flame throwers,' and you would hear this Polish murmuring going through the orchestra, and they were telling each other what was going on. It was the universal language of monsters, I guess," Schecter laughs. "I know that it's a cliche, but music is really an international language. That is really what tied everything together. Otherwise, I don't know how we would have done it with the language problem.

"At one point, while we were playing the music from *Gorgo*, we noticed that the timpani player was holding back a little, so Kathleen went out to him and said, 'You are Gorgo! You are the dinosaur!' His face lit up and he knew that he was supposed to be this giant monster stomping through the street. From that point, he played that timpani so loud and so perfectly—he was thrilled to be the dinosaur."

The 65-piece orchestra was recorded by Malgorzata Polanska and Lech Tolinski, with 14 mics (primarily Schoeps) and mixed live to 2-track Sony DAT. Extensive rehearsals were done to fix performances and set mixing levels before recording the many takes. After the Polish sessions, Schecter and Mayne returned to the U.S. and overdubbed the Theremin parts required for some of the music. Editing was done by Polanska in Poland on Pro Tools and also back in California at DUX with Joe E. Rand and masterer Lee Scott.

At present, Schecter and Mayne are preparing to produce the follow-up monster music volumes in Poland (with a translator). Schecter is very pleased with the outcome of the project, which has earned considerable critical praise for the faithful renderings of the music and for Schecter's voluminous 32-page liner notes."Very little had been written about sci-fi and monster films," Schecter says, "and most of what had been written was 99 percent wrong. I had to get the correct information. Some critics may feel that these films aren't important [enough] to warrant accuracy, but in fact one person's 'B' picture may be another person's 'A' picture. Regardless, what is the sense of doing something if you're not concerned about getting it right?" ■

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

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AUSTIN AT THE CROSSROADS

New Studios, Record Label, What's Next?

Business comes second to music on Sixth Street, the raucous club strip of Austin, an area that is home to roughly 150 music venues. Austin is also home to thousands of musicians and songwriters, many of whom seem to prefer the city's ambivalence and Texas-southern feel to mainstream success.

That could be changing. *Austin City Limits* has provided a talent showcase for some major acts for years, and the South by Southwest convention, once an underground haven, has attracted huge label attention (for better or worse, you make the call). One of the biggest local record operations has, until recently, been Antone's Records, a blues label based out of a club of the same name; the label's musical renown is rivaled only by the notoriety of its founder, Clifford Antone. Earlier this year, Arista Records opened Arista Austin Records, an outpost of its Nashville label division. Blue World, a mix/overdub-oriented studio with the first SSL G Plus in Austin, also opened earlier this year. And Tequila Mockingbird, a $1-million-plus facility owned by a successful Austin-based commercial production company of the same name, is slated for an early 1998 opening. These additions to the otherwise rather static studio community, which has (for the most part) prided itself more on its vibe than technical prowess, will provide an interesting contrast as Austin's fate as a music center is decided.

NEW ROOMS

Gina Fant-Saez, an Austin native who spent nearly a decade in New York City attending Juilliard, working on jingles and doing personal recording projects before returning home last year, thinks a change would be for the better. To that end, she opened up Blue World Music, the first Pro Tools/SSL-equipped studio in Austin.

Like many of the dozens of recording facilities in Austin and the surrounding area, Blue World is carved out of a for-

BY DAN DALEY

Blue World Music (top) and owner Gina Fant-Soez at work with producer Kevin Killen in the control room

Arlyn Studios

Bismeaux Studios, featuring an automated D&R Triton

The Congress House: owner Mark Hallman, the control room and recording room

mer garage. Fant-Saez designed it herself, and it was executed by another New York expatriate, Mark Genfan, former maintenance tech at the now-closed Skyline Studios. Fant-Saez hopes that Blue World will ultimately serve as her own project room—she recently recorded her own record there, co-produced by Kevin Killen. In the meantime, Fant-Saez has built a three-quarters-of-a-million-dollar studio on the philosophy: "If you build it, they will come."

"Austin didn't have a high-end mix and overdubbing studio before this," she says. "There are great talents who live here, like Junior Brown and Jimmy Vaughn, who can't do all of their work here. What I want to do with Blue World is keep more of the Texas talent in Texas. And at the same time, I think a room like this can attract other recording artists and producers to Austin."

The "room" is a 22-foot-high renovated garage interior that's been nicely refurbished in wood and stone motifs. The large control room is fitted with a 48-input SSL G Plus with Ultimation and Total Recall, and faces out on a pair of recording spaces: a small iso and a larger loft area. The studio is wired with Mogami cabling, with termination points built in for traveling outboard racks and links to Fant-Saez's house across the road for use as an adjunct recording space. ISDN lines are planned for, and video tielines connect all the structures and rooms. Storage is shared by Digidesign Pro Tools III systems (48 tracks) and a Studer A820 24-track deck, whose mint condition is attributable, says Fant-Saez, to the fact that she has been working on hard drive systems for nearly eight years now. "That's part of the thing with having this studio in Austin," Fant-Saez says. "On one hand, it brings a level of capability here that wasn't present before. On the other hand, people are not used to recording on hard drive systems; it's very new to them. And since there's never been an SSL in town before, it's not a familiar system to a lot of engineers."

Finished last January by Genfan, the facility is now his client in his capacity as a freelance maintenance engineer. "This is a city of storefront studios," he observes, adding that the relative creakiness of the city's recording technology infrastructure keeps his tech business brisk. "It's not on a par with the other music cities, but each of the studios here is unique in some way. Hit Shack has a quirky but beautifully rebuilt Neve 8058; Bismeaux is [Asleep at the Wheel band leader] Ray Benson's place. Most of them are kind of funky in terms of appearance and technology, but they all have an individual charm. What Blue World does is up the ante in Austin."

The same will go for Tequila Mockingbird, which Genfan is helping to design and build. "There's been an empty spot for high technology in Austin studios, and [Blue World] is the first place to start filling it. There'll be others coming after it," he says. Tequila Mockingbird is owned by a rapidly expanding commercial music production company that has already staked out field offices in L.A., San Francisco and Atlanta. Tequila will be dedicated primarily to advertising projects but will also be available for record production. Genfan points out that, despite Austin's widely regarded reputation as an eclectic and free-spirited music city, advertising provides the economic base. GSD&M, a Top 10-rated advertising firm, is one of many that call Austin home. According to Genfan, Texas has now overtaken Florida for second place in domestic location film production, an achievement that could bring more post work in the future. Richard Linklater, director of the offbeat, Austin-set films *Slackers* and *Dazed and Confused*, is doing all the shooting and editing for his first big-budget Hollywood outing, *The Newton Boys*, in Austin.

"People are starting to sink some money into the infrastructure here, something that hasn't happened in a long time in Austin," says Genfan. "This has been a band town for a long time, and the facilities have reflected that. Now Austin is trying to become a recording center."

KEEPING THE TEXANS IN TEXAS

Keeping Austin artists in Austin has been a nagging problem. Artists like the Butthole Surfers, Lyle Lovett, Jimmy and Stevie Ray Vaughn, and others have almost become synonymous with Austin in recent years, yet not all have done much recording work there.

Freddy Fletcher built (and Nashville-based Steve Durr designed) the 6,000-square-foot, API-equipped Arlyn Studios in 1984. Five years ago, Fletcher also took over operation of Willie Nelson's 1972-vintage Pedernales Studio (after Nelson lost the facility in a well-publicized dispute with the IRS) and upgraded it with a Neve 80 Series board. Fletcher acknowledges that many of Austin's more luminous alumni often go elsewhere to record. However, he says, much of his business comes from outside Austin, including work from California-based Sublime Records and even an annual project from France. Fletcher claims that, as a result, his day rate of $650 is about the upper limit in Austin. (Blue World's $850 daily card rate is still new to town.)

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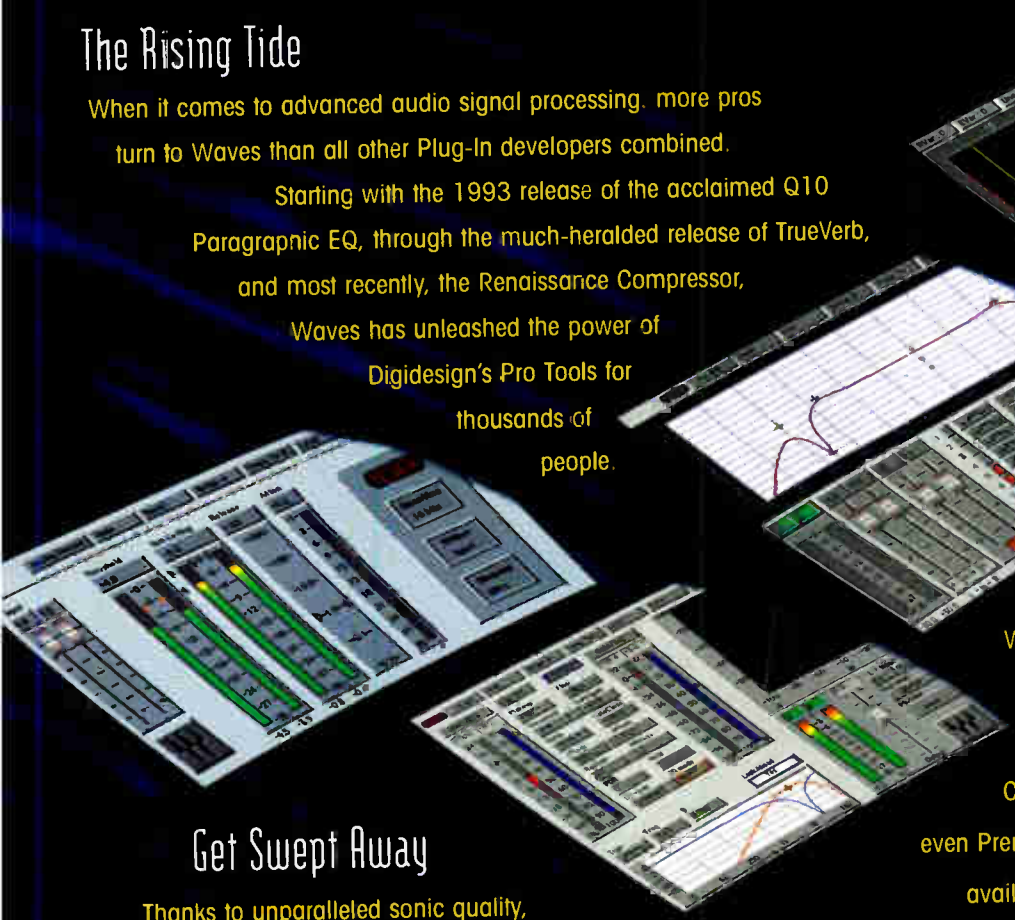

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CIRCLE #050 ON PRODUCT INFO CARD

"People come to Austin for the vibe and for the musicians," explains Fletcher. "There aren't many studios here on this level, and certainly no digital ones, so you don't come here for state-of-the-art. But you do come for a certain frame of mind and attitude. It's a very free place, artistically speaking. Most of the rentals are long-term recording projects, not in-and-out overdubs. I think any studio that wants to succeed here has to accommodate that."

Austinites can be wary of new arrivals. Jay Hudson, co-owner of The Hit Shack, an eight-year-old, two-room facility with Trident Series 80C and Neve 8058 Mk II consoles, notes that most of Arista Records' Austin roster has thus far gone outside of Austin to record. The city's studio community and its collection of indigenous independent record labels have created a sort of reciprocal universe based on budgets and rates. "Once you get above $500 to $600 per day, which is what I ask for my rooms, you've priced yourself out of the typical Austin market," he says. "If acts get somewhat larger budgets from a larger label, they'll often leave Austin to record. Building new studios in Austin is fine, but we need the record companies to pay for that investment, and the budgets just aren't there yet." However, The Hit Shack also has benefited from Austin's reputation; while most of the studio's revenues continue to come from local artists, the studio has hosted major acts such as parts of recent recordings by Indigo Girls and San Francisco's Mockingbird. Hudson's studio partner, Andy Taub, is also a producer and brings in his own productions from around the country.

"The pressure is always there to upgrade, but it's not intense pressure," observes Mark Hallman, a longtime Austin record producer and owner of The Congress House. "The studios here are artist-oriented and not real high-tech. Austin doesn't need that, although I wish it did," he adds with a laugh.

At $450 a day, Congress House clients get the ubiquitous analog standard of the city, an Amek BIG—one of the many mid-level consoles that characterize the city—and lots and lots of vibe, which all the studios put a premium on. "I've been here for 17 years," says Hallman, "and what I've found is that Austin is a place where people come to make music, not to make it big. If that happens, well then, good, and maybe they'll go elsewhere to record and maybe they'll stay right here. But Austin's about music much more than about the music business. I came here from L.A.; over the years Austin keeps threatening to happen, and it's frustrating when it doesn't. But it's a great place to make music."

INTEGRAL ADAT

Ray Benson's Bismeaux Studio is a single-control-room facility where rates range between $500 and $700 per day for the studio's automated D&R Triton console. The studio has a small edit room in another location, and partner Frank Campbell, who designed and built the studio, says a second studio, with either an SSL or a Euphonix console, is planned within the next year.

"Austin is a cyclical town, and retro music is coming around again and that's good for Austin," Campbell says. "So everyone's trying to get ready for the next round." Meanwhile, like many studios here and elsewhere, Bismeaux tries to add additional revenue streams. The studio has become an approved ADAT repair center, and ADATs are an integral part of the studio's recording complement. "What the town really needs to put it over are more major labels," says Campbell, noting the arrival of Arista Austin Records and recent visits by Sire Records founder Seymour Stein. "Austin always has a good chance of being a recording center when the focus of mainstream music comes around to what we're doing here," he adds.

"I don't know if Austin can be another Seattle," says Genfan, as he ponders the fate of other off-axis recording cities. "I don't know that Austin *wants* to be another Seattle. If it keeps doing well in advertising and continues to get more film work that results in a need for post-production facilities, then it will need—and be able to support—the big new studios."

The burgeoning commercial and film markets, combined with a new generation of artists that call Austin their spiritual home (like Sue Foley, a gritty blues singer/guitarist who is the kind of hometown hero that Gina Fant-Saez and other studio owners would like to see stay in the city to record), could mean that Austin is ready to have its studio base move up several notches. The question may then become: "Will success spoil Austin, Texas?" As Genfan puts it, "Tune in tomorrow. We're ready for something to happen down here. We'll see how it all turns out." ■

Dan Daley is Mix*'s East Coast editor.*

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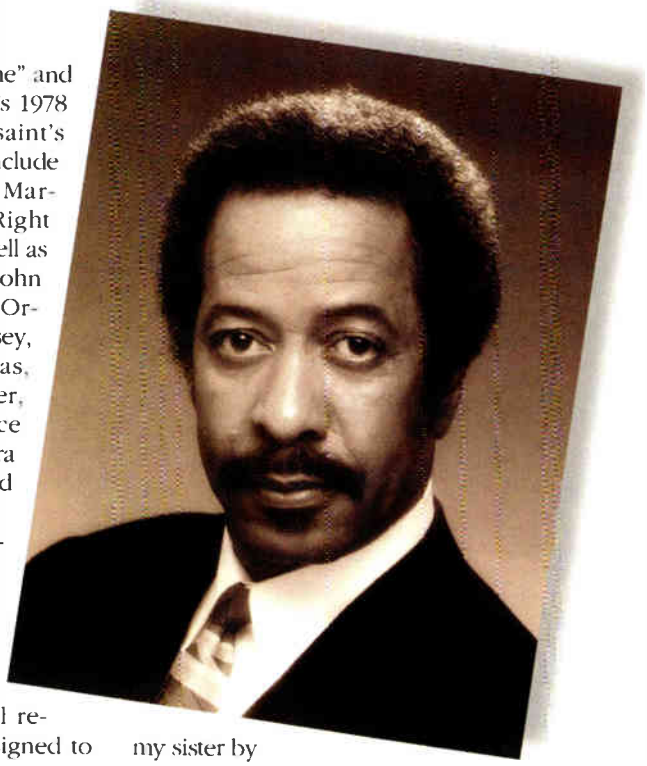
ALLEN TOUSSAINT

SOUL OF NEW ORLEANS



Acclaimed New Orleans producer, songwriter and artist Allen Toussaint has spent his whole life celebrating his hometown's magic, and he has given the world many of the classic songs and recordings that have defined the city's spirit. Unlike much of the raw, earthy blues and soul that exist in other parts of the South, Toussaint's music often conveys a mellow, easygoing lightness, and playful joy that is simultaneously soulful and slyly sophisticated.

Beginning in the late '50s, Toussaint made a mark for himself as one who could do it all in the studio, from writing and arranging original songs and playing keyboards (which were greatly influenced by New Orleans piano giant Professor Longhair) to producing the final recorded results. Over the years, Toussaint's compositions have been recorded by scores of artists, including the Rolling Stones, The Yardbirds, Tijuana Brass, Herman's Hermits, Al Hirt, Three Dog Night, Bonnie Raitt, Betty Wright, Jerry Garcia, Boz Scaggs, the Pointer Sisters, Ringo Starr, Warren Zevon, Maria Muldaur, Glen Campbell, Little Feat and many others.

Allen Toussaint and Lee Dorsey in 1976

As an arranger, Toussaint's touch can be heard on scores of classic recordings, from The Band's historic *Rock of Ages* album and Paul McCartney's *Venus And Mars*, to Paul Simon's "Kodachrome" and the music for Louis Malle's 1978 film *Pretty Baby*. Toussaint's marvelous productions include LaBelle's sassy "Lady Marmalade," Dr. John's "Right Place, Wrong Time," as well as releases by Joe Cocker, John Mayall, and great New Orleans artists like Lee Dorsey, The Meters, Irma Thomas, Jessie Hill, Chris Kenner, Aaron Neville, Clarence "Frogman" Henry, Barbara George, Ernie K. Doe and Benny Spellman.

Many of these New Orleans recordings were million-sellers. It was a golden time before radio sold out its local street instincts to national music consultants, and vital regional sounds were consigned to small, non-commercial community stations and token late night "local" music hours. These days, Toussaint is very active developing great New Orleans music of all types for his NYNO record label. He recently released an excellent solo album called *Connected*, which is also on NYNO.

Interviewing Toussaint is a special treat. His genteel, thoughtful manner made this conversation especially enjoyable. Even though it would take a book to really tell the story of his multifaceted career, we hope Toussaint's generous reflections here will inspire those unaware of his significant contributions to go out and tap into his work.

What was your introduction to piano?

The first piano brought to my house was an old upright given to my sister by my aunt. At the time, the ladies thought that it was classy for a young lady to play a violin or piano. When they were taking it off the truck, I could hear the piano making noises and sounds as they were sitting it down from place to place. I was only about six, and I walked up to it and pressed the keys, and I immediately got a pleasant sound out of it. As far as I was concerned, the minute that they set it down in our place, it was love at first sight.

My sister took piano lessons, and I began trying to mimic what I heard her play, when she got through. That's how I got my first start on the piano. I ended up taking a few lessons as a kid, but it just didn't work well, because by that time, I had already been stung by the boogie-woogie beat and things I heard on the radio. I was in a hurry to try and play some of those things, and I didn't fare very well with the lessons.

What were you hearing on the radio that captured your imagination?

BY RICK CLARK

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I listened to Albert Ammons, who I think was Gene Ammons' father. Albert Ammons' "Swanee River Boogie" just knocked me off my feet. I'd hear "Swanee River Boogie" late at night, from WLAC radio in Nashville. In fact, I heard a lot of hillbilly music on the radio as a boy, so subsequently, I played a lot of hillbilly and had a great time with it. It was very soulful as far as I was concerned. I like Red Foley and Little Jimmy Dickens and people like that. This was around 1950.

Did you decide early on that music was going to be your vocation?

Oh, yeah. I remember thinking when I was around 12 or 13 years old that "This is what I'm going to be doing forever."

Professor Longhair was a major influence on your piano style.

I think the strongest influence on my recordings was definitely Professor Longhair. When I heard Professor Longhair on the piano, it just jolted me, and I took off behind him as a little boy. I just couldn't wait for the next recording. Yes, indeed.

Of course, his voice was amazing, because he would jump octaves when he would sing. He would hold a note, and then drop it down or go up an octave. No one else was doing that like him. The piano was just flourishing all over the place and taking that extra bar when he felt like it, to say what he wanted to say. I just thought that was outstanding. Of course, the old blues guys, out under the trees, used to take those extra bars, too. But to hear Professor Longhair doing that was just shocking to me and wonderful and exciting.

One of the distinguishing characteristics of the New Orleans groove concerns the way the drummers play so far back—taking their time, yet they sound like they are definitely pushing the groove along.

Yes, indeed. It is kind of a laid-back feel. It's just like the city. The city moseys on at a kind of laid-back pace that I think is a bit slower than the rest of the country. We are so strongly influenced down here by the second-line street bands—the brass bands in the street—and the frenzy of the Mardi Gras Indians. I think that shows up in the bottom of our music here, more than it would elsewhere.

What is it about the second-line that connects with you? Did you ever intentionally incorporate that into your style?

Allen Toussaint, 22 years old

Not deliberately, but I do know that, as we live and breathe and eat and sleep, the second-line is upon us and in us. It is something about that second-line groove that is a strong basis of who we are down here.

Where is the groove rooted? Is it a spiritual tradition?

I think that everything comes from spiritual, one way or another, but not as overt as one might say. The second-line band's biggest job in the olden days was for funerals and other celebrations...but mostly for funerals.

It is interesting that you would say "funerals and other celebrations." It is a very celebratory-sounding music.

Well, the funerals were definitely celebratory. A long time ago, before integration, the grave sites for black folks—or colored, or Negro, or whatever at that time—were usually way on the outskirts of town, and not in prime, easy-to-reach places. When the funeral was taking place and they were taking the body to the grave site, the band would have this slow, mournful 12/8 kind of march playing all the way to it. In fact, it was so slow that it was hard to say why they would call it a "march." Along the way, they would pick up people who would join in because they would know that once they laid the person in the ground, it was time to celebrate that the deceased had gone to be with the Lord. Probably everybody in New Orleans has been in second-line parades at some time or another. They just join in and dance along for a while, and stop when they want and let them go.

Why is it called "second-line"?

The first line of the parade would be the people who are definitely a part of the family of the deceased. The second line is all of these people "carrying on" in the back.

What were your first live band experiences?

When I was 14, Snooks Eaglin, the blind guitarist here, and some other kids in my neighborhood formed a local band called The Flamingos, not to be confused with the Chicago singing group called The Flamingos. We played a few high school dances and other places that we shouldn't have been in. It was a delightful thing and a milestone, too, because by mimicking the songs off records for the band, I got my first chance to try my arranging chops and copy the horn parts off of recordings, to give to the other members.

Were you starting to write songs around that time?

I was writing some instrumentals, as well as other very humble melodies for songs that we didn't use in the band. I played all of the time, and was learning things off of the records and the radio. After you've played enough, you just seem to venture out. You know, something inside of us is always trying to show its face. So yeah, I began writing very simple songs really early, but it wasn't until much later that they became anything noteworthy.

The first song that I was totally credited for as a songwriter was by Roland Cook, called "Long Lost Love." He was the bass player for Shirley & Lee [of "Let the Good Times Roll" fame]. I was 20 by then.

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How many original songs would you say you have written?

I would guess around 600 or 700 in publishing companies.

Your first solo album, a 1958 RCA release called Wild Sounds of New Orleans, ***has your name misspelled. What was the reason for that?***

It was deliberate. Danny Kessler and whoever he coordinated that with at RCA Victor thought that the name Toussaint was a bit much, so they spelled it Al Tousan.

That album features "Java," which is a classic instrumental that later became a big hit for Al Hirt in 1964.

That's right. Floyd Cramer had done the second recording of "Java," and then Al Hirt did it. Boots Randolph was involved in Al Hirt doing it.

When you began working in the local studios, New Orleans already had quite a recording scene going.

There were lots of sessions, like Smiley Lewis, Fats Domino and, of course, Little Richard. It was very active then.

I first began playing sessions when I was around 16. Dr. John—Mac Rebennack—and I came along around the same time. Mac played guitar, and he is a really good guitar player, too. Of course, he's a great pianist, too. He's very special.

Cosimo Matassa, or "Cosmo," as he was called, was a major studio owner in New Orleans during those times. You did quite a bit of work over the years at his place.

Everyone knew Cosmo, and Cosmo knew everyone. He was the man who owned the main studio in town, called J&M. When I was brought in to play, he was the man who was running the controls. Many times it was Cosmo who would call me into playing sessions. I was elated to be there.

To produce some people you have to take them by the hand and do every little nuance. With The Meters, all we had to do was open the door and let them in.

You also ended up working with Dave Bartholomew, producer for the great Fats Domino records.

Dave heard me playing at The Dewdrop when I was around 17-and-a-half, and he knew that I mimicked the records exactly the way they went. He called me in to play on two or three Fats Domino songs in the studio. We were up to two tracks at this time, so we could overdub. I played exactly like I thought that Fats would've played, and it really worked. Hardly anyone would know that it was me playing. One of the songs was "I Want You to Know." It was then that I think others began to take me a little more seriously as an entity to be a part of the studio set.

I used to go up to Dave's office and play on his piano for people who would come up to audition. That was a time well-spent around Dave Bartholomew, because he did give off

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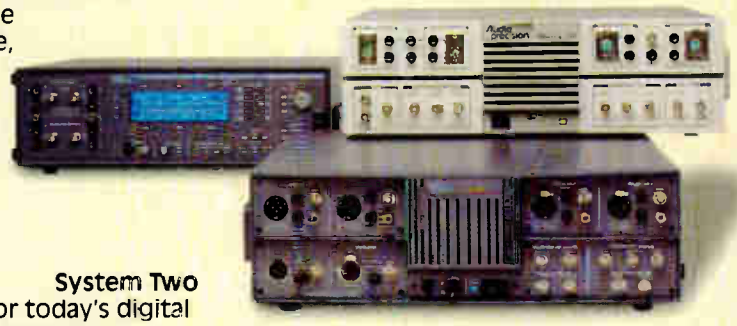

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this gentlemanly air, and he was a person who was very much together during very untogether times in the record industry here. No one had taken the business seriously in New Orleans, and yet Dave was already a giant.

How did you get started producing?

Well I began producing when Minit Records started. That was around the middle of 1958. Joe Banashak and Larry McKinley owned the label. Joe Banashak owned a distributorship here called A-1, and Larry McKinley was a very important disc jockey on WMRY, all those years ago.

For years, the front room of my parents' home stayed full of guys and some girls singing with each other—some solo and some groups—while I played piano. When Minit was holding their auditions at the radio station, many of these same people were going over to audition, so I went over there to play behind several of them. As it turned out, I knew everyone who was there, because kids just know each other. I wound up playing for everyone who auditioned that evening.

When the evening was over, Joe Banashak and Larry McKinley asked me if I would come aboard their new company and be their music man, until their permanent guy, who was going to be Harold Batiste, came in from California. At the time, Harold was out there working with Specialty Records and he was very busy. I said, "Yes" right away and got to work immediately, rehearsing artists and coming up with songs to go into the studio. They were well-satisfied with me, and I was tickled pink to be with them, so Batiste never came there.

The very first project we did was on Ernie K. Doe, who was being managed by Larry McKinley. Our first million-seller was with Ernie K. Doe, a song I wrote called "Mother-In-Law."

What was the inspiration for that?

It was inspired by a guy by the name of Danny White, who used to sing with this air of riding on the sixth tone of the scale a whole lot. I always did like that. In fact, when I look at that with any analytical mind, that sixth is a definite part of that pentatonic, which causes the color to be what it is, as opposed to dominant seventh.

Ernie K. Doe used to like to shout and yell like the Five Blind Boys, and I didn't think that was the way we should go, so I used an air of Danny White's melodic choices that he used to like to sing. As far as the plot on "Mother-In-Law," the Mother-In-Law was the basis for many jokes for comedians. Nowadays, they can use anything, and all kinds of obscenities, but a long time ago, it was a very popular subject for jokes to be based on.

So Ernie was our first artist. I then did Jessie Hill shortly afterwards with "Ooh Pooh Pa Doo," and that was very good for us. Irma Thomas was very early on also. The first song I did on Irma was "Cry On," but it didn't do a whole lot. Soon afterwards, we did things like "It's Raining" and "Ruler of My Heart," which did better.

A lot of these New Orleans R&B singers, like Fats Domino, Ernie K. Doe, Smiley Lewis, Lloyd Price, Clarence "Frogman" Henry and so on, all sounded like such nice, easygoing people. There is an element of playful joy in the music that you just don't hear a lot these days. Your work with Lee Dorsey especially embodied that spirit.

Oh, yes. Lee's voice was certainly the inspiration for everything I wrote for him. It inspired me to say things that I normally wouldn't say with a person who was more debonair; but with Lee's voice having such a smile in it, you could do things like "Working in the Coal Mine,"

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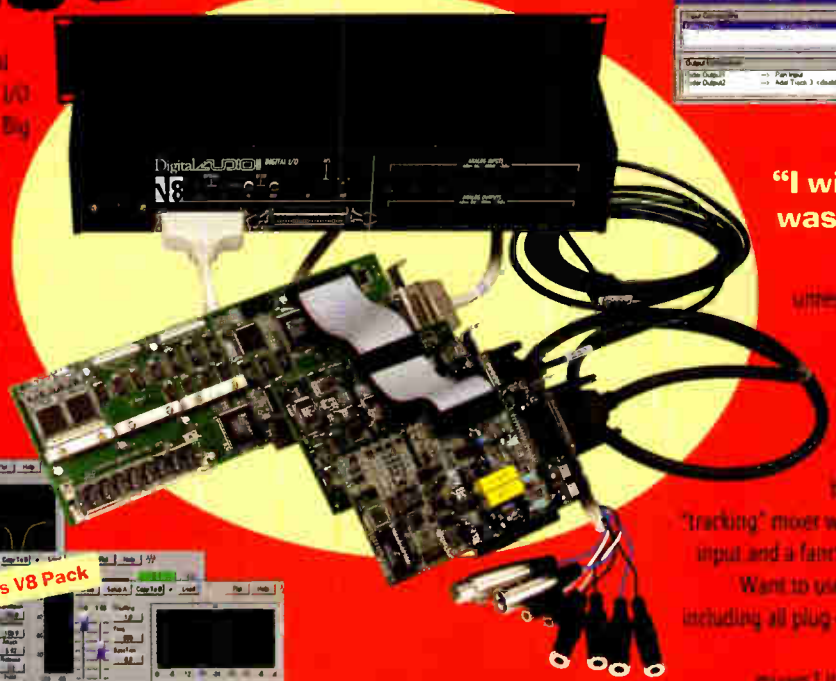

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"Holy Cow" or "Yes We Can Can." Lee wasn't too hip to do songs like that, as hip as he was. I like those cute little things. They are kind of reminiscent of the old soft shoe. If I close my eyes, I could see the whole little dance and all, like a tap dancer would, because of the way that melody goes and the little bounce that goes behind it.

"Sneakin' Sally Through the Alley" was another great Lee Dorsey number you wrote.

"Sneakin' Sally Through the Alley" was almost autobiographical Lee Dorsey. We will not go further with that. [Laughs] But it's pretty much there. You can just listen to the record, and that's it. [Laughs]

Believe me, Lee and I had loads of fun. We rode motorcycles and raced Cadillacs together, and we double-dated a lot. Lee Dorsey also had loads of fun on his own. He didn't need anyone around him. He was a very high-spirited person. He was also a wonderful body and fender man. I once had a Cadillac that he really liked, and he didn't think that he could come up with the funds at the time, so he built one in his body shop out of spare parts from junk yards. When he got through painting it and doing it up, it looked better than mine.

One of my favorite songs that you did with Lee was recorded with The Meters. It was a song called "Who's Gonna Help Brother Get Further."

Good heavens! No one has ever mentioned that song to me! Not one, since the day we did it. I didn't think anyone ever heard that.

How did you hook up with The Meters?

I had just come out of the Army in January of 1965, and I would go down to the Quarters [French Quarter in New Orleans], where I had friends who were playing around there. One time, as I was approaching the Ivanhoe bar, from across the street I heard this music going on inside, and I thought, "How wonderful this music is! I better hurry up and get there." When I got in there, it was Art Neville & the Neville Sound. They were marvelous. I thought, "Art Neville has done it again."

See, Art Neville is a magic guy. If Art Neville put a new group together today, of some people that you never had heard of, in about two months they would sound like something magic. It is something about him that brings the best out of people. So when [Neville's group] went on intermission, I told Art that Marshall Sehorn and I had this new label called Sansu, and we wanted to get together with him. I got Art to come down and meet with Marshall and to talk over recording, and they decided that it would be a co-op group, rather than Art & the Neville Sounds. Arthur was most gracious about that, because it was his group. We came up with the name, The Meters. We began recording right away, and it was magic.

To produce for some people is to not produce for others. With some people you have to take them by the hand and do every little nuance at every little moment. With The Meters, all we had to do is open the door and let them in, and they were usually pretty close to ready for what you were going to hear on the radio.

The way each instrument played with syncopation and percussive grooves within the group context was like four people throwing a ball around in a game of hot potato—Who's going to run with it now?

The Meters were hopping in all directions. Everyone was playing percussion. Everyone! It was total syncopation forever. I call it "funkcopation" now. [Laughs] But when it was time to be disciplined, and nail things down, they

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could do that, too. Like on many of the Lee Dorsey things, and even up to the Patti LaBelle days, we used The Meters. They played very straight ahead, but with a little "something else" all the time.

Speaking of Patti LaBelle, you enjoyed phenomenal success with your production work of LaBelle.

Patti was the first person who I was that close to who sang with this grand air. Even when she was just kind of learning the song and humming it, it sounded like, "Oh, we probably can use that." She genuinely flies. When I was about to get started with them, I was thinking of them as being a lot of trio stuff, switching parts between Nona [Hendryx], Sarah [Dash] and Patti; but they made it quite clear, early on, with no reluctance, "Oh, Patti is the lead singer," and I understood right away, and they were very right. Of course, the first thing that came about was "Lady Marmalade," and things like that.

Of all the productions that you have done, what is the one that really stands out in your mind as special?

I think as far as national artist, from outside of New Orleans, LaBelle is the zenith of excitement, as a producer. I think locally, it was Lee Dorsey, Irma Thomas and Aaron Neville. I think we spent more time with each other, and they inspired so many things.

Irma was one of the people who would spend that time in my parents' front room. Whatever we were doing in the living room, we would take that to the studio. On early Aaron Neville songs, Irma would be in the background singing, and behind some of the early Irma recordings, you might hear Aaron in the background with some of the other singers.

So Aaron Neville was one of your living room friends?

Oh, yes. Aaron was over there in the living room, too. So was Benny Spellman and Calvin Willie. We would spend lots of time there together.

Aaron Neville has an utterly distinctive vocal style. Did he always sound like that, even in the living room?

Oh, yes. Definitely. Those of us who knew Aaron, know that he hasn't moved one iota. Not one. That voice is not "put on" at all. There is no other way to know Aaron.

Even though you worked with Aaron Neville considerably, his big early hit, "Tell It Like It Is," was recorded while you were gone in the Army.

Yes, "Tell It Like It Is" wasn't on Minit. It was on a local label that Cosmo was head of. George Davis and Lee Diamond wrote the song and actually produced it.

Let me get something straight right now, I did not write the song "Lady Marmalade." I produced it, arranged it and played on it, but I did not write it. I say that because there are some mistakes in print that happen more than others. One being "Lady Marmalade" and the other being "Tell It Like It Is." I did not write "Lady Marmalade" or "Tell It Like It Is."

One of your most successful songs was "Southern Nights," which was a huge Number One hit for Glen Campbell in 1977. It has also achieved recognition from BMI for having earned over 3 million airplay performances. What is the story behind it?

When I was a boy, my family sometimes used to visit older people out in the country on the weekends. Every moment of "Southern Nights" was a part of my visits to the country, and seeing the wind blowing through the trees and the moonlight. It was written within an hour. The song is in a pentatonic scale, which is not a very "Southern" modality for a song about Southern nights.

—CONTINUED ON PAGE 213

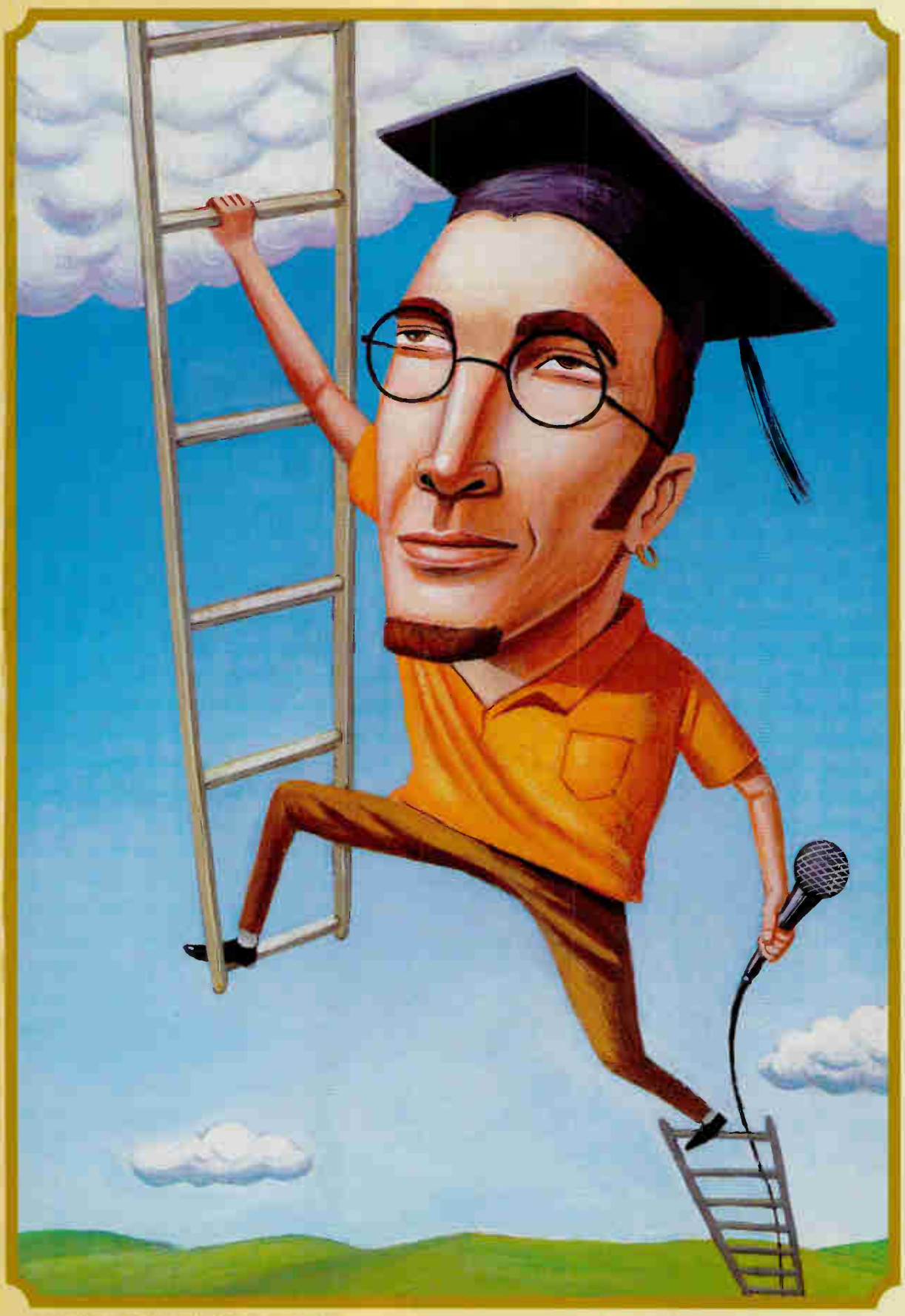
making THE GRADE

BY LAUREL CASH-JONES

Finding An Audio Education Program That Suits Your Career Choice

The term "audio education" has come to mean something quite different than it did in 1969, when Al Grundy opened the first educational recording program in the United States—the Institute of Audio Research in New York. For many years, "audio education" was considered an oxymoron, and the only way to enter the recording industry was to "grab a broom and start over there." Although many talented engineers started that way, it's good to see those days gradually passing into history.

The chairwoman of the AES in the Schools Committee offers a report on the state of audio education, along with some audio career ideas.



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AES IN THE SCHOOLS PUT TOGETHER A VIDEO AND BROCHURE OUTLINING THE BREADTH OF POSSIBLE CAREERS, TO SHOW STUDENTS, COUNSELORS AND PARENTS THAT THERE IS MUCH MORE TO A CAREER IN AUDIO THAN JUST "RUNNING AWAY TO JOIN A ROCK BAND."

Today, audio has become a legitimate profession. All across the country, universities, two- and four-year programs and trade schools are helping young people get started on the right track to a career in audio. The jobs have changed, too. What was once a career akin to "running off to join the circus" has grown to include wide-ranging, serious endeavors (see sidebar).

How did the changes come about? The early offerings were mostly an outgrowth of music programs in a few universities, or as specialized recording workshop-type programs. At first, these programs focused on practical and laboratory-type coursework—a student would learn by trial and error, much the way records were being made at the time. But over time, these programs took on a life of their own and evolved into the serious, disciplined study of audio.

Now, the Audio Engineering Society has gotten into the act. Under the auspices of the Education Committee, the organization has begun a program called AES in the Schools (of which I am the chairwoman), which is designed to help high school students prepare for college and/or careers in audio. Many students, and more than a few counselors, we found, weren't aware of the multitude of opportunities in audio and in related communications arts. So, the AES put together a video and accompanying brochure outlining the breadth of possible careers, to show students, counselors and parents that there is much more to offer than just "running away to join a rock band."

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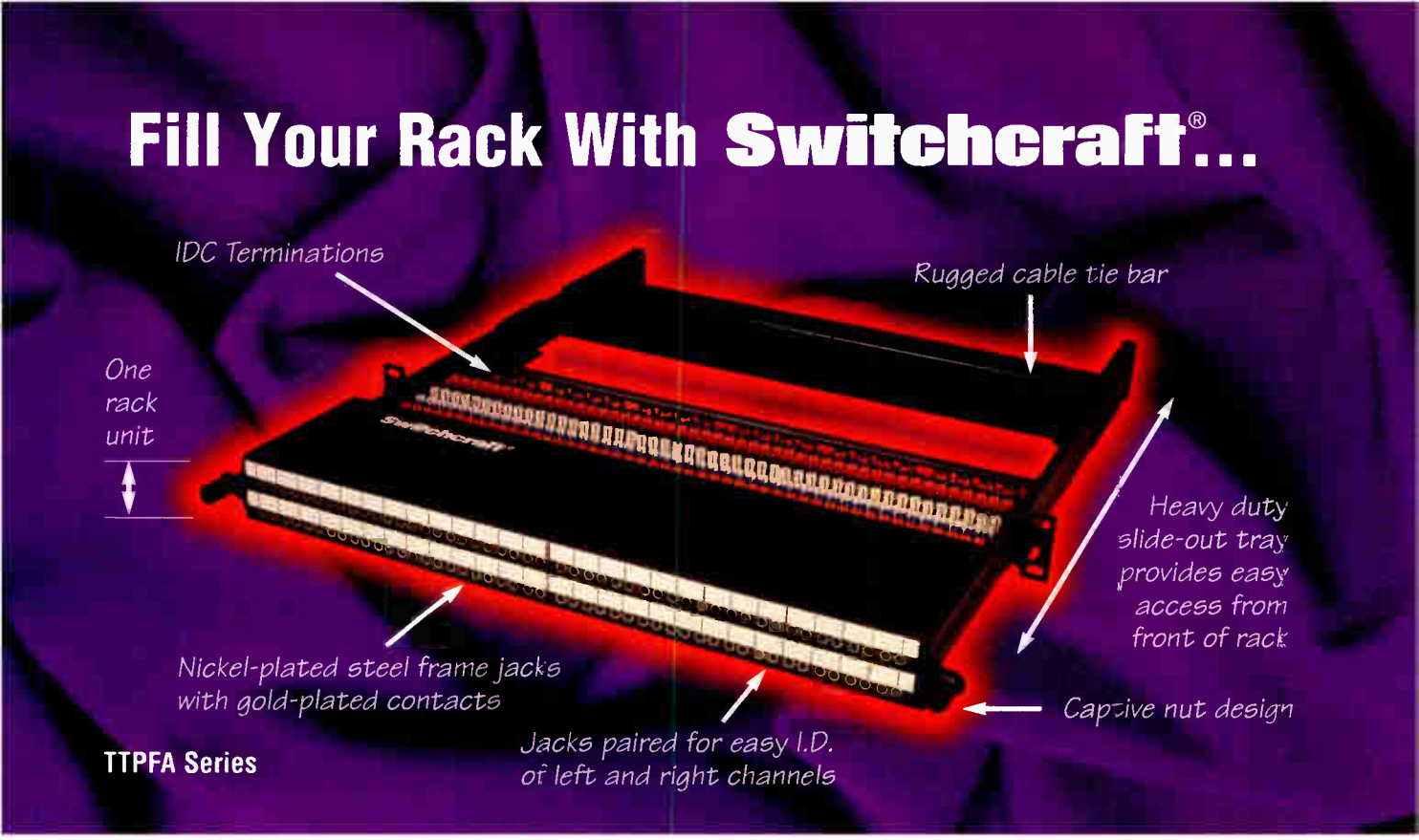

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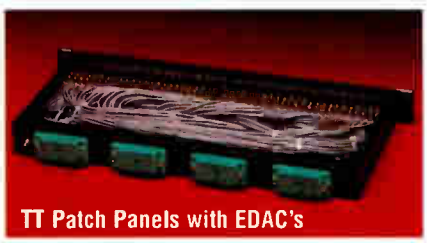

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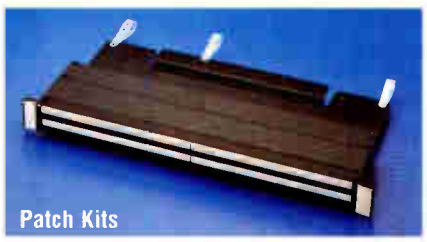

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tation of technical sessions and demonstrations of new advances in hardware, systems and applications. The Education Committee also publishes a directory of available recording schools and classes.

SOME BASIC ADVICE

"The education of a practitioner of audio," says Roy Pritts of the University of Colorado (and a fellow AES Education Committee member), "goes through at least three stages: the initial period of vocabulary, basic skill and technical development; a work or field experience where this fundamental knowledge is applied; and a continuing education, where advanced practices, new developments in technology or career shifts are investigated and folded into the person's abilities."

The true challenge for students and professionals alike is to be in touch with the forces of change and evaluate those areas where further knowledge is needed. It also may help to place related but "unnecessary-for-now" areas on the back burner, with the caveat that you know where to turn for more information or for continuing education. It can mean the difference between saying "yes" when you know how to complete a task or project, saying "yes, I can find that out momentarily," or saying "no" and being left behind. If your education has provided you with a clear understanding of your primary skills, then it should also provide you with a clear path for inquiry, secondary resources and bases of information. The message that you will impart to an employer is that you are a problem-solver.

A basic audio education should include both the technical skills and practical experiences of implementation. When selecting an educational institution, it is crucial to understand whether it is a practical, hands-on study in engineering or a more technical-oriented curriculum. The approaches are very different: One is for design and the other for implementation. Further complicating the educational process is the understanding that most engineers and technicians are also trained in, or are accountable for, the calibration and maintenance of equipment.

It also doesn't hurt if along the way you develop social skills for dealing with people, both on a technical level and in a very basic "teamwork" sense. The audio engineer is similar in this way to a contractor, conductor or design engineer, working in a complex technical environment toward the successful completion or performance of a product. In our industry, don't forget, not all of the product is music; some of the most challenging projects are music-related, to be sure, but there are also opportunites in product design, multimedia, sound reinforcement, audio post-production and the implementation of complex acoustic and electronic systems, to name just a few. To develop a diverse mix of knowledge and skills, there are a number of different paths for a student of audio to consider.

EDUCATION OPTIONS

[Editor's Note: Due to popular demand, Mix *plans to revive its annual directory of audio education programs next year. In the meantime, lists of institutions that offer audio courses can be found on the AES Web site (www.aes.org) or in the* Mix Master Directory, *available through the Mix Bookshelf]*

• **SHORT COURSES AND SEMINARS:** These are specific studies necessary to the trade, or the first-time introduction to a topic. They are popular among professionals for continuing education, to keep up with new technologies, such as the advent of digital audio

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• **TRADE SCHOOLS:** A trade-school curriculum is ideal for students interested in a specific course of study, such as classes necessary for licensing or union recognition. They can also be specific to a desired job or position: Often, career shifts may require a trade-type program.

• **ONE- TO TWO-YEAR SCHOOL PROGRAMS:** The 12- to 24-month programs are for students seeking a degree or interested in a long-term learning approach. These programs include a selection of courses that will lead to a diploma or certificate of completion.

• **FOUR-YEAR COLLEGE AND UNIVERSITY PROGRAMS:** Like the one- or two-year schools, these educational facilities offer a field of study leading to a bachelor's degree, either specifically in the recording arts or in the larger field of communications. Usually, these kinds of programs offer a blend of hands-on education with a proper grounding in theory, and a student can combine a recording degree with some type of music program.

• **UNIVERSITY GRADUATE PROGRAMS:** Graduate studies are for those students who wish to continue a degree program for advanced professional studies. The programs are more popular for design engineers and those more interested in theory.

If you are already involved in the audio business, congratulations! But remember that the recording industry is a highly sophisticated and constantly changing technological environment. Continuing your education seems to be a must these days, and in order to further your education, you must understand your present—and desired—position in the audio work force. Talking to people who occupy the position you want to work toward is a good place to start.

Then, once you know the requirements for a particular job, you can begin gathering information to see how you can prepare for it. Your need may be for a specialized course on a specific topic, or it may be for a series of courses that will prepare you for a career change. Either way, if a student is entering the audio industry for the first time, the next step might be an internship.

• **THE INTERNSHIP:** Although the term internship can vary in definition, depend-

FINDING AN INTERNSHIP

Here are a few steps to guide a student seeking an internship:

• Target a particular area of the country in which you want to work, ideally where there is some sort of support system (family or friends) that can help through an unpaid internship.

• Research the area to locate facilities that may be working with clientele and/or equipment that is of interest. After this research, which sometimes includes "cold calls" to facilities, gather all of the information and make an educated decision on which company or companies should be pursued.

• Based on the telephone conversation, send a cover letter and resume to the hiring manager, the studio manager or whoever is in charge of personnel decisions.

• Make a follow-up call within a week after the resume has arrived. More times than not, the manager is kind enough to field a student's questions and offers a time to interview.

• If accepted for the internship, the school placement department records the internship in the student's file and forwards a completion form, in which the supervisor grades the intern's performance.

• Keep in touch with the school. It may be that next year's student is looking for an internship in your area and could use a few pointers. Remember, what goes around comes around. And everybody entering the field could use a helping hand. Good luck!

—Laurel Cash-Jones

ing on the particular needs of a company, it remains the most accessible avenue into the audio industry. Whether it is paid or unpaid, for credit or not, two weeks or six months in length, the internship provides real-world experience for the graduate and a base of qualified assistants for the employer. Both sides benefit.

Over the past years, changes have taken place in the internship environment. Gone are the days of emotional abuse and menial tasks like cleaning the bathrooms and running errands. Generally, it seems, studios are developing more structured learning environments and offering interns more time "behind the board," or at least more time setting up mics. This enables facility owners/managers to evaluate the performance of the interns and lock on to those that prove to be reliable or talented.

The internship provides an excellent opportunity for the student, as well. From the interview process to learning the specific day-to-day operations of a facility, this process allows the student to gather and make use of experience while becoming part of a working team. In an industry that "hires who they know," the internship often becomes an opportunity for the employer to do just that. One of my favorite quotes has always been: "Who you know will get you a job, and what you know will let you keep it."

Because most internships are unpaid, employers need to be flexible with the hours required each week; this allows the intern to work elsewhere to earn money. There are some internships that require full-time hours, but then the student would have to be able to afford to live without a regular paycheck.

Schools have placement departments to help both the student and potential employers. These departments field incoming calls from the industry and speak directly with the hiring manager regarding a particular position and its requirements.

In conclusion, I can't think of a time in the audio business that has offered more opportunities for new jobs, for growth within the profession, and the potential for so many people to prosper in what is a truly exciting and ever-changing profession. ■

Laurel Cash-Jones is a freelance writer and is currently the international vice president of the AES. She also sits on many AES committees, including the Education Committee.

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The Soul OF A NEW AUDIO MACHINE

How a Pro Product Reaches the Market

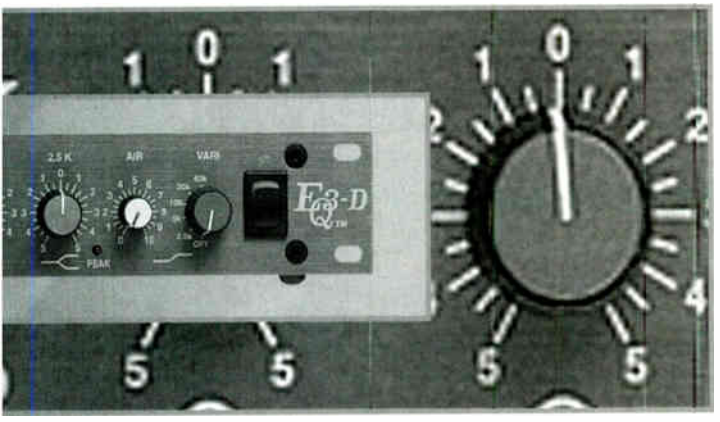
It is Sunday night, and in the background, through the decidedly analog phone lines, you can hear the tinny razz of the TV as the Utah Jazz blow a three-quarters-long lead and the first game of the NBA Finals to the world champion Chicago Bulls. The fact that the people on the other end of the line are in Provo, Utah, explains their occasional lapses in concentration on the subject at hand.

But as the game becomes history, memories return more vividly. "I can still remember sitting down in the studio with Lance the day we realized we had it figured out," recalls Cliff Maag. "We were running our favorite records through it—like Scritti Politti—and saying to ourselves, 'No one's gonna believe this because we're actually making these masters sound bigger, like they were going from mono to stereo right before our ears.' We knew we were on to what we had been trying to achieve. But it's strange—even though you know something, you still want someone else to come and validate it for you. To make sure you're really experiencing what you think you're hearing."

[Editor's Note: This article is a takeoff on the award-winning Tracy Kidder book The Soul of a New Machine, *which chronicled the development of a supercomputer at MIT in the late '70s/early '80s. We chose NightPro as an example of a boutique manufacturer success story, but the same could be told of any number of enterprising individuals and companies in the recording industry.]*

by DAN DALEY

The "it" that Maag and his co-developer Lance Parker refer to is the core technology that would eventually become the EQ3, the first product in the line for small start-up company NightPro Technologies Inc. (NTI) in 1992. The breakthrough was the development of an algorithm—an equation that Parker had jotted down on a scrap of paper—whose implications were readily apparent to the longtime



friends. Together, they had been pursuing what till then had been a mythical better mousetrap in the realm of equalization.

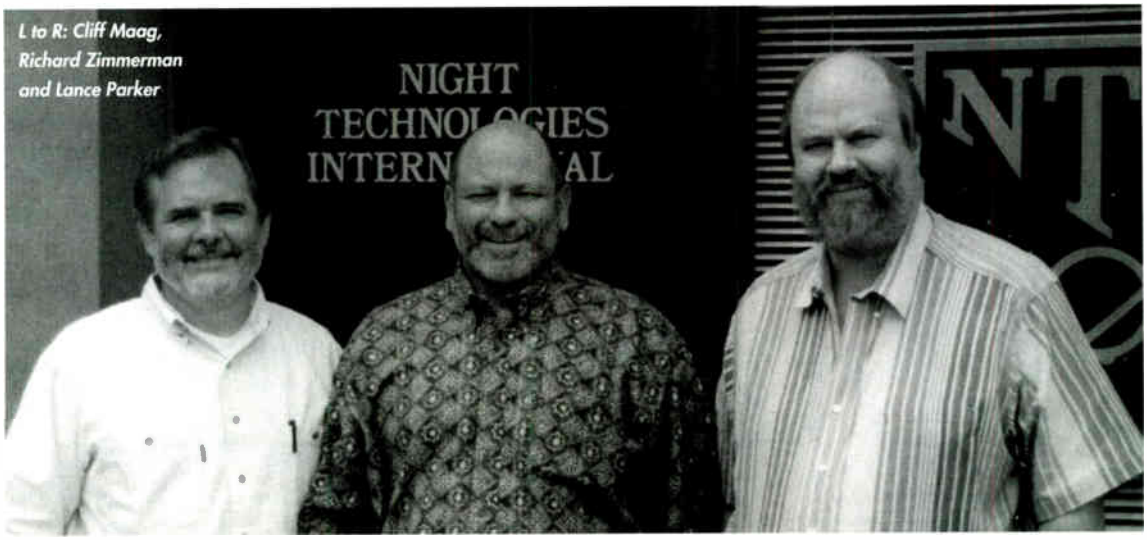
The actual algorithm that enables the EQ3 and its successor products, the PreQ3 and the EQ31D, to eliminate phase-shift distortion remains proprietary, patent-pending, so we can't describe it in detail here. The simplest explanation is that it interpolates standard reference measurements and compensates the signal accordingly, resulting in phase shift distortion-free equalization across a much larger range of the frequency spectrum.

Maag's home studio in Provo has served as the base for his productions, including records by fellow Utah residents The Osmonds. It's also been the primary laboratory for his practical refinements of circuit and systems design that were rendered by Parker, a Caldwell, Idaho, native now living in Orem, Utah. Parker's company, International Consoles, had built seven esoteric boards for notable private studios, including Barbra Streisand's in Sun Valley, Idaho. Parker and Maag together designed Maag's board.

Maag's Swiss-born great-grandfather homesteaded in Utah in the mid-19th century on what is currently the Geneva Steel plant, which still operates in Provo today and where Maag learned precision manufacturing design work, a skill that would help him physically realize Parker's designs. In the early 1970s, Maag was working as a carpenter building houses between college mechanical engineering classes. After hours, he was indulging in a hobby that quickly became a passion: recording music. He built a home studio and was recording local bands when he hooked up with the techno-intensive Parker in 1976.

"We didn't have a lot of money at the time," recalls Maag. "I was putting the money I made building houses and at Geneva Steel into the studio, so we had to build everything in the studio ourselves." Maag concentrated on developing equipment concepts while Parker responded with continually evolving electronics designs. Their increasingly intuitive working relationship laid the groundwork for what would become a small but robust product line based mainly on a single proprietary circuit.

Maag sometimes took his productions to Los Angeles for overdubs and mixing, which provided him with a reference to the larger progress of mainstream audio technology. "I got to hear where the shortcomings in our equipment were," he says. But at the same time, the remoteness of Provo and the economies of small-studio ownership provided the impetus for refining their home-built gear in a low-pressure environment. During this period, Maag and Parker took some of the problems they had discerned in major manufacturers' equipment and applied their working methodologies to them. For instance, says Maag, "Preamp and limiter sibilance



L to R: Cliff Maag, Richard Zimmerman and Lance Parker

was always a problem, and it was present in equalizers, too. The same issues centered around phase shift distortions, mainly in the upper frequencies. So Lance and I worked on circuitry and algorithms that could control phase shift and distortion in analog processing." Specifically, reducing gain in the upper frequencies would address sibilance, but it dulled the recordings.

According to Parker, "Most of the EQs out there were parametrics. Things had been getting better in terms of frequency response, but there were always side effects, particularly phase shifting, which you could hear not only as you turned the knob but even after you set the EQ. That's how it was when I built my first console in 1971, and while I was able to get the frequency response better, it took a lot longer to lick the phase shift problem. There wasn't a good foundation for the sound in EQ. There was something unnatural about it. For instance, if you were to add EQ to a reverb return to fatten up the low end, it tore the sound apart. We wanted something that was even broader in terms of frequency response but with no audible phase shifting."

The environment for the circuit's development was the vocal recording chain. Using a combination of home-built preamps—some using Jensen transformers, some transformerless—Maag and Parker experimented using the same methodology that Edison did with the light bulb: trial and error (although they didn't have the dozens of research assistants that Edison did, who could stay up in shifts for days on end watching to see which filaments lasted the longest).

Without going into the kind of detail that the company says would affect the patent process (the actual mathematics are being held as closely as the formula for Coca-Cola, because the longer the patent process takes, the longer NTI has to exploit it before it enters the public domain), Parker says that, rather then simply adding or subtracting gain at certain frequencies, their solution takes five to six bands of equalization and sums them in a manner that avoids phase shifting. Central to that was the development of their patent-pending "air-band," which allows level boosting at frequencies well above 20 kHz without attendant phase distortion. The same technology is employed in the company's initial product, the EQ3, and subsequent ones such as the PreQ3 preamp, which was introduced in December 1995, and the EQ3-D, the company's down-priced market entry introduced earlier this year that expands the air band approach upward to 40 kHz.

THE MARKETING COMPONENT

By 1992, with the development of the circuit that Parker scribbled out on a scrap of paper, the pair felt they had solved that problem in their onboard console mic pre. A colleague, Bob Engeman (and a member of the vocal group The Lettermen) suggested they try to market the solution. Maag and Parker brought the concept to Richie Zimmerman, who suggested that Maag and Parker build a prototype unit of the equalizer, and he would circulate it among some of the audio professionals he knew via his Los Angeles entertainment industry friends.

Simultaneously, Zimmerman, Maag and Utah business attorney Ray Zoll formed NTI, with Zimmerman as president, Maag as vice president and Parker as a royalty-participating consultant and schematics designer. With Zoll initiating the lengthy and complicated international patent process, Zimmerman began to assemble an executive board for the fledgling company that would draw capital, broaden the range of the company's appeal, provide in-house legal advice and give the company legitimacy in other audio fields. For example, the late John Mosely, award-winning British classical engineer, was brought onto the board with both his credentials and his own design expertise.

"John was able to help us source out the various parts we needed to mass-produce from the prototype," recalls Maag. "He provided us with invaluable insight on that and assembly and design, as well as bringing his incredible ear to the project." (Mosely died in a light plane crash in Southern California in late 1995, during the AES convention, but such was the relationship they had developed that he remains listed on the company's board.) Other board members include professionals in the fields of law, entertainment, manufacturing and finance. "What we were doing while building a board of directors was also creating a network of strategic allies who all saw the possibilities in this product and who all had unique contributions that could make [this technology] a success," explains Zimmerman.

The confluence of these individuals is almost textbook-perfect in terms of the match-up of abilities and needs,

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and it underscores the fact that, though professional audio products can still be inspired and created at the cottage-industry level, making them successful in an increasingly crowded marketplace requires talent beyond just technology.

"I think the way this really came about is that, when Lance and I started out, we had to build a lot of the equipment we needed because we simply couldn't afford to buy the ready-made stuff on the market at the time," observes Maag. (Ready-made equipment from that era, it should be noted, now often commands more than it cost originally; original manufactured LA-2A compressors, for example, cost more than five-times their original list price.) Though Maag and Parker grew up, professionally speaking, during a time when analog processing was in its Golden Age, their careers spanned pro audio's transition to digital. Straddling the analog and digital eras, and working from the relatively remote studio location, Maag and Parker recognized the need to bring in marketing expertise from the outside.

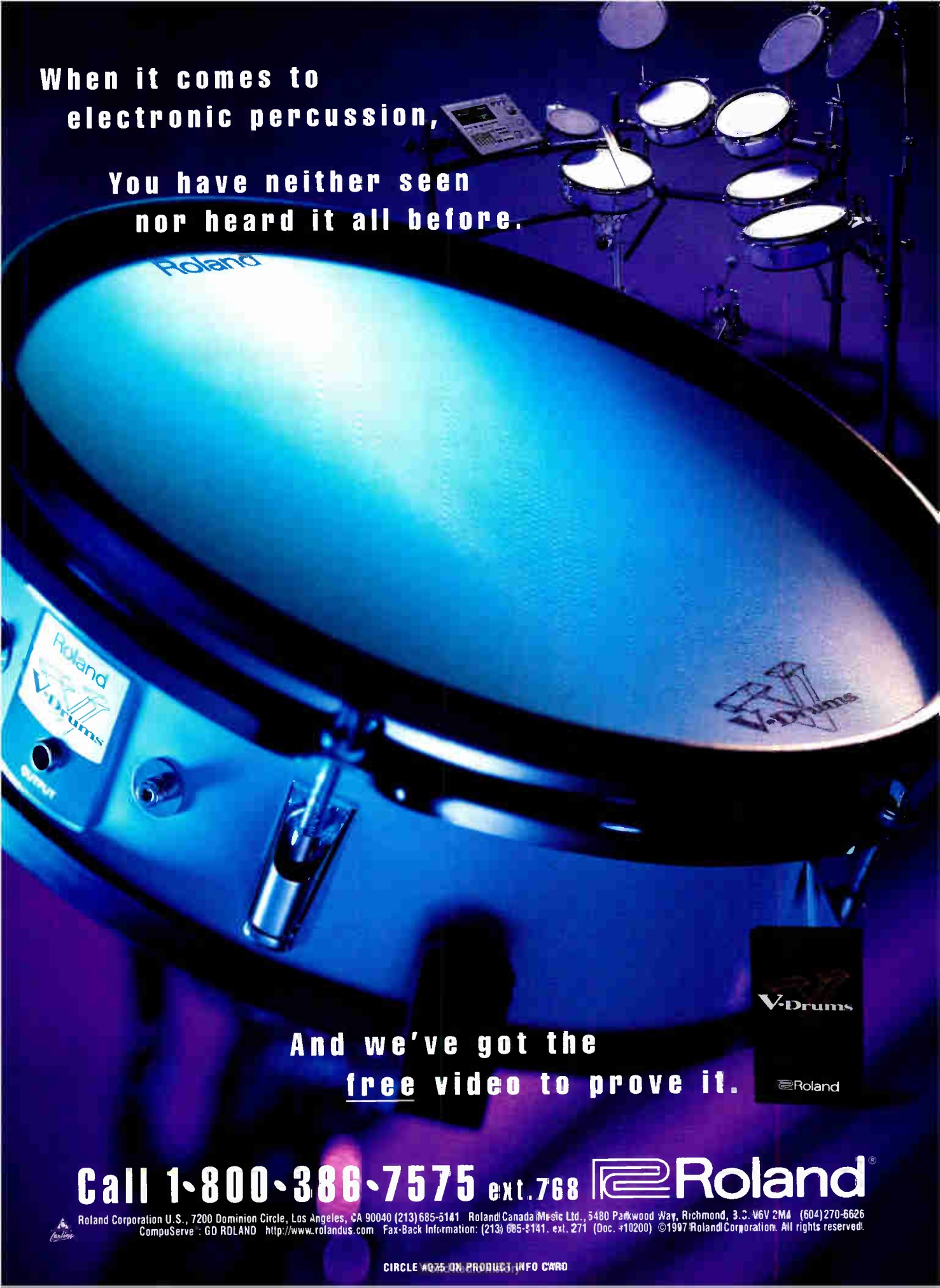
Though professional audio products can still be created at the cottage-industry level, making them successful requires talent beyond just technology.

That approach set the tone for the company's future course: attract a diverse, high-profile range of board members and product users, refine the product and find new applications for the core technology. The strategy has paid off: Board members such as David Yewdall, supervising sound editor on scores of major studio films, have helped introduce the relatively pricey ($3,150) EQ3 and the less expensive PreQ3 into audio post-production. High-profile user endorsements such as those from engineer Dave Reitzas and producers David Foster, Bruce Swedien, Babyface and Garth Fundis have gained product credits on records for Madonna, Barbra Streisand, Michael Bolton, Whitney Houston and others. And its use by *Tonight Show* audio director Bob Whyley has given the company credibility in broadcast audio. In addition, early on NTI made inroads into a significant slice of major U.S. mastering facilities, including Georgetown Masters, Masterfonics, Hit Factory, Master Disc, Mastering Labs and Oceanview Digital. Subsequent products are aimed at developing appeal to an upscale project studio user base. Within four years, says Zimmerman, the basic design of the algorithm will find its way into consumer DSP products, such as home stereos. "We knew that we would spend the first three years working in the pro audio market, building that as a base to leverage the consumer audio market," he explains. "Credibility there removes the final barrier to the consumer audio hardware and software markets."

As smoothly as the EQ3's introduction seemed to go, there were some bumps. Any negative feedback was attributed to what Maag feels were perceptual problems. "It's a matter of what you're expecting the unit to do," he explains. "It sometimes gets confused with a parametric equalizer, which it's not."

Zimmerman adds, "We wanted to call it something else that didn't use the term 'EQ.' John Mosely had suggested 'Spectrum Rectifier,' but it sounded too much like a proctology device, so we stayed with EQ3." (Incidentally, the designation "3" simply refers to the number of prototypes that were made before the production model. An EQ2 is used as a bookend in the company's reception office.)

"Now, it's still a lot of fun," concludes Maag, who admits he'd also like to find the time to get back to music production and maybe do a bit more fishing. Adds Parker, "Right now, it's still all soldering irons and PC boards, which I love. It's like being a kid in a candy shop. Cliff and I are getting to see our ideas about sound get validated in the market, and we get to keep playing with audio technology. But we know that things can't always stay the way you wish they would." ■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BY TOM KENNY

POST·SCRIPT

SOUND FOR FILM

BUILDING A MIX ROOM

by Larry Blake

Since moving back to my hometown of New Orleans in 1991 (after 12 years in Los Angeles), I have spent about half my time there and half my time working either back in L.A. or in New York. This is entirely by choice, as I knew that my very specialized work—sound editing and mixing for feature films—was best done in the United States in only three places: Los Angeles, New York and the San Francisco Bay Area. I have never been able to take for granted what 99% of you do: working in the same city that one calls home.

In 1995, a local chapter of the Audio Engineering Society was formed in New Orleans, and I got to know Jay Gallagher of Ultrasonic Studios. About a year-and-a-half ago we started jotting down ideas for what it would cost to build a film/TV mix room; at the time Jay was doing the ADR for the TV series *The Big Easy* and was trying to snag the whole audio post package.

Eventually the show was canceled, but not before Jay decided to jump in head-first and build a film mix room in his satellite office at the New Orleans Digital facility, in the Warehouse District of New Orleans. While it's a risky business trying to lure people to New Orleans to mix TV shows or films, the days of standard-issue, 2-channel stereo recording studios appear to be going by the wayside, and some of the slack will be taken up by rooms such as ours, which will be equally fluent in film/TV and record 5.1 monitoring. Or at least that's the hope at Ultrasonic Digital.

It was great to put into one re-recording stage all the ideas that I have been collecting (read: stealing) since I started mixing films. Ten years ago I was part of a team of guys who built a small mix room at Weddington Productions in L.A., and three years after that I designed the interfacing for its first suite of electronic edit rooms. The design fundamentals are still just that, but I found out that the influence of digital technology has introduced a whole new world of parameters to consider. What follows are some of the lessons I have learned in building our new room.

• Start scribbling early. The first discussions about your new room will undoubtedly begin as lunchtime napkin doodles. Keep a notebook of everything because you will undoubtedly be coming back and around to the same points: What timecode cabling do we need? Where will word clock appear? Who needs to be connected to video sync? etc. These notes should find their way into a spreadsheet so you can have some idea of what all of this is going to cost.

• Hire an architect who knows acoustics. This will be money well spent even though you can do an okay job yourself by poring over books on acoustic design. However, doing it yourself will only suck away time that could be better spent on other matters.

• Plan rack layout early and carefully. Centrally locate such items as an AES/EBU digital router and timecode and machine control patchbays (see below). It's essential that everyone at your facility has a chance to put their two cents in because that's the only way you'll know whether or not you're being realistic about the rackspace required. Once you tally everything up, you'll find that four 44U racks are the minimum necessary to sensibly mount all of your audio and video gear, plus their associated patchbays and distribution amps. If this seems like a lot, compare it to the space that mag dubbers and recorders, or even standard multitrack recorders, take up in a machine room. Speaking of which...

—CONTINUED ON PAGE 120

ILLUSTRATION: TIM CLEASON

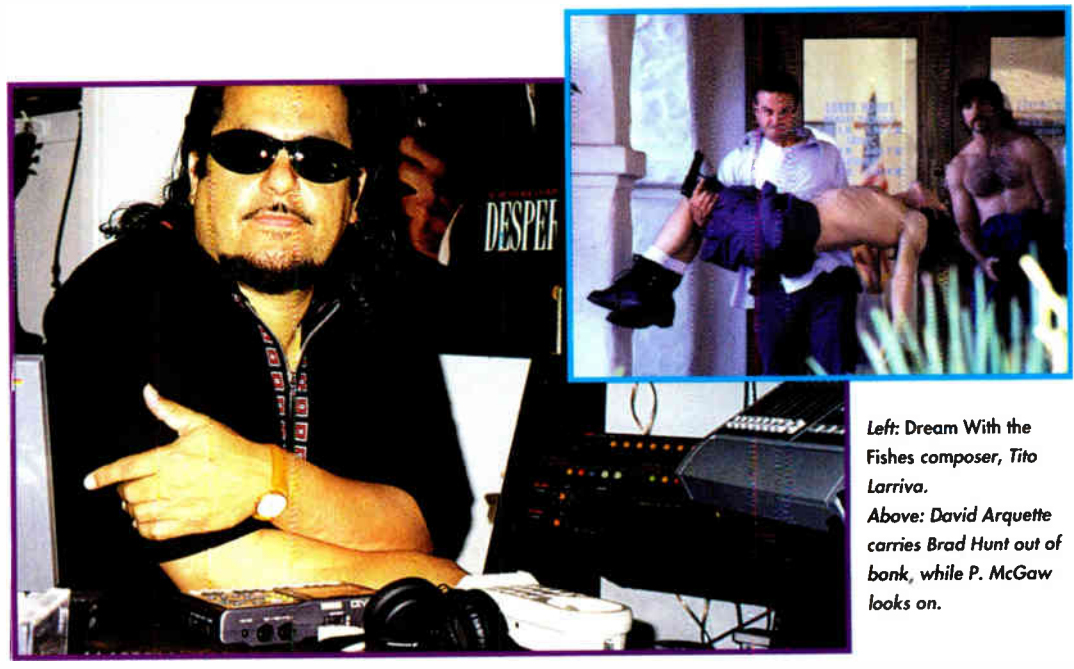
FILM SCORE INTRODUCTIONS

TWO COMPOSERS ON THE RIGHT TRACK

by Gary Eskow

It's easy to focus on the handful of A-roster Hollywood composers. You see their names on the blockbusters. These guys—we're still waiting for a woman to break into the club—deserve the accolades tossed their way. They write strong, emotionally effective cues and can handle large instrumental forces. Because our culture is measured vertically, we tend to think of these composers as more successful (read, "better") than colleagues who work on films that are shot and released without a major star or big studio push. Jim Farmer and Tito Larriva are two multitalented artists whose work you may not know. Too bad. Their scores deserve attention.

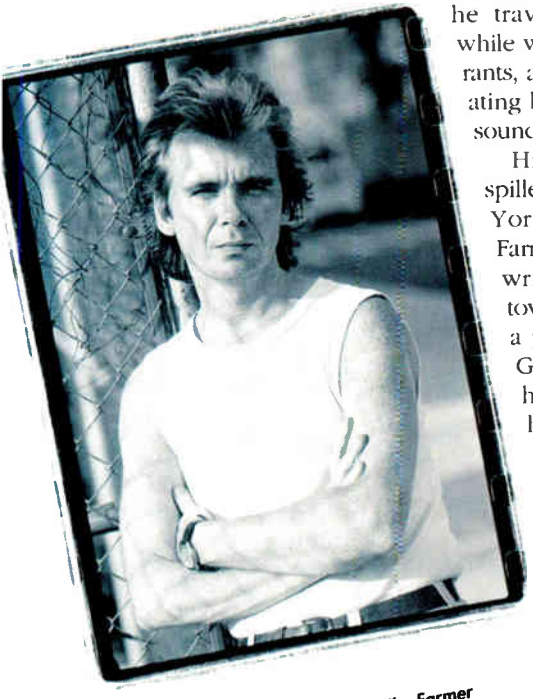
Bayonne, N.J., may not be a cultural center, but it did turn out Chuck Wepner, the "Bayonne Bleeder" who once lasted 15 rounds with the champ, Muhammad Ali. This smokestack, hard-hat town also produced Jim Farmer, whose background is reminiscent of another working-class kid's. Like John Lennon, Farmer played in rock bands while preparing himself for a painter's life.



Left: Dream With the Fishes composer, Tito Larriva.
Above: David Arquette carries Brad Hunt out of bonk, while P. McGaw looks on.

Farmer graduated high school in 1970, then attended Jersey State College, where he studied fine arts and let music languish in the background. After school, he traveled the world while working in restaurants, and he began creating bits of music and sound effects for plays.

His world tour spilled back into New York harbor, and Farmer found himself writing for downtown theater, where a junior exec from Grey Advertising heard a score he had written for a dance performance. Farmer was asked to demo a Timex commercial. He got the gig, and a series of high-profile spots followed, including an influential 30-second Gap TV commercial. Shot in black and white with a Max Black poetry voice-over, this spot ushered Farmer into the big leagues. Money followed, and so did attention.



Box of Moonlight composer, Jim Farmer

In 1990, Farmer met filmmaker Tom DiCillo at a barbecue on Prince Street. DiCillo was making his first film, *Johnny Suede*, and asked the composer if he'd like to submit a reel against three other composers. Farmer won the gig, and the two have been friends ever since. Farmer has composed scores for all four of DiCillo's films, the most recently released being *Box of Moonlight*.

Starring John Turturro as a construction foreman who's something of a tight ass, *Box* was a fun project, Farmer says. "It's a lovely film. Turturro is given a project that takes him away from home, to Tennessee. While there, he meets a young guy who's the opposite side of the coin from him—a free spirit who has trouble with responsibility. The two bond, and the picture follows their adventures together."

Farmer is an industry vet by now, with a Hollywood film agent, tons of commercials and industrial films under his belt, but get this: He writes all his cues without timecode! In fact, Farmer considers himself a throwback. "I've got Mark Of The Unicorn's Performer, but I must say that I really don't understand most of the computer stuff. I take all my hits by eye. Trust me—it works!"

It's kind of refreshing that, in an era where SMPTE divides film into subframes, a composer is able to work on the fly and be successful. Farmer does have a nicely outfitted studio in his loft, with a Mackie 8-bus board, Akai and Kurzweil samplers, and a variety of synths. But you'll search in vain for a SMPTE converter. "I use a stopwatch and look at the picture," he says.

Farmer is excited about the latest DiCillo opus, *The Real Blonde*, which will be released next year and stars Matthew Modine, Darryl Hannah, Steve Buscemi and Christopher Lloyd. "There was a big budget for this score, which we recorded at The Edison. I got to work with Gary Chester, who's a great engineer, and Crispin Cioe."

Cioe, sax player with the legendary Uptown Horns, arranged Farmer's score for bass, drums, percussion, sax

—CONTINUED ON PAGE 118

COMPLETE POST

READY FOR DIGITAL TV

by Kim Wilson

Celebrating its 20th year in business—and no doubt looking ahead to the next 20—Complete Post Inc., (Hollywood) has undergone a massive rebuild of its audio department in preparation for Digital Television. Located on the Sunset Gower Studios lot, directly across the street from the video division, the new all-digital, tapeless facility opened its doors this September to a prestigious client list that included Walt Disney Television, MTM Entertainment, 20th Century Fox, Big Ticket and Montrose Productions.

Though Complete Post has offered audio services since its founding in 1977, it was decided to build a new stand-alone, 11,000-square-foot facility to meet the demands of the emerging DTV market. Initially, Complete Sound will handle half-hour programming such as *The Nanny, Dharma & Greg, Moesha* and *Boy Meets World*, plus variety specials, Movies of the Week, promos, commercials, home video releases and animation.

According to Jeff Klein, co-president of Complete Post, "We knew audio was going to change with the approval of Digital Televison. For the first time, audio is taking a leading position, driving the new formats DVD and HDTV. The improvement in audio is much more significant than the improvement in picture. If we have to deliver shows in Dolby Digital 5.1 audio by next September for advanced television, we'll be ready."

Complete Sound will consist of two prelay rooms, three mixing suites, a Foley stage, one dedicated layback room and a central machine room. All three mixing suites contain a Solid State Logic Axiom/DiskTrack™ Digital Production System, each with an Audio Preparation Station. Each Axiom has a dedicated DiskTrack system, which functions as both a hard disk recorder and signal router. All routing is electronic, without the need for patching or moving of equipment, and each console is capable of providing a variety of mixes, from 5.1-channel discrete to mono.

Steve Potter, with Larson Sound for the past ten years, was appointed vice president of technical operations and headed up the construction and design for Complete Sound. "Our mixers were consulted about the Axioms, and they all gave the thumbs up," he says. "It is not such a virtual console that it has to constantly be relearned. It's structured more like a traditional analog console, but then it's got all the underlying power of a virtual digital controller."

PHOTO: ED COLVER

Mix One at Complete Sound, a division of Complete Post Inc. in Hollywood.

Perhaps one of the most significant features on the Axiom is its automated macro setups. With the assistance of SSL, Complete Sound expanded the number of macro banks on each console to eliminate the need for nested layers, facilitating quicker setups between sessions.

"A basic project file can be created, establishing an overall setup on the board for any given show," adds Potter. "From there, small alterations can be made. This can save enormous time. Each show can have its own template, making it possible to set up for the next session almost instantly. Turnover and setup time is greatly reduced." Each template can be stored on a magneto-optical disk for backup or installation on another Axiom.

Consulting on the overall design/install was Tomlinson Holman, developer of THX and founder of TMH Corporation in Los Angeles. The suites, designed by acoustician Joe Ortega of Paul S. Veneklasen & Associates, Santa Monica, Calif., and architects Jack and Craig Edwards of Edwards & Edwards, Glendale, Calif., were constructed to meet THX specifications, a distinction more common to facilities specializing in feature films. Complete Sound is currently the only THX-certified television post-production facility.

"We're the first ones to focus on the future of digital," asserts Klein. "We designed everything from the ground up to accommodate home theater. Since consumer Digital TV product will be available in late '98, broadcasters will have to deliver in 5.1 surround sound. That means we'll have to deliver programming in 5.1 to the networks, even if there are very few people actually watching in that format."

The mixing suites have been designed to be fairly live, essentially turning the control rooms into sophisticated living rooms. Reverb times are higher than most comparable rooms. Complete Sound's acoustic design is the culmination of Holman's research into what differentiates one room from another. "Even though the basic specs appear to be the same," explains Potter, "early reflections and their subsequent reduction is instrumental in controlling how a room will sound. The reflections at the mixers' position were controlled in such a way that the first 15ms are at a low enough level that they don't color the sound." A relatively unique solution was employed with horizontal room treatments in favor of the more traditional vertical diffusers.

After reviewing and testing the various THX-approved monitoring systems, the Electro-Voice TS992-LX was chosen for the three mains behind the screen in each of the rooms, along with an EV

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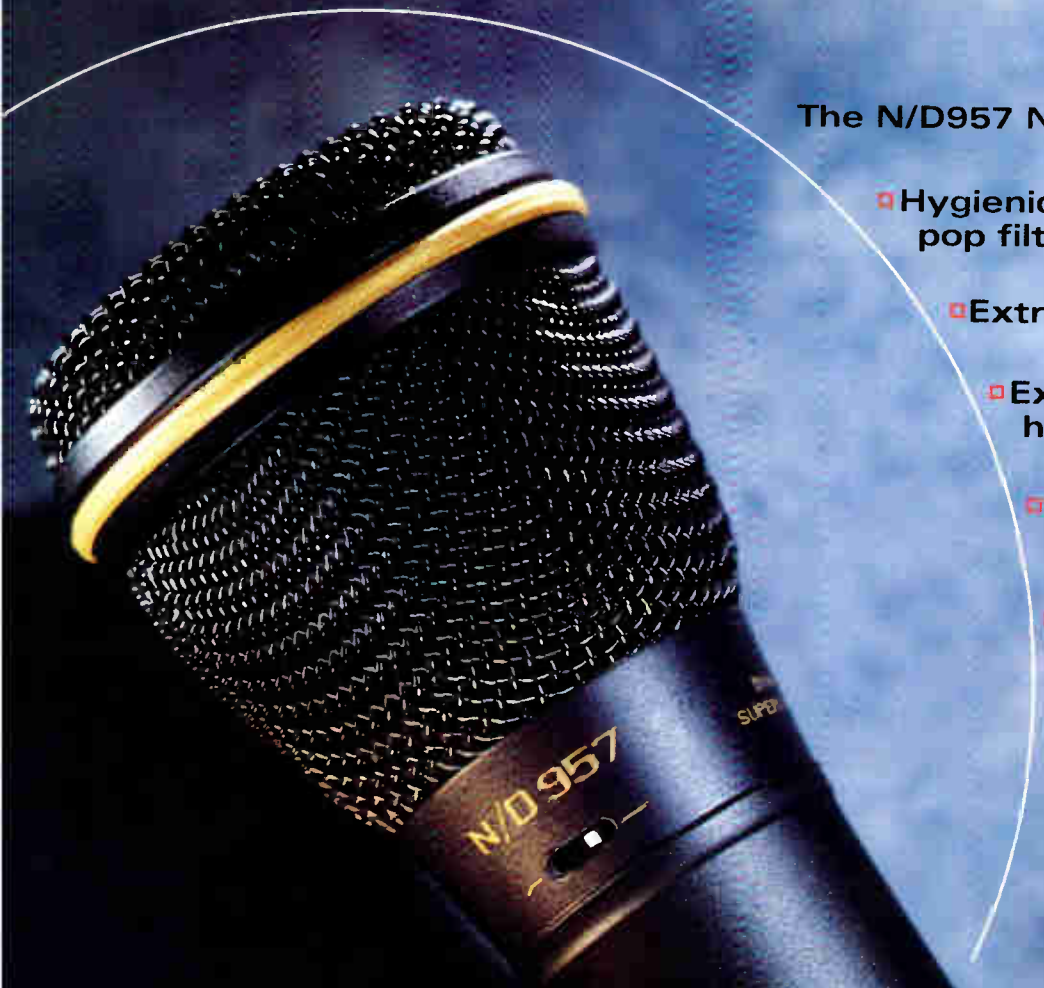

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TL880D subwoofer (18-inch woofer). The TS992-LX contains a short-throw horn speaker with a 15-inch low-frequency driver. For the surround speakers, six JBL 8340s are employed. A total of nine Hafler 9303 Trans•Nova amplifiers are used in the mixing suites, while a complement of Hafler P1000 and P3000 amplifers are used in other areas throughout the facility.

The sound effects library is accessible in every room via Complete Sound's IFX system, a high-speed network tied to a central server consisting of a RAID array hard drive storage system instead of CDs or carts. "From sound design to the mix stage, the same body of source material will be available," explains Potter. "If a client changes their mind at the last minute, it will be easy to make the change."

Though the system has the capacity to go up into the terabytes, initially it will start with 100GB. "This only scratches the surface," admits Potter. "But it will get us through the shows we plan to initially service. This server will continue to expand as our needs grow."

Each mixing suite has two Digidesign Pro Tools systems. One is primarily used for in-house sound effects, the other is available to music editors so they can bring in their music sessions on removable hard drives.

Both prelay and sound design rooms are also surround sound-capable and built around Pro Tools systems with Yamaha 03D mixing consoles. Each mixing suite uses a Sony VPH-D50Q three-gun projector with line doublers. The 10-foot (diagonal) image area accommodates the 16:9 aspect ratio. Serial digital picture delivery was employed throughout the facility; very little composite video is utilized. Video delivery is from Doremi Labs' V1D hard disk digital video recorder and SSL Vision Track for special needs.

The central machine room is the nerve center of the facility, housing the guts of the Axiom/DiskTracks plus a 512x512 AES router for full routing of all the digital equipment in the facility, which is separate from the routing capabilities of the Axioms. Though the facility was designed as tapeless, eight Sony PCM-800s, four Sony 3324S and two Otari MTR-90 tape machines will reside in this area for backup purposes. Most of the major equipment is also 422 routed for control from any room.

Another unique design feature was the insistence on balanced power, which is said to minimize noise and interference in the lines. "As far as I know, we are the first facility in the country to wire an entire facility with balanced power," maintains Potter. "Martin Glassband, the owner of Equi=Tech, is involved with rewriting the 1996 electronics code to incorporate this design. However, it's not official, and we had to get a variance from the City of Los Angeles to incorporate it here."

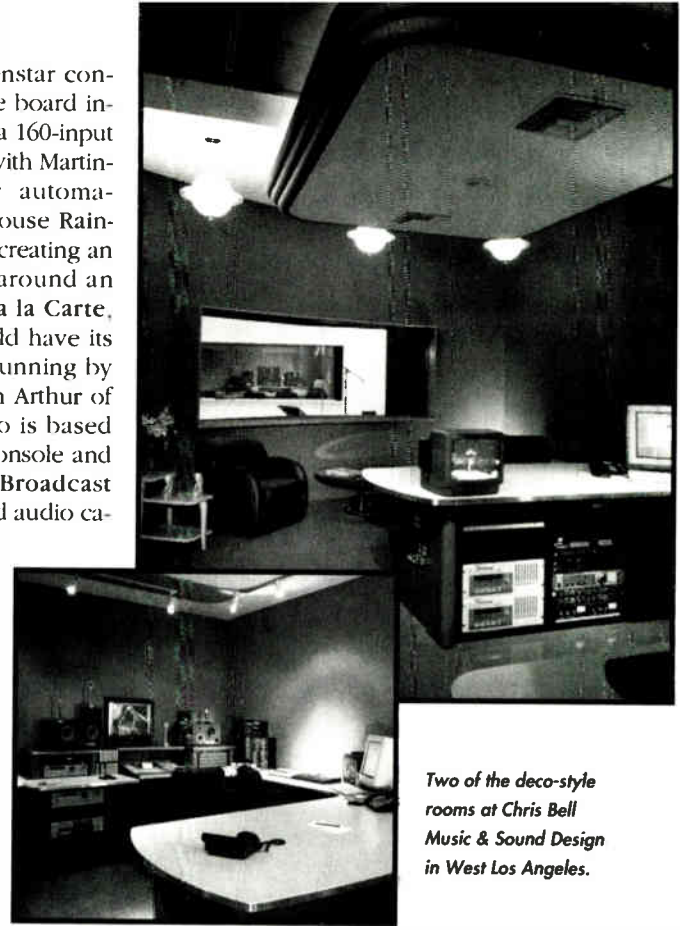
Complete Sound will house a staff of 25 to 30, with a who's who of mixers and engineers from television post-production. Ed Greene, winner of 14 Emmys, and Larry Comara are both veterans of Complete Post and will move to the new facility. Joining them are Jeff Minnich, director of engineering (previously chief engineer of Capitol Records), and Tamara Johnson Bolm, one of the West Coast's leading television mixers, formerly of 4 Media Company.

"We know that 5.1 audio in feature films evokes our feelings about what we are watching," says Klein. "Now we can provide that same emotion and power for television viewing with the emergence of advanced television. Complete Sound is at the forefront of this new digital world." ■

Kim Wilson is a freelance writer based in the Los Angeles area.

POST NOTES

Plenty of personalities have passed through **Music Annex** (Menlo Park and San Francisco) recently: Tom and Dick Smothers were doing voice work for an Arby's campaign, engineered by Lance Nottle; Pixar was in recording voices, engineered by Jon Grier and David Cuetter, for its new animated feature, *Bugs*; and Cheech Marin, in town for *Nash Bridges*, did voice-over and ADR sessions for a Taco Cabana spot in both English and Spanish...Hunter Pipes of **Dubeytunes**, San Francisco, designed, recorded and mixed the sound for seven episodes of the animated series *Life With Loopy* for Nickelodeon...S.F.-based **noise** composed and produced music scores for corporate event films for Levi's and Softbank...Andy Newell of **earwax productions** in SF handled sound design for the two newest, and still popular, "Got Milk?" spots...**APC Studios**, Atlanta, recently wrapped film and audio post on the low-budget feature *The Real Reason*. Jon Herron edited dialog, sound effects and Foley...**Liebert Recording Studios** (NYC) engineers John Colucci, Tony Dostillo and Vittorio Zammarano edited and mixed three 12-minute segments of HBO's *Real Sports IV* on a 16-channel DAR Sigma Plus...Damon Trotta of **SoundHound**, NYC, designed, edited and mixed a :30 WNBA spot featuring Lynette Woodard for NBA Entertainment...No slowing down at **Alan Ett Music Group**, where the creative team provided underscore for the new series *Ordinary/Extraordinary* (CBS) and two Learning Channel series, *Great Country Inns* and *Inntimate Escapes*...**Flite Three Recordings Ltd.** in Baltimore hosted ADR sessions with Chris Farley for the film *Edwards & Hunt*...**Clatter & Din**, Seattle, recorded ADR for Tom Skerritt and Cynthia Geary for the feature *This Is What It Means to Say Phoenix, Arizona*; the company also handled the voice recording for the Sierra On Line CD-ROM game S.W.A.T. II...**Chris Bell Music & Sound Design** has opened in West Los Angeles. The 7,000-sq.-ft., 1940s deco-style space was designed by BOTO Designs; on staff in the mix wing, Mike Recording Services, are composer/sound designer Chris Bell, sound designer Alan Schlaifer, sound designer Bruce Bueckert, composer Billy Mallery, mixer Bob Gremore and executive producer Andrea Cook...**Interlock Audio Post** bought a second 80-input Screenstar console, merged it with the board in-house, and now boasts a 160-input Quad Eight Screenstar with Martinsound moving fader automation...London video house **Rainbow Post-Production** is creating an audio division based around an SSL Scenaria...**Music a la Carte**, Coral Gables, FL, should have its second room up and running by now. Designed by John Arthur of Intraspect 7, the studio is based around a 32-in Amek console and a Pro Tools system...**Broadcast Video Inc.** has expanded audio capabilities at its Coconut Grove facility (the company also has suites in North Miami), adding original scoring and sound design from the SSL ScreenSound/Pro Tools-equipped rooms. Composer Steve Lack has joined chief engineer Scott Pringle on staff...**Music Works Chicago** has opened **Music Works Los Angeles**, headed by engineer Jerry Jordan...**Chicago Recording Company** opened its largest room yet, the 1,600-sq.-ft. Studio 3, the new home for engineer Michael Mason. Designed by Brad Lynch of Brininstool and Lynch in consultation with CRC general manager Hank Neuberger, the room features a Euphonix console in combo with an AMS AudioFile Spectra and Sonic Solutions system...**CyberTrybe Music & Sound Design** has opened as a four-room production facility in Orlando, FL, based around Pro Tools systems...**North Star Post & Sound** has relocated to the former Screen Gems Studios lot in Wilmington, NC, and is planning to open a Foley/ADR stage to go with its full-service post facility...Executive producer John Bashew has formed **Bash Boom Bang Inc.**, a commercial music and sound design company in Pacific Palisades. Composers Alan Pasqua, Chris Desmond and Roger Bashew have come on board...Installations: Euphonix has delivered a CS2000P production console to WCFC-TV in Chicago and a third 2000 to Paramount Pictures, for use on Terry Bradshaw's new talk show...Fairlight has sold MFX3plus systems to **Audio Vision**, Orange County, CA; **The Outpost Sound Mixing Company**, Los Angeles; and **Buzzy's Recording** (2), Hollywood...**Monterey Post Production**, Los Angeles, purchased three TimeLine MMR-8 recorders for use on its mixing stage...**Moffett Productions** in Houston bought its fourth Otari RADAR system...**Voyage Records**, the new digital studio in Las Vegas, has taken delivery of an Otari Status console with Uptown automation and a RADAR workstation...**Universal Studios** and **Fox** each added five pairs of KRK M7000B/S monitors for the film divisions; **Mad River Post**, Los Angeles, added two pairs of M6000/S; and **Creative Cafe** installed five pairs of monitors, comprising a variety of M9000B/S and M6000/S...**Digital Studio Processing** North America has opened a West Coast demo suite at 6255 Sunset Blvd. in Hollywood...MUSICAM has sold more than 150 CDQPrima 210 stereo codecs to the Telecom Organization of Thailand...**Cinram POP DVD Center**, Santa Monica, has hired Allan Fisch away from MGM/UA to be a DVD producer...Mark your calendar for February 27-March 1, 1998, if you want to attend POST/LA during the first weekend of the America Film Market in Santa Monica. Call 213/654-6530 for more information...Finally, The Professional Composers of America, a nonprofit organization, has released the "Commercial Composers Guide to Music Publishing and Licensing Agreements." It's yours for $1; write 52 Main Street, Port Washington, NY 11050. ■



Two of the deco-style rooms at Chris Bell Music & Sound Design in West Los Angeles.

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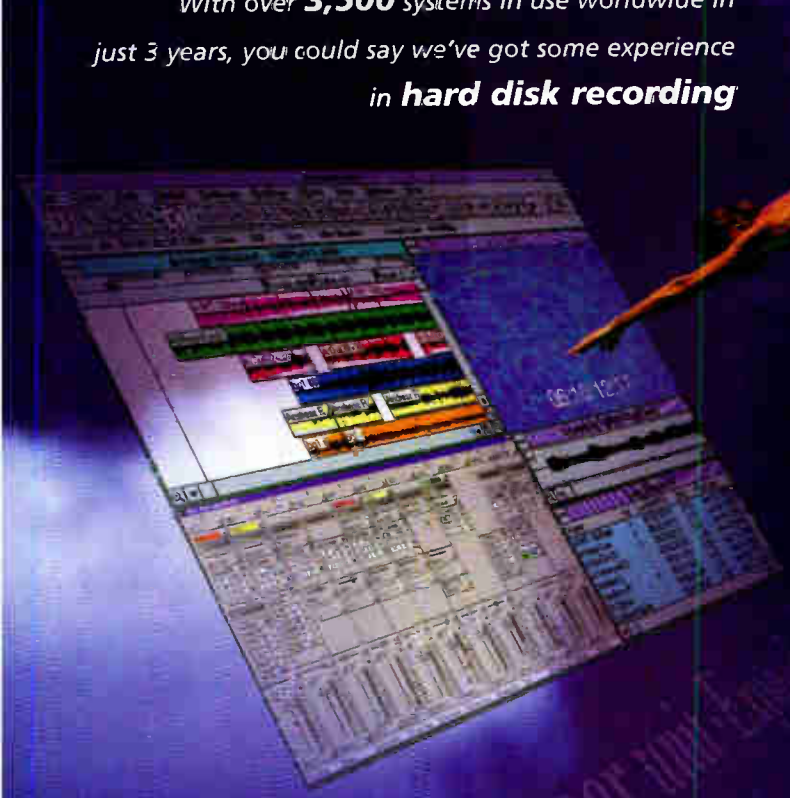

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APRES MIDI

by Gary Eskow

You should have been paying closer attention in language class. Joe Pizza and Ron Mannino apparently were. Their knowledge of basic French helped the owners coin a clever name for their Paramus, N.J., audio and video recording facility that has been booked solid since opening in 1995. ("Apres midi" means "afternoon" in French. The MIDI pun is fully intended.) We spoke with studio manager Irene Conrad and chief engineer Roy McDonald about the variety of work the studio has handled recently.

Above, Studio A, the main recording space at Apres midi. At left, the Euphonix CS2000 in the control room. Below, the outboard rack under the producer's desk.

Tri-state area cognoscenti know that Conrad and her husband, Charlie, owned and operated House of Music, a legendary studio located in South Orange. Kool & the Gang recorded most of their oeuvre at HOM, including "Celebrate," "Joanna" and a bunch of other hits that burned their way into America's collective cerebellum in the mid-'80s. New York biggies (Art Garfunkel, Meat Loaf, Luther Vandross, among others) would also shoot out to House of Music on a regular basis to track and hang out by the pool when they needed a first-class live room, outstanding mix facilities and a place to chill. The Conrads kept the studio going longer than could have been expected, given the market realities of the early '90s, but eventually diminished bookings and plummeting rates forced them to close doors.

While Irene Conrad was juggling bookings at HOM, Pizza and Mannino were charting their own interesting path into the studio biz. Natives of Hackensack, N.J., the two formed a band called The Jackals when they were 13 and released a single. They retained their passion for music as they heeded the call to prepare for the real world. Mannino attended Rutgers University and became a licensed pharmacist, while Pizza matriculated at Fairleigh Dickinson University and took an MBA in pharmaceutical marketing.

Who says musicians have no business savvy? These guys formed Interchem Trading Corporation in 1981, and the company is currently the largest importer of bulk active materials for the industry.

Mannino and Pizza kept playing and used the money from their pharmaceutical company to keep the music dream alive. In 1990, they self-produced an album, hiring hot shot studio musicians like Will Lee and Hugh McCracken to round out the lineup. While recording, the two realized that a studio with an eye on the future could serve as both a profit center and a hub for their own artistic endeavors. In 1995, they opened Apres midi.

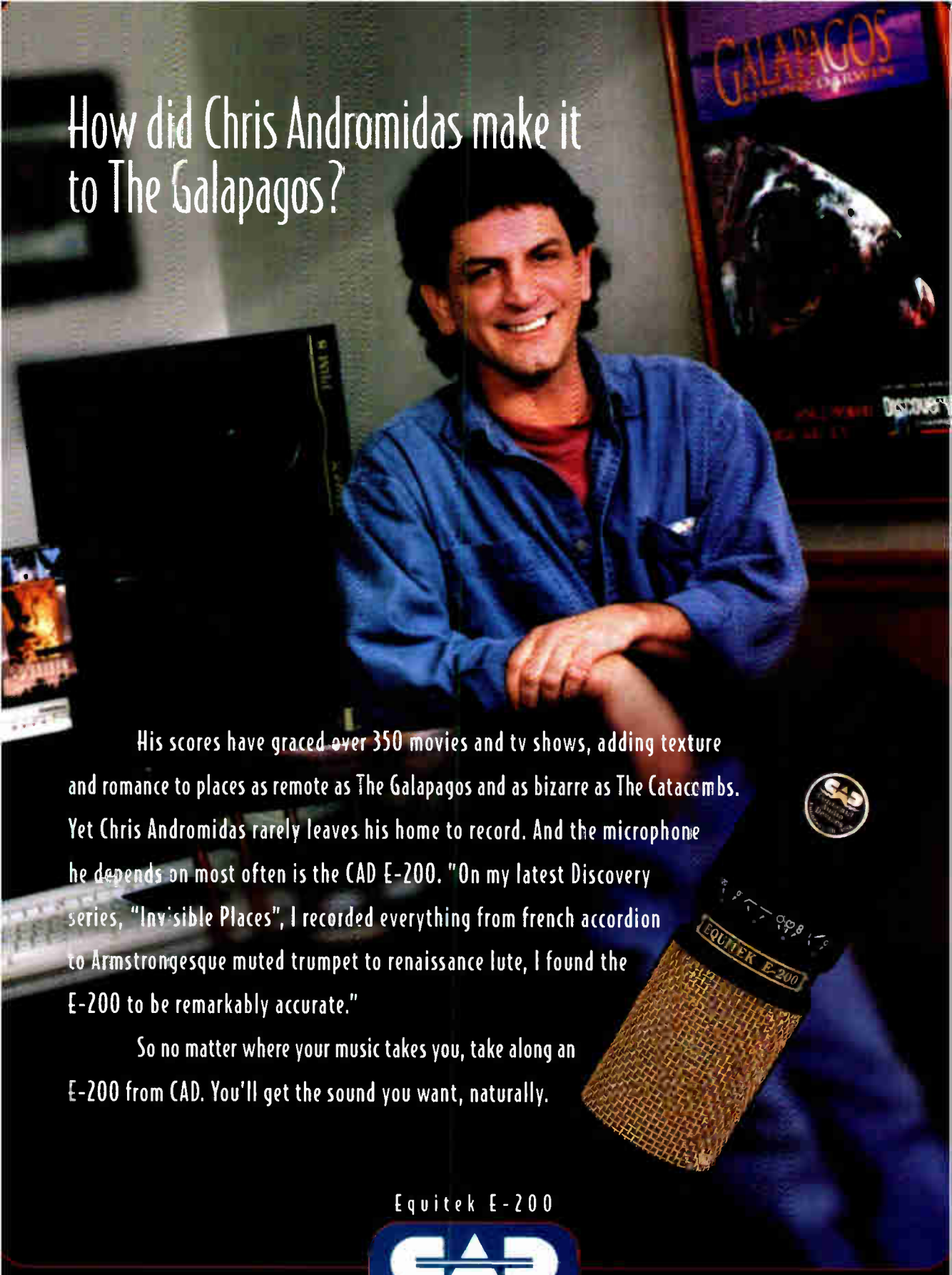
Key to their concept was building a facility that could attract both first-class record and post clients. Step one was choosing a console for Studio A. McDonald, who first met Pizza and Mannino when he was hired to build Interchem's computer network, saw a demo of the Euphonix CS2000 at the 1994 AES convention and was sold. "I thought it was the most intelligent console I'd ever seen. Its automation package was unrivaled at the time. Now you have other boards that are automating functions in intelligent ways, but the Euphonix still seems to be at the head of the class in this regard."

Studio A also features a Sony 3324S multitrack recorder, an Otari MX-80, and a single Tascam DA-88 with SY-88 sync board. Tracks are also laid down directly to MO using the Akai DD 1000 recorder. An Avid Audio Vision that runs with 16 tracks of Pro Tools rounds out the facility.

Apres midi lacks a traditional Foley pit, but McDonald says they create a lot of Foley effects by combining material from the major sound effects libraries and adding their own sounds. "If the right footsteps can't be found, we'll find a way to record them so they match picture perfectly. We also have tons of synthesizers, and we compose music and create effects to picture using Digital Performer 2.0 all the time."

McDonald says that listening to clients describe what they want from a facility is essential. "For example, we just purchased an Avid FilmComposer 8000 to go with our pair of MediaComposer 1000s. We did this because film directors are used to cutting at 24 frames per second. The MediaComposer works on a 30 fps basis. Consequently, you have to make a transfer to have your picture mastered at 24 fps, and film people legitimately fear that slight timing discrepancies can occur during the transfer process. We listened to their concerns and acted to eliminate them by acquiring a FilmComposer, which cuts at the film industry standard of 24 ips."

The chief video editor is Will Lucas, still in his early 20s. Lucas hit paydirt when he edited an Aswad Ayinde-directed Fugees video, which won an MTV Video Music Award for best R&B



How did Chris Andromidas make it to The Galapagos?

His scores have graced over 350 movies and tv shows, adding texture and romance to places as remote as The Galapagos and as bizarre as The Catacombs. Yet Chris Andromidas rarely leaves his home to record. And the microphone he depends on most often is the CAD E-200. "On my latest Discovery series, "Invisible Places", I recorded everything from french accordion to Armstrongesque muted trumpet to renaissance lute, I found the E-200 to be remarkably accurate."

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video. Lucas also comes to Apres midi from Interchem, where he began his career in graphic arts and animation.

Two Apres midi editing rooms currently offer 3D effects. The facility's off-line suite does not. "Our philosophy centers around offering our clients—those who live in New Jersey as well as those who come to us from New York—a first-class environment, with all of the tools and amenities they would find at any of the top studios in a major film center, at greatly reduced rates," asserts Conrad. "We must have tools like Softimage, and have the talent available here to use these products in artistic ways."

Can a post house survive a Paramus mailing address? Attracting reverse commuters is key, and so Apres midi is putting on the full-court press in an effort to entice Manhattan directors to make the trip across the Hudson River. Lower rates, a reduced-stress environment and privacy are some of the positives that Apres midi mentioned to us. Conrad knows that beyond the hype, these promotions have tangible benefits. "Over the years, I've seen how relaxing it can be for artists and producers to be able to take a pause in their work and go for a walk where there are trees and rivers—and no groupies! We stress that we're both a first-class recording facility and outstanding post room, and we're already attracting high-end talent. Financial pressures are so high on facilities located within the urban centers that clients are sometimes pushed in and out without getting the personalized treatment they deserve. We provide that kind of attention here at Apres midi." ■

—FROM PAGE 109, FILM SCORE INTRODUCTIONS

and piano. "We worked closely for six months on the score," Farmer says. "Crispin would come down to my place, hear my demos and we'd discuss the arrangements. I'm very pleased with the results."

He considers his life the artist's ideal, in part because he gets to balance his composing with his work as a playwright. "I have a small company of actors—Troupe du Jour—that performs a play of mine every fall. This year's work is called *Yonder Window Breaks*. It's a Shakespeare parody. I'm really quite fortunate. When I get burned out on music, I'm able to turn my artistic flame over to the writing area, and then go back to composing."

Tito Larriva, born and bred "down in

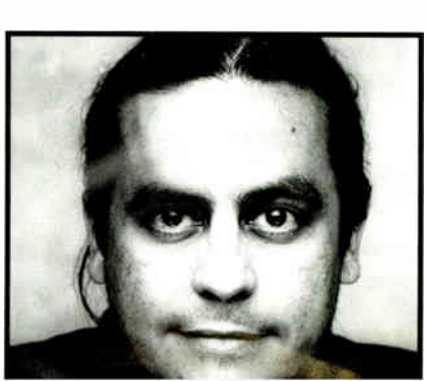
PHOTO COURTESY TRIMARK PICTURES

Writer/director Tom DiCillo directs on the set of Trimork Pictures' comedy **Box of Moonlight.**

the west Texas town of El Paso," is another multitalented artist who often acts in the pictures he scores. Larriva played violin in the school orchestra and sang tenor in the choir. In the mid-'70s, he headed off to Mexico City and played the local club circuit. While there, he met the wife of T Rex's Mark Bolan, who convinced him to go to Los Angeles. "The first film I scored was *Repo Man* back in 1981," Larriva remembers. "I had a punk band at the time called Plugz, and Alex Cox, who directed *Repo Man*, was a fan of the group."

Cox asked Larriva if he'd like to contribute some songs to the film. As it turned out, Larriva and Plugz guitarist Steven Hufsteder ended up scoring the film, as well. "We learned about the technical aspects of writing music for film, particularly the synching issues, as we went along," Larriva says. "I conducted the band in my own little way while watching the cut on a studio monitor."

Larriva has an extensive acting resume, and his contacts have helped get him work as a scorer. "You get into circles within the acting community, and scoring work comes out of those connections," he says. With acting and music chops (his current band is getting ready to open for Joe Cocker on a swing through Europe), how does Larriva define himself? "I feel the energy that's coming toward me and let it be my guide," he says. "For example, I decided to take my band, Tito & Tarantula, out on the Cocker tour because our album *Tarantizm* is being released in September. I actually had to turn down a film that had both acting and music in it for me to fit in the tour, but I thought that it



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John Turturro (left, sitting) is Al Fountain, Sam Rockwell is Kid. Lisa Blount (right, standing) is Purlene and Catherine Keener is Floatie in Tom DiCillo's comedy, Box of Moonlight, *from Trimark Pictures.*

was timely to go out on the road and promote the album."

Those of you who saw Robert Rodriguez's second film, *From Dusk 'Til Dawn*, may remember Tito & Tarantula, who played the vampire band. "We had a lot of fun on that film—it's a good Halloween movie!" Larriva also had an acting role in Rodriguez's debut effort, *Desperado*.

Larriva was given a studio by Don Henley and Danny Kortchmar years ago that featured a Fostex multitrack, but he's completely jazzed by the Roland VS880 he bought for a recent scoring project. "When I was approached to score *Dream With the Fishes*, I really liked the film. It was made on a very tight budget, but I figured I'd get a new piece of gear, pay the players and have some fun. I went into a music store not knowing what I was going to buy, but when I saw the VS880, I was sold on it immediately. It's now indispensable to my work. It's compact, sounds great and the automation features are fantastic. I put it on my lap and work out ideas. When I want drums, I'll drive over to the drummer's house and lay down his tracks! The effects are also quite good."

When budgets allow Larriva to score in a bigger room, he heads off to Coney Island for a space owned by Charlie Midnight. "Coney Island is a great room," he says. "Most of my projects are tracked at my place, but Coney is my home away from home when I have larger budgets to work with."

Farmer and Larriva represent a class of artists who don't get a mansion full of dough every time they score a picture. By any reasonable artistic measure, however, the work they turn out on a consistent basis merits serious attention. ■

Gary Eskow is a freelance musician, producer and writer based in New Jersey.

—FROM PAGE 108, BUILDING A MIX ROOM

• Plan for a machine room. I know that this is virtually *de rigueur* these days, although it's still a somewhat exotic idea for most music studios. Get extension cables or boxes for your computer keyboards and monitors, and put anything and everything with a hard drive in a dedicated, central room. You benefit not just by the reduction of noise and heat in the mix room, but also by the clutter reduction.

While you're planning the layout to and from your machine room, leave room for the future, too. You can do this making sure that you don't get the shaft in such areas as cable trough space. First, make sure that you have a clear idea of *where* cables will go from one location to another. For example, don't have just one trough access point to the patchbay. Design a direct trough from your patchbay to your console and have a separate path to the machine room. You will end up with much less clutter and reduced cable costs.

• Color code cables whenever possible. Identify them, too. It doesn't matter if you use a numbering system that extends to each pair, or just a simple system that numbers each multipair

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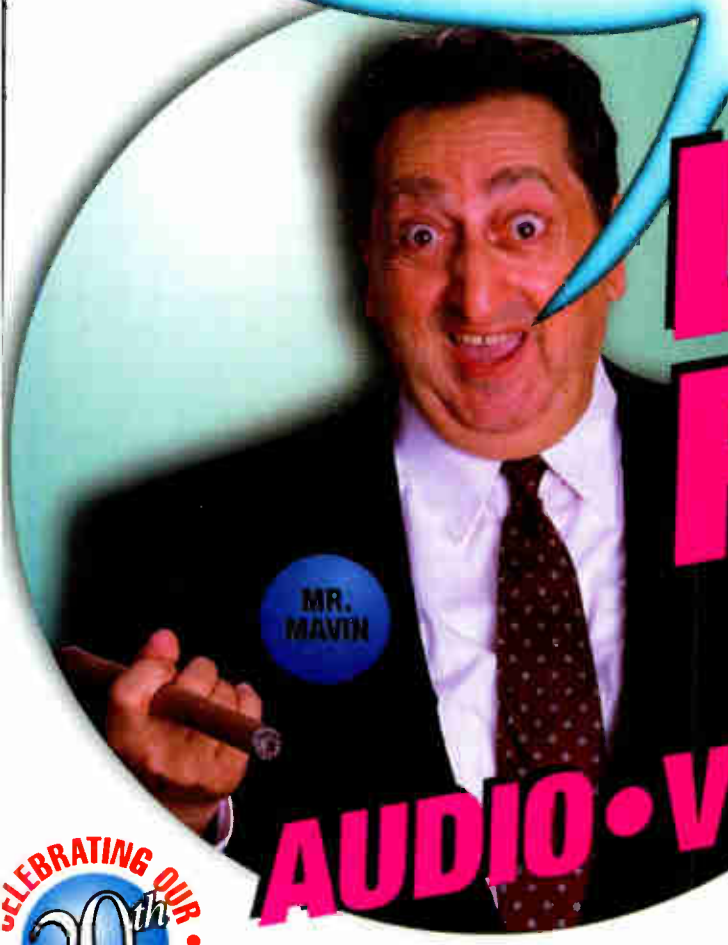

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group—if cables aren't properly ID'd, the confusion and grief behind your racks will be very high.

• Use eight-pair cabling throughout. The world of pro audio can always be divided into 8-track groups, whether you are talking about MDM machines, workstations or consoles. Those pieces of gear that have inputs or outputs numbering more than 24 (console inputs and outputs) still can and should be divided into 8-track increments.

While there is a great variety of cable available in all shapes and sizes, I am still on the lookout for a multiconductor cable that has all varieties needed to connect, say, a timecode DAT deck in the studio. Yes, I argued for having all decks and hard drives in the machine room, but at some point you'll have to hook up an MDM or timecode DAT deck in the mix room. In the credenza at the rear of the mix position, you should have AES I/O, timecode I/O, machine control with twisted pairs, video sync and word clock I/O, in addition to stereo analog audio I/O. Having one mother cable for all of the nonanalog audio connections would make it so much easier to plan and execute.

• Use Elco/EDAC connectors for multipair analog audio. These are pretty much the industry standard for multipair patchbays with 24 pairs on a 90-contact connector. They're easy to crimp and insert, and the location of each pair becomes second nature.

• Get someone to make your cables. I'm talking here about your digital and analog cables, as from patchbay to machines. While Elco connections are indeed easy to deal with, when you tally up the sheer number that you will have to make, the extra cost of having a reputable company make them on an assembly-line basis more than makes up for the grief that you save. The more complicated the cables get, the more you'll be happy that you didn't do them.

Both to bid out the job and to know what is going where, you should create a clear spreadsheet grid indicating cable number, cable length, "from" and "to" locations, signal carried and connectors on both sides.

Measuring the length of each cable is tricky because while you don't want to be short, you don't want to mess up the back of patchbays and racks more than you have to. The answer is to measure the runs exactly as you plan them to go, and then add approximately three to four feet for service loops. If you have short cables within the same rack, be less liberal with the loops or it will just

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be too messy. Take into account that some cable fabrication companies round up the lengths to the nearest foot.

• Don't be afraid of custom patchbays. There are some good domestic companies that will make exactly what you want in terms of grounding, normaling and types of connectors. Of course, you should try to follow industry-standard pinouts whenever possible.

• Keep your grounding hygiene clean. This is one of those areas where I have just enough knowledge to be dangerous, and if you ask any two engineers as to how to best set up the grounding in your facility, you'll get four answers. However confusing the situation may be, in the final tally, what might be the most important is that you're consistent in your approach.

Also, try to keep separate, clearly marked circuits for clean and dirty power, so that you will never be tempted to plug a vacuum cleaner into the UPS for your computer because you can't find an outlet.

• Keep your digital audio hygiene clean. Beyond the standard recommendation of using correct 110-ohm cabling for AES/EBU connections, you should also plan on having a master word clock generator fed to a distribution amp to lock together digital consoles, recorders and workstations. Always have a frequency counter (you shouldn't have to spend more than $150) across one of the outputs for reassurance that your "digital speed," i.e., your sample rate, is exactly what you want it to be. As militant as I can be about timecode, with digital audio, the matching of sample rates—especially with reference to the 0.1% film/video pull-up and pull-down issues—is by far the single most important factor keeping your film in sync. It would also be a good idea to have a second freq meter on your video patchbay so you can quickly check the word clock outs of various devices.

• Make sure to include patchbays for machine control and timecode. You are probably used to crawling behind machines and racks to change anything, but you will save yourself considerable grief if you put these items on normaling patchbays that are set up in your most common operating mode. Both troubleshooting and making changes are easy tasks.

• Get a digital router. In the old days, you had analog patchbays and that was that. Since our facility has been up and running, I see that the dream is here: It's possible to do a final mix of a film, if you have digital sources, consoles and recorders, and virtually eliminate single-pair analog patches. In the past, I would always expect to use two dozen or more patchcords to cross-patch everything to show up at the right fader. Then there would be the time to buzz through everything. Hanging above my desk are the remains of a faulty patchcord that cost me about a half-hour to locate during a final mix.

Connecting all the digital AES I/Os through a router is one of the best investments that you can make. Buy the biggest one that you can afford—the smallest acceptable size is 64x64 AES pairs—because you'll be surprised how many pairs you will have when you add up everything in your plant.

• Get good meters across your monitor output. I usually try to avoid naming specific products in my column, but I have no qualms about singing the praises of the Logitek Ultra-VU meters, which are to meters what Ralph Kramden's all-purpose kitchen utensil was to cooking. You want both analog and digital inputs, simultaneous VU and peak metering, adjustable digital reference levels, adjustable peak-hold LEDs, an exploded calibration scale? Put these babies in your studio and you'll have better metering than any console, regardless of price. (Why is it that console manufacturers get so stupid and lazy when they design their meters?)

• Go PicMix. I repeat what I said about product endorsement above, save for the fact that while there are other good meters around, I know of no

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other off-the-shelf product on the market that does what PicMix does: it allows you to mimic the monitoring and recording flexibility that was previously only available in custom film re-recording consoles. While the primary function of PicMix 8-channel units (master and slaves) is to allow you to assign recorder channels to any speaker channel, the whole system (including the controller) provides switching between input and repro on individual channels, muting and soloing recorder or speaker channels, inserting film matrix monitoring units such as Dolby's SEU-4/SDU-4 combination, and last, but not least, providing calibrated sound pressure level adjustment.

A little side note to those who come from a music recording background and just can't fathom the film industry's reliance on sophisticated input/repro switching. You might be used to automating the mix of a song, then printing it to 2-track in one pass, without punching in, and therefore think that procedure can be carried through in films. "I can automate everything and then turn on the recorder only when we're finished." It ain't so.

This is misguided thinking along the lines of our former D.A. Jim Garrison's case against Clay Shaw: Even if everything he was accused of was true, it still doesn't prove that he assassinated JFK. Even if you could do the final mix of a complicated 20-minute reel completely in automation, you have to make a recording eventually, and it takes no more time to be in "audio record" in addition to "automation record." You would then have to make two passes at the reel, one to print the automation, and the other to a playback to check if it really stuck to tape (or disc). And you would still need PEC/direct keys to easily compare two ways of mixing a scene and to make sure that you're matched before punching in on a previously recorded master.

I write this column torn between two feelings: While I would love to see more film work going outside of the three big areas, I don't want too much competition. Friend or foe, send your studio design tips to P.O. Box 24609, New Orleans, LA 70184, fax 504/488-5139, or via the Internet: swelltone@aol.com. ■

Larry Blake is a sound editor/re-recording mixer who lives in New Orleans for reasons too numerous to mention, although one of them would have to be that he can finally do sound editing and mixing for movies there!

New Products For Film/Video Sound

M&K TRIPOLE SURROUND SPEAKERS

Miller & Kreisel Corp. (Culver City, CA) introduced a unique surround speaker as part of the new M&K MPS-150 THX-certified 5.1 surround monitoring system. MPS-150 SUR Tripole™ speakers, designed as companion surround speakers for the M&K MPS-150 main monitors, feature three operational modes: THX dipole, direct radiating and Tripole. The MPS-150 SUR's 3-baffle and 4-driver configuration allows it to operate as a dipole (left and right baffle speakers) or as a direct radiator (front baffle speakers); Tripole mode combines all speakers for even, 180° horizontal coverage. Components include an M&K Phase-Focused cross-over feeding the 5.25-inch woofer and 1-inch soft-dome tweeter on the front baffle, and a pair of 3.25-inch poly cone mid-tweeters on the left and right baffles. An external amplifier switch box allows for remote mode switching. Prices for a complete 5.1 system start at around $5,000.

Circle 301 on Product Info Card

ARGOSY ADDS 02R CONSOLES

Argosy Console Inc. (Osage Beach, MI) has expanded its line of 90 Series console furniture housings for the Yamaha 02R digital mixer. The company offers a range of housings suitable for the Yamaha 02R and 03D models, and also for Mackie consoles.

Circle 302 on Product Info Card

ATI 5-CHANNEL POWER AMPLIFIER

Amplifier Technologies Inc. (Tarzana, CA) introduces the AT1505, a 5-channel power amp designed for surround sound applications. Providing a rated power output of 150W/ch into 8 ohms, 225W/ch into 4 ohms, the AT1505 features a modular design that eases service (a 7-year limited warranty covers parts and labor). The unit offers a power bandwidth from 3-50k Hz, with a frequency response flat (within +0/-0.1 dB) from 20-20k Hz. I/O connectors are gold-plated (outputs feature European-style "touch-proof" binding posts). Additional features include remote Power On and optional rackmount front panels. Price is $1,695.

Circle 303 on Product Info Card

NAGRA C-PP DIGITAL EDITOR

The C-PP Digital Editor from Nagra (Nashville) is a lower-priced, rackmount version of the company's ARES-C digital solid-state audio field recorder/editor.

Like the ARES-C, the C-PP uses PC card FLASH memory technology for digital audio storage. A single 64MB PC card allows more than two hours of continuous mono recording, and built-in "virtual" editing capabilities allow for non-destructive editing on the original PC card. The C-PP can create an EDL file, and a second PC card slot allows for copying and selective backup. An internal ISDN codec provides digital audio transmission via the worldwide ISDN network (a standard two-way telephone connection is also provided), and MPEG2, G722 and G711 compression systems are available. Price: $5,000.

Circle 304 on Product Info Card

MUSICAM FIELDFONE II

MUSICAM USA (Holmdel, NJ) has upgraded its FieldFone, an audio codec that allows users to send and receive broadcast-quality audio over standard (POTS) telephone lines. FieldFone II™ can operate over a range of modem speeds, from 12 to 33.6k bps, allowing for audio bandwidth of up to 12 kHz at higher speeds. A new facility allows for the remote closure of relay contacts over the phone line, allowing field operators to start and stop equipment in the home studio. I/Os include three mic inputs with individual level controls, two headphone jacks and a balanced line out. The unit also accepts inputs from an external mixer.

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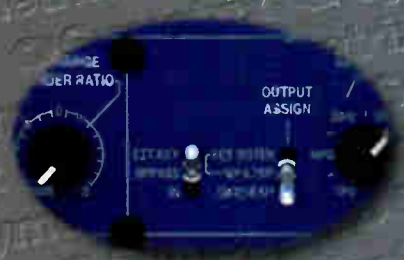

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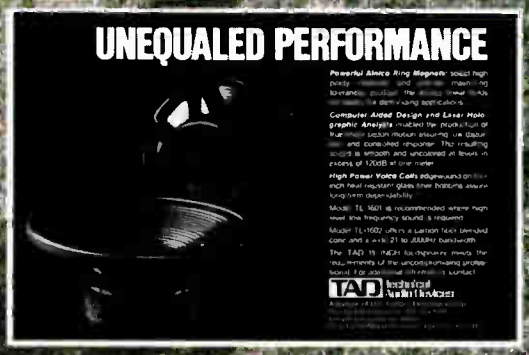

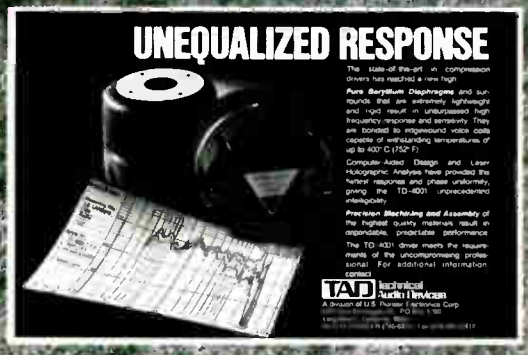

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AUSTIN ANTI-STUDIO

BRIAN BEATTIE'S GARAGE AESTHETICS

When artists record with Austin, Texas, resident Brian Beattie, they get to name his garage. In credits, it's been called, variously, The Raj (as in ga-rage), Brown Recluse and The Ratbox, and it's the place where Beattie does much of his work. But the important part, Beattie says, "is that it's not a studio." Recording, he says, is about "capturing that feeling that's in the air between the notes; it has something to do with the players being great, where the mics are and what you record with, but there's a whole psychological aspect to it that there's no technical explanation for. It's intangible. And it's just so hard to get that feeling when people aren't comfortable. Any musician I've worked with is more comfortable in my dark garage than in a studio."

Beattie came to his very informal, DIY approach to recording after many years of trial and error. He was the founding bassist of cultish Austin combo Glass Eye and was involved behind the board in that band's recordings. Along the way, he also produced projects for friends and confreres (including the Dead Milkmen and Ed Hall), all the while slowly acquiring gear of his own. By the time Glass Eye broke up in '93, Beattie had amassed a small cache. Then he hooked up with fellow Austin artist/recordist Craig Ross. "We shared equipment for a while," Beattie says, "and now we basically have a convertible studio that can be anywhere from two small studios to one major thing. Everything's in road cases, and we kind of morph it together or apart, using ADATs to get however many tracks we need."

The first project Beattie recorded mostly with his and Ross' gear was the wonderful, whimsical Bar/None release *Dead Dog's Eyeball*, the songs of Austin original Daniel Johnston as interpreted by former Glass Eye singer Kathy McCarty. For Beattie, making that record was a revelation. "It was so much fun, and there were no rules," he says. "We weren't watching the clock sucking our money away, and if we spent a day trying something one way, we could stop, start again and not worry about it." He has since done most of his recording at home or in houses around town. He's continued to work with McCarty and has recorded spoken-word artist Wammo, as well as Johnston and singer/songwriter Seela.

PHOTO: VALERIE FOWLER

Beattie, brandishing some of his "old, horrible mics"

In addition to three ADATs, Beattie owns or has access to a Mackie 32•8 and 1604, an Akai DR-8 hard disk recorder, Paradigm and KRK monitors, UREI 1178s and 1176s, and EQs and mic pre's by Pultec, Tube-Tech, Neve, API, Daking, Calrec and Drawmer. He uses his mic pre's extensively, running through them straight to ADAT. "I never go back through the board," he says. "I just use the board for mixing and monitoring. (That's another reason I didn't trust studios—I knew that behind this thing that looked like the bridge of the Enterprise there was five miles of wires that some hippie 20 years ago wired, and if it would come back not sounding right, I would just end up second-guessing myself.) I know ADAT isn't the best sounding medium in the world, but I've become an anti-anti-ADAT snob—it's cheap and I can make it sound good.

"One of my favorite things lately has been old, horrible mics," Beattie continues. "I've got an old Shure 55 that I've used dozens of times for lead vocals and kick drums. A lot of the time I'd rather not do a radical EQ to get a radical sound; I'd rather just get a radical sound from the beginning. If I want the snare to sound pingy and teensy, I just use a crummy mic." Some of Beattie's more conventional mics include an AKG C 414-B ULS and a pair of Microtech Gefell Perestroikas. He swears by the Sennheiser 409.

Garages, back rooms, casual spaces and atmospheres—maybe they're all more conducive to creativity, but what about earning a living? "That's the thing about having my own setup," Beattie says. "I'd rather record someone I like a lot who I don't have to charge any money. I can't really justify it sometimes, but then a big thing comes along, and I can." But on the whole, he says, "All we can do is make something good. It's all about being there in the moment and having the time to experiment with what sounds interesting, just having the stuff at home." ■

BY ADAM BEYDA

Adam Beyda is an associate editor at Mix.

JUDITH SHERMAN

ON ENGINEERING AND PRODUCING CLASSICAL MUSIC

Producer Judith Sherman has become well-known in the field of contemporary "classical" music, working with such composers as Steve Reich, Charles Wuorinen, Elliott Carter, Christopher Rouse, Shulamit Ran, Philip Glass, Joan Tower and Terry Riley. She has recorded artists such as Rudolf Serkin, Ursula Oppens and David Golub; the Kronos Quartet and the Cleveland, American, Miami and Muir String Quartets; and conductors such as Christoph Eschenbach and David Zinman. Her work has appeared on Nonesuch, Telarc, Arabesque, Koch, CBS, CRI and New World. In 1993 she was awarded a Grammy for Classical Producer of the Year.

Although Sherman currently makes her home in New York City, she earned her MFA from SUNY Buffalo, where she studied voice with Heinz Rehfuss, electronic music with Lejaren Hiller and was much influenced by composer-pianist Leo Smit and by the many interesting goings-on in the contemporary music world there. She attended the Institute for Audio Research in its early days, and claims to have been "the world's worst composer."

In the early '70s at WBAI radio in New York, Sherman worked her way from engineer to producer to music director. The station featured two live concerts a week, many of which she recorded, and it was in that role that she developed her acute engineering skills. "Mistakes went onto the air, so I learned to hear the difference between mic distortion, preamp distortion, and tape distortion and sense what might be about to blow up, since there was no time to fix or replace anything once the concert started." She was also the recording engineer for the prestigious Marlboro chamber music festival from 1976 to 1994, and founded the chamber music series La Musica in Sarasota, Florida, now in its eleventh season.

PHOTO: LAUREN PIGERNO

Mix caught up with Sherman when she was in the San Francisco Bay Area in May to record the Kronos Quartet at Skywalker Sound. We met one evening about halfway through the sessions, and Sherman said things were going well but were hectic.

Tell me about your current project.

This project is a real combination of styles. About half of the pieces are medieval music, and the rest are either arrangements of early music or are based on those musical ideas. On one we have a bagpipe, another a harmonium, and there are other instruments added as well, so we have to approach each differently. There's one piece that has nine string voices—two quartets plus an extra viola—plus two tracks of drums, which I played, so the group got to pick on me for a change. As a result we are overdubbing the quartet, which means that after we lay down the first pass we have to edit it before we can record the next. So I brought in editor Tom Luekens and his whole digital setup, to edit as we go. We—the group and I—mark the score together and hand it off to him; we go record something else while he edits, and we then come back to the overdubs. It seems easy, but it adds hours to my day, since I have to stay late and come in early to check edits. But I think it's going to be quite a moving record. The music is beautiful, some of it quite unusual, and Kronos is really connecting with this music emotionally.

You usually do the editing yourself, of course.

Yes, and until recently my system was in our spare bedroom. I finally have hired an assistant, and now we work in another apartment in my building, so the commute is still not too bad. I just got a second editing computer, a Mac 9600, which is so fast we named it Zippy.

What editing system are you using?

I use Sound Designer II, which I love. Digidesign keeps trying to convince me to switch to Pro Tools, but it doesn't have a Nudge window, and I live in the Nudge window.

How many projects do you do in a year?

You know, I really haven't any idea! Probably about 20.

Wow, that's a lot! I like to try to keep an entire project on the drive until I can master it. How do you manage that with so many projects?

I have three 9-gig drives, each partitioned into 5, and a 2-gig as well. So we can keep working.

For this project, of course, you're recording in a studio, but is that

BY LOLLY LEWIS

the norm?

No, about 70 to 80 percent of the time I do my own setup. I go to a place like a concert hall and build a control room in a dressing room or such. By the way, I'm excited about my new Sonodore board, custom-made for me by Rens Heijnis in Ochten, The Netherlands. It's about this big [makes a shape about as big as a wide shoebox] and it sounds great. All Vandenhull wire inside, and the only EQ is a 40Hz roll-off for the subway. It's got talkback and talk-to-tape, of course, but it's also got tape-to-talkback, which is great for those quick playbacks for tempo or just to check something without the artist having to move. On the monitor module it also has something unusual: a graduated bass roll-off on monitor only, for those Green Rooms cum control rooms with big bass build-ups.

Do you have help on the sessions?

Jeanne Velonis, the assistant I hired for editing, also helps on the recordings; she was my assistant at Marlboro, and she's terrific. She helps me load the equipment and set it up, and then she does the tape op and "whatever." Sometimes I even have her run over to the office if I have to be in two places at once.

Before this you engineered and produced at the same time. How did you watch the recorders and the score at the same time?

I just did it. I had to for all these years. And let me tell you, now that I have an assistant I've gotten spoiled in a hurry.

You're an independent producer; are you usually hired by the artist or the label? How do you deal with the budgets for the recording? Do you often have the opportunity to use more advanced technology than your DATs?

I'm proud to say I've been "unemployed" since 1976, when I left WBAI, which was almost like being unemployed anyway. I would say most of the time it's the label that hires me, and we discuss what the budget will be. Luckily they usually come up with what it takes to do the project right, if that means a piano rental, or extra time in the hall. It's important to know, going in, what Bob Hurwitz from Nonesuch once told me: "There's fast, there's cheap, there's good. You can have two, but never all three."

And I do work with DAT, although of course I wish the DAT manufacturers would incorporate 24-bit technology. I hope they do, and I guess I'm waiting for that to happen rather than buying a Nagra or something.

Do you have trouble finding good rooms to record?

I'm always looking. I prefer concert halls to churches, because they're much less noisy; they don't have windows! The room is incredibly important, as important as the instrument you're playing on.

For a classical producer, it often is the instrument you're playing on.

Yes, exactly. So when I find a good one, it's a joy. Skywalker is unique in that it's both a studio, with all the complicated gadgetry that that entails, and acoustically luscious. Best of both worlds. I agree with Phil Ramone, who said it's the best recording room on the planet.

Tell me about working with Kronos all these years. Your relationship with them must almost be like being in the group.

Well, when we're recording it is; we're pretty connected. They are so committed to what they do, it's nearly impossible to keep up with their energy; I don't know how they do it. They are just absolutely focused, the music is the center of everything. They're very self

critical as individuals, but also incredibly forgiving of each other, so they are able to discuss what they hear openly, and even when it's critical, it's not personal. They just move on to fix things; there's no garbage. I don't have to hedge or be over-careful how I talk to them about their playing. Again, it's just their focus, as if they're saying, "We have to get from here to there, we want it to be great, now how can we do it?"

They're also rather sophisticated about technology. At first only cellist Joan Jeanrenaud got it, but now they all have some idea what can and can't be done. They understand that if a situation calls for multitrack, that there are trade-offs, and when I suggest something, and explain the parameters, they get it—they're intelligent about these choices going in. We use everything from straight 2-track to multitrack with every available gadget.

You mentioned Phil Ramone. Have you worked with him much?

No, I've never worked with him. We sat on a panel together. But when I first moved to New York I did some jingle work at A&R, which was the biggest studio in the area at that time, and the "R" stood for Ramone. So I would see him wandering around the place. Phil is truly the godfather of us all. The panel I mentioned was for NARAS at a NAMM show recently, with Phil and Quincy Jones. And then Quincy started talking about when he met Igor Stravinsky. Did you know he was a [Nadia] Boulanger student? Well there he was at Boulanger's studio and Stravinsky just dropped by...I was floored. Both of those guys, Phil and Quincy, are so amazing, they have roots right to the center of this earth.

What other projects are you working on now?

I have a couple that are really dear to my heart at the moment—one is a solo Bach recording with [violinist] Donald Weilerstein, and the other is a recording of music of Christopher Rouse with the Houston Symphony and Christoph Eschenbach. The relationship of that orchestra with that conductor is just phenomenal; they would do anything for him. It's a marvel to work with them. And I recently recorded the Florida Orchestra with Jahja Ling. They were so good that they recorded the Strauss *Rosenkavalier* suite, Ravel's *Daphnis et Chloë* Suite No. 2—with chorus, mind you—and Bernstein's

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Symphonic Dances from *West Side Story* in two sessions, a total of five hours of actual recording time, and got a fabulous CD out of it. I could have used first takes throughout, it was so well played. I've also just finished some sessions with a young soprano named Heidi Grant Murphy. She has one of those voices with lots of color and texture and range. Besides which she has a heart and a head. I think you'll be hearing her name a lot. During the sessions, she was actually giving me chills.

What advice would you give to young engineers and producers?

The big thing I want to keep saying to people is to protect your ears! I'm appalled at how deaf this society is becoming. At that NAMM convention it was so deafening I had to wear earplugs the whole time, and at the Grammys when I got my award, it was so loud a lot of us were squirming. When one rather famous pop artist was called as a winner, he couldn't even hear his own name, his hearing has taken such a beating. We talk about our young people "developing ears," but then they all go about deafening themselves. Hearing is so precious, and there's no way to retrieve it once it's lost, though young folk find that hard to believe.

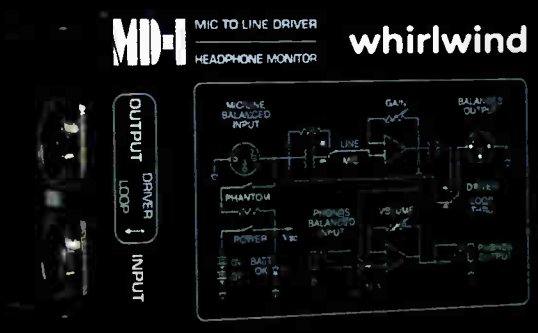
It's a rare quality to be able to hear musically, to get meaning from the relationships of the tones themselves, the *Ludus Tonalis* or play of the intervals. And we do so little to identify and educate our talented kids that those few people who would be able to use these abilities often fall through the cracks in our educational system. It makes me sad that when I hear people talking about music, all they talk about is the words. But think about it—at some point what does it matter, because all the music education in the world won't help when you're playing to a deaf audience. So I truly hope young producers and engineers will do what they can to turn this around, both by protecting their ears in their daily lives, and through their work in the studio. ■

Lolly Lewis is an independent classical producer based in San Francisco. Her recording of the string music of 18th-century American composers John Antes and Johann Friedrich Peter was recently released on New World Records.

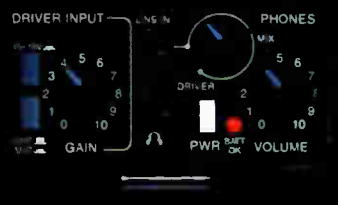
THE RIGHT TOOLS

Professionals in every industry have the advantage of owning the right tools to make their jobs faster and more productive. For the industries that deal with moving audio and video signals from one place to another, Whirlwind makes specialized tools to meet your needs. Here are two of our latest:

The MD-1™ • *The MD-1 includes a high-quality battery powered mic preamp and a headphone amp. The headphone amp has a separate line input and a mix control to allow monitoring of both the mic and line signals. The mic input has a switch selectable pad for line level sources or high-output mics, plus switch selectable 18V phantom power from the internal batteries. The construction is rugged and the batteries can be changed quickly without opening the box.*



The Qbox™ • *The Qbox includes a headphone amp with a built-in speaker, a test tone generator, a built-in mic, plus Voltage Present LEDs to indicate phantom or intercom power on the line. You can monitor mic, line, or intercom signals with a headphone, earpiece, or the built-in speaker. You can use the mic and preamp to talk back up the line to the console or another Qbox, set levels with the tone generator, or test dynamic mics without powering up the main system.*



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CIRCLE #098 ON PRODUCT INFO CARD

PREVIEW

KORG EFFECTS PROCESSORS

Korg (Melville, NY) introduces two studio-quality effects processors, the DL8000R Digital Multi-Tap Delay and the AM8000R Ambience Multi-Effects Processor. Both single-rackspace units offer broad dynamic range and 48kHz sampling with 18-bit linear, 128x oversampling A/D and D/A converters. The DL8000R offers stereo delay of up to 5,200 ms (10,000 ms in mono) and eight delay taps. Delay times may be set automatically or manually, using tempo and note value parameters. Additional features include independent left and right

three-band EQ and 128 user memory locations. The AM8000R provides 40 stereo effects, including delays, reverbs and modulation effects, plus compressor, limiter and resonance filter effects as well as real-time control of up to eight parameters. Both units are priced at $650.

Circle 327 on Product Info Card

AUDIO-TECHNICA SNARE MIC

The ATM23HE snare drum mic from Audio-Technica (Stow, OH) is designed for close miking of drums and other dynamic instruments. Featuring a hypercardioid polar pattern and a frequency response of 70-16k Hz, the dynamic mic includes a Hi-ENERGY™ neodymium

magnet and a low-mass voice coil wound with copper-coated aluminum wire, a combination claimed to produce excellent transient response. The compact ATM23HE (3.25 inches long, 1.5-inch diameter) also includes an internal shock-mount and integral mic clamp.

AUDIO CENTRON FXP

The FXP Digital Signal Processor from Audio Centron (St. Louis, MO) features 50 presets and 50 user program memories and offers a wide range of effects, including reverbs, delay, chorus, flanger and multi-layered effects, all in an economical ($285) package. Users can edit and save up to 15 parameters per program, and an optional dual footswitch ($26) allows remote access to scroll, bypass and tap parameter functions.

Circle 328 on Product Info Card

EARTHWORKS LAB101 RECORDING PREAMP

Earthworks (Wilton, NH) has introduced the LAB101 Recording Preamp, which offers flat frequency response from 2-100k Hz, ±0.1 dB. Similar to the company's LAB1 measurement preamp, the LAB101 offers a stepped gain XLR output (60 dB of gain in 6dB steps), a separately driven, variable gain XLR output and a variable gain, buffered ¼-inch TRS output. Additional features include front panel polarity reverse, 48V phantom power on/off and standby switches. Two units may be mounted in a single rackspace. Price is $750.

Circle 329 on Product Info Card

TUBE-TECH MEC 1A COMBO

The MEC 1A Combo Mic Pre/EQ/Compressor from Tube-Tech (distributed by TC Electronic, Westlake Village, CA) is a semiconductorless, two-rackspace unit that allows users to reverse the order of the equalizer and compressor in the

PREVIEW

signal chain. The MEC 1A's mic pre section has 48-volt phantom power, polarity reverse, roll-off filter, 20dB pad and ¼-inch high-impedance input. The EQ section offers high and low shelving and selectable mid-band boost/cut with variable Q. The compressor is derived from Tube-Tech's Opto Compressor. Price is $3,995.

Circle 330 on Product Info Card

FURMAN UPS

Furman Sound (Petaluma, CA) offers the BP-1000 Uninterruptible Power Supply (UPS) for temporary online backup AC during power outages. The microprocessor-controlled rackmount unit has a maximum power capacity of 1,000 volt-amps, or 700 watts, and provides a minimum of six minutes of battery-sourced 115 VAC power at full load during line failures (with smaller loads, the BP-1000 will provide power for longer periods). Front LED meters indicate power usage under load and remaining energy. An audible beeper sounds when AC power fails, and a communications port allows for integration with remote computer systems. Price is $1,479.

Circle 331 on Product Info Card

SONEXSUPER ANECHOIC PANELS

SONEXsuper™ anechoic panels from Illbruck Inc. (Minneapolis, MN) are designed to deliver more than twice the sound absorption of conventional foam surface—rated sound absorption coefficient of SONEXsuper panels ranges from 0.86 at 250 Hz to 1.20 at 4 kHz, with an NRC of 1.0. Available in willtec™ fiber-free melamine foam (meets ASTM 84 Class 1 standard), SONEX super panels measure 12x12 inches and are mounted with special adhesive.

Circle 332 on Product Info Card

MUSIC VALVE DI BOX

Music Valve Electronics (New York, NY) has updated its Vacuum Tube Direct Box. New features include double shielding of the power supply and shock-mounts for the circuit board. Featuring hand-selected tubes and a custom wound output transformer, the DI box accepts input levels in excess of +20 dBm on its ¼-inch jack input. Outputs include a transformer-balanced output for a console insert or direct recorder feed and a low impedance "to amp" feed. Retail: $475.

Circle 333 on Product Info Card

DENON MD RECORDER

Denon (Parsippany, NJ) introduces the DN-M2000R professional MiniDisc recorder, with a recording capacity of up to 74 minutes of stereo material, 148 minutes in mono. The three-rackspace unit has an integral controller and five front-panel Hot Start buttons for instantaneous playback of previously memorized cues. Additional features include A-B Seamless Loop, Pitch Control slider (up to ±8% in 0.1% steps), comprehensive editing functions and headphone jack with volume control.

Circle 334 on Product Info Card

TUBE WORKS TUBE DIs

Tube Works (Gig Harbor, WA) has re-introduced the 4001 Direct Box and 4002 Stereo Tube Direct Box in new cosmetic trim. The 4001 ($225) contains two 12AX7A tubes and features Class A transformerless true balanced tube cathode direct output for recording. Controls include power on/off, speaker/normal, boost/normal and ground lift switches. The 4002 ($425) is a single-rackspace unit incorporating two independent 4001 DI circuits.

Circle 335 on Product Info Card

DK AUDIO AES/EBU ROUTER

DK Audio (distributed in the U.S. by TC Electronic, Westlake Village, CA) has introduced its CRD1616 Switcher/Router, a 16x16 AES/EBU routing matrix. Each of the unit's inputs features a sample rate converter and a channel status synchronizer, allowing asynchronous inputs at various sampling rates to be linked to the AES/EBU reference input. Re-routing of inputs to any of the 16 outputs may be effected in real time, without noise or switching artifacts. A modified version of the DK Audio MSD200 Master Stereo Display may be used as a remote-control

PREVIEW

head for the CRD 1616. Price of the CRD 1616 is $5,995.

Circle 336 on Product Info Card

KRK ROKIT MONITORS

KRK Systems Inc., (distributed by Group One, Farmingdale, NY) has introduced the RoKit Personal Shielded Monitor, a passive, two-way shielded monitor for personal studio and multimedia applications. Featuring a new 6.5-inch polyvinyl woofer and a 1-inch silk dome tweeter, the economical RoKit offers a frequency response of 69-24k Hz ±3 dB and a maximum SPL of 104 dB. Price is $329/pair.

Circle 337 on Product Info Card

LEITCH DIGITAL AUDIO SWITCHER

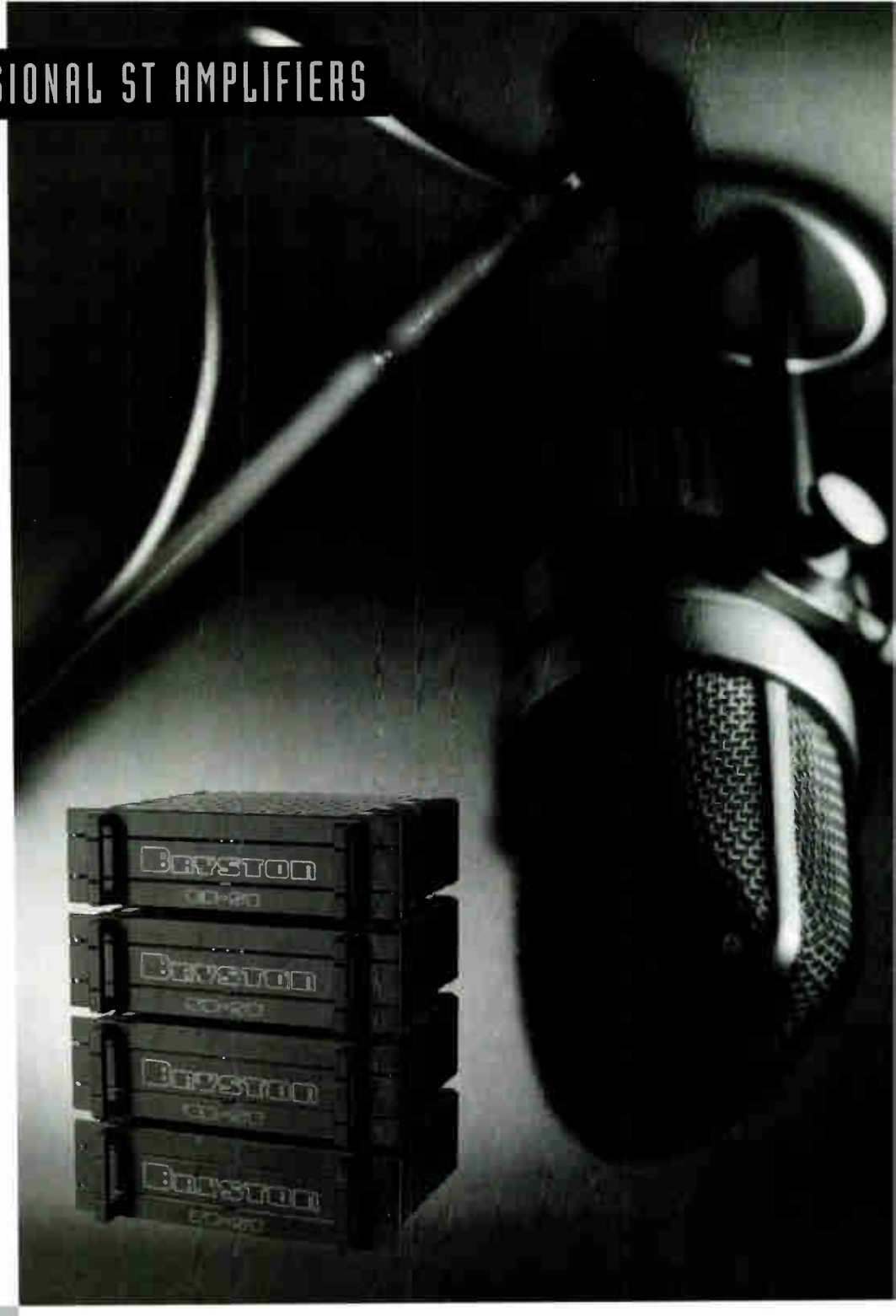
The ASR-16x16 from Leitch (Chesapeake, VA) is an AES digital audio switcher that offers both synchronous switching and user-selectable crossfade. The 16x16 router includes a new Synchronous Quiet Switch (SQS) processor to guarantee quiet switching and maintain AES framing, ensuring that downstream equipment does not lose lock during a switch. Crossfade may be enabled or disabled and duration is user-adjustable.

Circle 338 on Product Info Card

HOT OFF THE SHELF

The Master Fader for the **TC Electronic Wizard Finalizer** digital dynamics processor allows manual fades of all-digital material without compromising already defined digital processing or converting to analog and back. Call 805/373-1828 or www.tcelectronic.com…Pioneer has four new **TAD Series speaker components** for use in professional applications. Models include 15.75-inch and 10-inch woofers and 4-inch and 2-inch HF compression drivers. Call 310/952-2387 or e-mail tadpioneer@msn.com…Martech has upgrade kits for **EMT 140 Echo Plate** reverb units. Call 800/582-3555…**"No More Tape"** is an innovative alternative to adhesive tape for labeling console channel strips. Call 612/588-6430 or e-mail pjmbsa@hockey.net…**BASF's new DTRS master tape for DA-88-compatible MDMs** features a metal particle tape formulation, anti-static ABS shell and lengths as long as 113-minutes. Call 888/295-5551…**Monster Cable's Z Series high performance speaker cables** incorporate TimeCorrect™ cable winding in four different models, priced from $74.95 to $399.95. Call 415/871-6000 or visit www.monstercable.com…**Apogee Electronics' Apogee Master ADAT Tape** features an anti-static shell, high-integrity binder and robust tape construction with a professional label set and full warranty. Call 310/915-1000 or visit www.apogeedigital.com…The **"Total Stereo Session Drums" CD-ROM** from Sweetwater Sound has 1,200 stereo samples arranged into 20 Kurzweil kits and five GM kits. Price is $399. Call 219/432-8176 or visit www.sweetwater.com…**MCM Electronics' latest catalog** includes over 9,000 new items, including connectors, test equipment, computer and audio products, and accessories. For a free copy call 800/543-4330…**MIDIMAN's MultiMixer 10™** is an inexpensive 10x2 mic/line mixer designed for computer and multimedia applications. Price: $119.95. Call 818/445-2842 or e-mail to info@midiman.net…Philips offers a six-page brochure on **"Mastering and Duplication: Authoring DVD."** For your free copy, contact Morgan Rees at 408/453-7373…**Link Electronics Inc.** announces a ten-year warranty on all of its digital and analog products for the television industry, including signal distribution, A-to-D and D-to-A, sync generator and audio switcher products. The warranty is retroactive. Call 573/334-4433…**Analog Devices' 1997 Short Form Designers' Guide and Volume 31, No. 1 of Analog Dialogue** contains feature articles on DSP, mixed-signal component selection and converter evaluation. Free copies may be had by calling 800/ANALOGD. Contents may also be viewed on the Analog Devices Web site at www.analog.com…**Promusic adds the 100-CD Primrose library** to its 1,500-plus collection of music CDs and sound effects libraries. Another recent addition is the Russian Compact Disc Collection. Call 800/322-7879…**Belden intros the first "open architecture" multimedia cable:** MediaTwist. The unshielded, twisted-pair cable is designed to transmit a variety of audio, video and data signals over its four pairs and has been awarded a Class A Certification for Digital Devices by the Underwriter Laboratories. Call 800/BELDEN-4 or visit www.belden.com…***The FBX Advantage*** from Sabine is a free booklet offering tips on controlling feedback and using the Sabine FBX Feedback Exterminator, with a glossary of often misunderstood terms. Call 904/418-2000…JRT Music released a new **CD-ROM search program for the Tele Music Production Library.** The PC- or Mac-based software allows users to search more than 1,800 samples of music on the first 75 CDs in the Tele Music Library. Call 888/578-6874 or e-mail jrtmusic@earthlink.net…**Svetlana Electron Devices 1997 Audio Tube Product Guide** is available. Call 415/233-0429 or visit www.svetlana.com. ■

BRYSTON PROFESSIONAL ST AMPLIFIERS



Introducing a New Standard in Professional Amplifier Design and Performance

In the demanding professional environment, you need an amplifier that is transparent, neutral and uncoloured. You want to hear the music, not the electronics. Preserving the integrity of the source signal is paramount to Bryston's design philosophy.

Bryston amplifiers are versatile performers, designed for use in a variety of demanding professional and commercial applications, including high quality recording studios, radio and television broadcast facilities, theatre and soundstage amplification, arena and nightclub installations and multi-amplified speaker systems of all types.

20 YEAR WARRANTY

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Our ultra-linear input buffer-with-gain feeds the amplifier channels from both balanced and unbalanced inputs, resulting in sizable reductions in noise floor and distortion.

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BRYSTON

CIRCLE #099 ON PRODUCT INFO CARD

NEW HARDWARE/SOFTWARE FOR AUDIO

CAKEWALK METRO FOR MACINTOSH

Cakewalk Music Software (Watertown, MA) goes cross-platform with Metro 3.5, the company's first product for the Macintosh. Metro is a multitrack sequencer offering SMPTE and MIDI sync, assignable and groupable mixing faders, and multiple loop points within tracks, plus unique features such as a Rhythm Explorer and Note Spray tool, within an intuitive interface. Metro is designed especially for synchronization with Macromedia's DECK II digital audio software; users can switch between applications without affecting playback. Both PowerPC and 68000-series native versions are available; retail is $199.

Circle 339 on Product Info Card

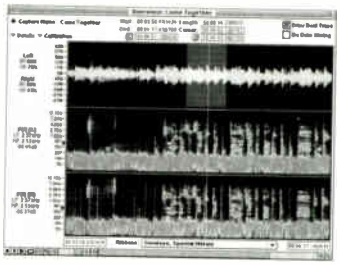
PUREPITCH FOR TC M5000

TC Electronic (Westlake Village, CA) debuted PurePitch, formant-preserving pitch-shifting software for the M5000. The plug-in option, developed and licensed to TC Electronic by Wave Mechanics Inc., is the latest third-party algorithm for the M5000 platform. The option offers real-time pitch manipulation while preserving formants, resonant peaks in vocal spectra—avoiding the "chipmunk" effect. Included with PurePitch is an additional (required) memory expansion card that is user-installable in the M5000.

Circle 340 on Product Info Card

METRIC HALO SPECTRAFOO

New from Metric Halo Laboratories (Poughkeepsie, NY)



is SpectraFoo, a PowerPC-native audio and acoustic analysis and monitoring system designed for recording and mastering engineers, featuring a virtual equipment rack of real-time signal measurement and visualization tools designed to let the user "see the sound." Included in the suite of virtual instruments are peak/RMS/VU meter; trace-style oscilloscope; dual-channel spectrum analyzer; spectogram; peak, power and envelope history graphs; timecode clock; lissajous phase scope; and Metric Halo's Phase Torch™, which compares phase as a function of frequency, independent of power. Additional, detailed analysis can be done in non-real time.

Circle 341 on Product Info Card

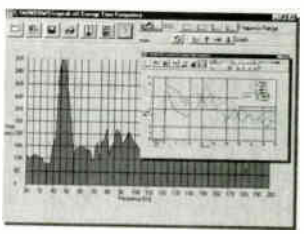
SONIC FOUNDRY ACOUSTICS MODELER

Sonic Foundry recently announced the Acoustics Modeler plug-in, a digital signal processor that recreates the acoustic coloration of real instruments and applies that "acoustic signature" to the sound file to achieve realistic imaging or special effects. The Acoustics Modeler includes an extensive library of acoustic signatures and impulse responses, varying from analog tape to vintage tube microphones to hall effects such as concert halls, theaters and even stairwells; all presets are based on actual acoustic measurements. Features include adjustable EQ, speed controls, envelope graph and an impulse recovery function that lets users collect their own acoustic signatures. Runs on Windows 95 or NT 4.0 or later; a Pentium is required.

Circle 342 on Product Info Card

UPGRADES AND UPDATES

Exclusive distribution agreements with Guitar Center and Sweetwater Sound allow availability of **E-mu's Version 2.01 Darwin 8-track hard disk recorder** at a reduced price. V.2.01 supports a new DSP option card, which offers 32-bit floating-point accuracy, formant-corrected pitch change and time compression/expansion; the recorder retails below $2,000, complete with a 2GB hard disk. 408/438-1921...**Sonic Foundry happenings**: CD Architect, its waveform editing/Red Book CD burning package, is now shipping ($395). Also available is an updated Noise Reduction DirectX Audio Plug-In ($249), now featuring real-time previews. 608/256-3133... Cakewalk's Pro Audio 6.0 includes **Musician's Toolbox II**, a 2-CD collection of MIDI and audio files (including loops from George Clinton and John Entwistle), tools and interactive tutorials. Phone 617/926-2480... Version 4.0 of Progressive Networks' **RealPlayer** and **RealPlayer Plus**, with enhanced audio/video quality and improved access features, are available at www.real.com...Symbolic Sound Corp. upgraded **Kyma** sound synthesis software to Version 4.5. New features include granular synthesis, analog-style synthesis and sequencing, a real-time graphical spectrum editor and a tool menu. Call 217/355-6273...Metalithic is now shipping **Version 1.4 of Digital Wings for Audio**; enhancements include Quickzoom navigation, a Prepare Recording option, Loop Record mode and a five-year warranty. 415/332-2690...Now shipping: ETF's **Version 3.0 Room Acoustics Measurement System** software is Windows 95-compatible, and is bundled with a Reverberation Tool for measuring reverb, and a Device Designer for building acoustical solutions. Calibrated microphones are also available. 800/301-1425... Version 2.0 of Audio Ease's **BarbaBatch audio processor** is now available, at $495. Contact MacSourcery at 760/747-5995. ■



INTRODUCING THE NEXT DIGITAL MULTITRACK RECORDER YOU WILL BUY

Fostex D-160

16-Track Digital Hard Disk Multitrack Recorder

Standard Features & Functions of the D-160

16 DIGITAL TRACKS

8 VIRTUAL TRACKS

- 16 TRACKS OF 16-BIT, 44.1 kHz (CD QUALITY) OR 48kHz UNCOMPRESSED DIGITAL AUDIO
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ABSOLUTELY NO COMPRESSION

2.55 gb HARD DISK

SCSI-2 EXPANDABILITY

adat OPTICAL INTERFACE

MIDI CAPABILITY

Virtually every studio in the country uses digital gear for capturing or mastering their audio. That's why it's so important that any new equipment you purchase be compatible with your existing gear.

The Fostex D-160 is designed to be used as the main recorder in your studio — it has a wealth of features that make it the number one choice for recording and editing. And, since it is a hard-disk based system, the D-160 also functions brilliantly in conjunction with your existing recorders as a digital editing workstation. The D-160 interfaces directly with your ADATs to move 16 channels of digital audio simultaneously between systems. For the first time you can edit, cut, copy, paste, and move any combination of tracks, allowing you unlimited freedom in arranging your material.

For time code, the D-160 has full MIDI implementation and, with the addition of the optional Time Code/Sync Card, can read and output SMPTE code, making it a natural as a post-production recorder/editor.

Need balanced input and output? The optional Balanced I/O Board provides eight balanced inputs and 16 balanced outputs, all at +4dBu, through three 25-pin D-sub connectors, for interface with pro recording equipment.

If you haven't made the leap to 16-track digital yet, you can't do better than the Fostex D-160. If you already have a digital recorder, then the D-160 is the best way you can upgrade your studio, providing full non-linear editing without trashing your current investment.

Look at all the advantages — whether this is your first purchase or you have a full studio, the D-160 really is the next digital multitrack recorder you will buy.

Fostex

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SSL ALTIMIX

DIGITAL POST-PRODUCTION SYSTEM

Solid State Logic's new Altimix digital post-production system is a product that will radically streamline the way that audio is managed during film and video post-production. SSL's ScreenSound, Scenaria and OmniMix redefined the paradigm of how sounds could be edited, mixed, processed and then exchanged between subsystems in an all-digital post facility; Altimix is destined to literally revolutionize the process and make fully integrated post-production a practical reality. Altimix has been designed for the post-production environment of the future, where traditional barriers between film, video and audio will all but disappear.

The key to Altimix's power—and that of its companion "A-Series Systems," including Axiom and Aysis mixing console/recorders—is SSL's powerful DiskTrack and Hub Router Resource Manager and the wide range of available I/O options. More than just a hard disk recorder/player that provides instant access to multitrack audio material (up to 96 hours), DiskTrack offers the ability to share storage and processing resources between component systems. In combination with a Hub Router, DiskTrack provides a centralized resource server and project manager for Altimix, Axiom and Aysis, as well as the auxiliary Audio Preparation Station. Via the Hub Router and DiskTrack, APS provides access to up to 24 tracks from the available 128-track central pool.

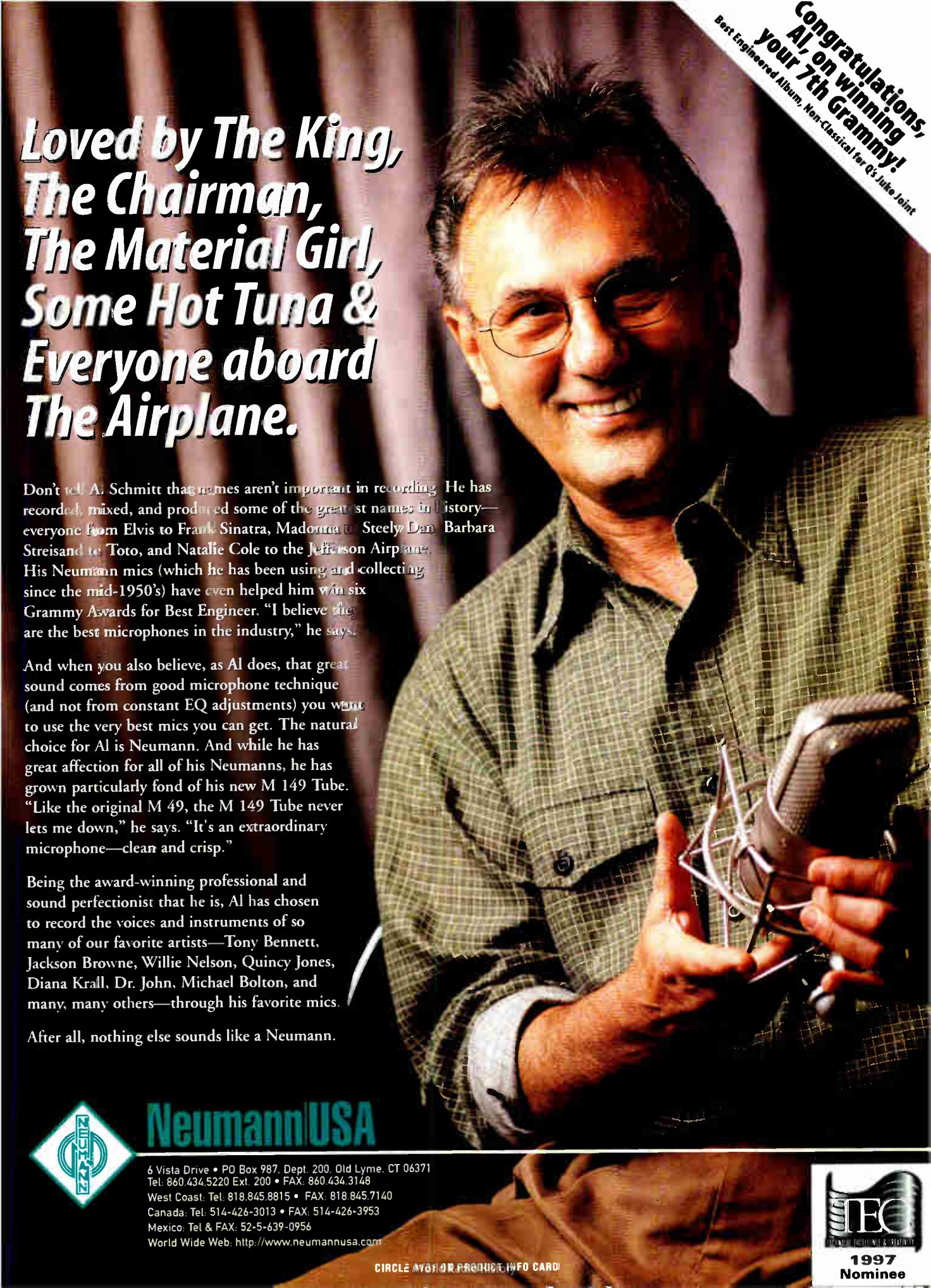
All interconnections are via SSL's proprietary Hi-Way and Free-Way serial digital technology, which allows for simple system installation. System commands are sent from the control surface via a combination of Ethernet and high-speed digital links to the audio and video processors, where control information is processed and applied to the data provided from DiskTrack. As system data is centralized in the DiskTrack hub, all project information can easily be archived in a single step. All audio, automation data, routing, edit information and file notes are stored within Altimix as a single project file that can be accessed at a later date, and may be transferred to Axiom or Aysis systems. Concurrent backup/restore enables projects to be backed up or restored offline, simultaneous with a new project, thereby maximizing the availability of studio facilities.

In a typical scenario (pardon the pun), multiple Altimix-equipped suites might be used within prelay, conform and edit suites to develop component elements for a complex film or video project, while large-format Axiom- or Aysis-equipped mix-to-picture rooms could prepare multiformat stems and finals. (Contrast this with Scenaria/OmniMix systems, which utilize SoundNET, an intelligent SCSI-based router to switch real-time access to stored audio material; SoundNET, however, cannot provide the concurrent access offered by DiskTrack, nor sophisticated multifunction routing.)

Complex internetworking applications aside, Altimix functions fine as a stand-alone product. As I discovered during my extensive hands-on sessions in Hollywood and Begbroke, England, Altimix is one of the most powerful, feature-rich post systems that I have ever experienced. Altimix is based on a compact, user-friendly assignable control surface that offers integrated video and audio mixing functionality. A shared multidisk record/replay array enables instant access to video and audio material, and ensures fully synchronous operation across both domains. Sharing much of the same basic topology as the previous Scenaria and OmniMix systems, but with additional I/O capacity, Altimix features 24 servo-driven channel faders in a powerful channel/group architecture. Full dynamic automation is provided for all mixing, editing, processing and switching functions.

Altimix will accommodate a total of 48 simultaneous mixing channels with 16 controlling groups, and up

BY MEL LAMBERT


Congratulations, Al, on winning your 7th Grammy!
Best Engineered Album, Non-Classical for Q's Juke Joint
Loved by The King, The Chairman, The Material Girl, Some Hot Tuna & Everyone aboard The Airplane.
Don't tell Al Schmitt that names aren't important in recording. He has recorded, mixed, and produced some of the greatest names in history—everyone from Elvis to Frank Sinatra, Madonna to Steely Dan, Barbara Streisand to Toto, and Natalie Cole to the Jefferson Airplane. His Neumann mics (which he has been using and collecting since the mid-1950's) have even helped him win six Grammy Awards for Best Engineer. "I believe they are the best microphones in the industry," he says.
And when you also believe, as Al does, that great sound comes from good microphone technique (and not from constant EQ adjustments) you want to use the very best mics you can get. The natural choice for Al is Neumann. And while he has great affection for all of his Neumanns, he has grown particularly fond of his new M 149 Tube. "Like the original M 49, the M 149 Tube never lets me down," he says. "It's an extraordinary microphone—clean and crisp."
Being the award-winning professional and sound perfectionist that he is, Al has chosen to record the voices and instruments of so many of our favorite artists—Tony Bennett, Jackson Browne, Willie Nelson, Quincy Jones, Diana Krall, Dr. John, Michael Bolton, and many, many others—through his favorite mics.
After all, nothing else sounds like a Neumann.
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Nominee

to 48-track/20-bit recording/editing, expandable to 128 channels of disk recording with multi-user partitioning. Via a conventional setup page, analog and/or digital input sources are allocated a channel path and assigned to a specific output port. Master sampling rate is 48 kHz; sample-rate converters are available for digital sources running at other frequencies. Altimix will also import sound files in a number of formats, including OMFI, .WAV, AIFF, Lightworks and Digidesign SDII.

Altimix's array of 24 on-surface channels can be laid out in a variety of ways, depending on the intended applications. For example, one of the systems I used comprised two banks of eight input channels to the left and eight groups to the right, with a central controller section between them. But, as Altimix is based on a modular construction, inputs and group bays can be physically swapped around as necessary. Accessing the inputs is achieved via three layers that can be assigned to the physical faders in any layout the user chooses, with two group layers being accessed in the same way.

ASSIGNABLE SYSTEM CONTROLS FOR EQ, DYNAMICS, ROUTING AND EFFECTS

Signal processing is accessed via a bank of dedicated controls above each input bank; at the top are shaft encoders for a 4-band parametric EQ section, with accompanying graphics display, below which is a multifunction dynamics section with compression, limiting, gating, etc. (also with an input/output transfer function display); and a routing assignment panel for accessing sources and up to 32 main mix bus destinations.

Selecting one or more mix buses also assigns the appropriate surround-sound pan mapping to a pair of rotary controls for X-axis (L/R) and Y-axis (Front/Back) panning, depending on the status of companion switches. When panned to the back, operation of left/right panning moves the signal between left-surround and right-surround speakers. As an alternative to the individual channel pan controls, a screen-based panning display can be controlled directly using the pen and tablet. Screen panning can also be operated in a very handy key-frame mode, known as Motion Tracking, which allows panning to be interpolated at a sample rate between selected timecode key points.

The EQ section features four bands that can each be configured as a High & Low Filter, High & Low Shelf, Notch or Parametric. While each band is capable of accessing the full audio range, they can also be tailored to definable user limits and options (using an editable setup text file). All EQ settings can be dynamically automated and snapshot memorized. A library of 64 user-selectable/savable EQ presets is also provided. And, yes, the all-digital EQ sounds great!

The dedicated Dynamics Processor per channel offers limiting, compression, expansion and gating in three adjustable level bands allocated as Lower Band: Gate only; Middle Band: Compression, Limiting or Expansion; and Upper Band: Compression, Limiting or Expansion. All three bands are simultaneously active, allowing the user to insert a gate, compressor and limiter on the same channel. The Dynamics Processor is fully automated and can be reset using snapshots. A Delay Control selects a feed-forward option to delay the main signal path by up to 20 ms, to enable large amounts of dynamics processing without overshoots or distortion.

Gain make-up can be either automatic or set manually. Dynamics settings can also be copied from channel to channel and/or saved to a preset library.

CENTRALIZED MONITORING AND MASTER CONTROLS

The Central Section houses various monitoring and master controls, in addition to a QWERTY keyboard, pen/tablet, plus motion controller and scrub wheel for DiskTrack and/or external audio/video transports. Machine control is via four serial control ports that follow Sony 9-pin, VPR-3 or Sony Slave protocols. An assignable panel implements changes for insert I/Os and internal special effects, which include multichannel reverb and delay processing. A library of preconfigured onboard and outboard processing functions can be called up on a channel-by-channel or group basis. A useful bank of automated send/receive level controls reduces the gymnastics that users must perform while setting up external effects sends via a sophisticated insert matrix. And, as each insert return is multichannel in function, a single "channel" can be used to provide anything from a stereo return to an 8-channel predub input. A 21-inch color monitor above the master section displays a variety of interrelated screens for system setup, waveform editing, mixing and other functions.

One of four video streams can be user-positioned and resized to appear anywhere within the monitor; a dedicated NTSC video feed supplies separate color monitors during the session. I wondered why there were four video streams via DiskTrack, which not only provides up to 48 tracks/72 hours of audio storage, but also holds up to two hours (expandable to five) of nonlinear video. A major feature of Altimix is its ability to manipulate video in addition to audio. The four vertical reels to the left of the editing options can be used for different projects, or different aspects—ADR/Foley and dialog, for example—of a current project. Also, if there are last-minute picture changes (there always are), new or replacement sections can be recorded into the system and then merged with existing material by simply cutting and pasting audio and video streams. Video clips can be loaded in Absolute mode (their recorded position), at a specific timecode or at the current Playhead position.

Access to any part of the project simply involves stabbing the graphics pen at the section of video to be recalled to the Now Line. Modifying a video stream on Altimix is simple—operations are the same as for editing audio reels (copy, move, shift, etc.)—the only exception being that any crossfade function is ignored. (To avoid straining the internal DSP resources, all video transitions are butt edits to frame boundaries.) Placing the audio reels within a video edit group allows them to be edited together with the video, a function that operates similarly to the audio edit group except that a video edit action is taken as the master guide for editing commands.

Each set of servo-fader panels offers Solo and Cut switches per channel, plus record-enable buttons for DiskTrack and access buttons for assignable EQ, dynamics and related functions. Each Altimix mix channel features access to eight aux buses that can be configured as mono or stereo sends in any combination. Control of each send is assigned to either the channel faders or pan controls.

Each channel is provided with access to one of 16 pre/post fader insert presets, which, in turn, are accessed via a routing matrix. Channel inserts offer a powerful return structure that allows a single channel fader to return a multichannel signal according to the return channel's stem bus assignment. If pan-

ning is incorporated with this assignment, then pan controls will affect the balance of the signals to the buses. The fader, however, will always control gain for the return.

A pool of 48 internal effects DSPs within Altimix is available via the insert returns. Multichannel effects sections can be configured by routing an insert return from one or more effects processors, including configurations beyond stereo to 7.1 or eight channels.

All in all, the ergonomics of the Altimix control surface are a revelation—it's clean and uncluttered, with dedicated, easily grasped controls for the regular functions and assignable access to less-used functions.

I/O ROUTING AND MONITORING

In terms of I/O functions, Altimix offers numerous options. The 32 primary buses are configured as an array of four stems with 8-bus component program mixes, linked to a 32x8-channel assignable monitor matrix. Also provided is interformat monitoring with external insertion of encode/decode matrix units. Users can import EDLs in a variety of formats for project reconfirmation. And for compatibility, Altimix will import desk files from ScreenSound, Scenaria and OmniMix via a dedicated SCSI port that connects to external hard drives.

As with other members of the SSL A-Series products, DiskTrack's integral Hub Router provides numerous input/output format options. Analog Remote Input/Output units provide up to 48 analog line-level I/Os (16- or 20-bit optional), and outboard microphone preamps can also be remote-controlled. Digital Remote Input/Output units feature combinations of up to 96 synchronous 48kHz AES/EBU-format inputs and outputs, or up to 48 asynchronous AES/EBU-format sample-rate converting inputs and outputs. In addition, a multichannel SDIF2-compatible interface provides digital connection to a variety of multitrack tape machines and similar systems.

Altimix's monitoring section is configured in two main parts. Monitor Insert Send is fabricated from a matrix assignment, as with the Program Mix. (If you select to monitor Program, for example, Altimix assumes the settings—and bus sources—of the program matrix.) Selecting External Monitoring allows a set of 16 programmable keys to reconfigure both external and bus sources to the matrix, and hence to the Monitor Insert Send. A second set of programmable keys allow an external source to be switched between associated Bus and Tape signals, thus mimicking the operation of familiar PEC/DIR switching.

Once the monitor send matrix is configured, signals are directed to the DiskTrack routing and hence to matrix-encoding devices. The monitor signal is then fed through a further 8x8 fold-down matrix for monitoring in a variety of programmable monitor formats—to switch the same monitor signal between mono, stereo, LCRS, L/R and LCRSS, for example.

NONLINEAR EDITING FUNCTIONS

Altimix's powerful and extensive recording and editing functions include automatic record take management, with 50 levels of undo; a multilevel take editor; plus 48-track drop-ins with instantaneous playback monitoring and user-programmable advance record. Useful new editing commands include real time clip auditioning and spotting, clip gain profiling, and a multichannel

feature set that dynamically links automation data to audio clips for repeatability through multiple editorial changes.

It is amazing how soon you get used to the ability to edit audio tracks with high-speed integrated—and editable—video. Altimix's scrolling waveform displays are very easy to work with and move across the screen without tearing or shimmer. The integration of a fully automated 48-channel digital console may be overkill for editorial suites, but Altimix really comes into its own for complex mix-to-picture sessions, where the ability to rapidly touch up and/or edit a track in real time is soon taken for granted. The 4-band parametric EQ is powerful, as is the 3-band dynamics processing provided on every channel. Built-in multichannel reverbs also enable tracks to be processed during a mix.

The Altimix control surface was designed to provide an intuitive workplace for both editing and mixing. Most editing functions are controlled from the pen, keyboard and motion control panels with dedicated EQ, dynamics and fader panels controlling channel signals.

Recording audio directly to disk is as simple as selecting a disk source for a channel and then hitting the Record key on that channel. The currently assigned source is displayed on the fader scribble strip; accessing the source routing panel sets up routing for the record source assigned to this disk track. (A Range Setting function allows a number of channels to be set up simultaneously.) Drop-ins can be achieved using the familiar combination of transport controls, each pass being stored independently as a separate take that can be edited to select a master take for each channel. Up to 48 tracks can be recorded simultaneously, if necessary.

During waveform editing, Altimix provides Personable Editing Tools (PETs) that dramatically speed up the process. By recognizing various pen movements, shortcuts are offered for editing functions. Pressing a switch on the side of the graphics pen and performing the required stroke—for example, a downward movement—will activate a Delete function, while a "C-shaped" movement might activate Copy mode. In this way, a single stroke of the pen simultaneously selects the function and clip. Similar keyboard shortcuts are also available.

Screen icons represent the tracks to be edited; audio can be fetched to these reels from the main File menu. Usefully, a Listen function is available to audition, select and pre-edit the desired clips from disk without leaving the Edit page. A clip placed on a reel is represented in blue; depending on the zoom scale, red (second) or light blue (minute) ticks along the sides of these clips allow easy location of the current and relative cue locations.

The Desk Reel function allows a minimum of two and a maximum of 24 reels to be viewed on the screen. During zoom in/out, a white scroll bar in the lower left of the editing screen adjusts to provide access to all of the 48 editing reels at this selected resolution. Edit points can be marked from the Waveform display or by scrubbing audio. Multiple edit groups allow any of the 48 editing reels to be grouped together, moved and/or edited together. It's difficult to get lost on Altimix.

Clips can also be named individually, with an abbreviated version of the name displayed at the head of a clip. The Events list also displays a variety of timecode events, including Clip Start and End points, that can be used by the transport controls to directly locate to the next/previous event. A useful QuickClips function serves as a scrapbook for up to 12 segments. To create an ambience loop, for example, an original ambience clip might be repeated a few times, joined each time to itself with a crossfade. The result can be accessed several times in a production via the QuickClips area as one composite clip; it is also possible to recover the various elements of the original loop complete with discrete crossfades.

AUTOMATION MODES

In terms of system automation, each group of controls—faders, EQ, panning, etc.—is treated within Altimix as a separate entity. This means that fader information could be updated while the EQ and Dynamics, for instance, are set in safe-protected mode. Available modes include real-time and clip-based automation, including Protect, Static, Overwrite, Rollback, Clip Fill, Clip End, Cycle Fill and Cycle End. Particularly useful for updating fader automation is "Snap with Autoglide," which starts by writing updates as soon as the fader is touched; when the fader is released, it snaps back to the previous mix over a defined Autoglide period (up to ten seconds).

Usefully, the past six automation passes are held in memory; any one can be held indefinitely as a reference mix. The current mix can be stored permanently as part of a Project by hitting a dedicated Save Project button. In addition to dynamic automation, Altimix

features snapshot reset. A total of 40 snapshot memories can be recalled, globally or selectively, at a later date. Snapshots will reset all automated controls: Faders (channel and group faders), Panning, EQ, Dynamics, Gain trims, FX processing and Auxiliary Sends. Any channel that is inhibited will be unaffected by a snapshot reset.

A comprehensive Project Management function saves, as individual elements, all the major components of a session, including editing, mixing, monitoring and routing. Data is consolidated on DiskTrack and can be backed up to floppy, MO or Exabyte media with other system data.

AN INTEGRATED DIGITAL PRODUCTION ENVIRONMENT

In many ways, Altimix is much more than just another digital audio post-production tool. The system's comprehensive networking capabilities, for example, have been designed specifically to maximize facility resources and offer the ability to create a fully integrated all-digital post/broadcast production environment. SSL's design approach integrates all the components for audio post into a single, user-friendly surround-sound system that offers unprecedented connectivity. Altimix provides instant access to stored audio and video though a shared multidisk array, as well as an ergonomically designed console surface with 24 assignable motorized faders laid out with a flexible channel/group architecture. Dedicated, user-friendly control panels are provided for all automated DSP, routing and switching functions, dramatically reducing the learning curve.

All in all, Altimix is a hard system to fault. A new level of integrating audio with random access video allows rearranging sound and picture within one system, thus making it possible to audition large-scale project changes even during final mixdown. It is no exaggeration to say that Altimix is destined to provide new levels of power and flexibility to creative sound designers around the world.

Pricing varies with configuration and is available upon application. Contact Solid State Logic, 320 West 46th Street, 2nd Floor, New York, NY 10036; 212/315-1111; fax 212/315-0251. ■

Mel Lambert currently heads up Media&Marketing, a consulting service for pro audio firms and facilities.

The TOP TEN Reasons to Buy a PV™ 2000

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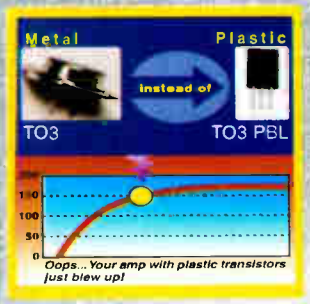
How many plastic frying pans have you ever seen?



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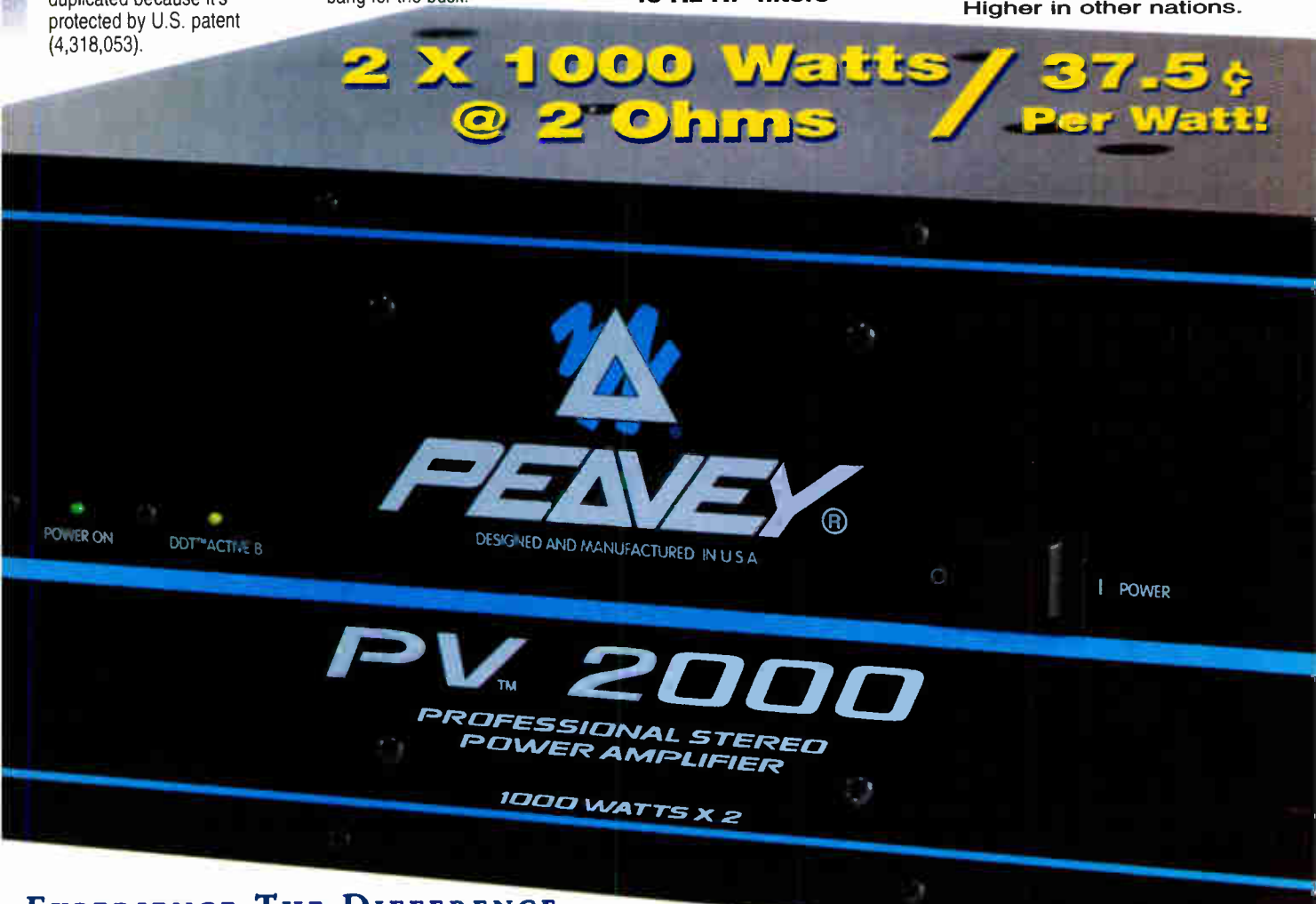

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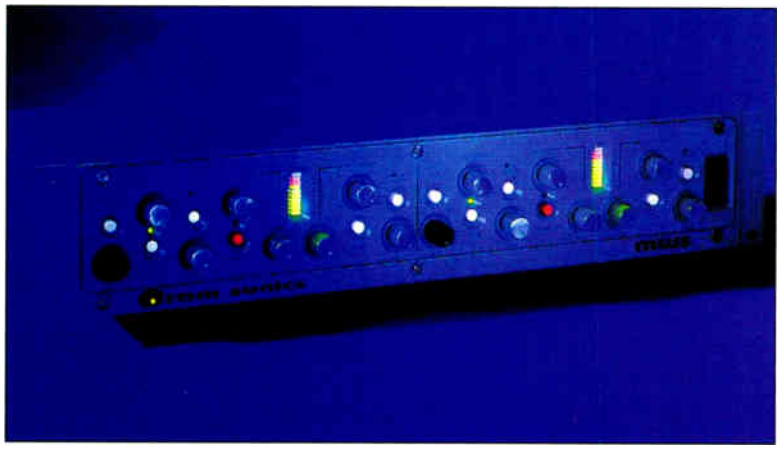
CIRCLE #107 ON PRODUCT INFO CARD

ORAM SONICS MWS

MICROPHONE PREAMP

Every once in a while you stumble across a product that exceeds your expectations, and such was the case when I recently received an Oram Sonics Microphone Workstation mic preamp for evaluation. The MWS functions as a 2-channel mic/line preamp with equalization. The unit has 48-volt phantom power on each channel, along with a phase (polarity reverse) switch. An input level control adjusts gain of line and mic levels, from unity (up to 22 dB) to +70 dB. The unit has a steep roll-off low filter adjustable from 5 to 200 Hz, very useful for eliminating any low-end rumble (from a noisy air-conditioning system, for example). In addition, the low filter is switch-selectable to either 80 or 150 Hz with a rotary control for cut/boost of up to 16 dB. The high filter control is switch-selectable to either 8 or 12 kHz with +/-16dB cut/boost, and a High-Cut switch inserts a steep roll-off into the audio path to remove line noise (like RFI). Roll-off starts at 9 kHz and increases with frequency.



For fine-tuning your sound, a Low Sweep control works in conjunction with a Lo-Mid control. These combine to provide a bell-shaped response that can be set anywhere from 150 to 2k Hz with a control range of +/-16 dB. Similarly, the High Sweep can be set from 1 to 15 kHz, and cut/boost is controlled by the Hi-Mid pot, which also has a range of +/-6 dB.

If specs are your thing, the important ones are distortion figures of less than 0.005% across the full frequency range of 20 to 20k Hz, headroom of greater than +24dBu (wideband) and channel crosstalk of -61 dB at 20 kHz, improving at lower frequencies. Typical RMS wideband noise is -90dBu.

Recently, I was reviewing Earthworks TC40K microphones (for *Mix*'s sister publication, *Electronic Musician*), which have a frequency response that extends from 9 to 40k Hz. I wanted to test them with a preamp whose response was similar. The Oram Microphone Workstation is within 0.5dB from 20 to 20k Hz and down just 3 dB at 40 kHz.

My first test of the Oram involved sampling two different acoustic 12-string guitars—a relatively inexpensive Ibanez, and a vintage Gibson B-45-12 (which now boasts a four-figure price tag). With a set of TC40Ks hooked up, I slipped on a set of AKG headphones and began playing the Ibanez. What I heard was nothing less than sensational—lots of sparkling harmonics and a rich set of overtones. The Gibson sounded even better, though I have to admit there wasn't the night-and-day difference you might expect in the sound, given the price difference between the two guitars.

Over the next week or so I sampled and recorded a number of acoustic and electric instruments with the TC40Ks and a set of well-matched AKG C-414s, followed by a recording session with an Irish folk group, the Long-Forgotten String Band. The band has two guitars, mandolin, fiddle, bass, banjo, two flutes and penny whistle, which would provide an excellent workout for the Oram preamp.

We were recording in a relatively live, medium-sized room (about 16x22 feet), and I had the group set up in a semicircle around a set of TC40Ks. At the end of the session, all of the bandmembers took turns listening to the recording and all were impressed; several even laughingly said the tape sounded better than the band did in real life.

Obviously, one factor in the recording quality were the TC40Ks, but that's only part of the story. The Oram produced a sonically excellent recording with as much detail as you could hope for. Later, I played the recording back through the MWS to check out its sophisticated equalization. Designer John Oram is well-known for his equalizers, going back to his early circuit work on the legendary Trident consoles.

I have to really hear something special before I buy into some advertising hype, and I'll admit that to me, the concept of British EQ seemed exactly that. However, once I started adjusting the controls on the MWS, I began to see just what all the fuss is about.

For the folk recording, I added +4 dB at 250 Hz and +4 dB at 10 kHz. I thought the recording was pretty good to begin with, but after these minor adjustments, the music really came into focus. The sweepable EQ controls and the bell-

BY JIM MILLER

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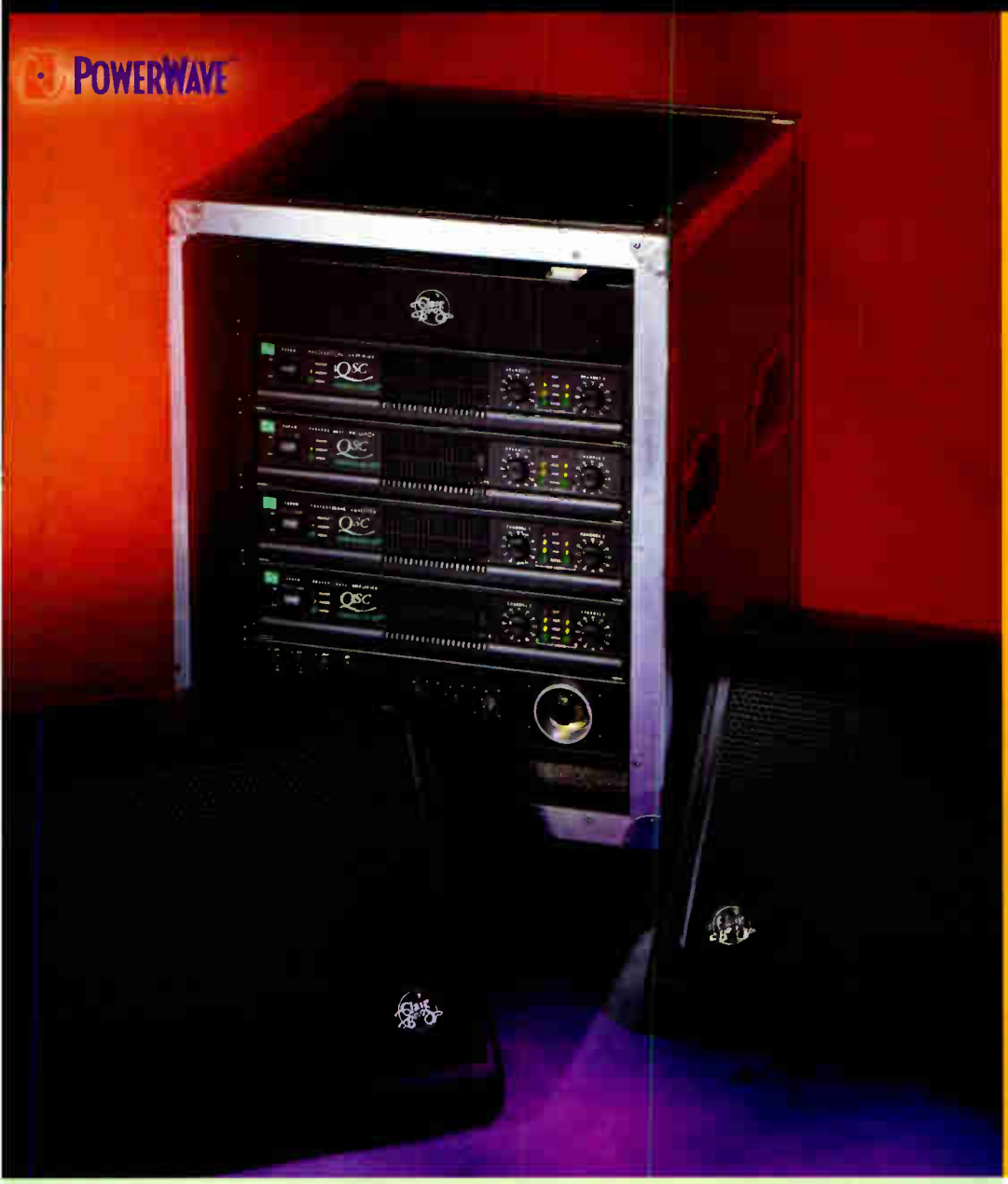

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fidelity at work.

shaped response curve of the resultant equalization made dialing in the perfect sound almost too easy (if there is such a thing). Even with my tweaking, the recording retained all the openness and detail of the original, but now had a certain richness and warmth that was lacking before. Switching out the EQ was truly a revelation. What I had believed to be a great recording was now, thanks to the superb equalization of the MWS, nothing short of phenomenal.

Because I had such success with the folk recording, I played through some of my prior projects and found several other recordings I wanted to hear with this EQ. The results in each case—from a Latin pop group to a hard rock band to some of my own compositions—were every bit as pleasing.

I do have some complaints about the unit: The buttons that enable certain functions, such as EQ in, phantom power, etc., were a bit hard to negotiate with my fingers—I had to use a fingernail to get them pushed in fully, although this does keep you from accidentally switching in a function you don't want. I also felt there could be more frequencies screened onto the face plate. The Low Sweep control has only three: 150, 700 and 2k Hz. Though I know that adjusting EQ is a matter of ears, not eyes, I would like to see intermediate frequencies marked just for quick adjustments. Same with all the cut/boost controls, which are marked only with -16 and +16. There is a detent at 0 dB, however.

These minor gripes aside, I have to admit I'm now sold on this box—and British EQ. But I guess you know that by now. To have one unit that not only performs well as a dedicated mic preamp, but also does double duty as a superb mastering EQ for a small project studio such as mine is a dream come true. True, at $2,195 retail, the Oram MWS is hardly in the impulse-buy category. My main problem now is how to get one of these marvelous units for myself. Hey, everyone should have such problems!

Oram Professional Audio, The Old Forge, Hook Green, Meopham, Kent DA 13 OJE, England. U.S. telephone: 888-ORAM-PRO (888/672-6776). Web site: www.oram.co.uk. ■

Jim Miller is a freelance sound designer, a sometime session guitarist and a frequent contributor to Electronic Musician *magazine.*

FIELD TEST

SYMETRIX 606

DELAY F/X MACHINE

For the live sound mixer, the most essential feature of a delay device is quick access to key controls. The Echoplex, Space Echo, Effectron and Prime Time all offered this feature, enabling operators to creatively tweak effects on the fly in performance. And any engineer worthy of an all-access laminate will tell you there's nothing like having a knob to grab. But though today's digital effects devices usually include a rotary-encoder soft-knob for parameter adjustment, these machines tend to be expensive. So, while the discontinued favorites named above have become collectors' items, many mixers have been waiting for an affordable delay line suitable for real-time use in live mixing. Well, the wait is over—this new baby has knobs! As an old-timer, I often miss my Space Echo with its built-in chorus and classic-sounding tape echo; these effects can be imitated on the 606.

The Symetrix 606 delay F/x Machine is a dedicated delay-based effects unit that offers instant access to critical delay parameters via nine rotary encoder knobs. Two more levels of parameter adjustment are available by using a switch to shift the bank of nine rotary encoders to inspect and adjust alternate functions. The 606 derives its engineering heritage from previous Symetrix digital products such as the award-winning 620, and it uses the same 20-bit converter as the 402 Room Delay and the Lucid Technology ADA 1000 converter. The 606 is clean and quiet, has full bandwidth, and provides delay times up to 1.3 seconds; changing the Memory Width parameter (#69) from 24-bit to 16-bit extends maximum delay time to 2.6 seconds. Its reasonable $649 list price puts it within reach of everyone who needs a dedicated delay.

The 606 is a 2-channel device with two pairs of balanced ¼-inch TRS jacks on the back for inputs and outputs—and no wall wart! On the left of the front panel are an analog level control and 4-segment LED metering of both input signals. The unit has 109 internal presets, with the first nine being an assortment of effects the 606 can produce. These first nine presets are duplicated in the last nine locations as read-only programs, so the best way to experiment with the 606 is to use the first nine spots as working locations.

The first decision that must be made is how to connect the device to your console. There are three basic types of internal routing. A dual-mono program allows the 606 to act as two independent mono effects (labeled 2CH). The 606 can also be used as a stereo effect, with the inputs sent to both delays (1-2). A third way is to run the 606 as a single-channel effect with the two delays in series, with the input of the second delay fed from the output of the first for compound effects (labeled 1CH).

This latter arrangement is my favorite; I ended up using presets that assigned the first delay as a doubler feeding a slap, with tempo controlled by the footswitch. A momentary footswitch—such as any keyboard sustain pedal—plugged into a rear panel jack can be used to tap in the tempo for the delay time. The footswitch can be assigned to control the tempo for either delay 1 or 2, or both, and can even adjust one delay with the other proportionately scaled to preserve rhythmic patterns. Two LEDs on the front panel flash the tempo for each delay section. The tempo of either delay can also be synched to MIDI Clock with a choice of note-size designations.

Because of the high-quality A/D converters, the sound of the delay matches the original. The frequency response of echoes, either natural or tape-generated, can be mimicked by putting a filter on the feedback path or on the delay's "wet" output, or on both. Filtering helps the delayed signal imitate the attenuation of air absorption or the response of analog tape. To imitate the sound of reflective surfaces, a diffusor can be applied instead of a filter. There are 16 levels of diffusion and eight equalization filter types, including bandpass, band-reject, two highpass and two lowpass filters. Filter frequency, bandwidth and the amount of diffusion can all be adjusted directly by select-shifting the knobs. However, assignment of the filter and choice of filter type must be made by scrolling the ninth Global soft-knob to a specific parameter; this requires a little pre-production.

MIDI CONTROL

Modulation is the 606's strong suit—up to six modulation blocks can be used, with four oscillators, two random generators and a logarithmic converter as sources.

BY MARK FRINK

Additionally, several MIDI controllers can be used as modulation sources, including mod wheel (1), breath controller (2), foot controller (4), MIDI volume (7), MIDI balance (8) and MIDI pan (10). The affected parameter, or destinations, for these modulators can be assigned to delay time, filter frequency, input or feedback mixture, and wet or dry output pan or attenuation, offering a mind-boggling assortment of options. The modification parameters are available by select-shifting the soft-knobs and are easily adjusted. If you're a flanging fool, you'll have a blast with this unit, and you can always grab a knob and flange manually.

Though the majority of the 606's adjustments are available from the row of soft-knobs, others must be accessed by using the Global knob to scroll through the list of 80 parameters. A laminated chart of parameters helps the user explore the 606's full potential. Some of the more obscure adjustments require a little time and patience, but most users will only need to do this occasionally. Starting in memory location 10, there are 90 presets written for a variety of pre-programmed effects, including chorus, flange and phasers. Favorite presets can be protected from being overwritten by toggling the last parameter location (#80). A few minutes spent with a mic and headphones will make most users comfortable enough to tweak a couple of stock presets as starting points and store them in the first nine presets.

By the time you read this, the manual will have been rewritten and the knobs, which were all black on my review unit, will have different-colored caps—with so many knobs to choose from, color differentiation helps immensely. My only other criticism is that the three-digit display makes it a bit cumbersome to scroll through parameters that are not directly accessible from front panel knobs.

HANDS AND FEET

My favorite preset assigns the first delay as a doubler (with its wet/dry mix at 50%) and then feeds the second delay, which is set up as a slap. In this mode, the 606 operates as a single-channel device, using the first input and the second output. I patch the output of the delayed signal into a console channel so I can bump and ride it with the music. I also run output one (the doubler alone, from the first delay) into a second console input so I can get the benefit of a thickened dry sound, regardless of where the delay is in the mix. I can then use the footswitch to set the tempo of the slap delay, or I can just reach over to the knob and make any needed changes.

Another choice feature of the 606 is its small size. The single-rackspace chassis weighs five pounds and is only five inches deep, including the knobs. The shallow frame sits neatly atop most meter bridges and easily tucks into a gig bag. I recently used the 606 to complement a variety of regional bands when I was mixing FOH for the "B stage" (you know, the stage for bands that don't have engineers) at Portland's Waterfront Blues festival. I found that once the 606 was set up with a couple of good starting presets, it was easy to quickly adjust it to match the music. And after using it for a few weeks, I now carry the 606 to every gig—I hesitate to put it into a rack because it's the one piece of gear I want to personally bring to the mix position each day.

Symetrix Inc., 14926 35th Avenue West, Lynnwood, WA 98037; 206/787-3222; fax 206/787-3211. Web site www.symetrixaudio.com. ■

Mark Frink is Mix*'s sound reinforcement editor.*

GROOVE TUBES CL1S

VACUUM TUBE COMPRESSOR/LIMITER

The past few years have seen a veritable glut of new tube microphones and signal processors that incorporate modern enhancements in vintage designs, and the Groove Tubes CL1s vacuum tube compressor/limiter now joins the pack. The unit features an opto-electrical design reminiscent of the Teletronix/UREI LA-2A but, unlike competing opto-compressors that offer only threshold/gain reduction and make-up gain knobs, the CL1s distinguishes itself by offering a fairly high degree of parameter control. And its $2,495 list price is relatively modest.

Each of the CL1s' two channels is provided with its own ratio, threshold, output gain, attack and release knobs, in addition to switches for compressor bypass, sensitivity and metering mode (individual channel VU meters show either input level or gain reduction). Each channel also has sidechain insert jacks, and can operate independently (i.e., dual-mono mode) or be linked for stereo operation by a front panel switch. All of this would be mere window dressing if the unit did not sound good. Luckily, when you crack these windows you're in for a treat.

THE INSIDE STORY

The CL1s uses a light-emitting diode and photo-sensitive cell for its sidechain, a design that departs from the electroluminescent panel used in the LA-2A but operates on the same basic principle. In simple terms, the LED gets brighter as the signal gets hotter, and the photo-resistor reacts to the light and reduces the signal's gain.

The audio path is all-tube except for one op-amp buffer stage for the opto-attenuator. The unbalanced input circuit directly drives a unity gain, tube input buffer with one 12AU7 per channel. The all-tube output stage consists of one 12AX7 and one 12AU7 tube in each channel, driving custom-designed Reichenbach transformers (the work of Tom Reichenbach of Cinema Magnetics) that provide balanced and floating outputs.

The CL1s is, in essence, a very clean machine with somewhat limited headroom. Its frequency response is stated as 10 to 100k Hz ±0.1 dB. Maximum input level is +21 dB, maximum output only +20 dB (driving 600 ohms). You can coax over 20 dB of compression out of the CL1s, and dial in over 20 dB of makeup gain.

The unit is only one rackspace high, but Groove Tubes recommends you leave at least one rackspace empty both above and below it for cooling purposes. I concur; those six tubes put out a lot of heat! The CL1s is 16 inches deep.

All I/O connections are on the unit's rear panel. Audio inputs are via combo jacks that accept either a 3-pin XLR or a ¼-inch phone plug. Both XLR and ¼-inch TRS jacks (tip hot, ring cold, sleeve ground) provide audio output for each channel, and these are wired in parallel. You should ground the cold signal if you're driving an unbalanced device from the CL1s' output; this happens automatically when you insert a tip-sleeve plug into the TRS output jack. The unit's nominal operating level is +4 dBm; independent front panel switches set each channel's sensitivity to accommodate -10dBV signals.

The rear panel also provides separate ¼-inch TRS insert send and return jacks for each channel, a power switch and a connector for the detachable, three-prong AC cord. The unit accepts 100, 120, 220 and 240 volts AC, at 50 or 60 Hz, a real convenience for world travelers. Groove Tubes' Smart Start™ sequenced, ramped power supply prolongs the tubes' life and performance.

AT THE CONTROLS

The CL1s has a beautifully crafted, retro look. The chassis and face plate are fashioned from polished chrome steel so shiny you could send air rescue signals off its surface. But the unit sacrifices function for fashion.

All titling is white, which is almost impossible to see against the highly reflective background—under any lighting conditions—until you're practically kissing the front panel. Also, the threshold, output gain, attack and release knobs have virtually no values marked on them (the latter two are simply marked "min" and "max" at either end of their travel), leaving you to rely completely on your ears. The cursory manual is a little short on info: It omits specs for attack and release time, threshold and output gain ranges and does not describe the sidechain inserts' internal wiring scheme.

The face plate titling does show the values for the switched ratio

BY MICHAEL COOPER

control knob, which gives you a choice of 2:1, 4:1, 8:1 and 12:1 settings. But the "pointer" line on the knob does not line up with the titling, making it difficult to determine the ratio setting without counting detents up or down from the extreme settings.

These mere annoyances have no effect on the sound quality, however, and a quick phone call to Groove Tubes got me most of the data I needed. Most notably, the attack times range from a lightning fast .04 ms to 45 ms, and the release times are 4.8 ms to 2.2 seconds. The insert send and receive jacks are actually unbalanced; ring and sleeve are both grounded. However, the inserts will interface properly with balanced gear. The send jack is half-normaled to the return.

A couple of other idiosyncrasies deserve mention. When the CL1s is stereo-linked, it mixes the signals from both threshold controls and applies the same amount of gain reduction to each channel. While the threshold interaction is a little unusual, the stereo imaging is very solid. The attack and release controls for the left channel are always the master in Link mode.

Also noteworthy is the fact that the CL1s' bypass switch is not a hardwire bypass, but merely disables the opto-attenuator and fixes the gain at unity. Although this design precludes instantaneous A/B tests with a minimum signal path, it does allow you to apply fat tube processing to tracks without compressing them.

IN SESSION

I was immediately impressed with the CL1s' gorgeous sound. On kick drum, miked with an AKG D-112, the CL1s clarified and tightened up the sound while simultaneously managing to make it sound fatter. Creating a power pop snare sound was also easy; with the proper attack and release times the CL1s added a wonderful presence and snap to the track.

Next up was an electric bass guitar on a country rock session. I routed both a Peavey PVM™ T9000 tube mic (on the bass cabinet) and a DI box through a Millennia Media HV-3 mic preamp and the CL1s, the latter with channels linked. I have to say I was slayed by what I heard. The dry, woody bass I had heard in the studio was transformed into a fat, round bad-boy bursting with luscious overtones. The sound was somehow present without being bright, and the CL1s' inserts worked great with outboard equalizers to deboom a problem G-note on the track.

Breathy male lead vocals were next, softly sung and miked very closely with a RØDE Classic tube condenser (again using the HV-3). Compressed at a 2:1 ratio with about 7-10 dB of gain reduction on the highest peaks, what I heard raised the hair on the back of my neck! The sound was perfection incarnate: simultaneously fat and compellingly clear, with a velvety warm texture to die for.

The foregoing notwithstanding, I got my first call back down to Earth when I raised the threshold and bumped up the ratio setting to 4:1. The vocal timbre was still impressive, but almost any settings of the attack and release controls caused noticeable pumping. Pumping was even more evident when compressing an exposed, strummed 12-string acoustic guitar track very mildly at a 2:1 ratio. I had to back off the threshold control to well below the point of any gain reduction meter movement before the pumping ceased (I could sometimes hear compression even when the VU meters did not indi-

cate any). But even with no compression, the tone was enriched by going through the CL1s' tubes.

The CL1s handled the narrower bandwidth and dynamics of an overdriven rock guitar with far greater ease, allowing a 12:1 ratio without apparent pumping. The sound was everything you could possibly want: fat, present, smooth and even.

Last up were some A/B tests with an Anthony DeMaria Labs ADL1500. The ADL1500 is a stereo, all-tube, opto-electrical compressor/limiter that lists for $2,995 (20% more than the CL1s). Both units were fed drum-heavy, blues-rock stereo mixes for equal amounts of gain reduction, varied from 3 to 7 dB. Given the complex, percussive, broadband nature of this source material, the ADL1500 exhibited much less pumping (almost none) than the CL1s. The ADL1500 also sounded fatter and creamier than the Groove Tubes compressor. However, the CL1s was noticeably cleaner and clearer, and preserved more of the mix's original high-end detail (advantages also confirmed later on mono tracks). Both units perform better as compressors than as limiters.

CONCLUSIONS

The CL1s is an awesome-sounding box, as long as you avoid its weak points. In terms of timbre alone, it offers the best of all worlds: a fat, warm, rich, clear and present sound. That's a combination that's hard to come by.

The unit's down side is that it can pump if used casually, and it does not handle complex broadband material very well at all (though I've heard much worse). But on applications where the CL1s really shines (vocals, bass, electric guitar and kick drum), the plethora of adjustable front panel controls gives you a lot of creative flexibility. True, the switched ratio knob offers limited choices for low ratios. But compared to the anemic feature set of most other opto-electrical comp/limiters on the market (including the ADL1500), this is a feature-laden box. And when you consider the CL1s' moderate $2,495 list price, you can only conclude it's a winner.

Groove Tubes, 12866 Foothill Blvd., Sylmar, CA 91342; 818/361-4500; fax 818/365-9884. Web site: www.groovetubes.com. ■

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

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RAMSA WR-DA7

DIGITAL MIXING CONSOLE

Five years ago, if someone told me I could buy a 32-channel digital console with moving faders and instantaneous recall of all console parameters for $5,000, I'd say they were nuts. But three months from now—the first less-than-$5,000 32-channel digital console will arrive in the form of the Ramsa WR-DA7.

Thanks to some surreptitious research in an unguarded dumpster behind the Ramsa Research Department in Yokahama, Japan, I stumbled upon complete details of the mixer—CAD drawings, prototype reports, photos—everything! James Bond—or at least Austin Powers—would have been proud. Of course, the WR-DA7 won't be unveiled until NAMM in Los Angeles, but here's what can be told so far.

The story starts some time ago. Over the years, Ramsa's WR-S840 live sound consoles have racked up hundreds of thousands—if not millions—of road miles on national tours. Ramsa's sister company, Panasonic, is arguably the world's leading producer of pro studio DAT recorders. Meanwhile, Ramsa's WR-DX1000 is a world-class, large-format, 24-bit assignable digital theater console sold in Japan, but it has yet to reach U.S. shores. So an affordable Ramsa digital mixer isn't too far-fetched.

Housed in a compact, but not *too* compact, 27x21x9-inch chassis, the WR-DA7 has 16 analog mic/line inputs (the first eight have switchable 48-volt phantom power) and three expansion card slots for connecting recorders with ADAT Lightpipe, Tascam TDIF or AES/EBU interfaces. The second set of 16 inputs is accessed by pressing individual channel flip buttons above each fader. The nice part about having separate—in addition to global—fader reverse is that you can access any combination of tracks, rather than just the "top" or "bottom" bank.

The top panel is laid out logically, so users can figure out basic operations in minutes. A set of four up/down/left/right cursor keys can be switched to output MIDI Machine Control commands (play/stop/rwd/ffd) to MDMs, sequencers or workstations, while data is entered via a large dial or an alphanumeric keypad. Also standard are 200 snapshot memories.

Above each 100mm fader are the familiar channel on, solo and fader flip buttons. So far it's not much different than any analog board. Push the Select button on any channel and the centralized EQ/pan/assign/dynamics/delay/aux section is enabled. But here the WR-DA7 really gets slick: Touch any equalizer knob and the large 320x240-dot backlit LCD screen switches to show that channel's EQ parameters and curves. No digging through menus or getting lost in screen #39. The procedure is no different for accessing each channel's compressor/limiter/gate expander. While in the EQ and dynamics sections, you will also notice the library storage of 50 different EQ and dynamics settings. You touch, it's there, right now—all without

BY GEORGE PETERSEN

Does your mix make the *Earth Move?*

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leaving the sweet spot. I could get used to this.

The EQ is versatile, with up to four bands active on any channel: HP and LP filters, low/high peak/shelving or true parametric action. And with 100% overlap on *all* the bands, any band could be 20 Hz or 20 kHz. The parametric bandwidth ranges from a narrow 0.1 octave to a w-i-d-e 10 octaves, adjustable in 41 steps. The dynamics section provides variable attack/release times, ratio and threshold levels; delay on each channel is adjustable, up to a maximum of 14,400 samples (300 ms @ 48 kHz).

The rear panel has the 16 mic/line inputs (eight XLR, eight TRS), 16 channel insert points (pre-A/D), S/PDIF I/O for sends 1-2, and unbalanced analog sends/returns for 3-4 and 5-6. The record outs, 2-track "B" returns and studio and control room feeds are ¼-inch TRS balanced, while the analog master outputs are XLR. The digital in/out for 2-track "A" return (or assignable to inputs 15-16) and main stereo digital record outs are provided on XLR connectors but curiously switchable between AES/EBU and S/PDIF. Also on the back are word clock I/Os with 75-ohm termination, a 9-pin RS-422 serial port, a DIN serial jack for connecting to a PC, MIDI I/O and D15-sub for the optional meter bridge. A ¼-inch footswitch can control talkback on/off or automation punch in/out.

A Surround mode reconfigures the 8 group buses to act as 5.1 or LCRS outputs. Surround panning can be assigned to the master fader/data wheel for x-y control or by drawing patterns onscreen with pre-assigned or manual pan times.

Features aside, the best part of the WR-DA7 is its attention to audio details. Internal processing is 32-bit (192dB dynamic range), providing ample headroom for the 24-bit, 128-times over-sampled mic/line inputs and 20-bit conversion on the analog aux sends/returns. Specs quote a typical dynamic range of 109 dB—which far exceeds CD-quality.

The WR-DA7 is expected to retail at less than $5,000; shipping is slated for January. Options include ADAT, TDIF and AES/EBU interface cards, a meter bridge and a SMPTE/video sync interface card.

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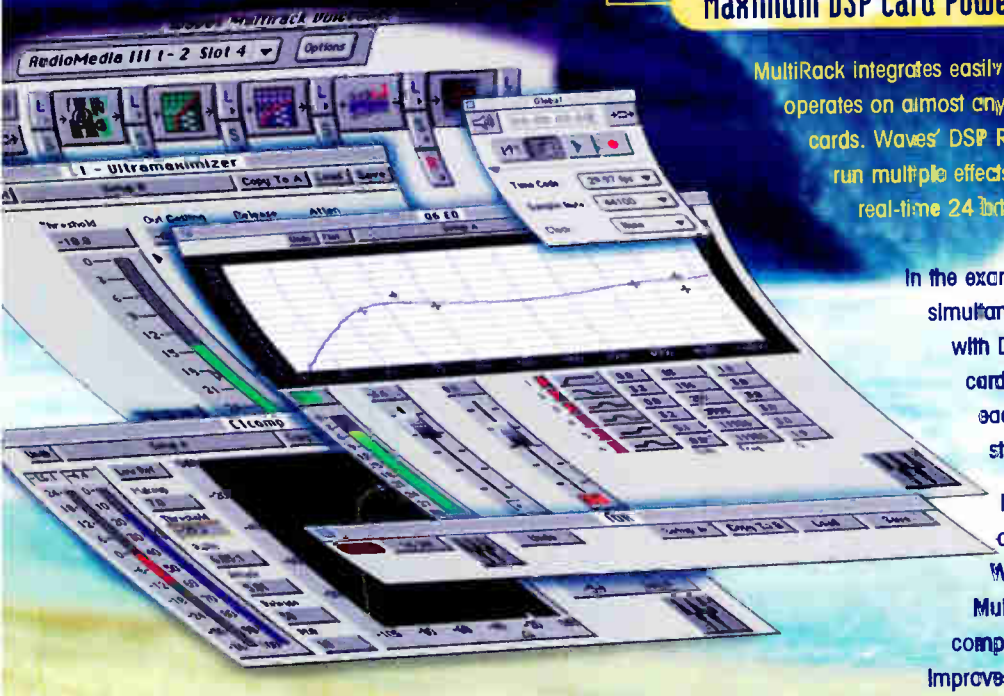

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BUYING AN AMPLIFIER

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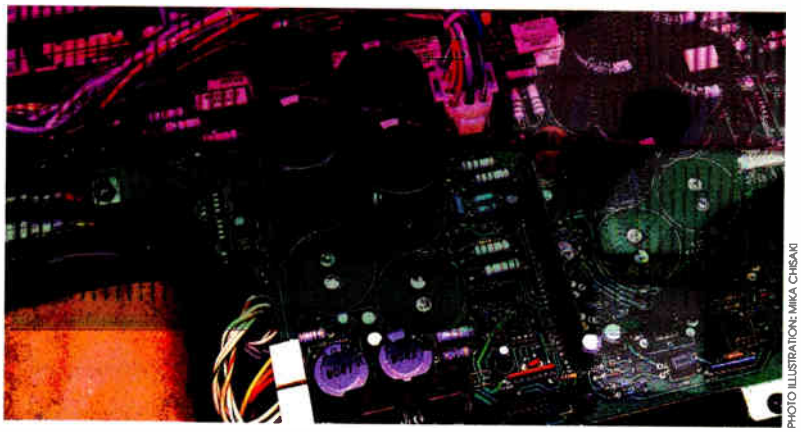

PHOTO ILLUSTRATION: MIKA CHISAKI

More power, more damping, more slew rate—is more of everything always better? What about Total Harmonic Distortion (THD) and Intermodulation Distortion (IMD)? Can these ever be low enough?

The key to choosing a power amplifier is to have some clear knowledge of what different specifications will really mean to your sound and to your system's reliability. Comparing one power amplifier to another as though nothing else in your system matters can lead you to overvalue specifications that mean nothing in practice. Instead, let's consider how each amplifier's performance specifications fit with the characteristics of the rest of your sound system. Looking at the problem this way will help guide you through a lot of the controversy surrounding specifications.

Every device in your signal chain shapes the sound that hits your brain. The CD, microphone, preamp, mixer, power amp, crossover, speakers, the air and the human ear itself; all these things possess characteristics that affect the sound you perceive, and all these characteristics can be understood, measured and specified. If you know the specs of the other things in your system and know what "better" means, you can choose an amplifier that is superior to the weakest link in your system on every axis of comparison; your choice of amplifier will approach the ideal.

Of course, there are a number of non-sound-related factors that will affect your choice of amplifier. Price, weight, size, reliability, availability, name recognition, flexibility and familiarity are all worth considering, and in some situations a compromise may be unavoidable. But let's at least make sure that the weakest component in the system is not the amplifier. For good measure, I propose an arbitrary standard: The amplifier must be at least 10 times "better" than any other component in the system.

Let's try dealing with distortion specs using this method. The worst sources of distortion in a speaker system are generally the transducers; for example, both the speaker cabinet and the human auditory tract show measured distortion percentages in the low single digits. (A simple test demonstrates that when two different tones are emitted from separate sources, a human subject will hear new "difference tones" due to the nonlinearity of the ear.) You can look it up if you like, but for our purposes it doesn't make much difference if the distortion is one, two or six percent—we are going to be at least 10 times better. So about 0.1% ought to do it.

MASKING

But just as you comfortably note that all of the amps on your list are at least that good, you hear a spatially dislocated shout: "Wait! What kind of distortions are you comparing?" The room grows dark, you hear a blur of tormented voices, and a rhythmic scratching ssssxxxx - ssssxxxx, like suggestive sandpaper, rises up out of the noise floor. Underneath the sand-block rhythm, a serpentine voice repeats "masking, masking, masking." The blur of voices resolves into a didactic drone: "A sharp discontinuity in the transfer function gives rise to harmonic distortion products that are distant from the fundamental and therefore more audible because the masking effect is strongest at frequencies local to the noise..." A garbled chant begins: "temporal masking problem, temporal masking problem, temporal masking problem," with lots of hissy little pre-echoes just before every word. Weird. Let's not go there.

Well, let's just go there a little.

MPEG (the audio transmission standard arrived at by the Motion Pictures Expert Group) relies on the fact, supported by the most stringent subjective testing, that noise and distortion made up of frequencies close to those of the desired signal are masked—in other words, disregarded—by either your hearing mechanism or your brain. You don't hate these noises when they are there, you don't pine for them when they are gone—you just don't care. However, if the same "amount" of noise and distortion products occur at frequencies much higher or lower than the desired signal, you do hear them—and you do care.

Conventional spec sheets aren't going to help us here. They show THD (actually THD+N, Total Harmonic Distortion plus Noise) and

BY PAUL IERYMENKO

—CONTINUED ON PAGE 177

SINEAD O'CONNOR

The "Gospel Oak" Tour

Sinead O'Connor is back in the limelight, and all's right with the world. This brave and brilliant singer/songwriter returned to full-blown touring for the first time in several years this summer, and those of us who were fortunate enough to hear her were thanking our lucky stars.

This tour was in support of O'Connor's most recent release, *Gospel Oak* (Columbia/Sony), a six-song EP that shows off the artist's best singing yet. Rumor has it that O'Connor began taking voice lessons a few years ago, and though no one would have suggested she needed them, it shows. She seems to have that much more control than on her earlier recordings.

The arrangements on *Gospel Oak* contain many of the same elements of a lot of the piecemeal work she's done over the past few years for film soundtracks, compilations, etc.—there's complex layering of vocal and synth sounds combined with traditional instruments, and that military-style drumming that's reminiscent of the song "(You Made Me the) Thief of Your Heart" that she recorded with Bono for the *In the Name of the Father* score.

On her recordings and live, O'Connor's songs often start quiet, with just her voice and an acoustic guitar ("The Last Day of Our Acquaintance," for example) and effectively build to a powerful, full-band sound. It's an exciting show to hear and, says front-of-house engineer Dieter Van Denzel, an exciting one to mix. "It's not an easy gig to mix," Van Denzel says, "because there's a lot of dynamic range in the music and in her voice." Van Denzel, who is from Holland and is affiliated with the Dutch sound reinforcement company Ampco Pro Rent, has mixed O'Connor's shows since she appeared as part of the '95 Lollapalooza line-up, so he knows quite a bit about what to expect from her performances.

On this tour, O'Connor is backed by the powerful harmonies of the Screaming Orphans, a four-sister (Grainne, Joan, Angela and Marie Therese Diver) Irish group who are also the opening act. Her band includes John Reynolds on drums, Clare Kenny on bass, Carol Issacs and Kenny Campbell on keyboards, Caroline Dale on electric cello and Justin Adams on guitars.

The band and crew spent a week in London in May in full-production rehearsals, using the system they used for the European leg of the tour: a Renkus-Heinz CE-3 P.A. system and Ampco CW monitor wedges; all power was via Crest amps with Synco processors. The set list O'Connor and her band worked up includes mainly newer material: most of the songs on *Gospel Oak*, and quite a few from her previous effort, *Universal Mother*, as well as some movie music and a few surprise covers and early songs.

Many of the early gigs were European festival appearances, where the gear, of course, is different every day and there's no time for soundchecks; Van Denzel carried his own vocal and drum mics (all Shure; the electronic instruments are all DI) and vocal effects rack to every gig, feeling that would ensure some consistency. The vocal effects are a main reverb, the TC Electronic M5000; a BSS 901 dynamic EQ; a Summit TLA100 leveling amp; an Aphex graphic EQ; and an ART Pro VLA tube leveling

—CONTINUED ON PAGE 174

PHOTOS: STEVE JENNINGS

FOH engineer Dieter Van Denzel (L) and monitor mixer Peter Schmitz

BY BARBARA SCHULTZ

BOZ SCAGGS

Blues Home on the Road

Boz Scaggs has been out on tour to support his new blues-oriented album, *Come on Home*, a stunning collection that features a canny selection of seldom-heard songs from the pre-rock era. Mixing classics by T-Bone Walker and Jimmy Reed with less recognizable gems and some of his own compositions, Scaggs and his crack studio band take the listener on an hour-long tour of the emotional landscape of the blues—longing and despair, bitterness and joy, wounded pride and sexual arrogance are all touched on, and the vocal and instrumental work is first-class. *Mix* caught up with the tour at the River Queen restaurant, Portland, Oregon's newest outdoor venue. Situated alongside the Willamette River, the River Queen has a capacity of about 3,500.

The FOH engineer is James Geddes, a soft-spoken, bespectacled man who is comfortable both on the road and in the studio—he has nearly two dozen Gold albums to his credit. Geddes began his career in audio in the '70s by following his brother from New York to California, and ended up at the legendary Santa Barbara Sound studio. After working on Joe Walsh's *There Goes the Neighborhood*, Stevie Ray Vaughn's *Texas Flood* and Jackson Browne's *Lawyers in Love* and *Lives in the Balance*, Geddes went out onto the road with Browne in 1981. Geddes' road resume now includes stints with Sheena Easton, Pat Benatar, Belinda Carlisle and Cyndi Lauper, and he worked with Buford Jones on the six-handed mix of Pink Floyd's infamous 1989 quad sound tour. After finishing Scaggs' tour, he will be going out with En Vogue.

PHOTOS: MARK FRINK

Boz Scaggs' audio crew (L to R): James Geddes, David Miranda, Dave Shadoan

The guitar mics are all SM57s. "Boz plays his red Gibson 355 and his L-5S Sunburst through a Fender Vibro King and a Blues DeVille that uses a Marshall Artist 3203 head," says Mark Scaggs, Boz's brother, longtime guitar tech and stage manager. Lead guitar ace Drew Zingg plays a gorgeous-sounding Matchless two-amp rig, with a green 100-watt 4x10 Chief and red dual-12 DC-30L.

Richard Patterson's Hartke bass rig is miked with an EV RE-20. Keyboard player Scott Plunkett's Leslie cab is placed far upstage-right, with a Sennheiser MD-421 on the low end. Two MD-409s are used on the highs in an extreme stereo configuration that places them inside the high rotors' opening, facing out toward the slots. (Geddes generously credits Mary Chapin-Carpenter's engineer, Chuck Peters, with this technique; it eliminates the rotors' wind noise and wraps the Hammond around the audience in the mix.)

Drum mics on Steve Ferrone's kit include AKG C-408 clip-on condensers for the toms, 451 condensers for hi-hat and ride cymbals and 460s for the overheads. Geddes is one of the originators of the popular Shure SM91 and Beyer M88 combination that he employs on the kick drum. For the snare drum he recently switched to the Audix D-3 mic, with a Sennheiser MD-441 beneath. In the horn section, Cornelius Bumpus' tenor sax is miked with an MD-441, the baritone sax has an RE-20 and Ronnie Buttacavali's trumpet mic is an SM58. Vocal mics are 58s.

The most intriguing appliance onstage isn't exactly an audio device. A 1-inch-diameter tube

BY MARK FRINK

—CONTINUED ON PAGE 170

ALL ACCESS

AEROSMITH

TEXT AND PHOTOS BY STEVE JENNINGS

Cats screech, vocalist Steven Tyler screams, the curtain lifts and Aerosmith blast into the title track of their newest release, Nine Lives. Performing a half-dozen new songs mixed in with older gems, the band are as tight and energetic as ever. Aerosmith are out on tour with A-1 Audio. They warmed up in Europe, and Mix caught up with them during a U.S. summer shed leg before they headed back indoors on their '97-'98 world tour.

FOH engineer Kevin Elson (L), pictured here with A-1 systems engineer Brian Bazilski, is using a PM4000. Elson hooked up with the band in 1993, when he was mixing their opening act. "With these guys, we don't really critique on a night-to-night basis unless we're working on a particular part of the show. They don't want to plan out too much. A lot of times the same songs will have a different feel to them, a spontaneous feel, which is cool. One of the few things we've changed since the beginning of the tour was [to have] guitarist Brad Whitford try out more of his Strats, Telecasters and Les Pauls for a varied sound—he and Joe were sounding too alike." Elson says the band are using more Beyer mics on the guitars than in the past, as well as Microtech Gefells.

Joey Kramer's kit is miked, says drum tech Tim Doyle, with a Beta 57 on the snare, AKG 414s for overheads, an AKG 460 on hi-hat and Shure 98s on the toms. Inside the kick drum, Doyle is using an SM91 and a D-112.

Monitor mixer Mike Sprague is on his first tour with the band and is using a Yamaha PM4000M. After using the prototypes in Europe, Tyler is happy with the new Shure in-ear wireless. His ear pieces are two-way Ultimate Ears UE5s, "a very efficient unit combined with the new Shure wireless units," Sprague says. The band is using an IR-1 Mic-Mute by D-3 from the Van Halen tour; it's an adjustable, infrared switch that automatically switches the mic on, depending on proximity. Drummer Joey Kramer and bassist Tom Hamilton have sub-mixers so they can dial-up basic channels and adjust their own mixes. There are no huge sidefills; 38 wedges and 1x12s are around the stage, all zoned.

Guitar tech Jim Survis, with Joe Perry's guitars. "I do the effects switching for Joe so he can just go out and play and have the right sound for things like solos. He's got the stuff he needs, like the wah wah and the whammy pedal, which has an expression treadle on it; otherwise, I'm doing the on/off switches."

Perry's custom Wizard amps, handmade and hand-wired.

—FROM PAGE 168, BOZ SCAGGS

runs up Scaggs' vocal mic boom stand, ending just below the SM58, where it emits an extremely fine mist throughout the show. "The device moisturizes the vocalist's vital tissues without him having to resort to drinking water, and is much more helpful," explains Mark Scaggs, who discovered it in Lake Tahoe and has used it on tour for the past four years. Borrowed from hospital technology, the device produces no condensation in this application, and hence does no harm to the vocal mic.

DRUM COMPRESSORS SHUNNED

Geddes mixes the show on a Yamaha PM4000. Effects include a Yamaha REV5, which he uses on vocals with a medium plate setting, a Pro-R3 on the snare with the New Hall setting, and an SPX 900 (medium plate) for Scaggs' acoustic guitar and the horn section. Geddes also uses an Eventide H3000 on the horns and a Roland SDE-3000 delay for occasional vocal effects.

Inserts include dbx 160A compressors for bassist Patterson's backing vocals and bass DI input, as well as for Scaggs' acoustic and a spare vocal mic. Two channels of BSS DPR-404 compression are inserted on a subgroup for the horns and six channels of BSS DPR-504 gates are used on the drums—two each for the snare, rack and floor tom mics. Geddes doesn't use a gate on the kick drum and shuns the use of compressors on drums in general. "Gating the kick seems to interfere with its attack," he says, "and I haven't found a gate that doesn't take something away from the leading edge of its transient. All that compression on drums accomplishes is to decrease the dynamics of the kit and bring up the background noise in those channels."

For compression on Scaggs' and Lisa Frazier's vocals, Geddes uses the two channels of an Anthony DeMaria C/L 1500 Stereo Tube Compressor, which Geddes describes as similar to an old LA-2A. "The C/L 1500 is the most transparent, even-sounding compressor on the market today," he points out. "If you're not using an ADL, you simply haven't tried one." Geddes says the ADL and a dbx subharmonic synthesizer are the two most important pieces in his rack. The dbx 120XP is run from an auxiliary send like an effect, with the kick, snare, toms, bass and baritone sax dialed into it. "The dbx 120 adds weight and strength to the mix without adding a lot of extra volume," explains Geddes.

Similarly, Geddes drives the quad-18 subs in the Sound Image five-way PhaseLoc speaker system from an auxiliary bus. The four-way, full-range PhaseLoc enclosures are run with Brooke-Siren FDS-380 OmniDrive processors, with crossover points at 82, 250, 1,600 and 8k Hz. The system is entirely powered with QSC Powerlight amplifiers, with the 4.0 model on the 18s, 15s and 12s, and the 1.8 model on the compression drivers and the tweeters.

Dave Shadoan, president of Sound Image and one of the touring industry's more informed, colorful and entertaining individuals, mixes monitors on a Midas XL-3, one of five the company stocks in its inventory of 30 large-format touring consoles. Ten channels of XTA's GQ-600 stereo graphics were sporting modest EQ tweaks at 160, 400, 2k and 4k Hz. "These are one of the best graphics we've found," says Shadoan. "Their filters are tight, and they work with their RTA nicely." The outboard rack also houses an XTA RTA-1, plus a couple of UREI 7110 compressors, four

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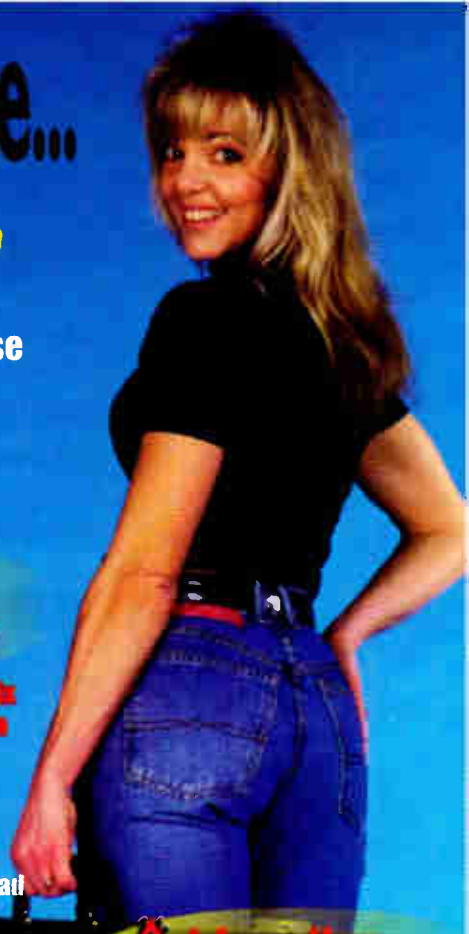

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noise gates and four SPX 90 MkII digital effects, which Shadoan uses as dedicated processors for Scaggs' vocals, acoustic guitar, background vocals and the horns in Scaggs' mix.

WEDGES AND IN-EARS

Shadoan uses two of Sound Image's carbon-fiber G-2 single-12 multipurpose enclosures as floor monitors to provide Scaggs with a full-on mix, while using a Radio Station with Aiwa earbuds to put a vocal-only mix in his ears. Another pair of G-2 enclosures on the downstage edge serve as front fill. Developed by Sound Image, the lightweight carbon-fiber technology cuts the box's weight in half, increases its strength by a factor of seven and eliminates wasteful cabinet resonance. This same enclosure fabrication process is also used in Sound Image's newest line of FOH cabinets, the PhaseLoc Series G-5. Reportedly, the stiffness of this material is so high it cuts rear-cabinet emissions in half; conversations in the front row of the audience can be heard from behind the main stacks during a show.

The horn players listen to PhaseLoc single-15 wedges, while the rest of the band has double-12 wedges, older-style wooden wedges that feature a modified Renkus-Heinz horn with a TAD 4001 compression driver. The eight mixes onstage are powered by a single 16-space rack holding four of QSC's Powerlight 1.8 amps on the lows, four of their 3200 Series Three amps on the highs and four Symetrix 534E crossovers. The combined weight savings from the Powerlight amps and the Sound Image carbon-fiber enclosures is over eight tons, and a typical Sound Image arena touring system easily fits into a single truck. Scaggs' Roadshow truck had plenty of room left in the back for band gear and concessions. Sound Image's Dave Miranda, who will be out mixing Harry Belafonte by the time you read this, was the third man on the audio crew, and he had the system down and in the truck in under an hour.

The set features material from *Come on Home* sprinkled amongst favorites from 1994's *Some Change* and earlier hits from the *Silk Degrees* era. If Scaggs comes to your town over the next few months, be sure to check the show out. You won't be disappointed. ■

Mark Frink is Mix*'s sound reinforcement editor.*

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—FROM PAGE 167, SINEAD O'CONNOR

amplifier, which Ampco purchased specially for this tour.

The mics and processing (provided by Ampco) also came with him to the U.S., where most of the rest of his gear was provided by Scorpio Sound (West Bridgewater, Mass.). Van Denzel mixed the American gigs on a Midas XL200 console, which he says is "a very decent desk. It has a good matrix and a lot of possibilities, though when I can get it, I prefer the XL3, which is what I used in Europe." The P.A. Scorpio provided is an EAW system, comprising mainly KF850 cabinets. At the show *Mix* attended, at San Francisco's Warfield Theatre, Van Denzel used four boxes flown per side for balcony fill, and six speakers and four EAW SB-1000 subs per side. For some other shows, when audience members are right up against the stage, he says he uses EAW JF-80s for front fill, to improve the image for those fans.

O'Connor's monitors are handled by another Dutch engineer, Peter Schmitz, an in-demand mixer who has done a lot of work in South America, as well, for Ampco Pro Rent. O'Connor's monitoring setup—a combination of in-ears and wedges—is somewhat specialized, and Van Denzel asked Schmitz personally to join the tour.

Schmitz uses a 40-input, 22-output Crest LMX console, which was provided by Ampco and has been with him throughout the European and U.S. tours. He also brought some of APR's CW150 and 152 proprietary coaxial wedges, which he uses for O'Connor. "I've got six mixes running for her," he explains. "The in-ear monitors [Garwood Crystal 4 System], stereo sidefill and two mixes in front. These Ampco wedges are the best wedges in the world at the moment. There are some other good wedges out there as well, but out of all the wedges I use, these do the best job to get the sound to your ears; it doesn't just stay in the wedge."

The wedges are set up two per side and one in front. In the perimeter wedges and in her ear monitors, Schmitz gives O'Connor mainly just her voice and backing vocals, mixed with a little acoustic guitar, and keyboards for pitching. He uses two Lexicon PCM 70 reverbs on her ear mixes. The center wedge and sidefill give her the whole band. The rest of the musicians use Scorpio 15-inch 2115 wedges with 2-inch drivers.

"I like to work with these people," Schmitz says. "I know a lot of bands with an attitude, but on this tour everybody's in it together. That's the good thing about Sinead. She's such an easy person to work with, and she is really an artist."

In addition to Van Denzel and Schmitz, O'Connor's crew includes Scorpio's crew chief, Carl Gagnon; production manager Mark Gosling; monitor tech George Wehrlin; guitar tech Paul "Skippy" Bradman; drum tech Clive Brooks; keyboard tech Matt Holder; and tech Randy Robertson. Their combined efforts made for one of the best-sounding theater tours *Mix* has heard in a while: rich, clear cello sounds, bright and real piano sounds, powerful drums and guitars and, of course, breathtaking, passionate vocals. "Everyone plays really clearly and really well," Van Denzel says. "But it helps when you're working with one of the best-sounding voices there is." ■

Barbara Schultz is an associate editor at Mix.

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—FROM PAGE 166, BUYING AN AMPLIFIER

maybe IMD (Intermodulation Distortion, the total harmonics created when the amplifier reproduces two different pure frequencies at once), but they don't provide a picture of the transfer function or the harmonic series that makes up the total THD figure. Usually there is not even a plot of distortion vs. frequency. Darn.

TRANSFER FUNCTION

The transfer function of the human ear has a slight gentle curvature and so does that of most speaker cabinets. This yields distortion products close to the frequency of the signal. Amplifiers have very linear transfer functions but may have small but sharp discontinuities that can breed higher harmonics in their otherwise small harmonic distortion products.

In light of all this, you might want an amp to have THD lower than 0.1% at low frequencies. That would make those psychoacoustic visitations less uncomfortable. The ear can't discern any sound in the presence of another sound more than a thousand times louder. I'd figure that any amplifier that had mid-band distortion down close to 0.01% and full-band THD below 0.1% would be the good guy in my system on the distortion axis, compared to my loudspeaker and even to my own hearing.

In saying that, I'm assuming that the amplifier maintains its distortion performance for signals at all listening levels. Keep in mind, though, that at very low levels the "N," or noise component, of the THD+N measurement becomes dominant—the THD+N rises to 100% as the signal level slips down beneath the noise floor.

CLIPPING AND DAMPING

I haven't mentioned clipping. If you drive your amplifier into clipping as a normal part of your system's operation, then worrying about these other causes of distortion is like a heavy smoker complaining about air pollution. If you care, don't clip. Having said that, I suppose clipping is sometimes unavoidable, and some power amplifiers do clip "better" than others. As a designer, I try to make my amps clip "gracefully." When an amplifier clips, it usually momentarily connects its output directly to its power supply rails. That means the point of clipping rises and falls with the ripple on the supply rails, resulting in intermodulation between the rail ripple

frequency and the desired signal. This gives rise to non-harmonic products as well as the harmonic distortion series you get from "squaring" off the peaks of your signal. There are amp design techniques and advanced power supplies that reduce these problems, but it's still best not to clip at all. My advice: Buy a bigger amplifier!

What about "damping factor"? The truth is, the "damping factor" quoted on most amplifier spec sheets provides only a partial indication of your actual system damping.

The ideal magnetic coupling between the mass of the speaker and the output of the amplifier would have no electrical resistance. Unfortunately, the resistance of the amplifier's output is always in series with the resistance of the speaker wires, and is further in series with the resistance of the speaker's voice coil. The mass of the speaker is able to "do its own thing" by straining against the amplifier through the elastic tether of this resistance. The resulting complex impedance varies greatly with frequency. That is the physical significance of real "damping factor."

The old traditional formula for damping factor that took all this into account was the load impedance divided by the sum of your amplifier's output impedance and the DC resistance that you measure between your speaker wires with the amplifier disconnected. Yes, that resistance includes all of your speaker wire and your voice coil! (If your speaker is a full-range cabinet with a passive crossover, then even more factors enter the picture. For simplicity in this discussion, I'm assuming that your system has active crossovers and that your amplifiers drive your speakers directly.) Somewhere along the line, the traditional formula for damping factor—the one that actually means something—has been replaced by what I can only describe as an incomplete formula that, nevertheless, is used by every manufacturer I can think of!

Go ahead, disconnect your speaker wires from your amplifier and measure across them with an ohm meter. It will read at least one ohm, probably a lot more. In other words, even if an amplifier's output impedance were zero, your system damping factor could not possibly be greater than about 8!

I'm holding a spec sheet from a very well known amplifier manufacturer. It says, "Damping Factor (at 8 ohms) 400:1" How can it be 400? Because the formula that amplifier manufacturers commonly use is "8 ohms divided by the amplifier output impedance." In other words, the damping factor specification on power amplifier data sheets is really nothing more than an output impedance specification.

Is this specification of any use to us? We can translate the spec sheet damping factor into output impedance by multiplying the reciprocal of the spec sheet number by 8. For example, our 400:1 damping figure converts to an output impedance of 0.02 ohms. For an amplifier with a spec sheet damping of 160, the output impedance would be 0.05 ohms. If we plug those numbers into the real formula for damping and assume 1 ohm for the system wire and voice coil resistance, we get real damping of 7.84 and 7.62, respectively. The difference is very small—less than ¼ dB. (You can use the actual value of resistance of your speaker and wiring to obtain the damping factor you will achieve in your own system.)

What if an amplifier had zero output impedance? By the same formula, the real damping would be 8, as against 7.84 for our 400:1 damping example. The difference comes out to even less than ¼ dB—0.175 dB, to be exact. However, that "perfect" amplifier's spec sheet would say "Damping Factor: Infinity." Wow. Gee.

Does it matter? Your amplifier's output impedance forms a voltage divider with your speaker's impedance. Both vary differently with frequency. This means that in practice the speaker loads the amplifier and reduces its output voltage a hair or so, and since it loads it differently at different frequencies, it "bends" the amplifier's response a little across frequency. Of course, this effect is completely swamped by any loudspeaker's own deviation in sensitivity vs. frequency. That is usually several whole dB. If the specified damping is 100 or more, you probably won't hear the difference. If the spec is 1,000 or more, it might as well be infinity.

Oh no! Now I hear angry voices telling me that their amplifier stomps on all others with its damping of 10,000. I don't dispute what the amp sounds like, but I suggest that a different and usually unspecified effect is actually responsible.

PHASE SHIFT

Let's again look at things from the loudspeaker's point of view. A speaker is made to be both light and stiff. Its ideal behavior consists of pushing and pulling the air with its cone exactly as

commanded by the power amplifier. However, any real speaker has a sort of will of its own. It has mass, so when the amplifier pushes it into motion, it wants to keep going in the same direction. To make the speaker cone quickly change direction, the amplifier first must pull the energy of momentum back out of the speaker and then push the cone in the new direction. This phenomenon results in a phase shift between the energy applied to the speaker and the position of its cone. When the speaker is large, the amplifier must deliver large phase-shifted currents to maintain control.

Not all amplifiers are equally adept at handling this situation. You could find two amplifiers with identical specifications that would sound very different because one was able to maintain control of the speaker in real-world phase-shifted situations while the other balked, current-limited and slipped around in response to the speaker's gyrations.

There is no specification for this property, but there could be and I think there should be. One such specification would show measured distortion while the amplifier was driving some standard reactive load at several frequencies and power levels.

It may well be that an amp with a high damping factor specification also excels at driving phase-shifted loads. However, it is trivial to show that an amplifier can meet a high damping factor spec and yet be miserably unable to drive anything but a pure in-phase resistance. Please don't mistake coincidence for causality.

When the facts are absent, anecdotes, opinions and politics can take over. In writing this article—in trying to see the challenge of selecting an amplifier from the user's point of view—I've learned that the specifications we manufacturers provide for our amplifiers don't provide enough information to guide users in choosing product. It's not that we need some tribunal to enforce standard specifications; manufacturers have done that voluntarily, even to the point of copying each others' inadequate formulas. What is needed is a clean-sheet approach that provides specifications that are meaningful in the context of the entire sound system. I'm going to give this some thought and some work.

Many questions remain. I haven't even discussed output power, let alone questions like "Is there any point in having an amplifier slew-rate faster than my horn driver can actually move?" I'd like to take the same system-context approach to these and other questions, and perhaps I'll be able to do that in a future article.

NOTES

One of the best all-around references is Howard M. Tremaine's *Audio-Cyclopedia* published by Sams. (See damping on page 587.) This book covers a lot of ground in a conversational question-and-answer format. Within it, you can find just the kind of knowledge about audio that makes the approach I'm advocating possible.

If you want to know more about MPEG and the theory behind it, you can obtain ISO/IEC International Standard IS 11172-3 for level 1 and IS 13818-3 for level 2 for starters. I have a mountain of IEEE and AES papers on the subject, too many to list. Just search for MPEG on the Internet and you'll see what I mean. ■

Paul Ierymenko, presently director of R&D at QSC Audio Products Inc., has been a product developer in the audio industry for more than 20 years.

THE 1997 TEC AWARDS WINNERS

Photo by Alan Perlman

The stars came out. l to r: Producer Tom Dowd, Hall of Fame inductee Al Schmitt, Les Paul Award recipient Stevie Wonder and Les Paul himself.

Almost 800 audio industry professionals watched as 26 winners accepted their trophies at the 1997 Technical Excellence & Creativity Awards, held September 27 at the Marriott Marquis in New York City. The standing-room-only crowd also watched as Al Schmitt was inducted into the Hall of Fame and Stevie Wonder received the Les Paul Award. For a complete wrap-up, see the December issue of *Mix*.

OUTSTANDING INSTITUTIONAL ACHIEVEMENT

Acoustics/Facility Design Company
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Sound Reinforcement Company
Showco, Dallas, TX

Mastering Facility
Bernie Grundman Mastering, Hollywood, CA

Audio Post-Production Facility
Skywalker Sound, San Rafael, CA

Remote Recording Facility
Record Plant Remote, NYC

Recording Studio
Ocean Way, Los Angeles, CA

OUTSTANDING CREATIVE ACHIEVEMENT

Audio Post-Production Engineer
Tom Fleischman

Remote/Broadcast Recording Engineer
David Hewitt

Sound Reinforcement Engineer
Robert Scovill

Mastering Engineer
Bernie Grundman

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Kenny "Babyface" Edmonds

Recording Engineer
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OUTSTANDING TECHNICAL ACHIEVEMENT

Ancillary Equipment
Apogee Electronics FC-8 Format Converter

Amplifier Technology
Crown K2

Mic Preamplifier Technology
Focusrite Green 1

Computer Software & Peripherals
Cakewalk Pro Audio 5.0

Microphone Technology
Neumann M149

Sound Reinforcement Loudspeaker Technology
JBL Professional HLA Series

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Genelec 1029A/1091A

Musical Instrument Technology
Roland JV-2080 Synth Module

Signal Processing Technology
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Recording Devices/Storage Technology
Tascam DA-38

Workstation Technology
Sonic Solutions SonicStudio Post

Sound Reinforcement Console Technology
Mackie 40•8

Small Format Console Technology
Soundcraft Ghost

Large Format Console Technology
Solid State Logic SL9000 J Series

New Sound Reinforcement Products

BSS OMNIDRIVE COMPACT

BSS Audio (Nashville) announces the FDS-355 Omnidrive™ Compact, a smaller, more flexible version of the FDS-388 Omnidrive multifunction crossover/EQ/delay/limiter. The 3-in, 5-out Omnidrive Compact allows for a variety of system crossover configurations, ranging from stereo two-way to mono five-way. A 24-bit A/D converter offers improved dynamic range, new limiters for speaker transient protection and improved EQ flexibility. Additional features include flash EPROMs for system upgrading, output polarity reverse and a 50-point internal memory. Price is $2,999.

Circle 314 on Product Info Card

SENNHEISER VHF WIRELESS

The new 1081/1083 Mikroport VHF wireless systems from Sennheiser (Old Lyme, CT) are both based on the EM1031-V true diversity receiver, with six switchable frequencies within a 7MHz bandwidth and improved RF filtering and interference rejection. Additional features include PLL synthesis, proprietary HiDyn *plus*® noise reduction circuitry and an advanced mute function. The SET1081-V system ($795) includes a handheld dynamic mic transmitter; the SET1083-V system ($995) includes a MKE2 red dot lavalier mic and body-pack transmitter. Both transmitters offer eight hours of continuous operation from a 9V battery.

Circle 315 on Product Info Card

SOUNDTRACS MXD SERIES

Soundtracs (dist. by Korg of Melville, NY) debuts its new MXD Series console line in 32-, 40- and 48-input configurations. Each model features eight subgroups, eight aux buses, four matrix outputs and left, right and center mix buses. Advanced Mute Group and Scene systems provide comprehensive mute programming and recall: Up to eight mute groups can be stored, recalled and merged via dedicated master mute keys, and 100 mute scenes can be stored and recalled by number or via MIDI. Inputs feature the Soundtracs Megas 4-band EQ with swept mids and 80Hz highpass filter. Additional features include fader reverse between group masters and aux send masters, and an integral intercom system. Prices start at $9,000.

Circle 316 on Product Info Card

DDA 12-BUS MONITOR CONSOLE

The new CS12M monitor console from DDA (Buchanan, MI) is a 12-bus modular design available in 16-, 24-, 32- and 40-input configurations. All channels feature rotary level controls, switchable gain, polarity reverse and 4-band swept EQ. Three pre/post switches allow for send flexibility, and users can create both stereo and mono mixes simultaneously. Prices start at about $4,000.

Circle 317 on Product Info Card

QSC POWERLIGHT 1.6^{HVX}

QSC (Costa Mesa, CA) has added the PowerLight 1.6^{HVX} amplifier to the company's PowerLight™ line. The new two-rackspace model is designed for bi-amp applications and features a low-distortion class AB output circuit for the HF channel (500 watts into 4 ohms) and a two-step linear output circuit for the LF channel (1,100 watts/4 ohms). Features of the PowerLight 1.6^{HVX} include independently defeatable clip limiters, detented calibrated gain controls, LED signal level and amp status indicators, Neutrik combo input connectors and a stereo/parallel/bridge switch. The unit also interfaces with QSC's CM16 MultiSignal Processor for remote monitoring and control over Ethernet.

Circle 318 on Product Info Card

MIDAS XL250 MONITOR CONSOLES

Midas (Buchanan, MI) debuts the XL250 monitor console in 44- and 52-input frame sizes. The 20-bus XL250 is designed for both in-ear and traditional wedge applications and enables users to create up to nine stereo or 18 mono mixes, or combinations of the two. The mixer includes a new mic preamp; EQ is based on the Midas XL3's equalizer. Inputs and groups may be assigned to auto mute masters, and each input features a direct line-level output via a rotary fader. An Auto Cancel solo mode overrides selected solo switches, and a Priority Add mode allows for progressive buildup of solos; PFL mono, AFL stereo and solo-in-place modes are all supported. The 52-input XL250 (44 mono, 4 stereo) retails for $50,135; the 36 mono/4 stereo model is $44,939.

Circle 319 on Product Info Card

KENNY WAYNE SHEPHERD

VOODOO CHILD FOR THE '90S

by David John Farinella

Tucked safely away in one of the back editing rooms at The Plant Studios in Sausalito, Calif., producer Jerry Harrison is staring at a computer screen attempting to decide just which vocal take he wants to use from the Kenny Wayne Shepherd Band's rollicking version of Jimi Hendrix's "Voodoo Child (Slight Return)." As engineer Karl Derfler describes the sessions behind the young guitar phenomenon's second release, *Trouble Is...*, the singer continuously belts out the line, "Well, I'm standing next to a mountain..."

"We didn't do anything unusual," says Derfler. "The greatest part was having Double Trouble [Stevie Ray Vaughn's rhythm section] in; that's where the magic was from the beginning. Although we also recorded with Kenny's live band, and we got some wonderful moments with them, too. We tried to keep it fairly natural and just tried to get the performances. They're a bunch of Southern guys, what more can you say? It can't get better than that. It was pretty simple stuff. We used a hybrid of tools, but the technique at the end is still the same—catch the vibe, and I think we caught a lot of great moments."

One of those great moments came at Studio D, also in Sausalito, while they were tracking the song "Blue on Black" with Chris Layton and Tommy Shannon. The Double Trouble duo had to catch a flight to Oklahoma for a gig with their current band, Storyville. Apparently, as all eyes were on the clock, Harrison was standing next to drummer Layton and counting off the beat he wanted. "Everybody was worried about running out of the studio," Derfler remembers, "and when everyone left, it was like, 'Oh, no, we didn't catch the song.' But because we tracked it in Pro Tools, we did a couple of minor edits here and there and it just came out great, I think. It's one of my favorite songs on the whole album. The lead singer sounds like Paul Rodgers, and the guitar is far-out."

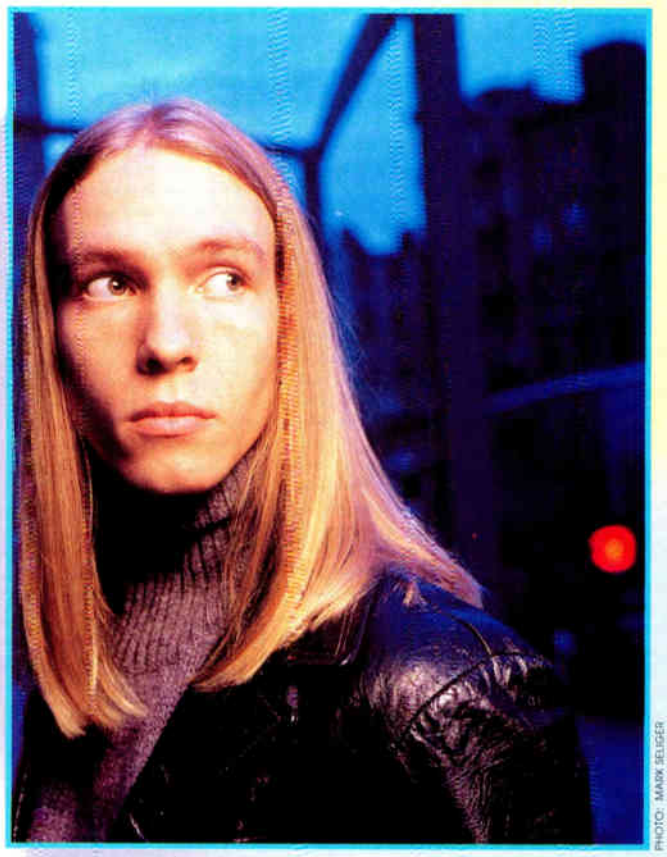


PHOTO: MARK SELIGER

Shannon and Layton played along with Shepherd and Noah Hunt on a number of songs, including another Hendrix tune, "I Don't Live Today," and a couple of Shepherd originals such as the aforementioned tune and "Somehow, Somewhere, Someway." (Their version of "Voodoo Child" didn't make it onto the album.)

The sessions for those songs were done at The Plant over a 12-day period. During that time, Harrison and crew set the tone for the balance of the sessions as far as choices in gear, vibe and recording techniques they would follow. According to Derfler, most of the gear choices were quite straightforward, with mic pre's ranging from tube Neves to more current Grace units, and microphones including such usual suspects as Shure 57s, Neumann U47s and U67s, and Sennheiser 421s, to name a few. What made the sessions intriguing was their choice to track to both Pro Tools and 16-track, 2-inch simultaneously.

"It was very important on the Kenny Wayne project that we [got] the warmth and the fullness that analog delivers," explains Harrison.

—CONTINUED ON PAGE 186

KARL WALLINGER

STILL HOSTING HIS WORLD PARTY

by Blair Jackson

World Party leader Karl Wallinger isn't afraid to wear his influences on his sleeve. That's why he's willing to toil away in the studio for weeks on end making a note-for-note copy of The Beatles' "Penny Lane," even trying to match the reverb sounds of the 1966 original. However, as this is the '90s (and because Wallinger can be a strangely solitary studio character—he plays most of the parts on World Party's records and engineers and produces, as well), he opted to play the famous "Penny Lane" piccolo trumpet line himself using a horn sample and then trimming the ends of some individual notes in Pro Tools for that extra dash of verisimilitude. "It's pretty realistic," he says. "It's not quite Paul McCartney singing, but I did my best. While I was doing it, I came to an interesting conclusion: that 'Penny Lane' is sort of a Brian Wilson song. A lot of the stuff The Beatles were doing then, like the whole *Sgt. Pepper* album, is incredibly Beach Boys-sounding."


PHOTO: ROBERT GOLDSTEIN

Wallinger freely admits that the piano sound on the song "She's the One," from the latest World Party album, *Egyptology*, has its roots in Beatles records: "I went for that 1968, mono, heavily compressed 'Hey Jude' sound there," he says. "To me, a lot of the sounds I like to hear were defined by The Beatles' later albums, from *Magical Mystery Tour* to *Abbey Road*. I love the bass and drums and piano especially."

Which is not to suggest that World Party is some Beatles clone band. Far from it. In fact, there are many artists who have ripped off The Beatles much more blatantly than Wallinger (though few have matched his actual copies of tunes like "Penny Lane" and "Happiness Is a Warm Gun"). But some of his sonic ideas and vocal arrangements were clearly influenced by both The Beatles and the Beach

—CONTINUED ON PAGE 189

BAABA MAAL

BRINGING AFRICAN MUSIC TO THE WORLD

by Chris Walker

Since the late '80s, world beat singer/performer Baaba Maal has received considerable respect and acclaim in the United States and around the world for his innovative recordings and engaging performances. Now the Senegal native is about to unveil his fourth CD for Island Records subsidiary Mango (still untitled at press time), which he has been working on for the past year-and-a-half. The new recording continues in the same vein as his critically and commercially successful 1994 release, *Firin' in Fouta*, but with a bit of a twist.

Like the previous project, Maal's newest interweaves traditional African instrumentation with the rhythms and textures of contemporary pop music. But, speaking from his home in Dakar, Senegal, Maal reveals, "There's a lot of guests on this album, which I think will be a surprise for the world. I'm just excited by this album. I don't know how people are going to see it, but I really did enjoy myself while making it." A couple of the surprise guests are Brian Eno and Jamaican reggae star Luciano.

In keeping with the global orientation of the music, the actual sessions became

—CONTINUED ON PAGE 191


PHOTO: JUERGEN TELLER

MICHAEL JACKSON'S "BILLIE JEAN"

by Blair Jackson

When 24-year-old Michael Jackson went into the studio in early 1982 to begin work on an album called *Thriller*, he had already been famous for 13 years and had sold millions of records worldwide. Beginning in 1969, when he joined his four older brothers to form the Jackson 5 in their hometown of Gary, Ind., Michael's career began an upward trajectory that didn't level off until the '90s. The Jackson 5 notched 13 Top 20 hits for Motown Records in a period of just six years, including "I Want You Back," "ABC," "The Love You Save," "Never Can Say Goodbye" and "Little Bitty Pretty One," most of them propelled by Michael's youthful, energetic voice, which darted above his brothers' smooth harmonies like a hummingbird. By the mid-'70s, they had left Motown and signed with Epic as The Jacksons, and they began writing more of their own material, steering the music away from the Motown cookie-cutter approach. While The Jacksons continued their string of hits through that decade, Michael also established a solo career, scoring with such early '70s trifles as "Got to Be There" and his unforgettable ode to the cinema's most famous rat, "Ben." But Michael's career as a "serious" pop singer really began when he hooked up with producer Quincy Jones and veteran engineer Bruce Swedien to make the 1979 smash, *Off the Wall*, which spawned four hit singles—"Don't Stop Till You Get Enough," "Rock With You," "Off the Wall" and "She's Out of My Life."

The album that eventually became *Thriller* brought together the same recording team and a Michael Jackson who was three years older and more confident than he had been before the breakthrough success of *Off the Wall*. The team worked in both rooms at Westlake Audio in Los Angeles for much of 1982. Swedien says that the original demo of "Billie Jean," recorded at the singer's home studio, was "almost a finished track, except with a drum machine and without some of the synthesizer things that ended up on there. Michael always made very good demos." "Billie Jean" was certainly emblematic of the "adult" Michael Jackson: The point of view of the song is that Michael is falsely accused of having fathered a child with the title character—

PHOTO: MICHAEL OCHS ARCHIVES

"Billie Jean is not my lover/She's just a girl who claims that I am the one/But the kid is not my son."

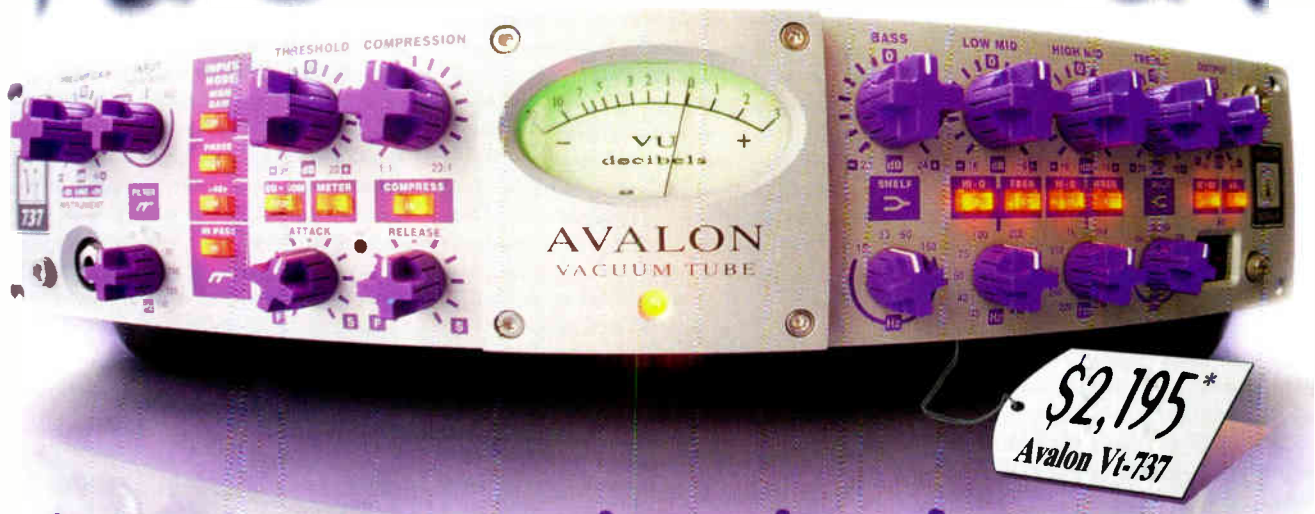
"Right from the beginning on 'Billie Jean,'" Swedien continues, "we said, 'Okay, here's a piece of music that we want to have the most unique sound personality possible, particularly in the rhythm section.' At this particular point in time, George Massenburg had a little 12-channel recording console with his EQ, which he was just finishing, and his amplifiers, and it sounded just amazing. So when it came time to do the bass, drums, guitars and keyboards [basics], I thought that console would be perfect for those. I recorded it on an MCI 16-track 2-inch. Those were great machines." The basics on "Billie Jean" were cut live with keyboardist Greg Phillingaines (who played Rhodes on the basic and later overdubbed a synth part), guitarist David Williams, bassist Louis Johnson and drummer Ndugu Chancler.

"I think that song has a lot of sonic personality. There aren't many pieces of music that you can hear three or four drum beats and instantly know what song it's going to be. I set the drums up on a drum platform, and it was all very close-miked," Swedien remembers. "At that time I was experimenting with a couple of things in drum recording that were unique. I had a bass drum cover made of furniture blankets and sewn with elastic that went over the kick drum. It had a zippered slot for the microphone. I also put some bricks and a wrapped cinder block in the kick drum to make it solid. And then I was also experimenting with about a 12-inch-square isolator—made of three layers of composition, mu metal and plywood—between the hi-hat and the snare drum. I put the microphone for the snare drum in the acoustical shadow of this isolator to give the snare and the hat an unusual amount of separation." Swedien also used a pair of Neumann U87s as drum overheads. The guitar, bass and Rhodes were isolated in smaller rooms off Studio A's main recording space.

After the basics were completed to everyone's satisfaction, "Michael laid down a scratch vocal right away, to see how the timbres of the instruments fit against the vocal texture," Swedien says. "This is something I learned from Quincy that we always do when we're recording. It's very, very important to do that early on rather than waiting until the end when you don't have as much flexibility to change something if it's really not right."

The overdubbing on "Billie Jean" took place sporadically over several months as work on the album as a whole continued at Westlake. Michael was credited with the vocal, rhythm and synthesizer arrangements—the finished track includes three synthesists (Phillingaines, Bill Wolfer and Greg Smith) and Michael Boddicker on Emulator. All of the vocals were by Michael, mostly tracked with a Shure SM7 mic. "I didn't want the sound of a typical condenser mic," Swedien says. "I wanted a little bit of fiber and grit in the sound, and the SM7 was great for that. It has a bit of its own color." Swedien tried one miking trick on the tune: "At one point Michael sings a line and then his alter-ego responds to it. Michael and I talked

fat sound?



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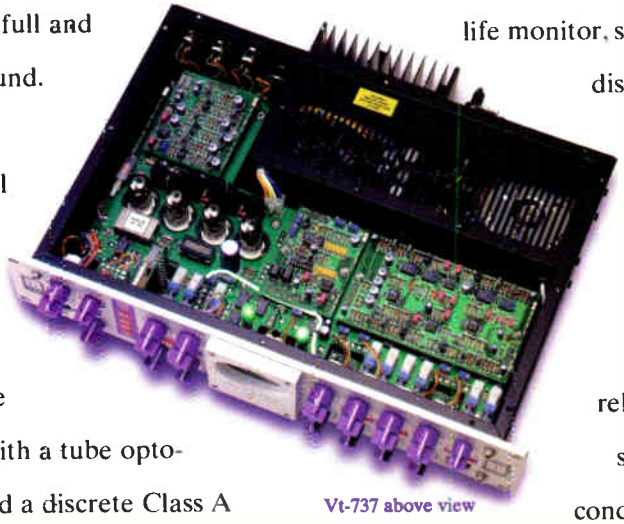

Vt-737 above view

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it over, and what we wanted to do was have the alter-ego have its own sound. This was before there was much processing equipment, so what I did was I set up a mailing tube and recorded Michael through a four-foot cardboard mail tube. I set up an inexpensive mic, like an SM57 or something of that ilk, and it had a real distinctive sound to it."

Swedien echoes what others who have worked with Michael have said: "With Michael, almost every vocal take is great. He's an extremely versatile singer and also very controlled. He really knows what he's doing. He's very, very easy to work with recording vocals. Actually, any chimpanzee could record Michael," he says with a laugh. "But what I've tried to do is take his vocals beyond what you would normally hear in a recording. In many of the background tracks—not on 'Billie Jean,' but on something like 'Rock With You'—there's a lot of stereo miking on certain layers of Michael's background tracks."

"Billie Jean" was also augmented by a subtle lyricon solo by Tom Scott and a string part arranged by Jerry Hey; both were suggested by Quincy Jones. "The string part was pretty simple, but I think it's effective," Swedien says. "If I remember right, when we started to record it, we sent the cellos home; it's mainly first and second violins and violas and a very classical approach to the string recording in the way we miked it. We did that at Western, which is now Ocean Way."

The song, and album, were mixed on a Harrison Series 32 console highly modified by Deane Jensen. "We went to Deane and said, 'Okay, this console sounds great, but the way they've done the two-bus can be improved,'" Swedien notes, "and he went and designed a whole new output stage for the console. What he did was improve the headroom enormously. If you listen to the sound of the drums, particularly in the opening, the transient response is very apparent. But a lot of that started with George's console."

Because the song had so many different elements to balance—the various synth parts, the strings, the rhythm section, myriad vocal textures—the mix was fairly painstaking. In fact, Swedien says, "When we were done with the album, I had 92 mixes of 'Billie Jean.' Some had a few different parts in there, but mostly it was just different mix values. Changes in the reverb [mostly an Echoplate built by Jim Cunningham] or emphasizing different things in the song. Then, after all that, the mix that went on the record was mix number two. I had a stack of half-inch tapes almost to the ceiling. I mixed it to an Ampex ATR 102, a machine I still use—half-inch, non-Dolby.

"We probably worked nine months on the whole project. We had it finished, and the people

from Epic were opening the champagne and everybody was saying, 'Oh, man, this is going to be the biggest thing ever.' I remember sitting in the control room with Quincy and Michael and Rod [Temperton, who wrote and arranged a few tracks] and all these people from the record label, and I noticed Michael left the control room. And we played the album and Quincy looked at me and we went, 'Oh, shit, now what?' So we ran off and found Michael and he was not happy. And he said, 'The album isn't done. It's not right.' So we went in, sent the people from the label home with their champagne, we took three days off and came back for two weeks and finished the album. We put on some more overdubs and various little touches. In fact, that's when we brought in Tom Scott for the lyricon part."

I'm tempted to say the rest is history, but *that* album [*HIStory*] is a whole 'nother chapter in Michael Jackson's fascinating career. *Thriller* went on to become the best-selling album of all time, with close to 40 million copies sold from Malibu to Kuala Lumpur. The album generated a mind-boggling stream of hit singles: "The Girl Is Mine," a duet with Paul McCartney, made it to Number 2; "Billie Jean" was Number One for seven weeks in the winter of 1983; "Beat It" hit Number One; and "Wanna Be Startin' Somethin'," "Human Nature," "P.Y.T. (Pretty Young Thing)" and "Thriller" all went Top 5 in America. It wasn't just because these were strong, radio-friendly songs, either. Michael was one of the first artists to benefit from the enormous popularity of video in the early '80s. The hugely influential videos for "Billie Jean" and "Thriller" were ubiquitous in 1983 and '84, respectively, and helped define the state of the art in pop video and rock choreography.

Asked whether he could have anticipated the success of *Thriller*, Swedien says, "Obviously, we never could have known how big it would be, but this is true: The first day we walked into the control room [to begin recording the album], it was Quincy first, then Michael, Rod Temperton and me. Quincy turned around to me and said, 'We're here to save the record business.' If you remember at the time, video games were huge and, to borrow a Samuel Goldwyn expression, people were staying away from the record stores in droves. It was a very discouraging time. But *Thriller*, due mainly to Michael and Quincy, but I'll take a little credit, too, got people back into the record stores."

And Michael Jackson became the most famous person in the world. ■

—FROM PAGE 182, KENNY WAYNE SHEPHERD

"That's why we used 16-track heads. We knew that since Tom Lord-Alge was going to mix it and he always likes to mix with a Sony 48, we were going to be going digital, so we afforded ourselves the advantages of digital. It really is incomparable for comping vocals. We really feel we got the best of both worlds this way."

Shepherd agrees. "I'm a big analog fan myself, and I feel like there's a certain warmth that's in analog recording that when you record on digital tape is lost. When you record to digital tape or ADAT, I just really notice the difference. But it wasn't so bad in Pro Tools. It was really convenient for editing and saving a lot of time in the studio without having to splice a lot of tape and stuff like that."

And to be truthful, time was of the essence since Shepherd was dropping in and out of tours and Harrison and Derfler were juggling a number of different projects themselves. It was definitely a fly-by-the-seat-of-your-pants situation: They tracked for five weeks starting in June and ending in July, and they had the entire album mixed and mastered by the middle of August. During that five-week stretch, they opted to

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CIRCLE #135 ON PRODUCT INFO CARD

Clockwise from top left: Jeff Aldrich (A&R), Kenny Wayne Shepherd, Ken Shepherd Sr., Tom Lord-Alge and Jerry Harrison.

move from The Plant to Studio D, just down the road, when Shepherd's entire band came in to work on the album.

"Most of the takes are live takes as they were," Derfler says. "The magic that we captured at the time felt right. So we didn't have to labor things. There were a few songs we worked on harder than others, until Jerry got happy. When he's happy, we all get happy."

And even though Harrison was happy, Derfler had his work cut out for him when they moved to Studio D. Not only did he have to move the entire Pro Tools and Studio Vision systems, he had to find a 16-track machine that would work with the tapes they had already made. "We wanted to maintain the formats, so all the master reels were 16-track and the slave reels were 24-track. We started on a Studer A800 with 16-track heads, and when we went to Studio D, instead of hiring up a 16-track head for that machine [also a Studer A800], there's a guy in town that had a new 827 with 16-track heads that synchronized much easier with our machines. It was much more compatible with Pro Tools," he explains. The computer system, which included a Macintosh Quadra 800 (for Pro Tools) and a Radius 8100 (for Studio Vision), also featured two monitors. "We like to have the Edit page in one monitor and the Mix window, with all the plug-ins, inserts and all the sends, in the other window," Derfler explains. "It's so we can go easily back and forth and we don't have to open so many windows."

The use of Pro Tools, besides giving them the obvious ability to comp the vocals and guitars, also made the album sound better, Derfler believes: "You catch all the nuances that you would never catch, or not without a major time expenditure." It also allowed them to be more creative on the production end. "If we have to do some heavy editing, like if we think a song can use a drum loop in a section, we'll find a bar within the song and then just fly it in anywhere we want. It will be the original recording, so we won't have double tape hiss problems."

For Shepherd, the entire process, from picking Harrison to produce to working with Pro Tools, was a learning experience. "I've never been much of a technical anything," he admits with a laugh. "I learned to play guitar by ear, I don't read music, I don't know a lot of the terminology about the studio stuff. I just know what I want to hear. I learned a lot from Jerry and Karl." They're lessons he nearly missed when he learned that his A&R rep was considering former Talking Head Harrison for the producer's chair. It turns out the two of them were listening to the Harrison-produced album from Big Head Todd & The Monsters, and Shepherd was taken with the record's production values. "Just by his name, off the top of my head, I didn't put two and two together," Shepherd says. "So then [the A&R rep] says, 'from the Talking Heads.' And

I was like, 'Well, what do the Talking Heads have to do with the kind of music that I'm doing?' But then the quality of what he did just got me, and I couldn't let any predisposed notions stand in the way.

"I've been very pleased with that decision," he continues. "It was really awesome working with him in the studio. He pretty much just let me do my thing and just kept everybody on track to achieve this mutual goal of how we all envisioned the record."

And for his part, the producer says, "I think we've made a really interesting record—a record that has expanded the horizons of Kenny's repertoire. He's also maintained and done some fantastic stuff." ■

—FROM PAGE 183, KARL WALLINGER

Boys (who affected each other), and he also shares with those groups an obsession with writing clever melodic hooks. Most World Party songs have at least two memorable hooks or grooves; many have considerably more. Like John Lennon, Paul McCartney and Brian Wilson, Wallinger is a master at penning effective bridges that flow into catchy choruses that stick in your head for days at a time. His lyrics veer toward the oblique occasionally, but *Egyptology* finds him in a somewhat introspective mood: "I remember playing it back for some guys from *Q* magazine, and I was thinking, 'This is a bit like opening up my diaries,'" he says.

I hate mixing. If it's not sounding good the night you do it, then no amount of mixing is going to make it sound better.

—Karl Wallinger

World Party's previous album, *Bang* (covered in the June 1993 *Mix*) was a highly eclectic affair, mixing bright pop songs, funk rhythms, some metaloid guitar and Wallinger's usual '60s-isms into a hodgepodge that didn't hang together too well in places. (Still, it contained a few World Party classics, including "Is It Like Today" and "Sunshine.") *Egyptology* is much more consistent in its sound and musical moods, though Wallinger notes there's nothing specific that links the songs together. "I did consciously step away from the funk a bit," he says. "I wanted to keep it sort of '60s-white."

Asked what he's learned about recording as he's moved from one self-produced World Party album to the next, Wallinger dryly replies, "I've learned that I hate mixing. It has the same effect on me these days as geography did when I was in school—I used to sort of lean on the radiator and start going to sleep. My thinking these days is that if it's not sounding good the night you do it, then any amount of mixing isn't going to make it sound much better. On the new album, these are mostly pretty spontaneous monitor-type mixes which have hit the album as the masters. They're very rough-and-ready, and I like that."

On *Bang*, Steve Lillywhite was brought in by EMI to polish the mixes

on a few songs, ostensibly to make them more radio-friendly, but this time out Wallinger handled the mixing chores himself. "Working with Steve was a good experience," Wallinger says, "and I like Steve a lot; he's a great guy. He's got a great attitude. He can kick things along and zone in to the important things. But I do much prefer working on my own. I guess basically I don't really care that much about what people think about my mixes. It's like, 'This is what pleased me the night we did it.' *Egyptology* is that kind of album. On *Goodbye Jumbo* [World Party's second, and many feel, best album] I did 200 mixes of a song called 'When the Rainbow Comes,' and in the end it was like, 'Oh, shit, I wish I'd used the demo. Why am I doing this? Who am I tarting up this mix for?' I'm not following a particular musical theology that says records are supposed to sound this way or that. So I've been trying to please myself more."

Wallinger works in his own Seaview Studio in London, which is equipped with a "very peculiar-looking Cadac 32 truly quad desk. People kind of stare at it and say, 'What the f— is that?'" he says with a laugh. "Very occasionally I'll work in quad if I've got really good grass and I'm very stoned. I also use an Amek 36-channel desk as inputs, so I've got two desks in the room. That means I can just leave all my various instruments set up and ready to go. On the Cadac I have important inputs like the bass, vocals and piano. The Amek has the drum kit and all the synthesizer outputs, all permanently rigged up. Since I don't use a producer or an engineer, it's nice to have that bit together. Actually, I do have a helper—Mason—who's great at keeping track of tapes and also provides me with the amazing luxury of being brought a cup of tea; that's all an Englishman really needs."

Wallinger's studio is also equipped with Otari MTR 90 and MX80 recorders, "and I've got two break-out boxes for Pro Tools, so I've got 32 channels going to 16 outputs with the Pro Tools, and everything running in sync." He still records most of the instrumental parts on World Party's records alone, though drummer Chris Sharrock appears on seven of the album's tracks. When World Party tours, guitarist John Turnbull and bassist Guy Chambers essentially learn and expand upon Wallinger's parts.

The gifted singer-songwriter-player takes his inspiration from wherever he finds it. On the new album, "She's the One" was written in an afternoon as a possible title track for the Ed Burns film of the same name. The haunting "Always" came into being after "a friend brought by a loop with a good groove to the studio, and then I just basically layered it with this figure and found a way to put a vocal on top of it." "Strange Groove" also started with a loop, which Wallinger later cut up and rearranged in Pro Tools. "Hercules" was inspired by the death of Kurt Cobain, and the odd number, "The Curse of the Mummy's Tomb," is "about losing my mother during the making of the album. Basically, it's just a stream-of-consciousness rant about the frustration of being exposed to death. The punch line says, 'There's no curse/It's just mummy's tomb.'"

Asked whether his mother, Phyllis, to whom the album is dedicated, was supportive of his musical career, Wallinger grows reflective: "Yes, she was, though I'm not sure this is exactly what she had in mind for me. I was highly trained. I played oboe in orchestras, and I was a music scholar and I studied music theory, although I never went to college at all. I basically wanted to be a rock musician at the time, so that's what I told my mother and that's what I said to the careers officer [in school]. I never wanted to go to college. I never wanted to do 'serious music,' or whatever you want to call it. I didn't want to teach kids and then play in an orchestra or be a soloist. I was much too Beatles to be bothered about Beethoven, although I really loved Beethoven, too; still do."

Phyllis Wallinger's boy is doing just fine in the pop music world, though the business aspect of his career choice has always been a bit vexing to Wallinger, who says frankly, "I hate the whole industry. I think they're a bunch of morons." Actually he liked The Enclave, the EMI custom label on which *Egyptology* was released, but midway through his American tour he learned that EMI had folded its North American division and that The Enclave was a casualty of that move. Now, after selling more than 30,000 discs in America so far (and many more in his native Britain), *Egyptology* is getting a second life on Virgin Records in the States. "I just hope people somehow get a chance to hear it," Wallinger says. "But my goal this time is to not wait three years before I tour the U.S. again. I hope to be back near the end of the year, and with any luck, at some point I will have been around so much that you'll all be sick of me." ■

—FROM PAGE 183, BAABA MAAL

an intercontinental affair also. "The process started when Baaba Maal got himself a home studio a year-and-a-half ago," states Donald Adrian "Jumbo" Vanrenen, an Island Records A&R executive and one of the executive producers of the project. "We helped him get a studio with two 8-track Tascams [DA-88s] and a Mackie board. He started doing demos at home for enjoyment, with some of them being released just in Senegal."

Vanrenen continues, "At that stage, we started talking to Brian Eno about doing some work with Baaba Maal. So Baaba went in the studio with Howie B and Eno. You could say it was almost like a live concert. Each improvised around various things, and Baaba sang over that. They did six to eight tracks, but only one has been completed for the record. Then Howie B got involved with U2 and Brian got tired of waiting, and he went off to Russia."

Determined to complete the project, Maal and Vanrenen enlisted Ron Aslan, who also is based in London. He had worked with the singer as a programmer/engineer and as an assistant with producer Simon Emmerson on Maal's two previous CDs. He has also worked with Peter Gabriel, Tony Childs and the acid jazz band Incognito.

"When I worked on *Firin' in Fouta*," Aslan recalls, "I just loved it. It was such a refreshing time—the whole trip of going to Senegal and working away from the record company. All the people you meet are so pleased to work with you. It didn't feel like work. It felt like a mission."

In his capacity as producer, Aslan returned to Senegal with his Akai 3200 sampler. Then he used Maal's home-generated demos as a working foundation and started building tracks. "This is the most produced Maal's ever been," Aslan, a former DJ, states. "There are lots of remixes and stuff. The kind of music I normally do is usually more kind of groove stuff. So it's a bit more modern than just getting them as normal down on tape. It was strange for the band because they had not really done that type of thing before. We would start with a groove, and Baaba would find things to go on it. It was unique for them, but they got into it.

"It was amazing to be there," Aslan says. "I became good friends with Baaba Maal's engineer. But it was *so* hot there. You wouldn't believe how hot it was. We did have one air conditioner in the room we were working in. It saved our lives! We also would have a power cut at 8 p.m. every night. It would last for a couple of hours, and we would start back up around 10 p.m."

Vanrenen adds: "The next stage was that the band came up to London. For about ten days they worked in Trident Studios for live recordings and Maison Rouge for additional live recordings. They overdubbed and worked on those tracks. That resulted in four completed tracks that were mixed by Bob Power in New York." Aslan comments, "I really wanted Bob Power to mix it. He's the greatest guy I know. He's worked with Erykah Badu and many others. I worked with him awhile back on my own album with my trip-hop group Raw Stylus.

"At the same time, Baaba did some tracks with another producer, Paul 'Graucho' Michaels," Vanrenen continues. "Simon Emmerson produced three tracks, too. One of his tracks, 'Sherri,' was recorded almost like a live session with the band. He then edited additional overdubs. Baaba Maal also went down to Jamaica and recorded a track with Luciano, under the auspices of Luciano's producer, who is called Fattes

the Exterminator. Then the track was brought up to London, and Maal's musicians overdubbed their instruments on it. Michael Reilly restructured it, produced it and mixed it.

"One of the tracks we recorded in Podor ended up not being done by Ron Aslan," Vanrenen adds. "It was done by Michael Reilly, who is probably best known in England as a vocal arranger. It's a track called 'Douwayra,' which has a lot of overlayed vocals—a very complex arrangement. We hope that it will be a pop record when it's finished, something that can be played on the radio. It has quite a strong American R&B feeling to it."

In the studio, Maal doesn't get too involved with the technical aspects. "He'll work on the initial stages of setting up a rhythm," Vanrenen says, "and then let the engineers and producers work with the musicians. He will sing while they lay their tracks down. He's often inclined to go back afterward and redo his vocals. He might even come back three months later and assess what he's done and do it again. He's quite a perfectionist when it comes to putting his vocals down. Sometimes he'll interpret it differently each time he does it, sometimes he'll put down an entirely different vocal line. By the time he's put the final thing down, obviously he's put a lot of thought into how he wants it to be. How he does his vocals is quite important—the atmosphere, how he's feeling and all of that."

I make music that has tradition and the modern connected. I use it like a language to talk to young people. They listen more to music than politicians.

—Baaba Maal

Describing the overall recording philosophy, Vanrenen says, "It would be very easy to record Baaba Maal almost live. He and his band are so strong live. It would be great to get that sort of energy and power. But making records is always a different process. Baaba's always keen to experiment with new technology, to work with programmers and find rhythms that have an echo with traditional music or the folklore in Senegal. That's really the purpose behind the recording—to find ways to present this old African music in a very modern way."

This global artist's musical roots go back to the town of Podor, Senegal, population 6,000, where he was raised. As a child he was strongly urged to study music. His father, a field worker, had the revered position of using song to call the worshippers to the town's Moslems to the local mosque. And Maal's mother occasionally sang at weddings and taught him the traditional songs and dances of their people. In school, he learned to play such African instruments as the 21-string kora, the violin-like riti, the hoddu and the seven-stringed African guitar.

Still, though he had a strong musical background and was obviously gifted, when he was growing up he could not become a performer because of the strong caste system of Senegal, which dictated that only *griots* and their descendants were worthy enough to be musicians. *Griots* in that highly traditional society were usually more than just musicians; they were storytellers and historians of the culture.

"I consider myself like a modern *griot*," Maal says. "My music is played to assemblies like a *griot*'s music was in the past. Their music was integral to the life of the nation and society. I want to convey this to the younger generation. They believe that they are African but also very modern. They listen to every kind of music from all over the world. I make music that has tradition and the modern thing connected. I use it like a language to talk to young people. They listen more to music than politicians or leaders. I try to tell them the truth and what's happening in society."

And now he's sharing some of his culture with the world. "Even if you can't understand the language, you can feel what the song is talking about," Maal says of his music. "Just close your eyes. Listen to the music, listen to the beat and try to understand where the music is going. What I want people to see through my music is that we are all connected. Coming from Africa, the music may not be what they are used to hearing. I want people to know that everything in world belongs to human beings, and they must share it." ■

MEDIA & MASTERING NEWS

1997 RIAA Midyear Statistics

January-June 1996 vs. January-June 1997
Manufacturers' Unit Shipments in Millions (Net After Returns)
Dollar Value in Millions (Suggested List Price)

	January-June 1996		January-June 1997		Percent Change	
Configuration	Units	Dollar Value	Units	Dollar Value	Units	Dollar Value
CD	356.9	4,313.6	331.0	4,214.8	-7.3	-2.3
Cassette	101.9	866.0	74.9	653.9	-26.5	-24.5
Vinyl LP/EP	1.2	14.3	1.4	18.2	16.7	27.3
CD Single	18.0	84.1	30.6	128.6	70.0	52.9
Cassette Single	30.4	95.3	21.0	64.0	-30.9	-32.8
Vinyl Single	5.5	25.6	4.5	21.0	-18.2	-18.0
Music Video	7.3	101.7	7.3	125.6	0.0	23.5
Totals	521.2	5,500.6	470.7	5,226.1	-9.7%	-5.0%

MUSIC INDUSTRY IN RECESSION?

Figures recently released by the Recording Industry Association of America (the record label trade group) show an alarming decline in sales of prerecorded music products during the first half of 1997. The number of units shipped (net after returns) fell to 471 million, a drop of 9.7% compared to the same period in 1996. The dollar value of the shipments (at suggested list price) fell 5% to $5.2 billion.

The numbers mark the first time that the industry's flagship configuration, the album-length CD, has shown a decline in shipments—331 million CDs were shipped from January to June 1997, down 7.3% from the first part of 1996. CD singles, on the other hand, provided one of the few bright spots in the report, rising 70% to 31 million units shipped.

The prerecorded cassette continued its decline as a music format, with cassette albums falling 27% to 75 million units and cassette singles down 31% to 21 million. Vinyl singles dropped as well, down 18% to 4.5 million, though LP/EP shipments continued to climb, rising 17% to 1.4 million. Music video shipments were flat at 7.3 million units.

Taken in isolation, the drop in first-half shipments would not necessarily indicate a long-term trend. But following the last couple of years of relatively flat sales, the numbers seem to confirm that the glory years of music industry growth earlier in the decade are now over. The last serious decline in music sales was back in 1991, when an economy-wide recession could be blamed. With the economy booming this time around, the mega-label corporate conglomerates that dominate music distribution may be forced to look closer to home for an explanation.

LIQUID AUDIO DIVES INTO INTERNET MUSIC DELIVERY

Music is reportedly among the most popular subject areas for sites on the World Wide Web, but most music sales efforts to date have focused on promotion and order-taking rather than actually delivering the music via phone lines. Liquid Audio of Redwood City, Calif., however, has been promoting the idea of direct Internet music delivery for more than a year and looks to be finally making a bit of headway in getting the idea off the ground. The company recently announced that two Web sites, N2K's Music Boulevard (www.musicblvd.com) and the Knitting Factory (www.knittingfactory.com), have begun selling individual songs for download using Liquid MusicPlayer.

Music Boulevard, a major online music retailer, is initially selling 15 tracks by artists including Patti Austin, Stewart Copeland, Chick Corea and Paquito D'Rivera. The tracks sell for 99 cents each. The Knitting Factory, meanwhile, is using Liquid MusicPlayer to allow sampling and purchase of music by artists on its own label, including Pat Metheny, John Zorn and Zony Mash.

According to Liquid Audio, the Liquid MusicPlayer (available free at www.liquidaudio.com) allows users to not only preview and download music to their hard drives but also to record it onto their own compilation CDs using a CD-R drive hooked to their computer. The Liquid MusicServer delivers the music to the user and tracks activity for payment of copyright holders. Preparation of the music files is handled by Liquifier Pro, which converts the music into an enhanced version of Dolby Digital audio format. The material is encrypted and watermarked for copyright protection. Updated versions (2.0) of the three programs were to begin shipment in September.

The announcements represent a small start for Liquid Audio, but tremendous obstacles remain. Liquid Audio claims to deliver CD-quality music, but Dolby Digital is a data compression algorithm and therefore does not deliver the full fidelity of the CD's Red Book standard (16-bit linear PCM), though the compressed files may sound quite good and will definitely download much faster. Further, record companies are likely to be extremely reluctant to move away

BY PHILIP DE LANCIE

from the current market model, in which they retain great control over the manufacture and distribution of their prerecorded music products. Liquid Audio CEO Gerry Kearby may win points with consumers when he talks of "putting an end to the days when music fans had to spend $16 on a CD" to get the one song they really want, but it will be harder to win many friends at the major labels by singing that tune.

VENDORS EMBRACE HIGHER SAMPLE RATES

With a high sample rate DVD-Audio format on the horizon, several professional equipment manufactuers are moving to incorporate higher-rate capabilities into their gear. Weiss (Uster, Switzerland) announced that its Digital EQ1 now supports the 96kHz sample rate, and that the Weiss 102 mastering systems installed at BMG's New York studios will be upgraded to 24-bit/96kHz precision. Sonic Solutions (Novato, Calif.), meanwhile, announced the addition of 96kHz stereo audio capabilities to DVD Studio, the capture and compression component of DVD Creator, the company's hardware/software package for DVD premastering. To facilitate transfers between various high-rate formats, dCS Ltd. introduced the model 972 digital-to-digital converter, which includes 96kHz capability. dCS is distributed in the U.S. by Canorus in Nashville.

dCS 972 digital-to-digital converter

MASTERING NOTES

Bernie Grundman Mastering (Hollywood, CA) announced the opening of a new mastering facility in Tokyo, Japan, under the direction of engineer Yasman Maeda...**Future Disc Systems** added mastering engineer Kris Solem to its staff. The Hollywood, CA, company also added a Kodak PCD600 CD-R duplication system to be run by new production engineer Peter Thomas...Phil Austin mastered the chart-topping Spice Girls album *Spice* at Trutone Inc. (Hackensack, NJ)...**Europadisk-Cyberdisk** completed a $4-million expansion of its New York City mastering and manufacturing facility, adding an AMS laser beam recorder, a Mark IV CD replication line and a MediaMorphics digital workstation...San Francisco's **Rocket Lab** donated mastering for the upcoming *Amazing Grace* compilation album featuring artists including Ani DiFranco, Daniel Lanois, PM Dawn and Melissa Etheridge. Proceeds from the album go to cancer and AIDS research...Skunk/MCA artists Sublime were in at **Time Capsule Mastering** in Long Beach, CA...Amy Myers mastered her CD *The Wheel* at **Music Annex** in Menlo Park, CA. ■

Producer Miguel Happoldt at Time Capsule

Philip De Lancie is a mastering engineer at Fantasy Studios, Berkeley, Calif.

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COAST TO

L.A. GRAPEVINE

by Maureen Droney

PHOTO: MAUREEN DRONEY

Vocalist Lamya in the studio with Matt Sorum

As drummer extraordinaire for rock superstars like The Cult and Guns N' Roses, Matt Sorum spent most of the last few years either on the road or in the studio, where, besides laying down the beat, he was also paying strict attention to the recording process and to the techniques used by the top engineers and producers that he worked with. Now, with partner Lanny Cordola, he's running his own production company, dubbed Orange Curtain Productions, and it's obvious that Sorum has learned his lessons well.

Home base is the multistoried Viking Studios, situated high in the Hollywood Hills, where recent projects have included a four-song EP for vocalist Lamya (known for her work with Soul to Soul and Duran Duran), as well as recordings for other young artists including Poe and model/singer Rebecca Romaijn. Viking is buzzing on all of its four floors—ensconced in the building along with Sorum and Cordola are programmer and keyboardist Vinnie LoRusso, arranger/film composer Thomas Morse and production coordinator Elizabeth Dameron.

"I was looking for a house where I could do a studio," explains Sorum, standing in the recording space where he has two drum kits set up (one "retro," one "rock"), accompanied by an extensive guitar and amp collection. "And when I saw this room I got excited, because the walls are solid cement and have the reflection that I like for drums. Actually a bit too much: I ended up installing heavy foam and tuning the room in my own way—play a little, put another piece up and go, 'Okay, that sounds better.'"

Various storage spaces, closets and the laundry room double as iso booths, allowing for recording as much as two guitars, bass and drums live. Vocals get done in the bathroom. "It works," laughs Sorum, "but it's not sealed,

—CONTINUED ON PAGE 200

NY METRO REPORT

by Dan Daley

This month Metro talks to New York studio managers, who report that while the gig has changed over time, managing a New York facility remains a very singular job. The overall gist we picked up is that studio managers are more involved in every aspect of the facility than they were even a few years ago. Where day-to-day bookings and traffic management might have taken up most of the time then, these days managers are integral to all levels of technological and economic decisions, as well as long-term planning for the studios' future. But dealing with New York places a special burden on studio managers that their colleagues elsewhere might not experience.

"Attitude, attitude, attitude," says Jeff Rechter, manager at Staten Island's Mystic Sounds. "You're dealing with urban music genres like rap and hip hop in New York. They bring with them the vibe of the city. You have to be sensitive to that. A guy walks into the studio with dreds and a pierced tongue; he looks like he doesn't have a dime in his pocket, and he turns out to be an amazing engineer. You can't judge a book by its cover in New York. They're not walking in here in golf shirts and khakis like in L.A. or Nashville."

Rechter, a Full Sail grad who says his Southern upbringing provides him with a slightly higher level of useful people skills, adds that the overall engineer community in New York tends to come with its own attitude, perhaps because fame in the urban music world of New York is more fleeting than in others, and independent engineers feel the need to strike while they're hot. "They walk in with that attitude that says, 'Hey, I'm good,'" says Rechter. "And you know what? They are. That's why they're in New York. If you're going to manage here, you have to be ready for that."

The relationship between studios and the city's talent pool of engineers is a complex one, and one that has evolved and changed over time. Tony Drootin, a veteran of 11 years at Unique Recording, recalls a time when virtually every studio in New York had staff engineers and the managers were instructed to push them to clients as hard as they sold the studios themselves. It was often a good deal for both camps—Drootin notes that both Bob Rosa and Chris Lord-Alge were staffers at Unique in the 1980s, and Chris' brother and assistant Tom was put in the chair for parts of Steve Winwood's *Back in the Highlife* record when both senior staffers were too busy; it launched his career.

"These days, every engineer is an independent con-

—CONTINUED ON PAGE 209

COAST

SESSIONS & STUDIO NEWS

Chief instructor (and veteran engineer) Scott Jarrett is pictured behind the modified Westar Quad 8 and with students in the recording facilities at ThunderBird Recording School in Tijeras, N.M. Now in its second year, the school offers intensive instruction to small groups of students in a hands-on, apprentice-style program. The school's studio was designed by Geoff Turner and includes an Ampex MM1200 2-inch 24-track, complete digital and MIDI workstations, and select vintage and contemporary mics.

SOUTHWEST

Out now is the third in a series of LPs entitled *Merry Arizona*, holiday albums featuring Arizona artists and benefiting the state's United Cerebral Palsy organization. This year's bill is topped by Nils Lofgren, CeCe Peniston, Buck Owens, Glen Campbell and Marian Meadows. The project was produced and engineered by **Otto D'Agnolo** at **Chaton Recordings** in Scottsdale, AZ. To date, the first two *Merry Arizona* releases have raised nearly half a million dollars for UCP...**Ken Schaffer** recorded *Safety in Numbers*, a songwriters' showcase compilation featuring performances by Maryanne Price, Johnny Richardson, David Allan, Edge City, Turtle Creek and others, at **Fat Tracks Recording** in Austin, TX. Also in were Austin indie-rockers **Wookie**, working on their first full-length. The studio recently installed a Sonic Solutions mastering system...**Hi Fi Drowning** worked on their next release at **Planet Dallas** (Dallas) with producer/engineer **Rick Rooney**...Producer/engineer **Clarke Rigsby** cut a new record with Concord artist **Frank Vignola** at Rigsby's **Tempest Recording** in Tempe, AZ...Blues cat **Ian Moore** and producer/engineer **Matt Hyde** worked on new material for Capitol at **Arlyn Studios** in Austin, TX. At sister studio **Pedernales** in nearby Spicewood, **Willie Nelson** recorded his *Hill Country Christmas* for Finer Art Records with producer **Freddy Fletcher** and engineer **Larry Greenhill**...

NORTHEAST

At his **Bridge Sound Studios** in the Ruffhouse Records facility (Conshohocken, PA), producer/songwriter **Jim Salamone** has been working with **Teddy Pendergrass** on the artist's forthcoming Christmas album...Atlantic artists CIV tracked with producer **Steve Thompson** and engineer **John Goodmanson** in Studio A at **Bearsville Sound** (Bearsville, NY). Also in were producer **Steve Lillywhite** and engineeer **John Siket**, mixing a live album for Elektra artists **Phish**...At his **Bopnique Musique** in North Chelmsford, MA, producer/programmer **Anthony J. Resta** handled rhythm programming and loops for **Letters to Cleo**'s latest single, "Anchor," produced by **Peter Collins**...**The Boys Choir of Harlem** overdubbed for a Christmas album on Unencumbered Records at **Sweetfish Recording** (Argyle, NY), working with choir founder Dr. Walter Turnbull, producer **Vaughn Halyard** and engineer **Marc Fuller**...Spyro Gyra bassist **Scott Ambush** tracked for a Hot Wire Records project for European release at **Soundworks Studios** in Watertown, MA...Capricorn Recording artists **Fools Progress** did some remixing at **Sound Techniques** (Boston) with **Danny Bernini**, assisted by **Ted Paduck**...'Nuf said: Pussy Kitty recording artists **Veronica Black Morpheus Nipple** mixed their upcoming album with producer **Pete Weiss** at **Zippah Recording** in Brookline, MA...**Bigmouth** recorded their Wild Pitch Records debut at New York City's **Avatar Studios** with producer **Neil Dorfsman**...

SOUTHERN CALIFORNIA

The re-formed **Jane's Addiction** mixed their Warner Bros. live album at **Skip Saylor Recording** in L.A. Bandleader **Perry Farrel** produced, **Andy Wallace** engineered and **Ian Blanch** assisted...**Sunz of Man** mixed for the Red Ant label at **Larrabee North** (Studio City) with producer **Fourth Disciple** and engineer **Rob Chiarelli**. **Steve Durkee** assisted...Recent projects at **Your Place or Mine Studios** in Glendale included work on the soundtrack for the feature *Traveller*, with producer **Andy Paley** recording country artists such as **Mandy Barnett** and **Jimmie Dale Gilmore**...**Green Day** completed work on their new album, *Nimrod*, at **Image Recording** in Hollywood, with producer **Rob Cavallo** and engineer **Chris Lord-Alge**...**Superdrag** tracked their sopohmore release for Elektra at **Sound City** in Van Nuys with producer/engineer **Jerry Finn** and assistant **Nick Raskulinecz**...

NORTH CENTRAL

RCA Recording artists **Hum** tracked their upcoming self-produced full-length at **Pogo Studio** in Champaign, IL, with co-producer/engineer **Mark Rubel**...At **Hinge** (Chicago), **Tina Moore** worked on an RCA release with producer **M.Doc** and engineer **Steve Weeder**, and jazz artist **Brian Culbertson** worked on his new Atlantic release with engineer **Craig Bauer** and assistant **Steve Johnson**...World beat band **Macaw** tracked and mixed an album at **Immortal Productions** (Canal Fulton, OH) with producers **Ron Jarvis** and **Tim Longfellow**. **Cal Moore** engineered...The former Prince's former guitarist **Dez Dickerson** recorded his first solo project, *Oneman* (on Absolute Records), with guest **Phil Solem** at Solem's studio, **Wonder Spot**, in Minneapolis...

—CONTINUED ON PAGE 198

SESSION SPOTLIGHT

WAYNE "THE TRAIN" HANCOCK AT FIRE STATION STUDIOS

by Barbara Schultz

Second only to the new lounge core in "scene" value is the new wave of rockabilly and country swing music that's popping up in clubs all around the American Southwest. Acts such as L.A.'s Big Sandy & His Flyrite Boys and Austin's Derailers are playing to packed houses of vintage-clothing-clad swing dancers. The best of these artists, of course, have much more than neo-traditionalism going for them, and one of the most gifted is Wayne "The Train" Hancock, a singer/songwriter with a wild rockabilly/swing band of guitars, horns and accordions.

Hancock's latest release, *That's What Daddy Wants* (Ark21), was recorded live in three days at Fire Station Studios in San Marcos, Texas. The studio is popular with live bands like Hancock's because of its big music room (33x28 feet with a 30-foot ceiling). The other special thing about this facility is that it's owned by Southwest Texas State University: It functions as a commercial studio, run by director of recording arts Mark Erickson and chief engineer Bobby Arnold, but it's also a classroom, where students learn to use the equipment and serve as seconds on commercial sessions. For Hancock's album, Arnold was assisted by students Coy Galloway and Jay Skinner, who are credited on the CD.

"I kept track of the hours, and it was less than 72 hours to record, overdub and mix," Arnold says. "And I would say 90 percent of it was live. For the student assistant engineers, it must have been over before it hit 'em. But I try to keep them pretty active. I kept them busy as far as hooking up compressors or setting up mics, or just general things to keep the session flowing. They do documentation or sometimes just help people get food or parking—all stuff I do [for clients] every time I do a session here."

Arnold and his assistants set up Hancock and his bandmates in a large circle in the live room, with some baffles around Hancock and his U87 vocal mic. Arnold captured the electric guitars and drums with mostly Shure mics (SM7s, 57s and 58s), and he used a small-diaphragm Milab mic for upright bass. The only exceptions to the live-in-the-studio arrangement were the trumpet and trombone players, whom he put in an iso booth with Beyer M160 microphones (clarinet and accordion remained in the live room). Arnold also placed a couple of room mics overhead, a pair of AKG C-414s. He recorded to an MCI JH-24 tape machine.

Outboard gear was used sparingly: a Summit TPA200B mic preamp, Summit EQF100 and Tube-Tech CL1B compression on Hancock's voice, an API 3124 mic pre on guitars and bass, and Summit DCL200 compression on all the instruments. "But these guys were well-prepared and had great tones to begin with," Arnold says. "There's very little equalization throughout." Arnold and producer Lloyd Maines mixed the album on the studio's Otari 54 Series console, monitoring on Genelec 1031A mains and Yamaha NS-10 near-fields.

"We have a really good staff here," Arnold says. "Mark Erickson and the rest of the music department support [the studio] strongly. We give good overall instruction on the basics of recording and electronics, and there's a very strong music influence here. This is a music degree, so everybody who comes in here has to have a primary instrument. And when you combine that with the opportunity to work in a part-time commercial facility and make some contacts—that gives them real-world experience, and that's the best chance they've got of getting a job when they get out of here." ■

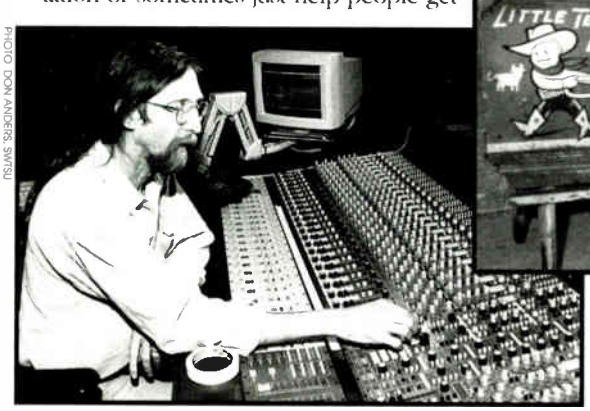

PHOTO: DON ANDERS, SWTSU

Above, Wayne Hancock. Left, Fire Station chief engineer Bobby Arnold at the Otari 54 Series console.

—FROM PAGE 197, SESSIONS & STUDIO NEWS

SOUTHEAST

At **Emerald Sound** in Nashville, **George Strait** tracked and overdubbed for MCA with producer **Tony Brown** and engineer **Chuck Ainlay**...**Twila Paris** tracked for Sparrow Records at Sound Emporium (Nashville) with producer **Brown Bannister** and engineers **Steve Bishir** and **Hank Nirider**...**John Hampton** produced and engineered Audio Adrenaline's new one for Forefront Records at **Ardent Studios**, Memphis. **Jason Latshaw** assisted, and **Skidd Mills** mixed the record...R&B supergroup **LSG** (Gerald Levert, Keith Sweat and Johnny Gill) recorded vocals for their new Elektra release at **Doppler Studios**, Atlanta, with producer **Shawn Hall** and assistant **Ralph Cacciurri**... LaFace artists **TLC** tracked at **South Beach Studios** (Miami) with **Trackmasters** producing, **Ken "Duro" Ifill** engineering and **Andi Carr** assisting...**Southern Culture on the Skids** recorded their latest paean to psychotic tow truck drivers, shotgun love and favorite foods with co-producer **Mark Williams** in Studio A at **Reflection Sound Studios** in Charlotte, NC...**Masterfonics** (Nashville) had **John Michael Montgomery** in overdubbing for Atlantic with producer **Csaba** and engineers **Joe Chiccarelli**, **David Hall** and **J. Saylor**...**Brenda Dicky** mixed for Warner Bros. with producer **Scott Parker**, engineer **Brian Willis** and assistant **Matt Weeks** at **The Sound Kitchen** in Franklin, TN...**Gregg Allman** joined forces with longtime producer **Tom Dowd** for work on his next Sony/550 offering at **Criteria Recording** (Miami). **Chris Carroll** assisted...

STUDIO NEWS

Room With A View (New York City) named **Laura Hansen** as its new studio manager...**Snoop Doggy Dogg** recently installed a home studio with help from **West L.A. Music**. Gear includes a 32-in Soundcraft Ghost, ADATs and DA-88s, Tannoy monitors and a KRK subwoofer...**Rap-A-Lot Studios** in Houston, TX, installed an 80-channel SSL 4000 G Plus with Total Recall and Ultimation...Green Linnet artists **Pete** and **Maura Kennedy** put together their own studio, **Maple Ridge House** in Reston, VA. The duo cut everything straight to 16 tracks of Tascam DA-38 through Sytech mic pre's, and mix with a Yamaha Promix 01...Producer/engineer **David Tickle** upgraded his Euphonix CS2000 console with Euphonix Hyper-Surround software. Tickle has recently been remixing albums in the 5.1-channel surround format for DTS release...Omni Sound Studios (Nashville)

installed an API Legacy console with 40 channels of AMS Neve Flying Faders automation...**Liebert Recording** (New York City) installed a DAR Sigma Plus workstation in its newly constructed Cabin Room...San Francisco's **Hyde Street Studios** recently celebrated 30 years in business. Over its history, the studio has hosted sessions with artists from the Jefferson Airplane, Santana and the Grateful Dead to Bonnie Raitt, Chris Isaak and Green Day. ■

NASHVILLE SKYLINE

by Dan Daley

Post-production and commercial work isn't always what pops to mind when you mention Nashville; outside of Orlando (which is now so overrun with yankees that it is no longer considered part of the South), post and the Southern tier of states are not automatic mental pairings. But post does thrive hereabouts.

Commercial work is alive and well in Nashville, says Travis Turk, partner in Audio Productions, a 12-year-old, three-studio, surround-audio-equipped (with ISDN capability) commercial company. "There's more commercial and related work going on down here than most people realize," says Turk. "Hummingbird Productions did the Budweiser frogs, and we've done ADR on every film that's been shot in the region, as well as ADR work for Hollywood studios; we did ADR work on Disney's TV pilot *Steel Chariots*, on *Nash Bridges* and on *Baywatch*." The studio has also augmented its range of projects in recent years by doing radio programming and satellite tours for major Nashville record labels.

Scene Three Audio, which added a Neve Logic 3 digital console three years ago and 5.1 surround in early 1996, is planning another expansion of its audio capability. Sometime before the beginning of next year, the post house will have added a second control room with a larger recording room to handle more complex voice-overs, overdubbing, ADR, Foley and small scoring dates, says president Nick Palladino. "We were never much into voice-overs before, but now the demand for them is increasing, and they want larger casts for animation. This new room will be able to handle three or four voices at a time." The new studio will be in the existing Scene Three Audio building, which could force a relocation of the offices there. Scene Three has a shooting stage several blocks away. No final decision on tech-

nology platforms has been made yet, although Palladino says he expects to stay within the Neve group of products. No designer has been named yet, either; Palladino designed the current studio.

The post business in Nashville is "booming," Palladino says, noting that even though music video work has declined, expanded cable and syndicated programming has more than picked up the slack. Still, he acknowledges, about half of Scene Three Audio's work is connected in some manner to the country music industry, which itself is experiencing a contraction; most major Nashville labels now have video policies more restrictive in terms of numbers and budgets than they were three years ago. But, adds Palladino, "More people are recognizing what we can do in Nashville in terms of audio post. That's why it makes sense to expand our facilities now—because it expands our capabilities."

Not Nashville, but close, and definitely post, Crawford Post-Production opened a large new digital video editing facility on its sprawling Atlanta campus in mid-October. The audio component of the new facility is complicated and proves that, in many real ways, sound still does follow picture. According to Crawford director of audio Steve Davis, "There's nothing monolithic about the audio aspect of the new facility; it's a fairly complex architecture with fairly complex audio solutions. We had to keep the digital audio as flexible as possible." The facility houses a myriad of video formats, including ACCOM Digital Disk Recorders, Pluto Space Recorders, Ampex DCT, Sony Digital Betacam and D1 tape machines. Digital audio formats, not famous for their interchange characteristics to start with, have to conform themselves to the video formats. "Sometimes the audio will be stored on formats native to the video format, like digital tape; for random-access video, the audio will use random-access storage," says Davis. All suites in the complex have Graham-Patten digital audio consoles, and the entire 15,000-square-foot facility was wired for AES digital signal transfer as well as LAN for proprietary data transfers. The wiring design and installation were done by consultant Eric Stark and Crawford technical staffer Trevor Minscher. The facility itself was designed by Alex Munoz & Associates.

The Nashville Association of Professional Recording Studios (NAPRS) has published its first directory. The spiral-bound book costs $30 and is updatable at six-month intervals at no charge. Send check or money order to NAPRS Directory, PO Box 120662, Nashville, TN 37206, Attn: Marty Craighead. In related matters, NAPRS conducted a panel discussion among its members focusing on day-to-day business exigencies, including cancellation policies, booking procedures and budgeting. The panel, comprising producers and production assistants, underscored the fact that rates are not the sole criterion for many when selecting a facility, and most welcomed the concept of a universal cancellation policy.

Otari has purchased Bill Ray's dealership, Otari Southeast, in Nashville. The new office will retain that name and a demo studio with Otari's product line. Melody Rhodes stays on as office manager; sales vet Duncan Rowe is the office's new sales manager; and producer Jeff Glixman (Heart, Georgia Satellites) comes on as product specialist.

Nashville's Kids On Stage Summer Academy benefited from $25,000 worth of recording gear donated by Mackie Designs and singers Naomi and Wynonna Judd, who are residents of the Nashville suburb where the school is located. Mackie installed a 40-channel/8-bus console, nine M1400 power amps, a pair of HR823 active reference monitors and two 1604 mixers. The company has also committed at some future point to donating one of its digital 8-bus consoles and its new HUI Pro Tools control surface interface. GHL Audio's Gary Hedden (a former remote recording studio operator in Nashville and now owner of a mastering facility and a design and installation consultant) did the studio design and, with his son, Aaron, the installation of the technology. Hedden says that a permanent studio facility for Kids On Stage would be ready for use by the first of the year. During this summer's session, the kids learned songwriting with John Hiatt and Trey Bruce, guitar playing with Larry Carlton, and other aspects of the business from other major Nashville performers and audio professionals, all of whom, like Hedden and son, donated their time and their talents. ■

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—FROM PAGE 196, L.A. GRAPEVINE

so for vocals we all go to headphones in the control room to keep the leakage down.

"We keep everything miked up so we're ready to go," he continues. "My original idea for the production company was that if I found a great band play-

ing at a local club, I could bring them up to my house where they'd have decent equipment and I could record them, get some good sounds and help them get a record deal."

Was Sorum always a technical type? "I'm the kind of guy who always wanted to know what mic was on what," he says, "and what kind of compressor was on my bass drum. I was always scoping out the producers I worked with—Mike Clink, Ron Nevison, all the great guys, and all the great engineers. I also listen to all different styles of music. I come from the rock genre, so people don't expect me to be into so many different kinds of music. But before I played with The Cult I played with Tori Amos, who was very experimental, and before that I was a session player. I worked with everyone—Gladys Knight and the Pips, a rap/funk guy named Howie Rice, and pop producer Michael Lloyd. I played with Belinda Carlisle, Shaun Cassidy—I didn't care, I just wanted to work. But after The Cult, I became this fairly well-known rock drummer, and maybe a bit pigeonholed. Now I'm trying to turn that around and show people I've got a lot more in me than just being in a heavy rock band."

To that end, Sorum has been getting heavily into electronic setups, including a 9600 Mac with a wide array of music-making software. Staples are Digital Performer, Cubase ("I work with a lot of English programmers who like Cubase") and Recycle. "I'm into loops, and Recycle's great—you can grab a loop, it'll tell you the tempo, and it cuts up sound bites so you can grab just the bass drum. Also you can stretch and compress the tempo."

A favorite toy for Sorum and programmer LoRusso is the Studio Electronics ATC-1 analog synth box. "It's a new product for the company," interjects LoRusso, "making analog synths with oscillators and envelope generators. The ATC-1 comes with four filter cartridges, like the ARP 2600, that you can plug in. Every feature is MIDI-controllable, so if you want real-time filtering or modulation, everything can be controlled via MIDI. There are also audio inputs, so you can plug in a guitar or any signal. It comes from the factory with 500 sounds that you can manipulate any way you want, and it's all analog—it's got that great warm sound you just can't get with digital.

"Another unit we really like is the Roland JP8000 for that same reason—analog warmth."

So what mics are on Sorum's two drum kits? The "retro" kit features AKG C1000s for the overheads, with the classic Sennheiser 421s on the 1963 Ludwig toms. The custom Pork Pie 22-inch kick takes an AKG D-112, along with the new Shure Beta 52 kick drum mic. Shure 57s top and bottom for the snare, and for the room mics a pair of 87s or AKG C3000s (Sorum calls them the "roadworthy version of a 414"). For the rock kit—Shure 57s on the toms, with a Sennheiser 421 on the floor tom "for that little bit more low end." AKG D-112 on the kick again, and those 57s top and bottom on the snare. Overheads are the same, with the addition of the Swedish Milab P50 sometimes used as a mono room mic. "Pretty simple, right?" says Sorum. "We're easy. We just like to have a good time here."

Stopped in at Chick Corea's Mad Hatter Studios in Silverlake, where I found the two-room facility a buzzing beehive of activity. As it's also the site of Ron Moss management, and headquarters for Stretch Records, there's a lot of activity every day. Both of Hatter's rooms feature Neve 8078s. Studio A, the original large tracking room, has a stock 40-channel version that was originally owned by Electric Lady Studios and now features GML automation. Studio B, the Lakeside-designed mixing room built three years ago, contains a 64-in custom 8078 made by joining a stock 40-channel with 24 channels from an 8028 (1073 EQs), all built into the frame for a total of 64-in. The finished console houses 40 channels of Neve 4-band EQ and 24 of 3-band. Studio B also has GML automation.

With the amount of old Neve buffs working in L.A., that winning console combination has kept Mad Hatter busy with projects from Uma, the first act recording for producer Don Gehman's new label, to Billy Sheehan's Niacin, Ronnie Laws and the Butch Vig-produced Soul Asylum. Originally built in 1980 and designed for recording pianos and other acoustic instruments, Hatter was, for three years, Corea's private studio. When he began spending a large portion of the year touring, it became obvious to both Corea and his manager Ron Moss that it would be logical to open up the studio to the public. The first clients were, not surprisingly, Corea's jazz compatriots like Jean Luc Ponty and Wayne Shorter. Then, as word got out, the facility began to expand. Studio manager Mark Francovich came onboard in 1987, and the studio started moving toward soundtracks and pop music. "Our business has gotten better every year," he says. "A lot of the major jazz artists still come here to record, but now we're probably about 50 percent jazz and the rest a mixture of rock, pop and soundtracks."

PHOTO: MAUREEN DRONEY

In session at Mad Hatter (L to R): Alex Acuña, Robert Read, Justo Almario. Seated is Bernie Kirsh.

On the day I dropped in, Studio A was host to Tolu, an 11-piece Latin band (bass, drums, horns, timbales, congas, bongo, acoustic guitar, keyboards and piano) produced by saxophonist Justo Almario and the in-demand session percussionist Alex Acuña (with a guest appearance at the session by actor Andy Garcia—yes, girls, he does look that good!). Engineering chores on the chaotic date were handled with great aplomb by engineer Bernie Kirsh and assistant Robert Read, who took the Latin madness in stride and came up with some great sounds. Most of the band was set up in the large main room, with horns seated in one iso and the trap drums (played by Acuña) in what Kirsh calls his favorite iso room in the world. "It's the best-sounding iso room I've ever heard," he comments, "because it doesn't have any sonic opinion. You just hear the instrument clearly. It's a very useful room."

Vibewise, the studio is earthy and comfortable, with multiple lounges. "Since we're owned by an artist, there's no corporate feeling here," Francovich says. "The facility itself is very warm—it's all wood and rock and definitely doesn't have that spaceship look. We are unique in a few ways; for example, I think we have the only room in town with two 9-foot concert grand pianos—a Bosendorfer with MIDI, which is pretty rare, and a Hamburg Steinway D, which is very rare. Piano aficionados know that there are only a handful, and that they have a different sound. So if we have a specialty, it's piano. But we do a very mixed bag—a lot of string sessions, Clare Fischer has done many great projects here, and a lot of live music. We've always been known for our good maintenance; currently, we have two full-time techs on staff, Chuck Willett and Larry Mah, making sure those vintage boards stay tuned. We have a great staff—they've all been here a long time. I think our newest assistant has been here four years. We're into running a tight ship, but it's a close-knit, comfortable place." ■

Fax L.A. news to Maureen Droney at 818/346-3062 or e-mail msmdk@aol.com.

▪ STUDIO SHOWCASE ▪

Lobo Recording

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e-mail: loborecord@aol.com
http://www.loborecording.com

Lobo Recording establishes a new concept in Audio Engineering. Beautifully furnished with superb recreational facilities and two newly designed live rooms with top-of-the-line equipment: Amek Angela IIs, Studer A827s, Alesis ADAT-XTs, SV 3800 DATs, Akai 3000 XLs, Manley compressors, Lexicon PCM 90s, TC Electronic M5000s, Genelec1031As, Yamaha NS10Ms, vintage AKG and Neumann tube mics, EVs, Shures, Telefunken and much, much more.

Starke Lake Studios

275 North Lakeshore Drive
Ocoee, FL 34761
(407) 656-8989; Fax (407) 656-9862
e-mail: gettings@sprynet.com
http://home.sprynet.com/sprynet/gettings

Sitting on beautiful Starke Lake, the studio boasts a Euphonix CS-2000 console, a Synclavier/16-trk. Post-Pro system, an MTR-90II, Genelec & HD-1 near-field monitors and a large assortment of outboard gear and microphones. Our 45x45-foot main room w/18-foot ceilings has a great sound and features a Yamaha C-7 piano. We also have a MIDI room for composition. Starke Lake and our parent company, Gettings Productions, has clients including Disney, Gloria Estefan, The Pointer Sisters and many more.

Artisan Recorders Mobile

PO Box 70247
Ft. Lauderdale, FL 33037
(954) 566-1800; Fax (954) 566-3090
e-mail: mobile red@aol.com

For over 20 years, Artisan Recorders has been providing excellence in remote recording and broadcast. Along with an extensive array of equipment in a comfortable aesthetic environment, our 36' "Mobile Red" studio boasts an expert staff of technicians with love of music and desire for perfection. Recent credits include: The Artist (formerly known as Prince), the "Big Bang" concert series with performances by Kathy Mattea, Travis Tritt, Modern English and World Party, MTV Latino Unplugged, Luciano Pavarotti, Sheryl Crow and many more.

Troposphere Studios

One Naylon Place
Livingston, NJ 07039
(201) 994-2990; Fax (201) 994-2965
e-mail: troposphere@gorden.net
http://www.garden.net/users/troposphere

Conveniently located in northeast NJ, just 20 miles outside of NYC, Troposphere Studios offers its clients a huge, 7,000-sq.-ft., acoustically tuned facility designed for tracking, mixing, and film or video lockup. We feature an SSL 4048 G Plus Series console with Total Recall, an Otari MTR 90II 2-inch 24-track, and a large selection of microphones and outboard gear. Our spacious iso booths and 38x40-foot live room also offer comfort to the performer. In short, Troposphere Studios is one of a kind.

Quad Recording Studios

723 7th Ave.
New York, NY 10019
(212) 730-1035; Fax (212) 730-1083
http://www.quadstudios.com

Quad Recording Studios, located in the heart of midtown Manhattan, now has two SSL J9000 Series consoles in two completely renovated studios that are great for tracking and mixing. Quad is a six-floor facility with four world-class SSL rooms and a fifth on its way. Clients are welcomed with a competent and friendly staff and enjoy our studio because of its relaxed and creative atmosphere. Some of our recent clients include Metallica, Pat Metheney, Jon Bon Jovi, Larry Coryell, David Kahne, Yoko Ono, David Morales and Bob Rock.

Coyote Recording Studios

100 North 6th St.,
Brooklyn, NY 11211
(718) 387-7958; Fax (718) 388-3898
http://www.Influx.com/coyote.html

A 24-track analog recording studio with spacious design, 4 isolation booths—perfect for live recordings. Oversized control room stocked with world-class gear like: preamps from API, Demeter, John Hardy; mics from Microtech, Neumann, AKG; EQs from API, Summit, Aphex; compressors from UREI, Manley, Tube Tech and much more. Amenities include private lounge, B&B accommodations, and many groovy restaurants, bars and cafes nearby.

▪ STUDIO SHOWCASE ▪

Studio Morin Heights

201 Perry St.
Morin Heights, Quebec, Canada J0R 1H0
(514) 226-2419; Fax (514) 226-5409
e-mail: smh@ietc.ca
http://www.studiomorinheights.com
Booking Info: Judy Smith (judy.smh@ietc.ca)

Studio Morin Heights is where music comes first and magic really does happen.

With 23 years of history, we have evolved with the knowledge of what you need from a world-class studio. Our outstanding staff and the breathtaking environment (plus, of course, our equipment) will ensure you an unforgettable and unique experience.

Find out for yourself why we are Canada's "Best Recording Studio" for yet another year.

The Saltmine

945 E. Juanita Ave., Suite 104
Mesa, AZ 85204
(602) 545-7850; Fax (602) 545-8140
http://www.primenet.com/~saltmine

Fifteen min. from Phx. Sky Harbor Airport, The Saltmine is the coolest tracking/overdub facility in Arizona...We feature a classic discrete NEVE console w/36 33114 modules and 8 33314A compressors; a STUDER A827 24-track and 40 tracks of ADAT; Pro Tools, a dozen synths, samplers, vintage tube mic pre's and mics and outboard gear galore!!! We tune up a sick collection of 40 CLASSIC GUITARS and VINTAGE AMPS in a comfortable "LIVE VIBE" atmosphere for the band, producer or label on a budget. CLASSIC & MODERN RECORDING.

The Sound Lab

1006 E. Guadalupe
Tempe, AZ 85283
(602) 345-0906; Fax (602) 345-6966

Arizona's finest audio facility features a NEVE VRP 48-channel console with Flying Faders automation, Otari 32-track digital DTR900, analog, or 32 tracks of ADAT XT, Yamaha concert grand, vintage Neumann and AKG tube mics, classic guitars, amps and a Gretsch drum kit along with the finest in outboard gear. Experienced professionals in a relaxed atmosphere with Arizona's world-class amenities nearby! Great package rates available on hotel, car and studio time. Highest quality at the best price.

Atlanta Digital

500 Means Street, Suite E
Atlanta, GA 30318
(404) 522-4777; Fax (404) 522-3723

Atlanta Digital provides CD Mastering and post-production. The studio features Sonic Solutions with NoNoise and CD printer in an audiophile monitoring environment. Outboard processing is by Focusrite, Manley, Apogee and TC Electronic. Video formats include Beta SP and ¾". Supported audio formats encompass Time Code DAT, Sony PCM-800 (DA-88) and analog tape. Recent credits include Arrested Development's Speech and Headliner, Vagabond and post-production credits from Bigelow and Eigel, Harcourt Brace and Optical Data.

Infinity Studios

27 Cobek Court
Brooklyn, NY 11223
(718) 339-1336; Fax (718) 339-1424

The only Neve VR60 with Flying Faders and Recall in NYC outside of Manhattan. Newly renovated control room. 24- or 48-track recording on new Studer A-827's or ADAT digital formats, at low block rates. Studio B, refurbished Harrison Raven console. MIDI suite for pre-production work. Mackie 8-Bus 32-input console. ADATs. "All-in" lockout. All three rooms for one low price! Program in the MIDI suite. Cut tracks in Studio B, mix on the Neve in Studio A! We'll even supply the transportation from any midtown location!

Stepbridge Recording

528 Jose Street
Sonta Fe, NM 87501
(505) 988-7051; Fax (505) 988-7052
email: stepbridge@sprynet.com
http://home.sprynet.com/sprynet/stepbridge

Our SSL is mated with a Neve "sidecar." The tracking room is spacious, the mic list extensive, and the racks are loaded with the finest digital, class A and tube processing. Recent projects include Robbie Robertson, Rita Coolidge, Herbie Mann, Dwight Yoakam, Gene Hackman and James Woods. A five-minute walk from the historic plaza, Stepbridge offers charm, privacy, on-site accommodations and an experienced, fully professional staff—the perfect combination for your next project.

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MICROPHONES

AKG

JUST IN

414B/ULS

reputation for flawless performance &
uncommon flexibility in the most demand-
studio & concert sound applications.
ual 1" Gold-sputtered diaphrams.
at on-axis response. • 126dB dynamic rang
witchable 10dB and 20dB pad. • 20Hz–20kHz.

CAD

E-300
Studio Condenser Microphone

multi-patterned side address mic that
combines vintage capsule design with
anced head-amp electronics, the E-300
an unusually wide frequency response
10Hz to 20kHz & an exceptional dynamic
ge of 137 dB. It also features extremely
self noise of 11dB. Ideal for even the
st critical studio applications.
own with optional ZM-1 Shockmount

nique powering of all Equitek Series
microphones is accomplished with a
r of rechargeable nicad 9-volt batteries
combination with 48V phantom power. This over-
nes inherent current limiting associated with most
antom power supplies & can supply 10x the current.

audio-technica

AT4050/CM5
Cardioid Capacitor Microphone

ne AT4050 multi-pattern condenser expands
pon the AT4033 to set the standard for
dio performance mics
capacitor elements.
ardioid, Omnidirectional, & Figure 8 polar pat-
rn settings.
apor-deposits of pure gold on specially-con-
ured large diaphragms are aged through 5 steps
ensure optimum characteristics over years of
e.
ansformerless circuitry results in exceptional transient
sponse and clean output even under extremely high SPL

AZDEN

UHF Performance Series

aking new ground, Azden's new UHF receiver and
crophone transmitters offer superb performance and
tures at prices far below anything you've ever seen.

41TUOR UHF Receiver

rystal-controlled, PLL synthesized UHF receiver with 63
ser-selectable channels in the 794-806 MHz band. Up to
systems may be used simultaneously. Features both 1/4-
ch and XLR output jacks, volume adjustment and can be
ick mounted.

41HT Handheld Microphone Transmitter

ewly-designed handheld with supercardioid uni-direction-
mic element and 63 user-selectable channels. Uses 9 AA
kaline batteries or Azden ni-cads with the ANC-2A
harging Station.

41BT Bodypack Transmitter

3 user-selectable channels, input level control, standby
witch, locking mini-plug connector and meta clip. Ideal
r use with lavalier and headset microphones or as an
strument transmitter.

ANC Ni-cad Battery Charging Station

rms the 41HT into the only rechargeable UHF micro-
hone available. (Uses Azden AN-1A nicad batteries only).
ully charged, the 41HT will run for 4 hours. Charging time
approximately 12 hours.

SENNHEISER

ME66/K6P
Short Shotgun Microphone

his road ready mic system is perfect for camera
mount and other short gun applications. It's profes-
nal sound quality and affordable price combined
th the flexibility of a modular setup make it a hard
oice to beat.

MIXING BOARDS

MACKIE

SR24x4 • SR32x4
Sound Reinforcement Consoles

These consolses do for live sound what the acclaimed 8-bus series has done for studio recording. Both professional grade mixing consoles, the SR32-4 and SR24-4 were built to deliver the same kind of useful features found on "bigger boards" while standing up to 24-hr-a-day use.

- Fast, accurate, easy level setting via "solo".
- 4 submix buses.
- 3 band EQ w/ sweepable mids.
- 6 Aux sends.
- Globally switchable AFL/PFL.
- Mackies "VLZ" technology for low noise.
- Tape return to main mix, mono out w/level control.

The new MS-1202, 1402, 1604 & SR Series all include VLZ (Very Low Impedance) circuitry at critical signal path points. Developed for Mackie's acclaimed 8•Bus console series, VLZ effectively reduces thermal noise and minimizes crosstalk by raising current and decreasing resistance.

TASCAM M-1600
16 & 24 Channel 8-bus Consoles

Great for modular Digital Multitrack setups and hard disk recording, the M-1600 is part of Tascam's next generation series of recording consoles. It features multiple options for inputs and outputs and uses the same, easy to install D-sub connectors as Tascam's more expensive consoles, all in "a compact design.

- XLR Mic inputs w/phantom power on 8 channels.
- Signal present/overload indicators on each channel.
- Balanced & Unbalanced tape returns & Balanced Group/Direct outputs using D-sub connectors.
- TRS Balanced Line Inputs on all channels.
- 3-band EQ with sweepable mids.
- 5 Aux sends (1 stereo)
- 4 assignable aux returns.
- Perfect for use with DA-88 and ADAT setups.

MINIDISC MULTITRACKS

TASCAM 564 Digital Portastudio

The Tascam 564 Digital Portastudio combines the flexibility and superior sound quality of digital recording with the simplicity and verstility of a portable multi-track. Using MiniDisc technology, the 564 has many powerful recording and editing features never before found in a portable 4-track machine.

JUST IN

FEATURES–

- Self-contained digital recorder/mixer.
- Uses low-cost, removable MiniDiscs.
- 2 AUX sends / 2 Stereo returns.
- 4 XLR mic inputs.
- Channel inserts on inputs 1 & 2.
- 5 takes per track, 20 patterns, 20 indexes per song.
- Random access and instant locate.
- Non-destructive editing features with undo capability include: bounce forward, cut, copy, move.
- Full-range EQ with mid-range sweep.
- S/PDIF digital output for archiving.
- MIDI clock and MTC

SONY MDM-X4 MD Multi-Track Recorder

MD recorders are here! Offering up to 37 minutes of high-quality 4-track digital recording, the MDM-X4 is truely the next generation of personal multi-tracks. With a built-in mixer, exclusive Track Edit system, and a Jog/Shuttle wheel for sophisticated editing with ease, the MDM-X4 will encourage you to flex your creativity.

FEATURES–

- Records on high quality, removable MD data discs • 3.5-gen. ATRAC LSI for wide dynamic range.
- 10 Input / 4Bus mixer.
- 2 AUX sends, 3-band EQ. • 11-point locator.
- Random access memory for quick playback and record from anywhere on the disk.
- Editing features include Undo, Redo, & Section/Song editing for flying material between different tracks.

STUDIO MONITORS

ALESIS

NEW PRODUCT

Point Seven
DESIGNED FOR MULTI-MEDIA!

- Shielded reference monitor.
- Front ported venting system for great bass response.
- 50 watts RMS–100 watts peak @ 4Ω.
- 85Hz–27kHz, ±3dB.
- 2kHz crossover for accurate phase and a wide "sweet spot" for mixing.
- Accurate flat sound reproduction.
- Great for studio and multi-media applications.

TANNOY

PBM 6.5II
Studio Reference Monitors

The PBM 6.5 II is the industry standard for studio reference monitors. They provide true dynamic capability and real world accuracy.

- 6.5" lowfrequency driver and 3/4" tweeter
- Fully radiused and ported cabinet design reduces resonance and diffraction while providing deep linear extended bass.

SONY

NEW PRODUCT

SMS-1P
Powered Studio Reference Monitors

The new SMS-1P monitors are perfect for post production environments. They feature 2 types of inputs with independent volume adjustment, 15 watts of power, bass/treble control and shielding for use near computer monitors.

JBL

4206 & 4208
Studio Reference Monitors

The 4206 & 4208 studio reference monitors are 6" and 8" respectively. Both offer exceptional sonic performance, setting the standard for today's multi-purpose studio environments.

- Multi-Radial baffle ABS baffle virtually eliminates baffle distortion.
- Superb imaging & reduced phase distortion.
- Pure titanium diaphragm high frequency transducer provides smooth, extended response.
- ***Magnetically shielded for use near video monitors.***

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PORTABLE DAT RECORDERS

TASCAM DA-P1

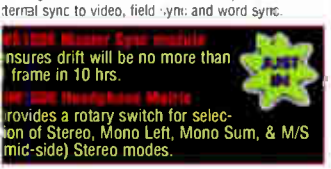
otary 2 head design, 2
rect drive
otors
.R mic/ line
puts
v/phantom
wer)
nalog and S/PDIF (RCA) digital I/O.
/44.1-48kHz sample rates & SCMS-free recording.
uilt in MIC limiter and 20dB pad.
TS jack w/ level control for monitoring.
cludes shoulder belt, AC adaptor, & battery.

HHB PDR1000/PDR1000TC

head Direct Drive transport
.R mic & line analog ins, 2 RCA line outs. Digital I/O
cludes S/PDIF (RCA) and AES-EBU (XLR).
R channel mic input attenuation selector(0dB/-30dB)
V phantom power, limiter & internal speaker.
uminated LCD display shows clock and counter, peak
vel metering, margin display, battery status. ID num-
r, tape source status and machine status.
ckel-Metal Hydride battery powers the PDR1000 for
hours. AC Adapter/charger included

PDR1000TC Additional Features–

l standard SMPTE/EBU time codes are supported.
cluding 24, 25, 29.97, 29.97DF, & 30 fps.
ternal sync to video, field sync and word sync.

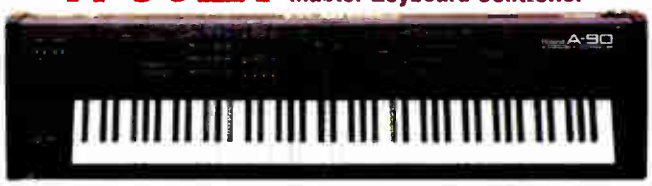


SONY TCD-D8

his is the least
expensive
table DAT
chine avail-
. It features
Hz, 16-bit
pling, auto-
ic and manu-
ecording level, a long
made for 4 hours of record-
on a 120 minute tape, & an anti-shock
charism. It includes a carrying case, a DT 1HCLA
ining cassette and an AC-F60HG AC adaptor.

KEYBOARDS & SOUND MODULES

Roland A-90EX Master Keyboard Controller



The A-90EX is an 88-note, weighted master controller with one of the best keyboard actions currently on the market. It offers incredibly realistic piano sounds, powerful controller capabilities and "virtual" programmable buttons which can be configured to operate your software and other devices. The A-90EX combines the majestic sound of a concert grand, the expressive action of a fine acoustic keyboard and the comprehensive MIDI functions of a master controller—all in a portable stage unit.

Roland JV-2080 64-Voice Synthesizer Module

Roland resets the standard with the incredibly expandable JV-2080 64-Voice Synthesizer Module. This amazingly powerful package offers unprecedented expandability, digital signal processing, and remarkable operational ease, all housed in a 2-unit rack-mount design.

FEATURES
- 64-Voice polyphony / 16-part multitimbral capability.
- 8 slots for SR-JV80 series expansion boards.
- 3 independant effects sets plus independant reverb/delay and chorus.
- 6 outputs, Main Stereo and 4 assignable.
- NEW patch finder and Phrase Preview functions for easy access to the huge selection of patches.
- Large backlit graphic display
- Compatable with the JV-1080, XP-50, and XP-80.

Roland JP-8000 Analog Modeling Synthesizer

Analog is back- HOR REAL! This synth delivers a killer array of real-time control, Roland's revolutionary new analog modeling technology, and FAT, FAT SOUNDS! The assignable ribbon controller, 4 octave keyboard, built in arpeggiator w/external sync capability and RPS function will make this little gem a must have for DJs and re-mixers as well as that funk musician looking for some new inspiration.

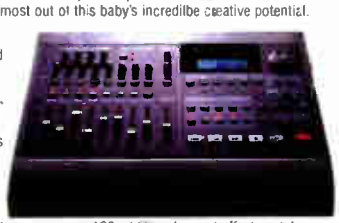
FEATURES–
- 8 note polyphonic, 49-key velocity sensitive keyboard.
- Newly developed DSP oscillators
- "Motion Control" recalls parameter changes in realtime
- Simple, Dual, & Split mode, assignable "on-the-fly".
- 128 user/ 128 preset patches, 64 user/64 preset performances.
- Tone control, 12 chorus, & 5 delay effects. *Play of soul.*

PORTABLE HARD DISK RECORDING

Roland VS-880 V2

his new version of the popular VS880 incorporates powerful additional software functions that allow you to get the most out of this baby's incredible creative potential.

FEATURES–



ito Mixing Fuction records and
ays back your mix in realtime
sy recording with an inserted
fect in "INPUT-TRACK" mode.
ocess the master output with
specific inserted effect such as
tal compression."
cene change by MIDI program
hange message.
multaneous playback of 6
acks in MASTER MODE recording.
gital output with copy protection.
) additional effect algorithms (30 total)
cluding Voice Transformer, Mic
mulator, 19-band Vocoder, Hum
ncelor, Lo-Fi Sound Processor, Space
horus, Reverb 2, 4-band Parametric EQ,
)-band Graphic EQ, and Vocal Canceller.
- 100 additional preset effects patches.
- Use MIDI program & control change messages to edit and change effects.
- In total, over 20 powerful and convenient features in editing/sync sections have been added. Some require the optional effects expansion board

Fostex DMT-8 VL

The latest in the Foster HD recording family, the DMT-8 VL truely brings the familiarity of the personal multi-track to the digital domain.

FEATURES–

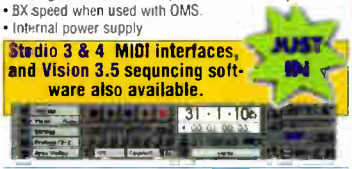
- 18 bit A/D, 20 bit D/A conversion.
- Built in 8 channel mixer, Ch 1&2 feature mic & line level.
- 2 band EQ and 2 AUX sends per channel
- Cut/Copy/Move/Paste within single or multiple tracks.
- Built-in MIDI Sync., 6 memory locations.
- Dual function Jog/Shuttle wheel provides digital "scrub" from tape or buffer without pitch change. 1/2X to 16X
- Divide the drive into 5 seperate "virtual reels", each with it's own timing information.
- NO COMPRESSION!

MIDI

OPCODE Studio 5 LX Macintosh MIDI Interface

The Studio 5 LX is arguably the most advanced MIDI interface on the market today. It incorporates a MIDI patchbay, MIDI processor, and SMPTE synchronizer with it's interface functions, all in a 2 rack space unit
- 35 independant MIDI ins and outs.
- SMPTE reads and writes all formats– 24, 25,29.97/29.97DF/and 30.
- Network multiple units, 240 MIDI channels each.
- 128 patches, unlimited virtual instrument controls.
- 2 assignable footswitch inputs, 1 controller input.
- 8X speed when used with OMS.
- Internal power supply

Studio 3 & 4 MIDI interfaces, and Vision 3.5 sequncing software also available.



Mark of the Unicorn MIDI Time Piece AV 8x8 Mac/PC MIDI Interface

The MTP AV takes the world renowned MTP II and adds syncronization that you really need like video genlock, ADAT sync, and word clock sync even Digidesign superclock!
- Same unit works on both Mac & PC platforms.
- 8x8 MIDI merge matrix, 128 MIDI channels.
- Fully programmable from the front panel.
- 128 scene, battery-backed memory.
- Fast 1x mode for hogh-speed MIDI data transfer.

Pocket Express Mac/PC MIDI Interface

With the pocket express you get a 2 in, 4 out, 32-channel interface that supports both Mac and PC. It also features a computer bypass button that allows you to use it *EVEN WHEN THE COMPUTER IS TURNED OFF.*

Digital Performer Macintosh MIDI Sequencer w/ Integrated Digital Audio

Digital Performer contains all of the sequencing capabilities of Performer V.5 and adds Digital Audio to the picture. Apply effects such as Groove Quantize, shift, velocity scaling and more- *All in REALTIME.*
- MIDI Machine Conrol, Quicktime Video playback.
- Sample rate conversion.
- Spectral effects, pitch correction.
- Real-time editing and effects processing.
- Complete Notation

Ad Index & Advertiser

PAGE	PRODUCT INFO NUMBER	ADVERTISER
136	097	Aardvark
48	029	Acoustical Solutions
149	105	Acoustic Sciences Corporation (ASC)
164	119	Acoustic Systems
IFC	001	Alesis (Wedge)
126	087	Alesis (ADAT)
122	084	Altermedia
35	019	Amek
11	005	AMS Neve
84	055	Anthony DeMaria Labs
17	008	Aphex Systems
70	046	Apogee Electronics
86	057	Ashly
43	026	Athan
160	114	AudioForce
85	056	Audio Precision
185	134	Avalon Design
204-207	146	B & H Photo-Video
120	082	Bellari
60	040	Benchmark Media Systems
141	099	Bryston
38	022	Burlington A/V Recording Media (Maxell)
159	113	Burlington A/V Recording Media (Sony)
117	080	CAD
177	129	Cal Switch
174	126	Calrec
213	-	Canadian Music Week
155	110	Caruso Music
79	052	Carver Professional
178	131	CMS Digital
155	111	Conservatory of Recording Arts & Sciences
154	041	Creamware/Mediamagix
88	059	dB Technologies
30-31	017	dbx Professional Products
63	042	dbx #2
188	136	Demeter Amplification
135	095	Denon Electronics
27	-	Digidesign (ProTools/24)
119	-	Digidesign (AudioVision)
87	058	Digital Audio Labs
134	094	Disc Makers
26	014	Dolby
48	030	Dreamhire
41	024	Dynaudio Acoustics
157	112	EAR Professional Audio/Video
112	077	Electro-Voice (EV)
18-19	009	Emagic
67	043	Ensoniq
177	130	Equi=Tech
100-101	070	Euphonix
191	141	Europadisk
42	025	Event Electronics (Gina)
81	053	Event Electronics (RØDE Classic)
173	125	Event Electronics (20/20bas)
97	066	Expression
106	074	Five Towns College
188	137	Forssell Technologies
143	-	Fostex
121	083	Full Compass
94	063	Full Sail Center for the Recording Arts
106	073	Gene Michael Productions
58	038	Grandma's Music & Sound
124	086	Groove Tubes Audio
25	013	Hafler
90	061	HHB Communications (Genex)
176	128	HHB Communications (CD Recorder)
104	071	The Hollywood Edge
148	104	Hot House Professional Audio
98	067	Institute of Audio Research
BC	-	JBL Professional
72	048	Joemeek/PMI
122	085	JRTMusic
164	118	KABA Research & Development
146	102	Korg
89	060	KRK Monitoring Systems
22-23	012	Lexicon
50	033	Littlite/CAE
199	-	Los Angeles Recording Workshop
14-15	007	Mackie (HR824)
IBC	149	Mackie (MS1402•MS1202)
50	032	Manhattan Production Music
170	121	Manley Laboratories
147	103	Markertek Video Supply
68	044	MartinSound (Martech)
118	081	MartinSound (Neotek/Audiomate)
55	035	Metric Halo
47	028	Meyer Sound
194	144	Microboards
91	062	Microtech Gefell
179	133	Micro Technology Unlimited (MTU)
209, 231	147	MixBooks
161	-	Mix en Espanol
195, 200	-	Mixmag.com
172	124	Musgrave Design Labs
145	101	Neumann/USA
51	034	Neutrik
28	015	OmniSound/Sascom Marketing
99	068	Ontario Institute of Audio Recording
133	092	Oram Pro Audio
45	027	Otari (Status)
61	109	Otari (Elite)
39	023	Peavey (SP Series)
59	039	Peavey (PVM 22)
151	107	Peavey (PV 2000)
171	122	Peavey (SRC Mixers)
127	089	Phonic
56	036	Pilchner Schoustal
163	117	Prism Media Products
175	127	ProSound & Stage Lighting
190	139	QCA
105	037	QSC Audio Products
153	108	QSC Audio Products #2
9	004	Quantegy/Ampex
96	065	The Recording Workshop
136	096	Rhythm City
178	132	Rich Music
150	106	Rocket Lab
107	075	Roland
111	076	RSP Technologies
20	010	Sabine
73	-	Sam Ash Professional
13	006	Sennheiser
1, 123	-	Solid State Logic (SSL)
83	054	Sonic Foundry
21	011	Sonic Solutions
6, 7	-	Sony
78	051	Sound Ideas
192	142	Sound Master
115	079	Soundscape Digital
160	115	Speir Music
2	002	Studer Professional Audio Equipment
134	093	Studio Consultants
29	016	Sweetwater Sound
95	064	Switchcraft/Raytheon
129	090	Symetrix
130	091	TAD/Technical Audio Devices
3	003	Tannoy
57	072	Tascam (M1600)
125	088	Tascam (TM-D8000)
187	135	Tascam (Cassette Decks)
36	020	TC Electronic (Tube-Tech)
37	021	TC Electronic (Fireworx)
172	123	Thoroughbred Music
192	143	Thunderbird Music & Computers
113	078	TL Audio/Sascom Marketing
49	031	Transamerica Audio Group
69	045	Tube Works
99	069	University of Memphis
34	018	Uptown Automation
77	050	Waves
165	120	Waves (Multirack)
199	145	West L.A. Music
137	098	Whirlwind
190	140	Whisper Room
71	047	Yamaha
189	138	Z Systems

—FROM PAGE 196, NY METRO REPORT

tractor," observes Drootin, who started at Unique as an assistant engineer. "A few years ago, the studios started pushing engineers off staff as part of a strategy to lower rates. Engineers were starting to charge more, and the studios wanted to charge less. I think there's still some feelings on the part of engineers from that time. Studios were no longer collecting their invoices for them. There was a gap created between studios and engineers then. But now the engineers are the ones who choose the studios more often than not, especially in hip hop. A big part of the management job in New York is staying in touch with independent engineers, knowing who's hot and who's doing what. These days, we'll change consoles and monitoring based on what the engineers want. It used to be the A&R guys we stayed close to. But that's changed."

Drootin is in a good position to know how some engineers might feel about their studio relationships—he manages six independent engineers as a side career. He concedes that the potential is there for a conflict of interest, but he says that he's tried to match engineers, projects and studios fairly and appropriately. Studio owners Bobby and Joann Nathan have no qualms about Drootin's dual career path, but, Drootin laughs, "Bobby's looking over my shoulder a lot. It's a fine line, but more studios and individuals are managing engineers' careers in New York these days. Managers feel the same economic pinches that the studios do."

Barry Bongiovi has been studio manager at Right Track Recording for the last two years, but his managerial experience extends back to Hit Factory, Sony Classical, Touchdown Studios (Germany) and the former Power Station. He agrees that attitude is what most obviously sets New York City apart, in audio as in everything else. But, he adds, there are numerous other factors that make managing in the city a more complicated job. "Every time you consider a move, whether it's pricing or new equipment or a new room or new personnel, you have to factor in things like the price of vertical real estate, the premium that comes with space here and higher costs for everything," he says. "Whenever I'm thinking about rates or any long-term deals, my eye is constantly on those things. It's definitely more difficult to manage a studio in New York as a result."

Other complicating factors include the fact that New York's music business is heavily oriented toward urban music, and it's in that genre that many of the more upscale personal studios have cropped up (such as Sean "Puffy" Combs' Daddy's House). This means that the competition is constantly increasing, which offsets the attrition that New York has experienced in recent years with the loss of studios such as Giant.

"It's tough to get ahead and stay ahead in New York, and that's never been more true than it is now," Bongiovi says. "That kind of competition makes you choose your staff to match. Everyone here has to be able to go from a jazz session to a rap session and not only know the equipment but also the music. You have to take into account the personal tastes of the staff engineers, too. But I think that people who come to New York to be in the studio business come expecting that they have to be more versatile than in other places. You have to be able to adapt to make it here." ■

New York happenings? Fax to East Coast editor Dan Daley at 615/646-0102 or e-mail danwriter@aol.com.

—FROM PAGE 20, AMERICA TODAY

makes it difficult for me to fully grasp the concept of actually distorting time itself and inventing a variable-speed hertz, singly or in the millions. Yet we have apparently accomplished this no doubt elusive (and somewhat scary) goal.

And as many scientists have long feared, distorting the very fabric of time has far-reaching ramifications—in the future *and* the past. In this case, history has already been changed: Now Herr Hertz has never existed, and we measure frequency in the new—and powerfully variable—system: hertz. Like in the TV show *Sliders*, it seems that parallel time lines are just chock full of fascinating coincidences.

Now we have to specify 1 kilohertz@1.005 x old kHz reference, or whatever the time dilation offset chosen by the engineer might be. This is certainly going to screw up any of you with perfect pitch.

I guess the car rental people will have to drop their cap H, too.

Oh, yes. Did I mention that food no longer has a percentage of calories from fat? We now have "fat-grams" instead, as in "You should eat this, because it has less fat-grams." Gimme a friggin' break!

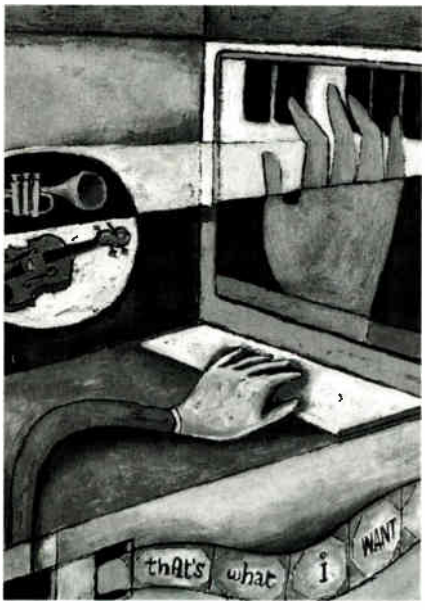
I guess part of progress is the degeneration of language and communication, but I can't let it wash over me without firing off a few shots. That's why I like Harleys: Crotch rockets have an exhaust note of 1-5 kHz (old Hz system), and are therefore subject to time dilation (new system). Harleys, on the other hand, shake the earth with a subsonic exhaust note, and I am hoping that this exempts them from the New Order.

WANT AN AUDIO ORIENTED OBSERVATION?

Speaking of progress...In a way, I used to like the recording industry more a decade-and-a-half ago, when it was small. When you went to a trade show, you could actually see everything that existed for our industry. You could learn everything there was to learn about what was available. It was possible to completely understand what tools you could buy.

Those "old days" were like today's multiclass car racing, where everybody has to use the same type of gear. There are standardized limits on weight, ground effect, turbo size, Venturi size, fuel and many other performance-influencing parameters. This assures that racing doesn't become *too much* of a technical/financial competition, but instead remains an artist's event. By this, I mean that with standardized hardware, winning is determined more by the skills and talents of the driver and pit crew, and less by money and the hyper-exotic lightweight space-shuttle body panels that it can buy.

Initially, these rules were imposed in the racing world to allow people with differing levels of financial support with different types of vehicles to race in logically matched groups, for obvious reasons. But later, more rules were written simply because technology began producing cars that were, even by my personal insane standards of speed, insanely fast. Cars were getting ground-effect vacuum fans that allowed them to stick to the road so well that they simply could not slide out from under the drivers in any corner, at any speed. The problem was that this allowed such severe increases in track speed (because they didn't have to slow as much for corners) that accidents became much more severe. Tires would melt and fly off the rims—in corners, of course. Vacuum fans would fail and cars would fly off the track and squish the fans (the paying fans, not the vacuum fans).



The same thing happened with horsepower; it got way too big, so they established limits. A more common hardware platform evolved as needed for survival.

I think that in many ways, the recording industry has become similar to the "money wins" model that the racing industry is trying to control.

There is so much expensive trick audio gear out there that you go to a trade show and *don't* see everything, *don't* understand everything. You go home only to find out a month later that you missed something that was crucial to you.

A studio that can afford the super-double-whammy this-and-that has a much higher likelihood of producing a commercial success than one that can't afford that technology. No surprise here—a race of tools, a race of money. We aren't necessarily hearing a Top 10 based on the skills and abilities of the artists, producers and engineers anymore. To a significant extent, we are hearing the winners of a funding war.

I liked it when we had a level playing field—when everybody could see every delay line and limiter there was to buy, and each of us picked what we wanted and then went out there and kicked ass to sound the best we could—and the true winners emerged. Music was real. Noisy, distorted, perhaps technically naive, but real.

There was more creation, more innovation, more thinking, more experimenting—because it was up to each of us to trick that last ounce of performance out of that limiter, compressor and tape machine. You *had to*. After all, the other guy had the same gear, and you had to think, work and create a little more to beat him.

Now I go into studios and see synthesizers that have been in heavy use for years, without a single user program saved in them. They are using the factory voices! There are so many of them, and though they are hokey as hell, they are easy as hell.

This trend toward the mindless mass-production of "music" bothers me deeply. What do *you* think? I know it pays the rent—but then you have to hear it on your car radio as you drive home each night. Or have you removed the radios in every one of your cars, like I have?

I used to visit studios and see all kinds of cool stuff—innovative ways to hook up limiter side-chains, ways to hot-rod tape machines, ways to get a synth to sound real...but not so much anymore.

I recently worked in a major New York studio, and the only thing I saw in there that was cool was the air conditioner. BadaBoom! ■

You can see what kind of a mood he's in today.

—FROM PAGE 28, HANDS ON THE PAST

There's another argument for teaching old technology, obvious to those of us scratching and clawing our way in the real world, but not so obvious to eager students with digital dreams dancing in their heads. Although the students may demand that an educational program teach them all the very latest gear, there's a good chance that many of them, once they enter the job market, will find that they have to deal with older equipment. There are still plenty of studios doing perfectly good work with 20-year-old 2-inch decks, discrete-component consoles, single-knob compressors, and yes, even gold-foil reverbs. If your studio (or even just the "C" room out back) matches that description and a kid fresh out of school comes in saying, "Hey, dude, I only do digital workstations," you'll escort him right out again.

But obviously we can't teach everything we want to teach, no matter how much time we have. So how do we keep the past alive for our students without bogging them down in obsolete tools? One of the best ways is to make them listen, and to think long and hard about what they are hearing. If they understand clearly what a tool does, and how others use it, it can be almost as good as knowing how to use it themselves. Make them listen to the Beatles, Les Paul, The Who and Phil Spector, and figure out what's going on.

Without a digital pitch shifter, how did Alvin the Chipmunk sing along with his two brothers? How did Pink Floyd shift aural spaces in an instant without a programmable reverb? Without a sampler and a digital editor, how did Frank Zappa get a vocal chorus to dissolve seamlessly into an electronic chord? How did Hendrix get those unearthly sounds on his studio albums (the ones he did when he was alive, that is) with nary a synthesizer in sight? On another level, why do CBS' recordings of symphony orchestras in the late '70s sound so totally different from Telarc's? And why is the bass drum on all of Telarc's records always dead center?

I just saw that VH-1 special on the making of the Grateful Dead's *Anthem of the Sun* and *American Beauty*. It should be required viewing for any recording student—there's a year's worth of education in studio techniques (which the Dead were making up as they went along) right there. Watch the show, listen to the album, and watch the show *again*. And George Martin's autobiography, *All You Need Is Ears*, is just as great a source of knowledge and inspiration as it was when it was published 20 years ago (even if the ruins of his then-brand-new Caribbean studio are now under four feet of ash). You don't have to actually do things the way they did to understand how the engineers, producers and artists of the past 100 years solved their problems, but if you do understand them, you'll be able to make sense of the problems *you* face today.

Education is our best chance to give those entering our profession an aesthetic for their chosen field. But that aesthetic, as in all technical fields, was created largely from the tools at hand, and in many cases simply doesn't make sense without knowledge of those tools. Why do we have to deal with feet instead of seconds when scoring to film? Because once upon a time, the speed of film editors and projectors couldn't be counted on to be accurate, but the physical length of a piece of film never changed. Why is MIDI so slow? Because if it was going to be accepted by many manufacturers, it needed to be dirt-cheap, and processors were slower 15 years ago. Why are there 29.97 frames of video in a second? Well, that's another column.

By showing students the history of their field and the forces that brought us to where we are today, we lay the groundwork for the next generation of engineers to take our art further. By making them confront the problems of the past head-on, we make them appreciate the solutions of the present, and teach them how to think about solving problems in the future. If there are going to be significant advances in the art of audio production, they won't come from people who've just mastered the technique of pushing buttons. They'll come from those who know how those buttons got there, who've experienced first-hand how the old buttons worked and who dream about next year's buttons. ■

Paul Lehrman this month celebrates the 10th anniversary of his joining the faculty at the University of Massachusetts Lowell, the 20th anniversary of his first (paid) published article and of getting his First-Class FCC Radiotelephone license and the 30th anniversary of the release of After Bathing At Baxter's. *All of these events, to him, were highly educational.*

—FROM PAGE 50, DIGITAL CONSOLES

The maximum DSP configuration (20 hot-swappable DSP cards) allows for as many as 256 fully featured channels, while a powerful 40-channel console can be provided with as few as six cards. The console is available initially in two basic versions: the D950B for broadcast applications and the D950S for surround-sound work. Other basic configurations will be announced.

Tascam TM-D8000

Digital I/O can be fed directly into the DSP Core via built-in AES/EBU and MADI interfaces, or analog signals can be introduced by way of standard A/D options based on the acclaimed D19 line of mic preamps and 20-bit A/D systems, or via the D19M rackmounted, card-based interface system. A comprehensive digital routing system obviates the need for a patchbay.

The D950 offers both snapshot and dynamic automation. Each snapshot stores 256 console parameters, and any number of snapshots can be chained in up to eight sequences. Dynamic automation, on the other hand, allows every digital parameter to be written and recalled against timecode. The D950 is priced from $300,000.

TASCAM TM-D8000

Slated to begin deliveries this month, Tascam's (Montebello, Calif.) TM-D8000 is an 8-bus, automated digital mixer with two 24-channel strips and a maximum of 40 TDIF (DA-88/DA-38/DA-98) inputs on mixdown.

Features include a full-function meter bridge; 4-band fully parametric EQ on all input channels and tape returns; eight channels of assignable dynamics; six analog aux sends—two switchable as AES/EBU aux sends; six analog returns (one switchable as AES/EBU); and 24 tracks of TDIF tape returns. The 16 balanced analog line/mic (the latter with phantom power) inputs can be switched to function as 16 additional TDIF inputs, eight TDIF and eight AES/EBU or eight TDIF with four S/PDIF and four AES/EBU channels. The main stereo outputs are AES/EBU digital, S/PDIF coaxial, XLR balanced analog or RCA unbalanced analog.

Two automation packages will be offered, with all console functions under MIDI control or an external computer/software package. A backlit LCD showing parameters, 20 rotary encoders, jog/shuttle MMC transport controller with 10 locate points, and support of MTC, Sony 9-pin and Tascam sync are standard. Pricing is said to be "competitive and under $10,000."

YAMAHA 02R

The Yamaha (Buena Park, Calif.) 02R offers 24 analog inputs and 16 digital tape returns for a total of 40 inputs. Outputs include eight digital bus outputs, eight digital direct outputs, eight aux sends, and four card slots accommodating ADAT, DA-88, DAT, AES/EBU and Yamaha Y2 format signals. Features include 20-bit A/D converters; real-time moving-fader automation with instantaneous reset of all console parameters; limiter/compressor/gate on every input channel and output bus; and two internal effects processors.

Yamaha 02R

Since August of this year, all 02R consoles have included Version 2.0 software, which offers significant performance/flexibility upgrades, including 6-channel discrete surround sound capabilities on every input, digital aux sends available via Yamaha digital I/O cards, input cross-patching, and the ability to process output buses through dynamics, EQ and routing matrixes. With Version 2.0 software, the Yamaha 02R also provides MMC for control of external devices—mixers, tape transports, DAWs and outboard effect processors.

The console automation has also been significantly upgraded with new operation and mix editing capabilities. The software provides touch-sensitive fader emulation, which allows channel editing during automation—simply by moving the fader. In addition, mix events can now be identified and dropped into a timecode list on-the-fly, allowing later assignment of automation events to those addresses. With Version 2.0 software, auto-mix functions may now be cut, pasted and offset. It also provides the ability to record 24-bit data from the 02R on a standard 16-bit tape or hard-disk recorder, using a smart-bit allocation scheme.

Price for an 02R with V.2.0 software installed: $8,899. Version 2.0 software update kit: $200.

YAMAHA 03D

Intended for the audio post and music recording markets, the Yamaha 03D is a smaller, more affordable version of the 02R digital recording console. The 03D interfaces directly with workstations for automated digital mixing. Features include 26 inputs, four buses plus stereo outputs, six aux sends, 4-band parametric EQ, two internal effects processors and built-in moving fader and full console reset automation. The 03D accepts one digital I/O card, allowing eight digital inputs (AES/EBU, TDIF, ADAT or Yamaha format) and a total of eight digital sends (four buses plus four direct outs). The 03D has the same large LCD screen as the 02R. A mouse may be connected for use with display functions and in selecting parameters and setting changes.

Designed for rackmount or tabletop applications, the 03D uses the same Yamaha 32-bit DSP engine as found in the 02R, and also features 16 direct outputs, 4-band parametric EQ, bus assignment routing and a limiter/compressor/gate on every channel. Eighteen of the 26 inputs are analog, with 20-bit ADCs/DACs; eight mic preamps with phantom power are provided. Also standard are LCRS surround sound capabilities, RS-422 control interface to edit controllers and the ability to control the DSP-based mixers in popular workstations and software platforms. The Yamaha 03D retails at $3,699. ■

George Petersen is the editor of Mix.

—FROM PAGE 91, ALLEN TOUSSAINT

What was the reason for employing that melodic sensibility?

My father had mentioned to me a few years before I wrote it that perhaps I should come up with a concoction of musics from various nations into one worldly kind of piece. I thought that was a grand idea, even though I put it on the back burner. On "Southern Nights," I called on a bit of that, and that is why it sort of has an Eastern flavor to it, even though we are singing about "Southern Nights" in the South of America. I wrote it in the key of F-sharp. It was much too high for me to sing in my natural voice, but for some reason—the way it came in that F-sharp and the pentatonic mode—I almost felt sacrilegious about changing the key, so I sang through a Leslie organ speaker so I could get an effect like the sound of a Southern breeze. It worked out well.

I wrote "Southern Nights" in 1974 and recorded it for the album *Southern Nights*, which came out around the later part of 1974 or early '75. It is, off the top of my head, probably the favorite one of my songs that became popular.

At what point did you decide to start your studio, Sea Saint?

The reason Sea Saint came into existence is because Cosmo closed down his studio. If Cosmo hadn't closed down, we wouldn't have built the studio, because we were well-satisfied going to Cosmo's. We did have certain things in mind when we built Sea Saint. We wanted to be up-to-date, for the amount of tracks, which was 16 tracks at the time, and have all of the modern facilities. We weren't going for glossy, but we weren't trying to make an "old" statement either. We were just building a studio that would be very functional.

Almost immediately, you had people like Paul Simon and Paul McCartney coming down there to record. We rolled tape the first time in 1973. Since then, we've had loads of people. Everything that has been done here has been monumental to me. I loved them all.

In the last couple of years, you've released a wonderful solo album called* Connected, *which is on your new label, NYNO.

Yes. *Connected* is my first recording in 17 to 20 years. I feel that *Connected* is a bit more modern, and I play the piano a lot more on it than I had on some of the other albums that came out after *The Wild Sound of New Orleans*, which I exclusively played the piano on.

The name NYNO stands for New York and New Orleans. The reason that it is called that is my partner, Josh Feigenbaum, lives in New York. He owns MJI Broadcasting. Our mission statement is to record indigenous music of New Orleans and to present it in its finest light.

We have a young lady by the name of Grace Darling. She is blond, beautiful and extremely talented, so with your eyes opened or closed, you'll be in for some enjoyment. We have Raymond Miles, who is a hot gospel act. We will be doing him secular, as well as gospel. We also have a blues singer by the name of Wallace Johnson. Amadee Castanelle is a saxophonist who has one CD out with us. We also have one CD out on Larry Hamilton, who is total R&B. He's a really wonderful artist who is a natural.

This is good time for us, and we have several acts that we have signed that we are planning to go in now and record. I'm very excited about this, and we've put six CDs out now in this last year, and it's really feeling good. ■

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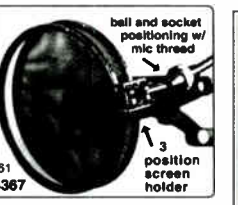

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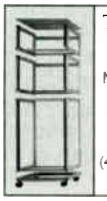

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Miscellaneous

MIX Classified deadlines

January '98 issue (Winter NAMM) ➤ November 15th

February '98 issue ➤ December 15th

March '98 issue ➤ January 15th

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Text rate: $100 per inch; eight (8) lines per inch (approximately 27-32 character spaces per line); one-inch minimum. $10 per bold line. Space and punctuation mark counts as a character. $100 minimum charge for each ad placed.

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Other requirements: Full street address (PO boxes aren't sufficient) and phone numbers must accompany all requests. All words to be bold should be underlined. Copy must be typed or printed legibly in standard upper/lower case. Publishers are not responsible for errors due to poor copy. Arrangement of characters may be altered in typesetting process due to space. The publishers are not liable for the contents of advertisements.

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- ❑ Internet Services
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- ❑ Music Products/Software
- ❑ New Products
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- ❑ Studios
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A MixBooks Publication

New from the Mix Pro Audio Series!

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Perfect hearing skills are essential to great recordings. If recording music is your business, *you need Critical Listening and Auditory Perception!*

For a limited time, we'll also throw in a year's worth of *Mix* magazine, bringing you the finest, most up-to-date recording and pro audio industry information for 12 full months! *Order now, offer good only while supplies last.*

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- reverberation effects,
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- voice coloration
- frequency response irregularities,
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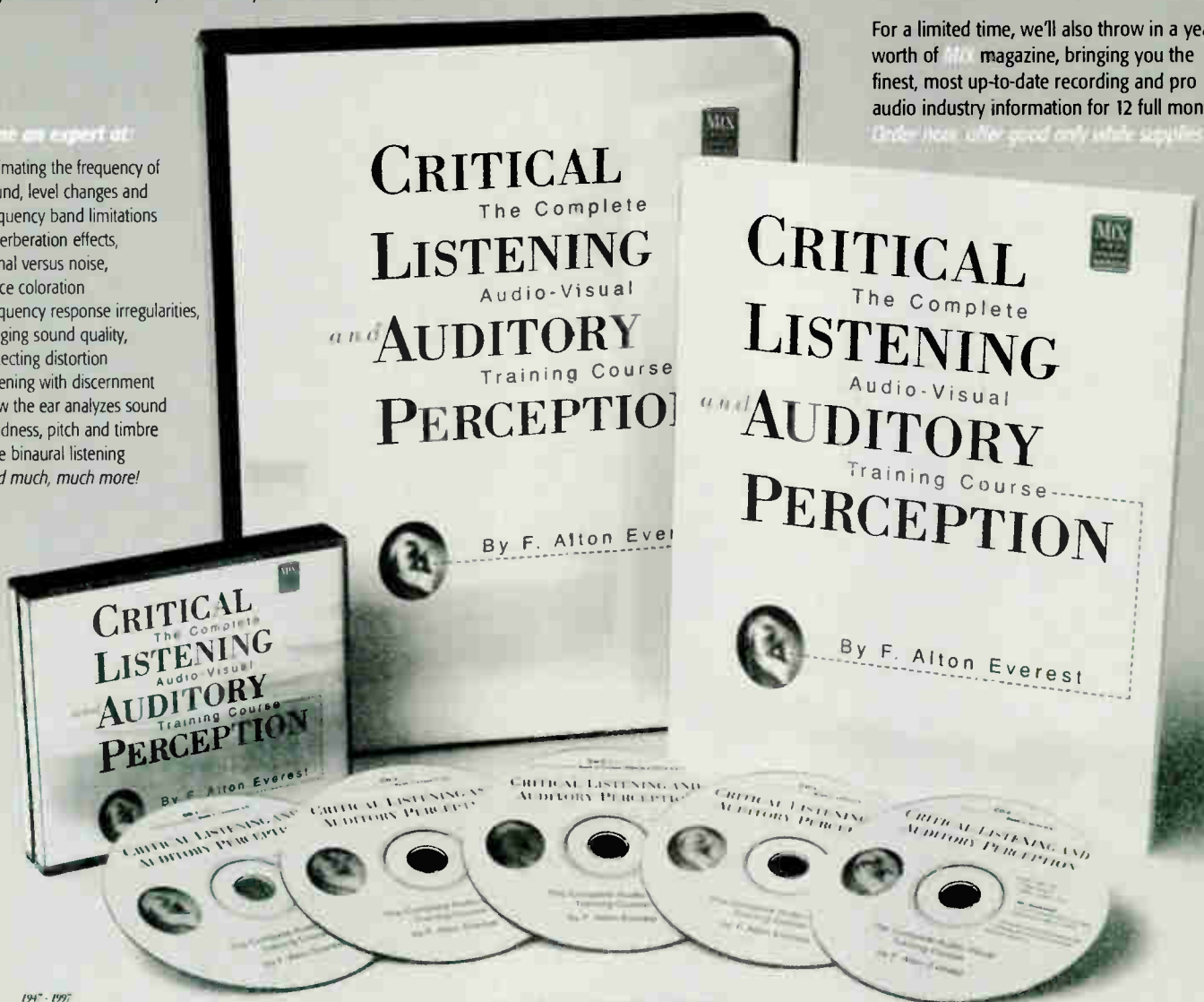

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FEEDBACK

LEFT HANGING

Thanks for making such a great magazine. Ever since I picked up my first issue, which contained an article about control room design (I was in the process of designing my control room at the time), I've been learning from your work.

Years later, I'm getting ready to record my album "Songs of Jimi Hendrix for solo jazz piano" (I should mention it was done at my facility, so I was responsible for getting a great sound to tape)...Lo and behold, a month before, an article appears in your pages, "Recording the Acoustic Piano"!

Are you folks clairvoyant or what? I think you forgot some of us aren't. I guess that explains "Zero Return Recordings," by Barbara Schultz ("The Project Studio," Aug. '97 *Mix*). I'm reading along, enjoying the article, and all of a sudden, it just [sic]

Reed Robins
reed@changingtones.com

I'm glad you liked (most of) the article. No one was more disappointed than I was (with the possible exception of the fine engineer, Jim Marrer, who is the subject of the article) to find the printer error that left the last line off of my article. The line that was omitted is "it's all about."

—Barbara Schultz, associate editor

LIFE AFTER COLLEGE

This is in response to a letter by Mr. David Patterson, regarding his chagrin at having spent so much on an education in the recording arts only to have difficulty finding a paying job. Mr. Patterson, take heart. Contrary to popular belief (I may be burned as a heretic for saying this), the sun does not rise and set on Nashville. The powers that be in Music City may think that their studios are all built on hallowed ground, but many of us unwashed have managed to survive without them.

Your education was not wasted as long as you are ambitious and resourceful. I don't say this to blow sunshine in your face, I speak from experience. There's no point in continuing to try to work your way into a system that has made it very clear that they don't need you. At the same time, the fact that you spent a lot of money on your education does not guarantee you a job in that field. No one made you do it, so no one owes you a career in keeping with it. I know at least a dozen people who are not doing what they went to college for; and I'm sure you do, too. I sincerely wish you success in your endeavors.

Curt Yengst
Middlesex, N.J.

HISTORY LESSON

I can see it already. The new HyperSonic Sound systems, as described in St.Croix's Aug. '97 "The Fast Lane" column, will hit the shelves. They will revolutionize the audio and multimedia worlds. At first, they will be very expensive and almost unobtainable. Then as the craze settles to a dull roar, prices will drop, and units will be available to the masses.

Enter the retro-heads. Soon the HSS systems will be described as "dull," "lacking" and "unnatural." The archaic cone and voice coil will be rediscovered and raised to the deity status of the vacuum tube and analog tape machine.

They say that academia teaches history because history repeats itself. Let us learn from our past and realize that the HSS will not entirely eliminate the need for speakers, and speakers aren't somehow more moral than HSS. There can be a balance.

Brad Koch
vkoch@remc11.k12.mi.us

GOOD WORKS ON THE ROAD

I found Mark Frink's article on the Steven Curtis Chapman concert [July '97 *Mix*] very entertaining. Paul [Middleton, FOH engineer] was my assistant on Julio [Iglesias] tours for four of the 11 years that I mixed him. I'm glad he is doing well.

Refreshing is an understatement for the vibe surrounding the Christian concerts. I recently finished mixing the "My Utmost for His Highest" tour, which featured Chapman, Sandi Patty, Twila Paris, Cindy Morgan, Bryan Duncan and Avalon on vocals and Steven's band, along with local strings and choir. It was such a pleasure working with these artists. I ended up sponsoring two children in Sri Lanka myself.

Chris Carlton
Carlton Audio Services Inc.
Davie, Fla.

WORTH THE WAIT

I found the Larry Blake article advising the independent producer/director on the path to "good" sound for their films extremely humorous and insightful. As a production sound mixer for a syndicated TV series that is produced here in Virginia Beach, Va. (not a traditional hotbed of film production), I could totally relate to Blake's comments about recording wild lines, room tone, SFX, crowd murmurs, etc. I found it particularly amusing when he referred to the DP comments on "waiting on sound." How true.

Our staff has filmed 22 30-minute episodes since May, and we begin the next 22 episodes next week. The pace is grueling, as any episodic production staffer will tell you, and there is little patience on my part as sound mixer for shortcuts that endanger the finished production track. The DP, AD and directors recognize that the small investment in time for the sound department means a lot when the dailies are sent to our West Coast distributor. It didn't start out this way in May, but now we have the complete respect of the production and camera departments.

Blake's comments about the boom operator were also right on target. I'm fortunate to have one of the best in my corner. Thanks for the insight. Hopefully, many readers in positions of power will take note and put the sound department higher up the food chain on their next project.

Mike Puckett, sound mixer
Noble Creek Production Services Inc.
Williamsburg, Va.

Send Feedback to Mix, *6400 Hollis St. #12, Emeryville, CA 94608; fax 510/653-5142; or mixeditorial @cardinal.com.*

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Fade out slowly or twist the night away. Whether you choose the MS1202-VLZ® (rotary pots) or the MS1402-VLZ® (60mm faders), you'll own the best.

Superb mic preamps with our renowned discrete, large-emitter geometry design. Headroom to handle screaming vocalists or miked kick drums. Yet audiophile definition and ultra-low (–129.5dBm E.I.N.) noise help capture the tiniest nuances.

Low Cut Filter on mic channels lets you use Low EQ on voices without boosting harmful stage rumble, mic thumps, wind noise, and P-pops. Unlike the 6dB or 12dB/oct. "filters" on some compact mixers, our sharp 18dB/oct. design doesn't sacrifice audible bass above 75HZ.

	MS1202	MS1402
Mic preamps	4	6
Mono inputs	4	6
Stereo inputs	4	4
–10/+4 switch[1]	no	yes
Total channel inputs	12	14
Aux sends	2	2
Stereo aux returns	2	2
Channel inserts	4	6
Equalization	3-band	3-band
True low-cut filter	yes	yes
Channel controls	sealed rotary	60mm faders
Master control(s)	ganged rotary	separate L/R faders
Ctrl Rm matrix	yes	yes
In-place solo	PFL	AFL/PFL
Metering	12-LED	12-LED
Stereo outputs	both XLR &1/4"	
Tape ins/outs	RCA	RCA
ALT 3-4 bus	yes	yes

Musical 3-band EQ with wide, natural midrange bandwidth centered at 2.5kHz.

Constant loudness pan control. When you pan a channel to the extreme left or right, the apparent sound level stays the same[2] as in the middle — a critical requirement for accurate stereo mixes... and a Mackie Designs exclusive.

Trim control with –10dB "virtual pad" and ultra-wide 70dB total input level gain range to handle any live or studio situation[3].

Beefy headphone amp.

Aux 1 Master with 10dB of extra gain above Unity.

EFX to MONITOR switch lets you feed Aux Return 1's reverb or other effects back into Aux Send 1 and control the amount via Aux Return 2. A Mackie exclusive feature.

Two aux sends per channel w/extra gain past Unity.

Separate tape inputs & outputs.

Check around. You'll discover that even though there are about a gazillion makes and models of ultra-compact mixers, just two tend to show up in the racks and project studios of serious pros. The MS1202-VLZ and MS1402-VLZ tour on stage with top stars, submix into mega consoles, and even record sound for major motion pictures. Why settle for a toy when the real thing is comparably priced?

Solid steel chassis.

Rude Solo Light.

Inserts on mic channels (unbalanced).

Two stereo Aux Returns, with up to 20dB of gain available.

Control Room/Phones switching matrix and separate level control. Select any combination of tape, main mix, or ALT 3-4 and route them to the Control Room/Phones output OR back into the main mix. Consider the possibilities: easy assign to control room monitors, multitrack recorders, submixes, separate monitor mixes, broadcast, or 2-track tape feeds. A Mackie Designs exclusive.

Built-in power supply instead of a wimpy, outlet-eating wall wart.

ALT 3-4. Mute a channel and the output is routed to a separate stereo bus. ALT 3-4 has its own outputs or can be "folded" into the Control Room/Phones bus OR main mix.

Control Room outputs so you don't have tie up your headphone outs to drive a pair of our nifty new HR824 active near-field monitors.

XLR main outputs with switchable mic/line level.

Above right: The MS1402 Control Room section. MS1202-VLZ is similar except without Phantom LEDs, Level Set LEDs and global AFL/PFL solo switch.

Stereo in-place solo (1402) retains channel's correct position in the stereo mix. A soloed channel's operating level appears on the main LED display. Solo is PFL (pre fader) on the MS1202-VLZ, and globally switchable to AFL (after fader) on the MS1402-VLZ.

Below: A few of the 400+ folks who work at Mackie Designs in Woodinville, WA. 20 miles north of Seattle

1) On stereo channels.
2) This would make a great album title for the '90s.
3) Except possibly drummers who drink triple espressos.

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