Nick Lowe Interview · Summer Tour News · Pro Tools|24 Review · Producer Paul Wickliffe

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- The Class of '98
- Understanding Project Studio Acoustics
- Waterland Design's Vincent Van Haaff

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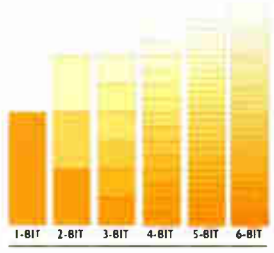
It's Not Science Fiction. It's Reality.



Every bit you add doubles the resolution of a digital recorder. Compared to 16-bit formats, ADAT Type II's non-compressed, linear 20-bit recording offers a wider dynamic range, less quantization distortion at low levels, more headroom and even lower noise. Result: detailed, full-spectrum audio fidelity that far exceeds the quality of any analog recorder.

Don't get fooled by the science fiction of some "24-bit" recording systems. Just read the fine print: the state-of-the-art ADAT Type II recorders offer audio specs that rival any 24-bit system, without resorting to tricks like data compression or track sharing.

While the rest of the world is trying to figure out the final frontier of recording formats, you need to make a decision. What's the best choice today that will keep you ahead of the game tomorrow?

The answer: **ADAT Type II**. It's the next generation of Alesis' award-winning digital audio technology that combines the proven power of ADAT with the astonishing fidelity of true 20-bit linear recording.

With the new **XT20**™, you get a serious improvement on the world standard for professional recording. The new **LX20**™ is the most affordable ADAT ever made. Both provide all the real-world qualities that made ADAT the most popular professional recording format: modular design, efficient tape-based media and complete compatibility with over 110,000 ADATs around the world. Plus, as the only modular digital multitracks that write 20 bits to each track of tape, the new ADAT Type II recorders offer audio quality that's miles ahead of any 16-bit system, period. And with the introduction of the **ADAT-PCR**™ interface card, you get the advantages of nonlinear editing on your Mac® or Windows® computer seamlessly integrated with ADAT format recording.

Most importantly, the intuitive ease-of-use, comprehensive features and incredible affordability of the ADAT Type II systems put no limits on your creativity. Because, after all, the final frontier is really your imagination.

adat TYPE II

There are over 110,000 ADATs in use today, and the new ADAT Type II recorders are compatible with all of them. The XT20 and LX20 will work with your 16-bit ADAT tapes, and you can combine the Type II recorders in a system with any model of older ADAT.

If you think tape isn't as advanced as other removable recording media, think again. You'd need more than 30 Zip® disks to equal the 3.4 gigabyte storage capacity of just one inexpensive ADAT tape.

For more information on ADAT Type II, the XT20, the LX20 and the PCR, see your Authorized Alesis Dealer. Or call 800-5-ALESIS to order the ADAT Type II Systems video and brochure ($4.95 for shipping and handling).

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ALESIS

Alesis recording

Great Studios Of The World

PRODUCTION NOTES

Owned by reggae band Inner Circle, Miami's Circle House studio recently installed its second Solid State Logic SL 4000 G Plus console. "We've used the G Plus on all of our records, including our latest album , 'Da Bomb'" says Ian Lewis, engineer/producer/writer and Inner Circle bass player. "We love the EQs, especially on the low-end, and the aggressiveness in the mid-range. With reggae, you need that kick on the bass and snare. SSL and reggae are the perfect match."

CIRCLE HOUSE STUDIOS

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USA

Solid State Logic

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- The V-Eight is an 8-channel, 20-bit digital recorder in the ADAT® II format with S-VHS cassettes.
- Backward compatibility with 16-bit systems; up to 60 minutes of linear 20-bit audio recording.
- Rugged, three-motor professional tape deck with gentle tape handling and rapid access.
- Integrated Monitor Mix function permits simultaneous headphone and monitor mixdown.
- Aux track I/O: additional input/output for audio in JOG/Shuttle mode.
- Digital I/O: 8-channel Alesis™ optical I/O (ADIF); optional 8-channel AES/EBU-3.
- Eminently designed for world-class studio recording.

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JUNE 1998, VOLUME 22, NUMBER 6

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SOUND FOR PICTURE

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LIVE SOUND

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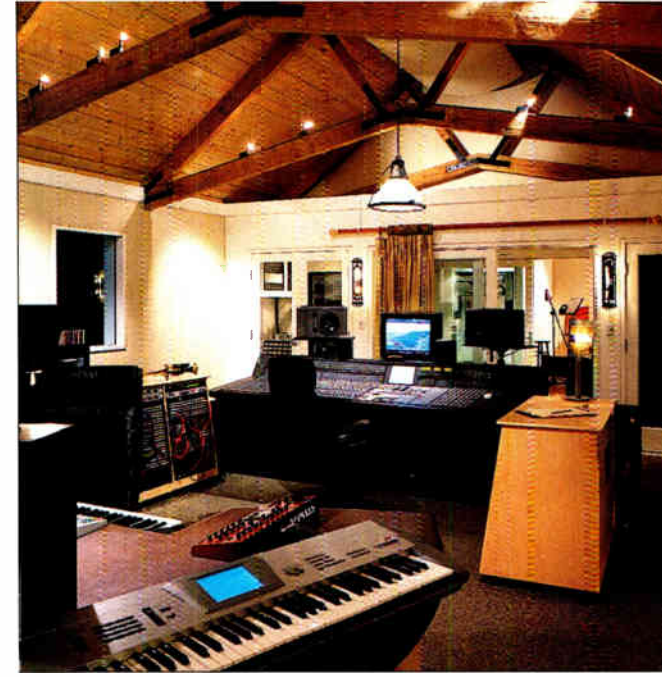

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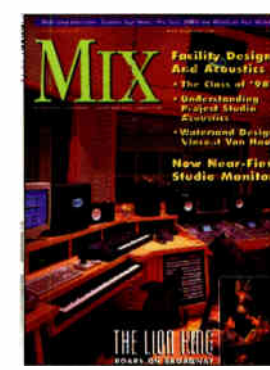
DEPARTMENTS

On the Cover: Founded in 1995, bicoastal music and sound design house HUM relocated its West Coast headquarters last year to this new, wholly renovated three-studio facility in the midst of Santa Monica's booming Colorado Ave. post-production scene. HUM has worked with top advertising agencies including Weiden & Kennedy and BBDO, among others. For more on HUM, see the "Class of '98," page 42. **Photo:** Toshi Yoshimi Photography **Inset photo:** Joan Marcus/Mark Bryan-Brown.



New York's Finest

A special *Mix* advertising supplement featuring the hottest studios in New York begins after page 96.

Check out Mix Online!
http://www.mixonline.com

The only 24x4 mixer with

Built with advanced technology & premium components,

SR24•4

After you've gone store-to-store, checking out mixer after mixer, they can start to appear pretty much alike.

But if you could "look under the hood," you'd discover that all 4-bus mixers aren't created equal in many critical areas. These important differences can affect sound quality, noise floor, mix head room and durability.

Greg Mackie initially intended the SR24•4 to be a very competitively priced live sound mixer.

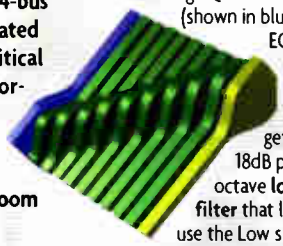
But having been a Musician On A Strict Budget himself, he knew that few bands have the bucks for a separate studio mixer. So instead of cutting corners, he made the SR24•4 a "downsized" Mackie 8•Bus with much of its circuitry and many of the same cool features.

The result is a compact console with premium mic preamps, natural-sounding equalization, ultra-low noise floor and EIGHT tape outputs. Just the thing for recording demos — or whole albums — on a limited budget.

Call toll-free for a comprehensive tabloid brochure or log onto our Web site for the full story of the SR24•4 and its big brother, the SR32•4. They look good outside. But more imporant, they SOUND good inside.

Flexible, creativity-enhancing equalization. Mono mic/line channel's swept midrange has a super-wide 100Hz-8kHz sweep range (and a broad, natural-sounding 1.5-octave wide curve (shown in green below). Low shelving EQ is fixed at 80HZ (shown in blue); high EQ is at 12kHz (yellow). Plus you get a sharp, 18dB per octave **low-cut filter** that lets you use the Low shelving EQ to enhance vocals, floor toms, etc. without boosting unwanted mic thumps and stage rumble.

VERY useful.



Six aux sends per channel. Auxes 1 & 2 are **pre**-fader (for live sound monitors). Auxes 5 & 6 are **post**-fader (for studio effects). Auxes 3 & 4 are switchable to either **pre or post** so you can always have four of the kind you want most.

Trim control has a 10dB "virtual pad" that tames ultra-hot line inputs; 60dB total gain range lets you boost timid vocalists and low level line inputs.

In-place stereo solo on channel strips & sub buses. Master section has solo level control & AFL/PFL global mode switch.

60mm logarithmic-taper faders. Many conventional faders "give up" about ¾ of the way down. Fades sound sorta like this:

LA LA LA LA LA.....?

The log-taper faders on the SR24•4 and SR32•4 have extra screened resistance elements that provide a linear-sounding fade, throughout the full travel of the control. Something like this:

LA LA LA LA LA LA LA LA LA

Your LA LAs may vary.

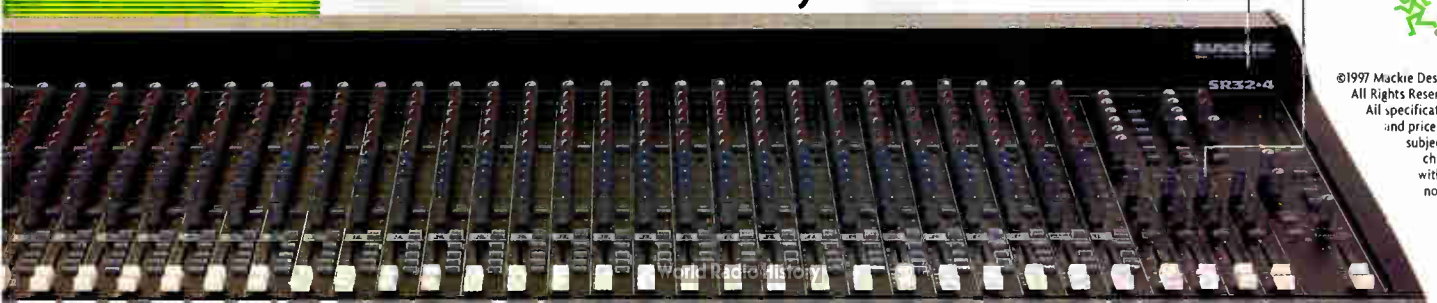
Special pan controls maintain the same apparent loudness even when you pan a channel hard right or hard left — a must for accurate studio mixes.

Super-twitchy Signal Present LEDs on every channel are so responsive that you can differentiate between vocals, rusty chainsaw samples, percussion, etc. All channels also have an overload LED.

Mute/Solo LED on every channel.

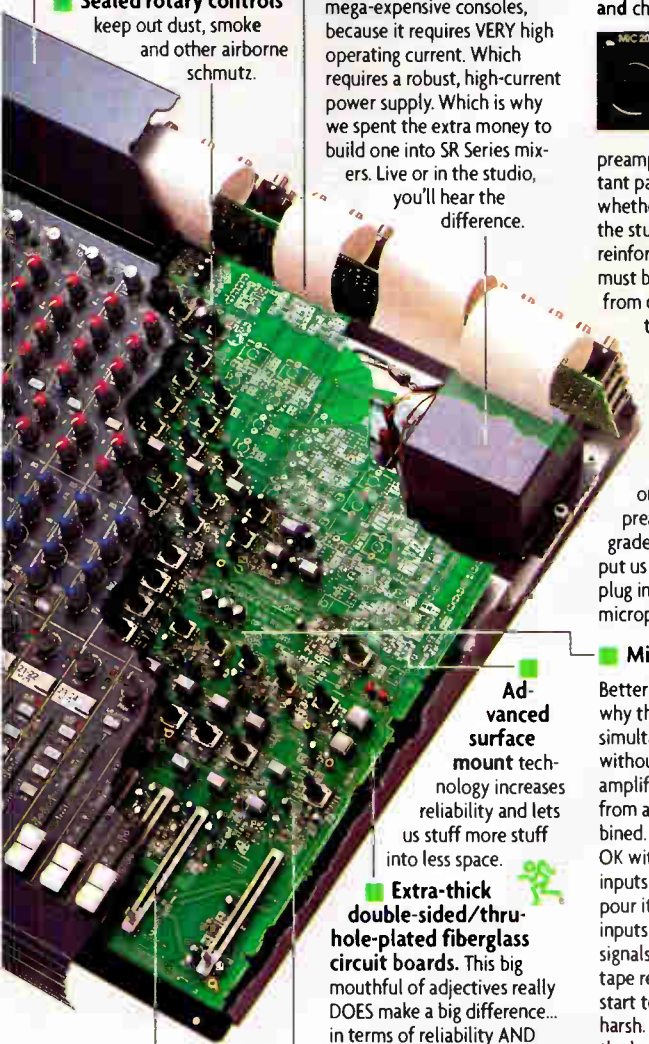
Ultra-high "AIR" EQ on submix buses centered at 16kHz. As one magazine review put it, *"The AIR controls turned out to be effective in adding top end clarity... it's almost an 'exciter' kind of effect, except without the harshness."*

Also available in a family-size 32-channel model!



enough guts to strip in public.

the SR24•4 is equally at home in the recording studio or on the road.



Solid, cold-rolled steel chassis. Not aluminum or plastic. Monocoque design resists flexing and bending.

Gold-plated internal interconnects remain corrosion free for perfect electrical contact, even if used repeatedly in industrial sections of New Jersey.

Sealed rotary controls keep out dust, smoke and other airborne schmutz.

Large, high-current internal power supply lets us use VLZ®(Very Low Impedance) circuitry at critical points in the SR24•4 and SR32•4. **VLZ®** significantly reduces thermal noise and crosstalk by using extremely low resistor values in certain circuits. This innovative technique is normally only used in mega-expensive consoles, because it requires VERY high operating current. Which requires a robust, high-current power supply. Which is why we spent the extra money to build one into SR Series mixers. Live or in the studio, you'll hear the difference.

Advanced surface mount technology increases reliability and lets us stuff more stuff into less space.

Extra-thick double-sided/thru-hole-plated fiberglass circuit boards. This big mouthful of adjectives really DOES make a big difference... in terms of reliability AND sound quality. The expensive thru-hole plating process maximizes electrical conductivity and eliminates the possibility of intermittant contact. The SR Series' flexible fiberglass main board soaks up downward impacts that would shatter brittle phenolic circuit boards.

Ultra-wear-resistant fader wiper surface derived from automotive sensor technology won't develop "the scratchies" even after years of use.

100% genuine name brand electronic parts throughout. Nuff said.

All inputs and outputs are balanced* to eliminate hum and allow extra-long cable runs (they can also be used with unbalanced connectors). Tight-gripping 1/4" jacks are solid metal; XLR's are genuine Neutrik®s with internal ferrite beads to reduce radio frequency interference. * **except RCA-type tape jacks and channel inserts.**

Low-noise, high-headroom discrete mic preamps. It can be argued that the preamps are the most important part of a mixer — whether you're recording in the studio or running a sound reinforcement system. They must be accurate and free from coloration...yet be able to handle screaming vocalists and close-miked kick drums without overloading. And, they have to be ultra-quiet. Nowadays, we're not the only ones to claim our mic preamps are "studio-grade." So we invite you to put us to the test. In the store, plug in a good, high-output microphone and a pair of headphones and decide for yourself whose preamps have the most headroom, the least noise and the best sound.

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Dual headphone outputs with enough level to satisfy even most drummers. And a separate input for a talkback mic (so you don't tie up a mixer channel).

Inserts on all mono channels. Plus submix and main stereo mix inserts, separate control room outputs, extra RCA-type tape inputs and outputs, both 1/4" and XLR stereo outputs, and XLR mono output with its own rear panel level control.

The SR Series in a proverbial nutshell.

	24•4	32•4
Total Channels	24	32
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Stereo Line Inputs	2	2
Mic Preamps	20	28
Submix Buses	4	4
EQ (mono chs.)	12kHz HF 80Hz LF 100-8kHz Swept Mid 18dB/octave low-cut filter	
EQ (stereo chs.)	12kHz HF 80Hz LF 800Hz Lo Mid 3kHz Hi Mid	
Aux Sends/Ch.	6	6
Stereo Aux Returns	4	4
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Width (inches)	31.0	39.25

Mix amplifier headroom. The SR24•4's inside story.

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The mix amp funnels multiple channel inputs into a single bus.

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Below: A few of the 500+ folks who build the SR Series, our other mixers, amps and studio monitors at Mackie Designs in Woodinville, Washington, 20 miles northeast of Seattle.

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CIRCLE #004 ON PRODUCT INFO CARD

FEEDBACK

HELLO! WE'RE STILL HERE

I read with dismay the recent article on Atlanta Post (March '98) and couldn't help but notice the article's mention of Todd-AO buying Editworks and the Wolff Brothers leaving, setting up shop and adding video services, as well. Though the information is correct, your reporter does us a disservice by not mentioning that we have replaced their services with our own. We have two studios equipped with state-of-the-art Fairlight MFX3 workstations, three of the most highly respected audio engineers in this city, and I have to say, as president of the company, the most efficient department in our entire operation.

While one does not expect your magazine to promote us, one also does not expect an omission of this nature (this appears to be a lack of informed research), which implies that Todd-AO/Editworks no longer offers audio services. Todd-AO, as you may know, is one of the most prolific audio production and post-production companies in this country, having been in business in Los Angeles since 1952 and having won 11 Academy Awards and 19 Emmy Awards for their work over the years. We were nominated again this year for *L.A. Confidential.*

Nonetheless, in the Atlanta market, we have consistently outreached our targeted budgets for each of the past 18 months, have a loyal and diverse following of clients and are able to offer the highest in both technical and creative ability to these clients. Our success has outreached my expectations.

One hopes that, in the future, your feature reporters endeavor to research their material or clarify their statements better.

Britt de Bie, president
Todd-AO/Editworks
Atlanta

ALIVE AND WELL, THANK YOU

Give me a break! Somehow, Paul Lehrman hasn't developed Stephen St.Croix's talent of complaining about stuff that I either totally disagree with or don't even understand (though he remains totally entertaining). Case in point: March '98 "Insider Audio." "Graceful Death" indeed! First of all, let's get it out of the way that he's talking about the Alesis ADAT.

I was one of the very first, at least in the Mid-Atlantic, to start piling 60 to 80 hours a week onto the things. The first six months, I kept thinking to myself, "What have I done? I wonder if I can still get my analog 16-track back?" But soon, we began learning some very important info: how to open them up and clean them, replace idler wheels, etc. Has that solved all of our problems? Not quite. We still have motors that just don't like commercial use, buttons and switches that could be a bit more industrial-strength, etc. But let's not forget, their modularity is a large part of their beauty.

When's the last time you were able to send off eight tracks of your favorite analog recorder for repair while conveniently using eight spare ones (or, for that matter, borrowing or renting them)? It was Alesis that showed me how to perform all the DIY procedures that were available while providing a free loaner through the authorized repair facility that did the other work. And the reverb scenario—really! I can hear my clients now: "Sure, John, after all the money we've spent so far, mono reverb will be just fine for the mixdown!" Maybe 20 years ago.

The fact is, today an owner of a low/mid-level project facility can afford several great-sounding, low-cost reverbs, any of which could step up to the plate (or be combined) to sub for the main Mac-daddy reverb. Since my first punch-in to my last cut-and-paste, I remain even more convinced. I will never go back!

John Grant
Secret Sound Recording Studio
Baltimore, Md.

SMELL THE COFFEE

I am a little disappointed after reading Laurel Cash-Jones' article on audio education ("Making the Grade," Nov. '97). I was impressed until she began discussing the audio engineering internship.

Yes, there is more opportunity in store for future engineers than just "running away with the band," but the slope of success in commercial record production is slippery, and one has to learn how to ascend. There is a misconception in this industry regarding how and where to start at the entry level. I found the advice given by Cash-Jones to be naive.

The article suggests that the days of glorified custodial work and other menial duties are "gradually passing into history." Wrong. If anything, things have gotten worse, and it's taking longer for engineers to see the payoffs. This especially holds true in Los Angeles. In my internship, which I'm glad is now behind me, I carried out these duties and almost never got to sit behind a console. On the couple of times I did get behind a board, it was not in a "structured learning environment," as the article says. Those who should have supervised me often either patronized me or flat-out derided my enthusiasm. And I know for a fact that this is how many other internships are today.

Also, in my experience, there is no "evaluation" of an intern's abilities, and studio managers do not necessarily reward "those that prove to be reliable or talented." It's all about money, a lot of luck and who you know as opposed to what you know. I ask you to please not give the up-and-coming a false sense of optimism. This is the real world.

An anonymous engineer
Chicago

IS IT LIVE OR IS IT EARWITNESS?

May I simply thank those concerned for the description of the mic selection/configuration with regard to the Sphere With Ears ("The Earwitness Project," Jan. '98).

Articles such as this improve our understanding of how mic arrays might emulate and simulate a binaural rendering akin to human hearing perception.

On account of this article, my curiosity has led me to purchase the CD pair, not only for the performance but the perception. What a privilege it would be to face the recording challenges the Earwitness Project must have presented.

John Kelly
Blue Mountains, NSW Australia

Send Feedback to Mix, *6400 Hollis St. #12, Emeryville, CA 94608; fax 510/653-5142; or mixeditorial @cardinal.com.*

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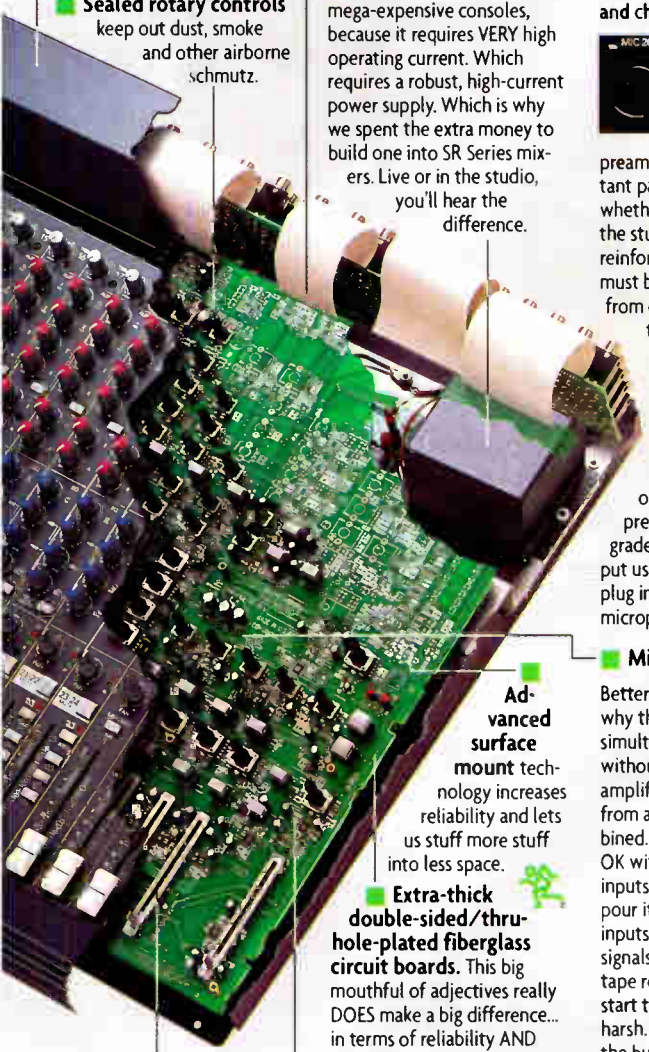

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CIRCLE #004 ON PRODUCT INFO CARD

FROM THE EDITOR

ACOUSTICAL CHALLENGES OF THE BRAVE NEW (AUDIO) WORLD

A long time ago in a studio far, far away, there was monaural reproduction. Monitoring issues were fairly simple, and engineers wore either black suits or white lab coats, which blended nicely with the perforated white acoustical tiles lining the walls of the sound booth. In the 1960s, stereo recordings became the standard, and monitoring and studio design became far more complex, particularly as the "sound booth" eventually became the much larger control rooms we're so familiar with. And today, as 24-bit audio and multichannel monitoring begin creeping into control rooms, many of us are left with more design questions than answers.

Acousticians and speaker designers may differ on specific approaches toward achieving the optimum listening space, yet all agree that thanks to improved acoustical materials and computer-aided design, the properly built control room of today can easily outperform the designs of yesteryear. Despite these advances, the world becomes complicated when we suddenly want to add center and surround speakers into the built-for-stereo control room. Can we just throw in a couple more speakers and expect everything to work? The solutions may be easier in the cinema environment, where reproduction standards are (generally) adhered to, but how exactly does a cinema surround system translate to the project studio doing music mixes?

Faced with new technologies, will today's studios meet the acoustical needs of tomorrow, next month or next year? And just how quiet is *your* studio? Today's 24-bit recording systems offer dynamic range performance into the 120dB range, so is a studio's once-acceptable Noise Criteria curve of 15 (equivalent to a level 9 to 11 dB above the human threshold for hearing continuous noise) really relevant in the brave new high-bit world? As system artifacts (i.e., dither, circuit noise and tape hiss) are reduced to near-unmeasurable levels, ambient artifacts—such as air-conditioning rumble and the roar of distant traffic—become rather noticeable when the masking effect of electronic noise is removed. Perhaps before pricing the next round of recording upgrades, we should make a little room in our shopping carts for some acoustical improvements. Otherwise, that gleaming new 24-bit recording system may be little more than a means of spotlighting the acoustical flaws in your recording environment.

With this issue's focus on acoustics and facility design, *Mix* explores these and other topics. Peter D'Antonio and Sam Berkow examine the issues of optimizing the small studio with solid advice on improving any control room. Dan Daley talks with four companies representing the new generation of studio designers, and Mel Lambert interviews master acoustician Vincent Van Haaff. Designer Chris Pelonis test drives Pilchner Schoustal's low-cost AcousticX studio design software. Loren Alldrin investigates new reference monitors. And in our annual salute to the best and the brightest, *Mix* presents our "Class of '98," with a look at 21 hot new rooms.

Excellence lives on!

George Petersen
Editor

BPA INTERNATIONAL SPARS ABP American Business Press

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FEEDBACK

HELLO! WE'RE STILL HERE

I read with dismay the recent article on Atlanta Post (March '98) and couldn't help but notice the article's mention of Todd-AO buying Editworks and the Wolff Brothers leaving, setting up shop and adding video services, as well. Though the information is correct, your reporter does us a disservice by not mentioning that we have replaced their services with our own. We have two studios equipped with state-of-the-art Fairlight MFX3 workstations, three of the most highly respected audio engineers in this city, and I have to say, as president of the company, the most efficient department in our entire operation.

While one does not expect your magazine to promote us, one also does not expect an omission of this nature (this appears to be a lack of informed research), which implies that Todd-AO/Editworks no longer offers audio services. Todd-AO, as you may know, is one of the most prolific audio production and post-production companies in this country, having been in business in Los Angeles since 1952 and having won 11 Academy Awards and 19 Emmy Awards for their work over the years. We were nominated again this year for *L.A. Confidential.*

Nonetheless, in the Atlanta market, we have consistently outreached our targeted budgets for each of the past 18 months, have a loyal and diverse following of clients and are able to offer the highest in both technical and creative ability to these clients. Our success has outreached my expectations.

One hopes that, in the future, your feature reporters endeavor to research their material or clarify their statements better.

Britt de Bie, president
Todd-AO/Editworks
Atlanta

ALIVE AND WELL, THANK YOU

Give me a break! Somehow, Paul Lehrman hasn't developed Stephen St.Croix's talent of complaining about stuff that I either totally disagree with or don't even understand (though he remains totally entertaining). Case in point: March '98 "Insider Audio." "Graceful Death" indeed! First of all, let's get it out of the way that he's talking about the Alesis ADAT.

I was one of the very first, at least in the Mid-Atlantic, to start piling 60 to 80 hours a week onto the things. The first six months, I kept thinking to myself, "What have I done? I wonder if I can still get my analog 16-track back?" But soon, we began learning some very important info: how to open them up and clean them, replace idler wheels, etc. Has that solved all of our problems? Not quite. We still have motors that just don't like commercial use, buttons and switches that could be a bit more industrial-strength, etc. But let's not forget, their modularity is a large part of their beauty.

When's the last time you were able to send off eight tracks of your favorite analog recorder for repair while conveniently using eight spare ones (or, for that matter, borrowing or renting them)? It was Alesis that showed me how to perform all the DIY procedures that were available while providing a free loaner through the authorized repair facility that did the other work. And the reverb scenario—really! I can hear my clients now: "Sure, John, after all the money we've spent so far, mono reverb will be just fine for the mixdown!" Maybe 20 years ago.

The fact is, today an owner of a low/mid-level project facility can afford several great-sounding, low-cost reverbs, any of which could step up to the plate (or be combined) to sub for the main Mac-daddy reverb. Since my first punch-in to my last cut-and-paste, I remain even more convinced. I will never go back!

John Grant
Secret Sound Recording Studio
Baltimore, Md.

SMELL THE COFFEE

I am a little disappointed after reading Laurel Cash-Jones' article on audio education ("Making the Grade," Nov. '97). I was impressed until she began discussing the audio engineering internship.

Yes, there is more opportunity in store for future engineers than just "running away with the band," but the slope of success in commercial record production is slippery, and one has to learn how to ascend. There is a misconception in this industry regarding how and where to start at the entry level. I found the advice given by Cash-Jones to be naive.

The article suggests that the days of glorified custodial work and other menial duties are "gradually passing into history." Wrong. If anything, things have gotten worse, and it's taking longer for engineers to see the payoffs. This especially holds true in Los Angeles. In my internship, which I'm glad is now behind me, I carried out these duties and almost never got to sit behind a console. On the couple of times I did get behind a board, it was not in a "structured learning environment," as the article says. Those who should have supervised me often either patronized me or flat-out derided my enthusiasm. And I know for a fact that this is how many other internships are today.

Also, in my experience, there is no "evaluation" of an intern's abilities, and studio managers do not necessarily reward "those that prove to be reliable or talented." It's all about money, a lot of luck and who you know as opposed to what you know. I ask you to please not give the up-and-coming a false sense of optimism. This is the real world.

An anonymous engineer
Chicago

IS IT LIVE OR IS IT EARWITNESS?

May I simply thank those concerned for the description of the mic selection/configuration with regard to the Sphere With Ears ("The Earwitness Project," Jan. '98).

Articles such as this improve our understanding of how mic arrays might emulate and simulate a binaural rendering akin to human hearing perception.

On account of this article, my curiosity has led me to purchase the CD pair, not only for the performance but the perception. What a privilege it would be to face the recording challenges the Earwitness Project must have presented.

John Kelly
Blue Mountains, NSW Australia

Send Feedback to Mix, *6400 Hollis St. #12, Emeryville, CA 94608; fax 510/653-5142; or mixeditorial @cardinal.com.*

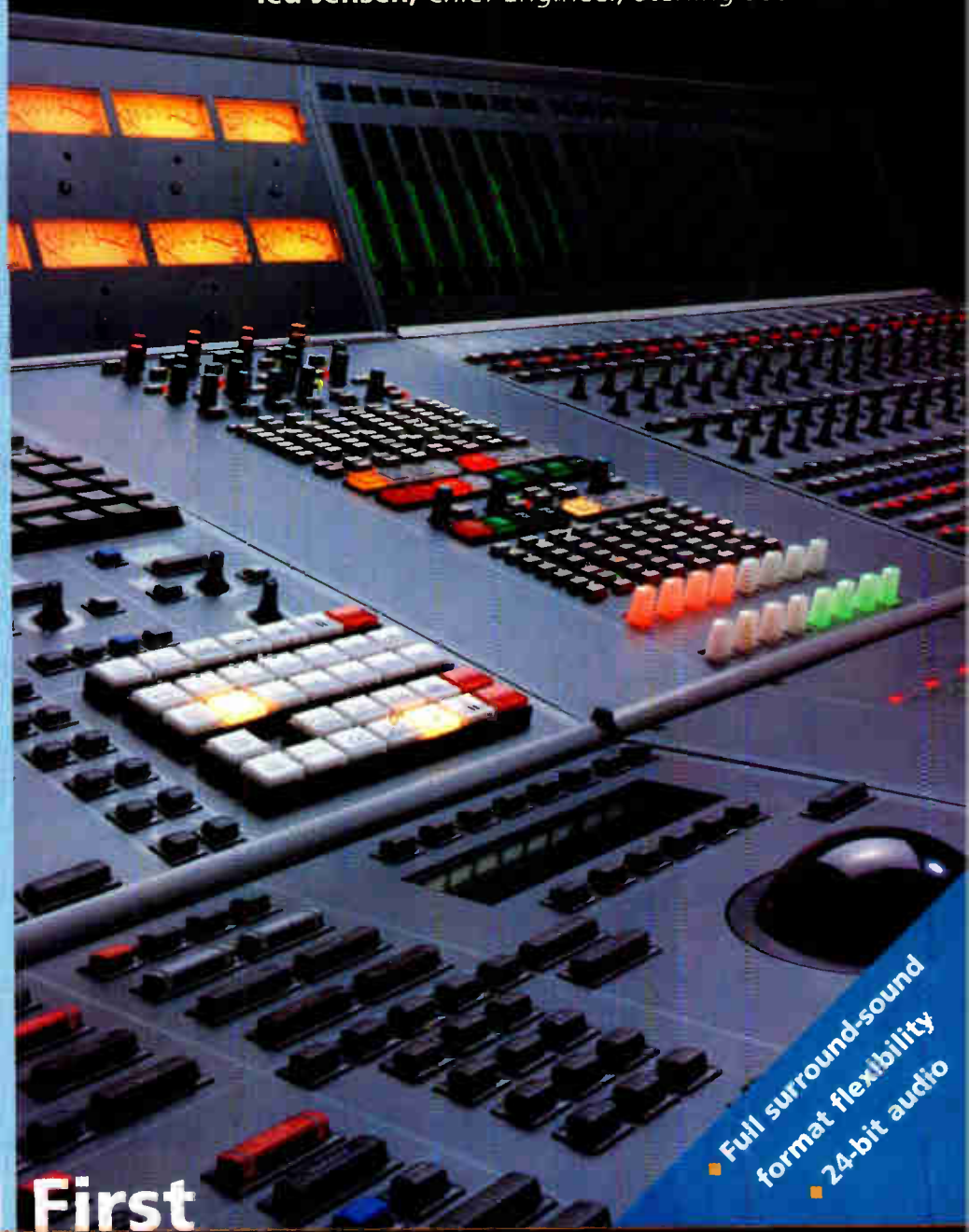
Capricorn. "A quality and resolution rarely attained with other systems"

Ted Jensen, *Chief Engineer, Sterling Sound Inc.*

"I have consistently been impressed with the sound quality of the mixes I have received from projects using Capricorn.

"Particularly impressive are the ones where care has been taken to preserve the 24-bit signal throughout the project.

"I feel there is a quality and resolution that is rarely attained with other systems."



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CURRENT

HOLLYWOOD AUDIO COMMITTEE WORKS TOWARD FILE/MEDIA STANDARD BETWEEN DAWS AND DUBBERS

The recently formed Hollywood Technical Committee (H-TAC) has been extremely active during recent months, attempting to ensure a simple yet viable means of exchanging digital audio files between different brands of digital dubbers and workstations (see "Current," April '98). Because Pro Tools is the predominant "standard" throughout the film and post community, H-TAC continues to work behind the scenes to persuade Digidesign to supply details of its proprietary Session File format to dubber manufacturers. The pivotal force in maintaining this dialog has been former H-TAC chairman Jay Palmer of Universal Studios' post-production sound department.

During H-TAC's recent open forum meeting held at Sony Pictures Studios (Culver City) in April, Palmer announced that an agreement with Digidesign had finally been reached and invited Digidesign's software and product development teams to explain their "Direct File Solution" to some 50 representatives from leading West Coast film/post houses. The firm also received reactions.

Digidesign has agreed to license certain portions of its industry-standard Pro Tools Session File format to dubber manufacturers, for use in ensuring data and media interchange. There is one important condition: Systems licensed under the two-year, royalty-free agreement must both read and write Pro Tools formats. The Tascam/TimeLine MMR-8 8-track recorder already handles both of these functions and will soon be joined by other products.

"We have been a strong advocate of direct file exchange for some time now," said John Lancken, Fairlight's CEO. "We are currently evaluating the licensing agreement proposed by Digidesign and are confident that an agreement will be reached. During this process, we are mindful of H-TAC's request for a speedy solution."

Akai was more circumspect. "Based on requests from our customers," stated Tom Linklater, Akai's VP of Electronics, "we independently developed Pro Tools import and export file-conversion capability, [thereby] offering our customers the utmost in flexibility when dealing with non-Akai formatted disks. Since the file-exchange capability already exists, we are not in need of a license agreement with Digidesign."

Scott Dailey, Digidesign's director of product marketing, was quick to point out that reverse engineering of complex file formats is likely to result in incompatibility or lost data. "There is no way they've nailed it 100 percent. As Pro Tools moves forward, the file format will need to change. If a solution is unreliable, whose fault is it? We'd much prefer to be dealing with these companies as partners, rather than outlaws." Dailey also stressed that Digidesign needs to protect its intellectual property and is investigating legal options.

Many insiders are carefully monitoring the progress of the comprehensive Advanced Authoring Format (AAF) proposal, as a long-term solution to the current "Audio Tower of Babel," in addition to the activities of AES-31 Working Group. But with H-TAC providing a collective voice for the West Coast post community—and continuing an active dialog with other centers of expertise around the world—our industry seems to be well on the way to securing at least an interim solution for many DAW users. *—Mel Lambert*

SAMSON FILES DEFAMATION SUIT

Samson Technologies filed a defamation counterclaim in U.S. District Court for the Western District of Washington against Mackie Designs Inc., alleging that Mackie damaged Samson's reputation and business by publishing false claims against the company on the Internet. Samson is seeking $10 million in damages.

The complaint Samson is reacting to, which Mackie posted on its Web site, states that Samson and its CEO conspired with Behringer GmbH to infringe Mackie's claimed copyrights and trademarks relating to an audio mixing board. According to Samson's countersuit, on January 30 the Seattle court dismissed Scott Goodman, Richard Ash and Sam Ash Music Corp., and on April 8 the Seattle court dismissed the copyright and patent claims.

COUNTDOWN TO STUDIOPRO 98

Mix's first-ever conference on the technology and business of audio production occurs this month (June 25 and 26) at the New York Marriott Marquis. Sponsoring companies include Alesis, Audio-Technica, Lexicon, Mackie Designs and Quantegy. "These are established companies who are committed to furthering education in the pro audio industry," said *Mix* publisher Jeffrey Turner. "Their assistance will help to ensure that StudioPro 98 is the strongest event possible, and we are grateful for their support."

StudioPro 98 includes eight seminars moderated by *Mix* editors and others. There will also be a Producer's Forum hosted by the Music Producers Guild of the Americas (MPGA) and a Digital Console Forum featuring a dozen manufacturers of both large- and small-format consoles.

For more information, contact Daniela Barone at 510/653-3307 or e-mail daniela_barone@intertec.com. ■

TEC AWARDS TO HONOR COLIN SANDERS AND NEIL YOUNG

The late Colin Sanders will be inducted into the TEC Awards Hall of Fame, and Neil Young will receive the Les Paul Award at the 14th Annual Technical Excellence and Creativity Awards to be held September 27, 1998, at the Fairmont Hotel in San Francisco.

The TEC Awards Hall of Fame was created to recognize individuals whose careers have exemplified the spirit of creative and technical excellence in professional audio. This year, the TEC Awards Hall of Fame will honor Solid State Logic founder Colin Sanders.

The Les Paul Award recognizes individuals or institutions that have set the highest standards in the creative application of technology. This year, the recipient of the Les Paul Award will be

—CONTINUED ON PAGE 16

We'd Like To Thank The Academy...

We don't actually set out to win awards for ourselves. Instead, we endeavor to build the finest micro-phones in the world so that YOU win the awards. In fact, many artists have already brought home the gold for performances captured with this incredible microphone. Combining the best of our classic designs with the most advanced modern electronics has resulted in a microphone that even our most demanding customers call "stunning." Try the M-149 Tube and hear the magic for yourself.

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328

Spirit 328 represents a REVOLUTION IN LOW COST PROFESSIONAL AUDIO, bringing all the functionality and sonic excellence of digital mixing to a brand new audience. With its unique CONSOLE BASED INTERFACE, 328 finally bridges the gap between analog and digital mixers, retaining the SPONTANEITY AND EASE OF USE of an analogue console yet providing all the advantages of digital, such as INSTANT TOTAL RECALL, MOVING FADER AUTOMATION and ONBOARD LEXICON EFFECTS.

Quite simply, Digital 328 is the most advanced analog 8 bus you'll ever drive combined with the easiest digital console you've ever used - check it out for yourself

42 Input/8 Bus Configuration

For a mixer with such a small footprint, Digital 328 packs an extraordinary number of inputs. 16 full spec. analog mono mic line channels – each with its own balanced XLR connector, dedicated insert point and access to phantom power – come as standard, along with 5 stereo inputs. With the addition of 16 digital tape returns on 328's TDIF* and ADAT* optical interfaces, a maximum of 42 inputs are possible. Every input is fully routable to any of the 8 groups and has access to the full complement of 328's parametric EQ, signal processing, onboard effects and auxiliaries.

As Easy to Use as your current analog console

Although other digital mixers offer an amazing array of functions, it can often be a nightmare to access them.

In contrast we've designed Spirit 328 to operate like your old analog 8-bus console and not like a computer with faders, so that you can take it out of its box and get started without even opening the manual. Unlike other digital mixers, there's instant access to any channel, group or master feature with one button press, and you can see that feature's status from the front panel without having to rely on an LCD display.

The key to it all is Spirit 328's unique "E-strip", the lighter-colored bank of encoders and switches that runs across the center of the console. Simply select a channel and the E-strip immediately becomes a "horizontal input channel" with instant access to all that channel's EQ, aux sends, channel pan and routing. Alternatively, press any button in the rotaries section above the E-strip and the encoders change to become a channel pan, auxiliary send, or Lexicon effects send for each channel.

Select a fader bank to display mic/line input faders, tape returns faders, or group and master faders and that's it; no delving through level after level of LCD menus to find the function you want, no delays in making alterations and no need to study complicated EQ curves. With 328, everything you need is immediately accessible from the front panel of the console - giving you the freedom to let your ears decide.

If you want the functionality of a digital console but the usability of your old analog 8 bus, then Spirit 328 is for you.

All the Digital I/Os you need as standard

Most digital mixers don't include digital multitrack I/Os, which means that to get digital recording and mixdown you have to buy extra, expensive I/O options. In contrast, Digital 328 includes two Tascam TDIF* and two ADAT* optical interfaces as standard, allowing you to record 16 tracks entirely in the digital domain, straight out of the box. As you would expect, we've also included a pair of AES EBU and SP DIF interfaces assignable to a wide range of inputs and outputs, including group and auxiliary outs, as well as for use as mix insert points with digital signal processors. In addition, a dedicated auxiliary optical output allows you to send a signal digitally to an effects unit.

2 Onboard Lexicon Effects Units

Only 328 can offer the world's premier name in studio effects on board - Lexicon. Two separate effects units are included, offering a full range of reverbs, choruses, delays, and flanges as well as dual effects such as chorus plus delay - all with fully editable program and parameter settings.

Onboard Dynamics

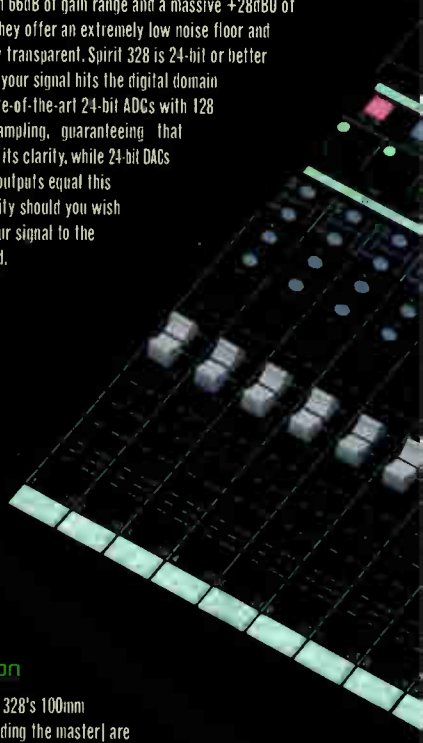
Digital 328 includes two mono or stereo signal processors which can be assigned to any input, output or groups of ins or outs. Each processor provides a choice of compression, limiting, gating or ducking.

Comprehensive EQ

All of 328's mic/line, tape return and stereo inputs have access to 3 bands of fully parametric EQ, designed by British EQ guru and co-founder of Soundcraft, Graham Blyth. A man with over 5 million channels of his EQ designs in the field, Graham has brought 25 years of Soundcraft analog EQ circuit experience to bear on Digital 328. If you want the warm, musical sound of real British analog EQ, look no further.

Unparalleled Sonic Spec

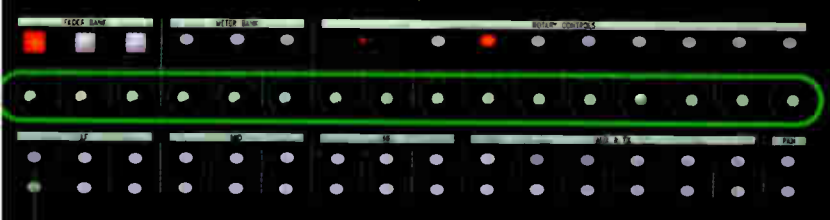
Rubbish in, Rubbish out! It doesn't matter whether the console is digital or analog – if you have poor mic preamps, your sound will be compromised. That's why 328 includes Spirit's acclaimed UltraMic+™ padless preamps, giving your input signals the cleanest, quietest start of any digital mixer on the market. With 66dB of gain range and a massive +28dBU of headroom, they offer an extremely low noise floor and are virtually transparent. Spirit 328 is 24-bit or better throughout; your signal hits the digital domain through state-of-the-art 24-bit ADCs with 128 times oversampling, guaranteeing that it maintains its clarity, while 24-bit DACs on all main outputs equal this sonic integrity should you wish to return your signal to the analog world.



Moving Fader Automation

All of Digital 328's 100mm faders (including the master) are motorized to allow current channel, tape return, group and aux master levels to be viewed at a glance.

DIGITAL 328



By pressing any select switch, the "E Strip" becomes a horizontal channel strip, indicating EQ, auxiliary, FX and Pan settings. Mono Mic Line, Tape Returns & Stereo Inputs all have access to the same channel strip functions

By pressing AUX1 in the rotaries section, the E-strip indicates Auxiliary Send 1 levels for each channel. The Fader Bank section indicates whether Mic/Line or Tape Return levels are being shown.

All parameters instantly recallable

In addition to level automation, every other digital parameter of 328 is instantly recallable, allowing snapshots of the entire console's status to be taken. Up to 100 of these "scenes" may be stored internally and recalled either manually, against MIDI clock or against MTC or SMPTE. Alternatively, every console function has been assigned its own MIDI message allowing dynamic automation via sequencer software.

Easy to edit - direct from the control surface

The majority of 328's input and routing parameters may be edited from the control surface without resorting to the console's LCD. Settings and levels may be copied and pasted from one channel to another with just two button presses and, using 328s query mode, the routing or assignment status of every channel on the console may be viewed instantly simply by selecting the function (such as Group 1 or Phase Invert) you want to question. In addition, with 328's undo function located in the master section, editing is entirely non-destructive, allowing you to compare new EQ – and other settings – with previous ones.

Grows with your needs

Two Digital 328s may be digitally cascaded, giving you up to 64 inputs at mixdown and 32-track digital recording capability

Full Metering and Monitoring Options

All of the Mic/line inputs, Tape return inputs, group and master levels may be monitored per bank via Digital 328's 16 10-segment bargraph meters. Additionally, 328's onboard dynamics processors may be monitored using the console's master meters. Any input may be solo'd using AFL, PFL or Solo-in-Place.

Timecode and Machine Control

Digital 328 reads and writes MTC and reads all SMPTE frame rates, with a large readout display instantly indicating current song position. Store and locate points are accessible from the console's front panel, with 328's transport bar controlling a wide range of devices including Tascam and Alesis digital recorders.

digital

three two eight

Add-On Module Options

To meet the needs of a variety of users, there are several module options:

8 Channel Analog I/O Interface

Connecting to the TDIF* ports, 16 phono connectors provide 8 analog group or direct outs and 8 analog inputs for tape returns 17-32. Two interfaces may be connected, allowing 16 track analog recording or access to 16 more sequenced keyboard or sampler inputs.

AES/EBU Interface

4 pairs of AES/EBU connectors allow optional digital interfacing to hard disk production systems such as Pro Tools*. A maximum of two interfaces may be connected.

Mic Pre-Amp Interface

Each interface provides 8 XLR mic ins with Spirit's acclaimed UltraMic+™ preamps and gain control, plus 8 analog outs. Connecting two interfaces turns 328 into a 32 mic input, 8 bus mixer for PA or theater applications.

SPIRIT
by Soundcraft

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CE This equipment complies with the EMC Directive 89/336/EEC

*ADAT is a registered trademark of the Alesis Corporation. TDIF is a registered trademark of the Tascam Corporation. Pro Tools is a registered trademark of Digidesign, Inc.

H A Harman International Company

INDUSTRY NOTES

Digidesign (Palo Alto, CA) announced the appointment of **Paul W. Melnychuck** to the position of director of corporate marketing and communications. Before joining Digidesign, Melnychuck was a 17-year veteran of Eastman Kodak, where he worked in research, product development marketing and sales...Foster City, CA-based **Otari Corporation** appointed Mel Lambert as international marketing director. Otari also expanded its regional sales and services offices with the opening of a New York base of operations. Studio industry veteran **Nick Balsamo** was hired to manage the offices, which can be reached at 800/877-0577...**Gene Joly** was named division manager for the **Tascam** division of TEAC America Inc. Joly will be responsible for strategic direction of the division, product development and retail merchandising...**Quantegy Inc.** (Peachtree, GA) news: **Alex Sorokin** was appointed president and CEO, and **Tony D. Wilson** was named vice president of sales and customer service U.S. and Canada. Two new product support engineers were appointed as well: **Roberto Fernandez** will cover the Latin American region, and **David Williamson** will cover the Asia Pacific region... **Applied Research and Technology** (Rochester, NY) announced that **Rob Reid** left the company to accept a position with *Recording* magazine. In the interim, **Jeffrey Cary** will handle media relations and ad placement...This spring marked the 30th anniversary of the **Cadac** marque, announced **Clive Green and Company Ltd.**, (Bedfordshire, UK)...**Lee Murphy** stepped down from his position as president of SPARS. **Paul A. Christensen**, SPARS vice president, was named by the SPARS board to assume the balance of Murphy's term. In related news, **Zoë Thrall** and **David Amlen** were recently named as new members of the SPARS board...**Sonic Solutions** (Novato, CA) announced that **George Massenburg Labs Inc.** signed on as the first member of Sonic's High Density Signal Processing Partners group. The HDSP forms an exclusive partnership between Sonic and the leading developers of audio processing technology to deliver a full range of 24-bit, 88.2/96kHz High-Density Audio and surround special-purpose processing applications for the Sonic Solutions SonicStudio...Elkhart, IN-based **Crown Audio** hired **Scott Robbins** as director of domestic sales and **Joe Wisler** as consultant/contractor liaison... **David Robinson** was appointed managing director of audio processing technology at Belfast, Ireland-based **Audio Processing Technology** (APT). Robinson was also appointed to the board of APT Inc. in Los Angeles...Promotions at **Azden Corporation** (Franklin Square, NY): **Wayne Alonso** is now vice president of the sales/video division, and **David Oliver** was elevated to vice president of sales/pro sound division...**JBL Professional** (Northridge, CA) announced plans to open a custom speaker manufacturing center in Northridge this summer; the Kearney, NE, operations center will relocate to Northridge by mid-summer...**Sound Marketing** was named 1997 Rep of the Year by Sandy, Utah-based **dbx Professional Products**...**DOD** (Sandy, Utah) awarded **Signal Marketing** Rep of the Year and Most Improved Territory. **Harrison South West Sales** received the Top Dog award, and **Crescendo Associates** received the President's Award...Thousand Oaks, CA-based **Transamerica AG**, founded by Brad Lunde, was awarded exclusive U.S. distribution of the **Brauner** microphone line...**Terry Marshall** was appointed worldwide sales/marketing director at **Digital Studio Processing** (Sydney, Australia)... **Crane Song Ltd** (Superior, WI) brought aboard **Westlake Audio** as a new dealer. ■

—FROM PAGE 12, CURRENT

Neil Young. Since achieving international fame in the early 1970s as a member of Crosby Stills Nash & Young, Young has forged a successful career as a solo artist and an innovator in the use of recording technology. Among the first major artists to record in his own studio, Young also owned one of the first digital multitracks in the U.S. Most recently, he has been doing 5.1-channel mixes on a state-of-the-art analog 2-inch 8-track machine.

For a list of the 1998 TEC Awards nominees, please see page 225. For tickets or more information about the TEC Awards, call Karen Dunn, executive director, at 925/939-6149.

GROUP ONE AND SOUNDELUX PART WAYS

Group One Ltd., a distributor for a variety of audio and lighting brands, and Soundelux's microphone division announced the termination of their manufacturer/distributor relationship. Group One president, Jack Kelly, says the separation was amicable. Soundelux Microphones can now be reached directly at 213/464-9601. Inquiries may be directed to David Bock.

UPCOMING SHOWS AND SEMINARS

Summer NAMM takes place July 10-12 at the Nashville Convention Center and Arena. Exhibits will number over 500, with expected attendance of 18,000 registrants from 25 different countries. For additional info call 760/438-8001 or visit www.namm.com for online registration and travel arrangements.

DVD Production '98 will be held August 12-13 at the Universal Hilton, Universal City, Calif. The event is cosponsored by ITA and Videography magazine, Replication News and Pro Sound News. There will be more than a dozen in-depth sessions, and attendance will be limited to the first 250 registrants. For information call 609/279-1700.

CORRECTION

The April "Software and Hardware for Audio Production" column listed an incorrect Web address for downloading a trial version of Cycling '74 MSP. The correct address is www.cycling74.com. ■

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CIRCLE #089 ON PRODUCT INFO CARD

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CIRCLE #014 ON PRODUCT INFO CARD

ZEN AND THE LOST ART OF LIVING

OR, STEPPING OUTSIDE THE CONTROL ROOM

ILLUSTRATION: WILL TERRY

Spring is sprung. I write this month's column two days after my (March 28) birthday. Yes, quite a bit of time passes between when I write this column and when you read it. But the point for me is that quite a bit of time has passed, period. I'm all grown up now. I now know that I know nothing, and though I knew everything when I was in my 20s, everything I knew then was wrong. Now, don't get me wrong, there was nothing really wrong with everything I knew being wrong, as everything everybody else knew was wrong, as well.

But that was then, and this is now. I have matured, you have matured, and the entire recording industry has matu...gotten older.

And there you have it. Our industry has advanced in ways never thought possible a few short years ago, and yet it still embraces and perpetuates archaic practices that should have died off decades ago.

Back in the Golden Lo-Fi days—when "R&R" meant *rock 'n' roll* to your ears, and *remove and replace* to your small-block V8—recording music was both a simple mechanical process and true magic. Listen to "Runaround Sue," "The Wanderer," "Runaway," "Calendar Girl" and even "Wipeout." Simple, distorted, low-bandwidth tunes that came to us just as stereo was becoming popular. Every one an anthem, every one played over and over in the minds and hearts of millions.

Part of the "sound" that made "Wipeout" a hit was the choice of reverb on the lead guitar—cheese as a feature. The horrible little Hammond spring reverb in the Fender amp was actually kicked and recorded as an effect in several songs of the era. Talk about making the most of your gear!

We liked these tunes for their musical entertainment value, and for their "sound"—certainly not for their sound *quality*. "Wipeout," in particular, was so simple and banal that my father banned me from playing it. This, of course, made me play it ten times more often than I really even wanted to; his displeasure made it *my* music.

I surfed, and I listened to surf when I was on land. Simple enough. I raced cars, I listened to the Beach Boys sing about cars. Life made sense; actual humans made music.

BY STEPHEN ST.CROIX

—CONTINUED ON PAGE 233

INTRODUCING CROSS PLATFORM, MULTI-FORMAT DIGITAL DUBBING FROM TASCAM

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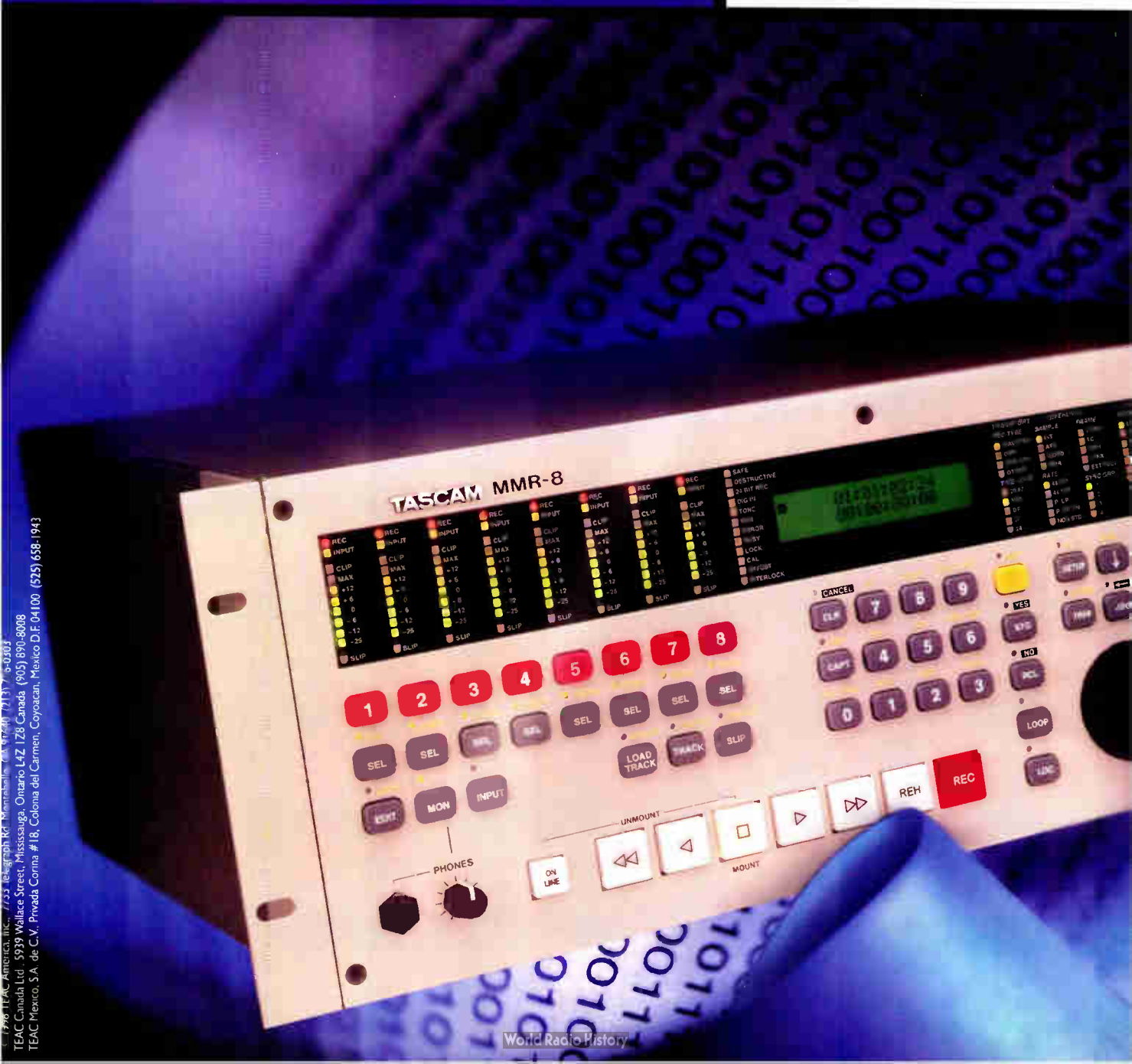

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Scrub. Slip. Slide. And Edit. Just like mag tape, the MMR-8 and MMP-16 scrub audio in forward and reverse — while locked to film or video. Need to cut 11 seconds out of a scene? No problem. And no need to go back to the DAW. With the MMR-8 you can slip tracks independently, slip events and even slip regions within a track. You can Cut, Copy, Paste and Insert (with 10 levels of undo/redo) directly from the front panel. But if your scene calls for more complex editing, go back to your DAW with the MMR-8's Kingston™ carrier equipped drive and edit away. Bring the edited files back to the MMR-8 for dubbing and watch it mount and read them. Magic. No more transfers. Imagine the time you'll save.

Master Control With Sony P2, TimeLine Lynx or MM-RC. Use your Lynx KCU for full function control of your MMR-8 including track arming and punch-in/out of up to six units. If you're really a control freak, use the optional MM-RC remote to simultaneously control up to 100 units. That's up to 1,600 tracks with the MMP-16. All with sample accurate sync across all machines. As for sound quality, let's face it, even with the best 16-bit machines, as you open more tracks on the console you add more noise. The MMR-8 and MMP-16 give you true 24-bit resolution. This keeps the noise floor at an absolute minimum — no matter how many tracks you're running.

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CIRCLE #012 ON PRODUCT INFO CARD

I Had Nothing To Do With Titanic

BUT I'VE HAD A SYNC-ING SAGA ALL MY OWN

ILLUSTRATION: DAVE EMBER

You know, with all the other things I do, like preaching, proselytizing, prognositicating, prevaricating and prestidigitating, I don't spend as much time actually banging on my equipment as a lot of the people—maybe most of the people—who read this magazine. And yet somehow, I seem to find things going wrong with my equipment awfully quickly and awfully frequently. I am then forced, more by anger and curiosity than by duty, to isolate and report back said things going wrong to the manufacturers of said equipment. This is both a curse and a gift. It affords me a unique relationship with the companies ("Yes, he's a pain in the butt, but he's really good at breaking our stuff, so let's keep sending him updates!"), but it can make it hard to get anything done.

On one recent post-production project, I had, for a change, few such problems. But after I was done with my part of the project and the finished program was delivered to me, I almost had a heart attack. I discovered something that was very, very broken. Fortunately, the manufacturer already knew about it. Unfortunately, they never bothered to tell anybody.

I was scoring a television show, an hour-long documentary with almost wall-to-wall music, which I wrote in my usual way with a MIDI sequencer and a room full of synths, samplers and signal processors. The director/producer is a fellow I've done many projects with over a span of several years, and we know each other's working habits well. The fact that we're separated by 3,000 miles has little bearing on the efficiency of our working together, although when we're calculating budgets, we do have to take Federal Express' cut into account.

The bicoastal nature of our collaboration does cause some problems, however, the worst of which is how to get rough music cues to him for approval. Like most video producers today, he now uses an Avid for offline editing, but before he got it, I very often would send my music tracks over the phone. Not using ISDN lines, the way the

BY PAUL D. LEHRMAN

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CIRCLE #013 ON PRODUCT INFO CARD

fancy studios do, but the really, really cheap way—you know, using that technology that lets Candace Bergen hear a pin drop.

Fortunately, Candace wasn't around when we did this. The director/producer would roll video in his studio, shouting a count-off into his mouthpiece, and at zero I would start to play the music on the sequencer, holding my phone mouthpiece up to a speaker. Now, I would never recommend doing this with clients unless they *really* trust you, but in our case, it worked okay. When we needed better quality and a *little* tighter sync, I would send him an analog cassette of the rough cues, which he would then lay back onto ¾-inch video, punching in at the start time I provided.

When it came time to deliver the finished score, our delivery medium of choice was standard DAT. To make sure my timing was dead-on, I would slave the sequencer to SMPTE being generated by a Mark of the Unicorn Video Time Piece (one of the most useful pieces of equipment in my studio, and one which has never, ever screwed up—so, naturally, the manufacturer has discontinued it), which in turn was genlocked to a local network-affiliate TV station. Thus, whatever was locking *All My Children* on ABC-TV was now locking my sequencer, and what's good enough for Disney is good enough for me. At precisely two and one seconds before the start of each cue, I would put in two short beeps, and of course I would include a list of SMPTE start times for each cue with the tape. The DAT tracks would go to his post house, where they would be transferred to videotape, locked and assembled with the rest of the program.

Timecode? We don't need no stinking timecode! Seriously, neither of us had a timecode DAT machine (cheap, remember?), and we never missed it. This method worked amazingly well—despite the lack of a SMPTE track, the audio cues consistently lined up perfectly. In the dozens of projects we put together this way, the worst drift we ever encountered was something like three frames in five minutes—about 0.03%. As long as we kept the individual cues relatively short, this was more than acceptable. And the sound quality was much better than if I were to print to ¾-inch videotape.

But now he has his Avid, and I've got Pro Tools, and we both have e-mail and Jaz drives, so for this last project, we figured it was time to get into the '90s and do the whole thing without any tape at all. For the rough mixes, I recorded my sequence directly onto a hard disk, in mono, using one of the popular MIDI+audio sequencer programs (no, I'm not going to tell you who makes it, since I have not come to praise them) and my Pro Tools hardware, effectively recording the sequence into itself. I then took each audio track I'd recorded, and using the wonderful shareware program ConvertMachine, converted it to 8-bit, 22 kHz. I squashed the files even further using Stuffit and e-mailed them to the producer.

This was faster than FedEx but, as it turned out, not by much. Even squeezed down, some of the cues took up more than a megabyte, and so the upload and download would each take a half-hour or so. We found out that America Online, where he had his e-mail account, rejects mail messages larger than a megabyte—only it takes a couple of days to get around to telling you that it has done so. So he got an Internet account on another provider, and meanwhile I found some space on a local server where I could set up an ftp site, which he could then log into and download the file directly, avoiding the e-mail route entirely.

Something was very broken. Fortunately, the manufacturer already knew about it. Unfortunately, they never bothered to tell anybody.

Another thing that slowed things down was that his modem wasn't on the Mac that was running his Avid—he had an older, slower Mac for his Internet access because, for understandable reasons, he was afraid to use his big machine for anything other than video editing. So he had to download my files on the older machine, convert them back up to 16/44.1 (the Avid won't accept any other format), and then "sneakernet" his Jaz drive over to the other Mac to load in.

Once we got the kinks out, this scheme worked pretty well. The sound quality was a hell of a lot better than doing it over the phone, and the start times always lined up correctly. If there was any drift, we didn't care because we were still dealing with rough picture at this stage.

And it got us good and psyched for using hard disk audio for the final product. Again, I used the Video Time Piece as a SMPTE reference, genlocked to a broadcast signal. I didn't have any way of locking the digital audio sample rate clock to the same SMPTE, but I figured it would be plenty close enough, as the Pro Tools audio card has a very accurate internal clock—much better than the clock in the Mac itself.

Once again, I recorded each MIDI sequence into itself and put the audio tracks (in stereo this time) onto a Jaz cartridge, which I sent off, with the usual list of start times, to the director, via our good friends at FedEx. There were ten cues altogether, ranging in length from about 30 seconds to a little under ten minutes. He laid them up into his Avid and aligned all the start times. Since his Avid isn't online-quality, he brought all his "media" (that's Avid-speak for the digitized video and audio) to a post-production house, where they did the online assembly and mixed the audio, which consisted of my music, a narrator, some on-camera dialog and a bunch of flown-in sound effects. Everything locked very nicely, thank you.

When they were all done, however, the network didn't like it. So my overworked old friend went back into his Avid, brought in some new footage, re-recorded the narration (with a celebrity narrator, probably the biggest single item in the budget) and re-cut the show to accommodate the client's wishes. Then I went back into my sequencer and moved things around—tightening, lengthening and otherwise reconforming the music to the new picture. Meanwhile, the sequencer manufacturer had sent me a new version of the program, with some features I really could use, so I started to work with it. Once again, I recorded the tracks to a Jaz cartridge and sent it on its way.

Since we were now about a month behind on the project, the director didn't go through the step of putting my music tracks into his Avid but instead brought the Jaz cart with the music directly to the post house, where they laid the cues up into their online system on

The compressor that forgives, but never forgets...

Gate

Start with the gate. Set parameters for threshold, ratio, attack, hold, release, and output gain. See the effect of your settings on the graphical display, as well as on the gain reduction and audio level meters. They all interact in real time with your manipulation of the parameters. Start with a threshold setting of about -20 dB to clear off the noise in between the vocal takes. You can save your final gate settings as a "gate preset" building block and recall it into any other setup you do.

Compressor

Then move to the compressor. The effects of the gate settings are still visible on the graphic display, so let that help you determine where to set your compressor threshold. The parameters you change here will also effect the curve on the graphical display in real time. Move through all the regular parameters like threshold, ratio, attack, release, and output gain. For vocals use a threshold of about -25dB, a ratio of about 3:1 or 4:1, and a slow attack and fast release for that most natural sounding effect. Your compressor settings can also be saved off to a building block to be called up into any other preset.

Limiter

On to the limiter. Changes you make to the limiter settings are also seen on the graphical display. Adjust the level up or down to suit your needs. The flat top line of the display moves up and down as you adjust the level. You can also set the speed at which the the limiter lets go of the signal as it goes below the threshold. Like in every smooth housing, with patented dbx PeakPlus™ algorithms, so rest assured that where ever you set your threshold level, your tape will not distort, and your signal will not get hysterical as it goes across the threshold. And like the other parts of the processor your limiter settings can be named and saved for later recall.

De-esser

De-essing works the same way: see the effects of your settings displayed on the graph. Parameters here are the common ones: threshold in frequency, 800Hz to 8kHz, and amount in percent. Other available processing includes EQ - both in-path and sidechain, for special effect types of processing. When you are editing any of the building blocks, its icon is visible on the display, and the parameters are shown on the graph, so it's always easy to know where you are. Parameters are easy to see in this page driven operating system. When it's as complex as this, it's nice to know somebody was thinking when it was put together.

and More

You can also work in stereo, or set up a completely different and independent processing chain for the other channel. Also, notice that the audio meters are capable of showing both peak and average levels for input and output. Optional digital output with the TYPE IV™ Conversion System with TSE™ (Tape Saturation Emulation) provides up to 24-bit output in either AES/EBU or S/PDIF formats with the trademark digital processing of TYPE IV™. The DDP also has full MIDI/Automation capability, with separate midi in and thru jacks. Entire processing setups may also be saved into one of 50 user defined presets, or use one of the 50 factory setups.

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• Want to duplicate that perfect compressor set-up? Each processor in the chain has all the parameters you would expect. After you set the parameters the way you want them save it as a processor preset, available to be recalled any time. These building blocks allow you to save entire setups just for the way you like to work. It doesn't matter that you are doing a live gig one night, then mixing the tracks in the studio the next night, the DDP will be there, just the way you left it.

• When you save a preset, you also save the information that makes it work behind the scenes, too. Digital output (optional), sample rate performance, MIDI setup, as well as any of the other utilities, like sidechain setup and monitor, EQ settings, and SysEx functions.

• When you make changes to any parameter, you can see where your adjustments are effecting the signal, simply by looking at the HI-Res graphical display, which shows the processing curve in real time as you make your adjustments.

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the day of the final. About halfway into the session, he called me to report that there seemed to be some sync issues—the music wasn't always matching the visual cues correctly—but he would slide things around and take care of it. Unfortunately, or perhaps fortunately, I wasn't home, and so my answering machine received this news with its usual equanimity.

A couple of days later, I got a copy of the finished video, and that's when I nearly dropped dead. Sometimes the music was exactly right, but a lot of the time it seemed to be horribly off. Many of the musical hits I had so carefully calculated were in the wrong places, the holes I had painstakingly left for the narration and sound effects now just sounded empty, and the clashes between effects and music that I worked so hard to avoid were rampant.

I simply assumed that the sequencer would be in sync with itself. How silly of me.

But the network loved the new version of the program. The director wasn't about to go back in and re-post it just because I didn't like my own music, and besides, he had a project overseas that was already behind schedule. So what was done was done. And I was left to solve this puzzle myself.

First, I decided to figure out exactly how far off the cues actually were and see if the numbers gave up some kind of clue. I compared the music on the video to my sequences and saw that all of the cues started at the correct times, so my SMPTE numbers were right, but they ran fast. At five minutes into one of the longer cues, the music was almost three seconds ahead of the picture, or about 1%.

The first possibility that had entered my mind was that the post house had screwed up and resampled my 44.1kHz files at 48 kHz, but that would have caused a discrepancy of about 9%, so they weren't to blame. Besides, if the sampling rate had changed, the pitch of the music would have been different

—CONTINUED ON PAGE 234

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- The **Fun Pages** include what we hope will become the 'Net's largest collection of industry jokes and "horror" stories about unforgettable sessions and gigs. Send us your contributions!
- Coming soon are pages on **Mix—Edición en Español**, the Spanish/Latin American sister publication of Mix.

The editors of **Mix Online** encourage you to stop by, join in, and "Talkback." Let us know how you liked your visit - and come back again!

VINCENT VAN HAAFF

ACOUSTICIAN, STUDIO DESIGNER, PRESIDENT OF WATERLAND GROUP

Vincent Van Haaff, president of Waterland Group in Los Angeles, readily confesses that his facility designs are based on equal amounts of aesthetics and acoustical science, with a focus on the specific tastes and personality of the studio's owners. For Van Haaff, a recording studio or post facility is more than just a space in which to record or mix. "It is," he says, "a carefully crafted environment in which we witness the creation of sonic art."

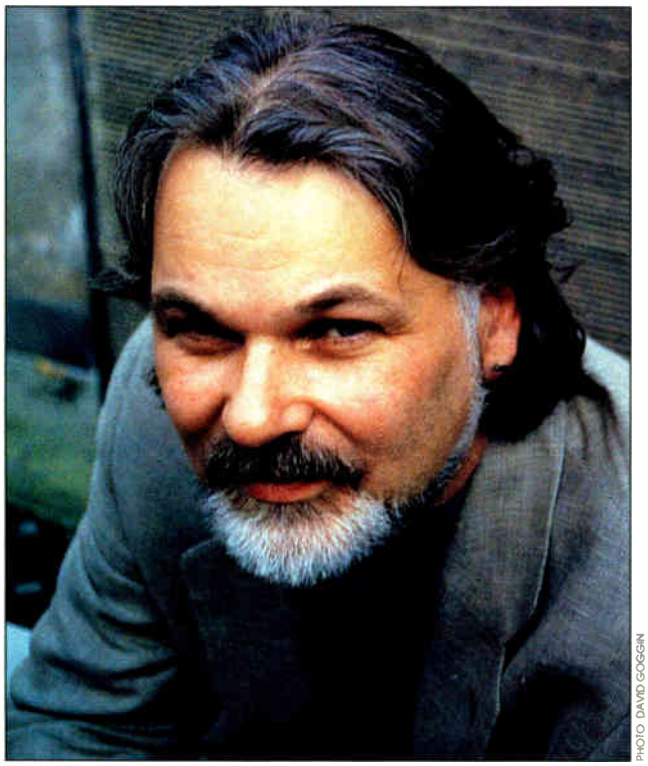

PHOTO: DAVID GOGGIN

After starting his career in his native Holland, first as an architectural student and then as a film student, Van Haaff soon discovered his true destiny: designing studios. In 1976, Van Haaff began working at Kendun Recorders/Sierra Audio in Los Angeles. Since then, he has been involved with the construction of dozens of major studios around the world, including Conway Recording and A&M Studios in Los Angeles, Sony Music Studios in New York, Richard Landis/Loud Music and The Castle Studios in Nashville, Woodstock Studio/A I M Corp. in Karuizawa, Japan, plus countless others.

Current assignments include Lobo Recording in New York; project studios for Glenn Frey, Don Henley and Michel Colombier; Bouquet Digital Studios, Port Hueneme, Calif.; and 99 Attorney Street Studios, New York.

Tell us a little more about your background.

I studied architecture and theater design in Europe. Luckily my brother Fransois, who's 15 years older than me, was an electronics engineer and was always futzing around as a ham-radio operator. As a [young boy], it was, of course, very intriguing to watch someone messing about with antennae on the roof. In high school, I got into design of loudspeakers for my buddies in bands—it was trial and error and, again, listening to advice from my brother.

BY MEL LAMBERT

But by the time I got out of architecture school, the prospect of sitting behind a drafting desk in Holland for the next 15 years, working underneath some famous architect, wasn't really appetizing. So, I went to film school in London for half a year to see if there were any other avenues for me—and, yes, I was intrigued with making movies. Nothing to do with architecture, just something adventurous and completely different.

I was usually walking around with a 16mm camera on my shoulder. Summertime in London can be very sticky; it was a bear to carry around this heavy equipment. There was a guy with a microphone boom and a Nagra around his shoulders. At one point I turned and said: "You have the greatest job because at least you can put your stuff down while we're shooting!" So I went from camera to sound again.

I then met a filmmaker in Amsterdam who told me that he had a friend working with Stevie Wonder in New York at Electric Lady [during the 1974 recording of *Fulfillingness*]. "Why don't you just go visit him and see if you can get a job," he suggested. And that's what I did. I then met Malcolm Cecil [with Robert Margouleff, partners in Tonto's Expanding Headband and developers of a sophisticated early synthesizer], who said I should go visit Roy Cicala at Record Plant, where I got a job soldering and sweeping the floor—I was basically assisting and making copies.

Then the troupe sort of split off from Stevie Wonder, and I went back to Los Angeles with them. I had various jobs here—lived in a

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Scott Martin Gershin's film credits include: *JFK, True Lies, Braveheart, Flubber and Mouse Hunt*

CIRCLE #017 ON PRODUCT INFO CARD

macrobiotic commune, remodeled a guest house in back of a villa in Beverly Hills as a carpenter. One day Bob [Margouleff] called and said there was a job available at Kendun Recorders. So the next day I went over to visit [owner] Kent Duncan, who hired me. He put me together with Carl [Yanchar, now president of Wave:Space]; I ended up that same morning sitting in the shed next door to the studio, wiring connectors.

What else were you doing at Kendun? A bit of everything?

Yes. I got to assist once in a while. Eventually, Kent found out that I had an architecture background. He had started Sierra Audio with [acoustician/designer] Tom Hidley, and I was given the green light to set up a drafting table. Soon, I was helping to design recording studios. The first assignment was Pace-Arrow Studios [Evanston, Ill.], then Rusk Sound Studios here [Los Angeles]. The two owners, Sam Kaufman and Randy Urlich, had heard through the grapevine that I'd declared myself independent from Sierra Audio and came around to my house. "We're building a studio on La Brea," they said. "Can you help us?" Rusk was formerly at Liberty Records. We cleared the old studio upstairs, and it was basically my first hands-on job.

That was the era of Donna Summer [working at Rusk] with [producer] Giorgio Moroder and a bunch of other sessions. It was a really nice room and very well-isolated; we had traffic on La Brea Avenue going by day and night. Somewhere near the end of that project, Buddy Brundo from Conway Recording came around to say that he had just bought his partners out and wanted to remodel the studio. The site was a little slice of land with a building for the front office and a small studio. We expanded it out, and the rest, as they say, is history.

Last year marked Conway's 20th anniversary. You've been involved with Buddy and his crew for that long?

Yes, throughout every step of the way! The same with A&M Studios; it's not a hit-and-run operation. I'm very proud of having worked continuously with Herb Alpert and the family there since we first met some 12 years ago. I remodeled Studio A in 1986 and have worked on most of the other tracking and mixing rooms—Studios B, D and M—as well as the new DVD-ready, 5.1-channel Studio C, which we completed in the fall of last year. [Herb Alpert and his partner, Jerry Moss, sold the complex to PolyGram in 1992.] I've also built a general-purpose studio and artist's studio for the Herb Alpert Foundation, based in Santa Monica.

PHOTO: JIMMY IENNER JR.

Studio D at Sony Music, New York

Looking back at the designs you completed in the late '70s and through the '80s, I'm struck by the fact that you were working with most of the leading facilities in Hollywood and Los Angeles.

Yes, I was very lucky to fill the void left by Tom Hidley, who had been the major West and East Coast designer until then. But Tom was working a lot in Europe—living in Switzerland and then Maui—and designing mainly overseas. I was the local guy who was incredibly lucky to get the clientele who saw eye to eye with me. And oftentimes, they were in my own age group—from the rock 'n' roll artist who wanted to have a studio built in his garage to the full-on facility. For [project-studio owners], I was useful as a reality-check, by saying, "You could do this or that, but don't waste your money on that [treatment], for example." I'm a cheap Dutch man! [Laughs] I really like to build studios out of readily available materials, rather than going out and buying fancy "acoustic" materials, which at the hardware store costs a tenth of the price. I like to give feel-good value for the money.

How do you secure new business?

Primarily dealing with existing clients, and word of mouth—generally people who are interested in setting up something very personal, an expression of personal tastes as well as a means of bringing about more expression in their lives. A recording studio is not only an expression of personal taste for an artist, it is also a way of [creating] a foundation for their future creativity. That space *has* to be comfortable and inspiring, and a catalyst. I take that concept and certainly will stop them from going overboard, or off in the wrong direction. I've been incredibly lucky to work with people who really got into this space and the process.

Herb Alpert is a perfect example. As a musician and a studio alumni, he was involved in turning that [former film and TV shooting stage] into somewhere he was happy to record in. It was as if he was galloping creatively ahead, and I was just holding on for dear life, making sure that all the technical and necessary parts would fit, as well as lighting, air conditioning and so on.

So you meet with your client for the first time. They say: "Here's $1 million; build me a studio." How do you find out what it is they're about?

I go visit them at home. We have lunch or we have dinner. I'm blessed with a certain gift of being able to judge a person pretty well, to see what their inspirations are. We talk about art or music. Of course, we become friends. A good example of that process is a project I did in Japan from the ground up. Woodstock Studio is a resort studio in Karuizawa, high in the mountains near where the recent Winter Olympic Games were held. The buildings include overnight lodgings for 20 people, a kitchen, dining, recreation rooms and offices for the production staff. I finished the project in 1992.

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An engineer in Japan had been working at both A&M and Conway and had told somebody in Tokyo that if they wanted to build a studio, then they should go visit Vincent. After we had hung out for a couple of days, the first thing I said to him, was, "You have a piece of land that you want to build on. And you want to build the most beautiful studio in Japan and attract all these great artists. Let me come to Japan for four or five days. I want to see the land. I want to smell the flowers. I want to trudge around in the mud and feel what it's about there.

I had to not only get to know the person and his dreams, but to personalize that dream. That is one of the most essential parts of the process—I would want to work in that studio. If it is the best studio in Japan, then it's the best studio for me to work in in Japan; I design it for myself, in a sense.

Suppose it is an existing plan? Is that more of a restriction for you?

Yes, very much. And if I don't get to see the place that people ask me to work on, I'll let them know that I prefer to consult. I'll maybe do it by fax. I'm not going to sit down and do an elaborate set of blueprints. I'm not going to try to visualize as much. Visualization of the finished product is an important aspect of the quality control I have to maintain throughout the project.

Do you visualize walking through the complex?

Absolutely. And when the drawings are generated from the plotters, I can really see whether it is the overlay of what I saw. If there is anything askew in that drawing, I immediately catch it.

I often wonder if designers spend too much time on the aesthetics of color schemes, when you realize that the basic shape is lacking in intimacy, for example.

If you ask a string player what it feels like to actually listen to a violin in that space, they will say, "Geez, it looked really interesting, but I couldn't read my sheet

PHOTO: CIARAN MCGOWEN

Studio A at A&M Studios

music because the lighting was shining on the walls and not on my score." The designer missed the point—what is the actual usefulness of the space?

Session players are probably the most critical of all because they do this day after day. Some studios become their favorites because not only is the coffee hot, but they can actually work there. I like to use natural materials and not get too fancy in the colors. And not get too crazy in the shape of things. It is easier to walk past a table with rounded corners than with corners that have spikes in your direction, right? It's just a natural form; natural shapes of things are incredibly important. At the same time, you don't want to be everything to everybody. There has to be a sense of personality about the space that speaks for itself but which can be easily adapted to.

You've been hired to remodel the second floor at The Village Recorder in West L.A. and add two scoring stages. How did that commission come about?

I have worked on most of the rooms at The Village, including A, B and D, which are relatively big areas. We are now investigating with the structural engineers ways of re-supporting the second floor—where there are two large-volume auditoriums (in the former Masonic Temple)—so that we can use these rooms as medium-size scoring facilities. And there will be two control rooms, plus an ancillary 5.1 mixing suite. Because the building was built in 1927, we need to be very careful about earthquake safety and these kinds of considerations.

We're literally going to suspend these new floors off the construction that is going to be built on the *inside* of the building, without disrupting any of the workings of the ground-floor studios. This is where all these little tricks that I've learned over the last 20 years are all coming together.

Have you done anything like this before?

Not on this scale. It is actually a multistory building. The rooms are so famous that you can't screw around with them. I've been able to work with Village for

PHOTO: CIARAN MCGOWEN

Rear wall of Conway Recording Studio B

almost 15 years now; there is something very personal about that studio. I believe in leaving a legacy by building these entirely new rooms in that specific location. We will have wide-flange beams attached to structural steel columns; they'll probably measure about 20 by 24 inches or so. The columns will go up three stories to re-support the roof. I'm creating another support system on the other side of the roof so as to be able to literally suspend the entire isolated floor 16 feet in the air.

You are also involved with Lobo Recording, on Long Island. Another scoring stage?

There are few large studios in the Greater New York vicinity where you can record an orchestra. Lobo's owners came up with a fabulous idea of building a professional-grade scoring facility near Great Neck, Long Island. They're very close to all the mansions; Sting has a house there, Billy Joel, all of those people. Rather than going into Manhattan, they can stay out in Long Island and bring the orchestra to them. We're doing three rooms, one of which is a large stage-type space in the basement.

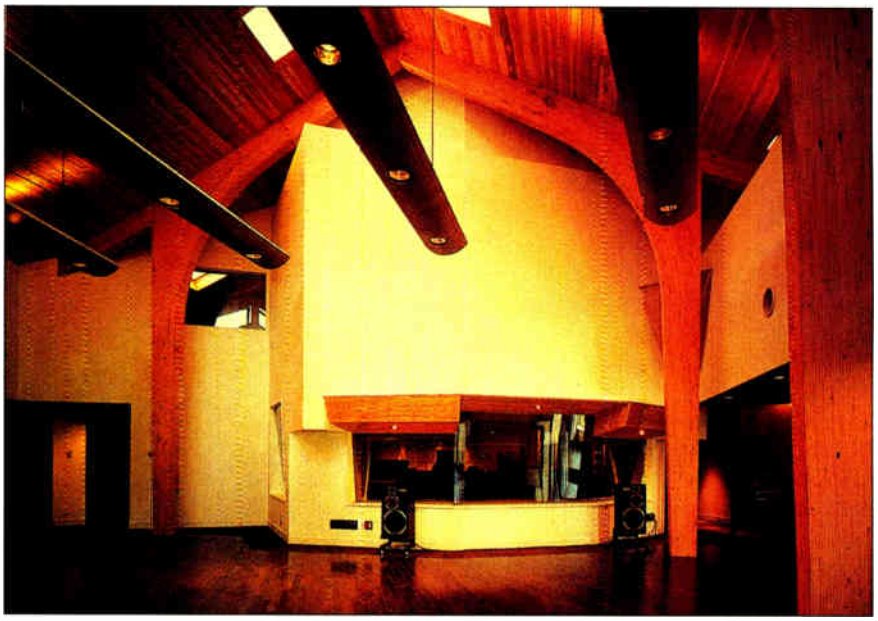

PHOTO KENJI ISHIKAWA

Woodstock Studio, Karuizawa, Japan

There are already two minor recording facilities on the second floor. The first studio will probably be in operation during May. The very first project lined up is an album with Les Paul and friends on his 82nd birthday. It's gonna be a wonderful project—Les hasn't recorded anything for such a long time.

You are also building project studios for Glenn Frey and Don Henley here in L.A. What's the angle?

It's completely coincidental that I should be working with both of them. Henley was referred by Robbie Jacobs, an engineer who worked at A&M Studios. Don had asked me years ago to look at buildings in the Santa Monica area, and

—CONTINUED ON PAGE 254

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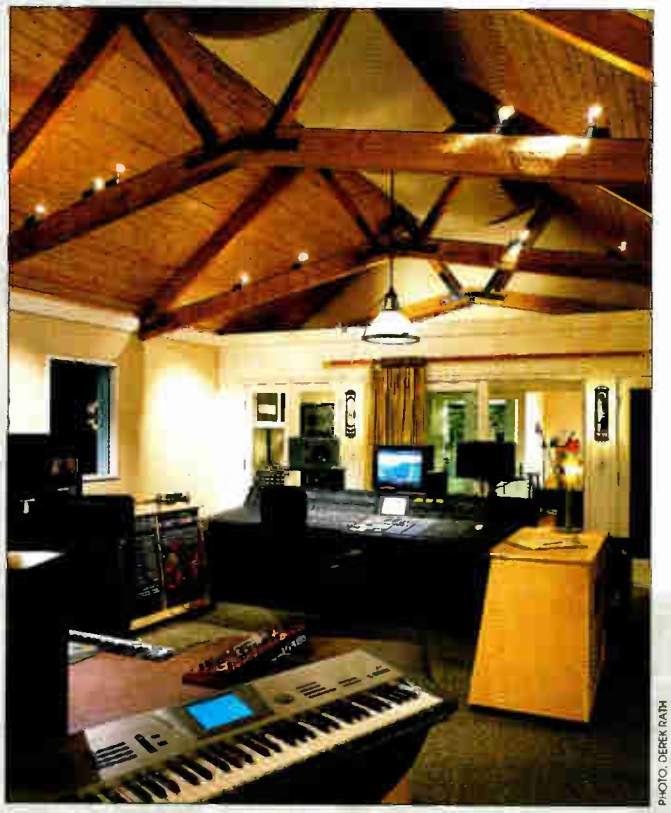


PHOTO: DEREK RATH

BOTO Design designed this private studio for musician/composer Mark Isham at his home in Hidden Hills, Calif. The studio, dubbed Wet Dog, occupies its own purpose-built structure on Isham's property and is equipped with a Euphonix CS3000 console with Dynamics and The Cube, 24 tracks of DA-88, a 2-inch 24-track Otari MX-80 with Dolby SR and Tannoy System 8 monitors. Set up for 5.1-channel mixing, the studio came online in June '97.

PHOTO: TOM GATTIN

Nashville's JamSync was designed by owners KK Proffitt and Joel Silverman for multichannel audio production and format transfer. Angled cabinetry and AVL Fiberglas panels are used to control first reflections. Two Yamaha 02Rs and 24 tracks of 24-bit Pro Tools are coupled to an Otari DTR-90T, Otari UF 24 format converter, 24 tracks of Tascam DA-88 and 8 tracks of Fostex ADAT. The monitor chain consists of Bryston amps, Snell Series direct and dipole speakers, stereo Velodyne F1800R II subwoofers and a Lexicon DC-1 DTS multiformat surround decoder.

PHOTO: CHARLIE HOSELTON

Bear Creek Studio, located on a ten-acre farm outside of Seattle in Woodinville, Wash., has a new 20x26-foot control room designed by Vincent Van Haaff and built by studio owner Joe Hadlock. Windows and doors open to the outside, and the room features a curved bookshelf rear wall diffuser. Primary equipment includes a Trident TSM and a Neve BCM 10 console, a Studer A800 MkIII 24-track, Pro Tools and Steve Haselton custom Altec monitors.

Music and sound design house HUM's new facility in Santa Monica, Calif. (also on this month's cover), was designed by Walter Meyer of Meyer Architecture, Marshall Long of Marshall Long Acoustics, and, from HUM, sound designer Mark Levisohn and founder and president Jeff Koz. Doug Rider and Art Kelm handled the technical and wiring design. The project involved the renovation of a 5,700-square-foot, one-story warehouse building formerly used as an art gallery. Studio A, pictured, is equipped with two Yamaha 02Rs, a Sony JH-24 recorder, Pro Tools workstations, a large array of outboard equipment, and monitors including Genelec 1031s and Yamaha NS-10s.

PHOTO: EDWARD COLVER

A&M Studios (Los Angeles) renovated Studio C last year, implementing acoustician Vincent Van Haaff's innovative designs for 5.1-channel mixing. The studio houses a 96-fader Euphonix CS3000, Sony PCM 3348 tape machines and a large complement of vintage outboard gear. Main surround monitoring is a custom dual-concentric, DTS-ready system consisting of PAS/TAD components. Reopened in December, the studio is used for multichannel mixing, DVD premastering and mix-to-picture work.

PHOTO: EVAN PILCHIK

Acoustical designer Bob Skye of Charles Salter & Associates and architect Adam King created the four-room Disher Music and Sound, built last year in San Francisco, for work in audio post and music production. Control room A offers a Mackie 32x8 board, 32 tracks of Pro Tools 24, 16 tracks of ADAT and Genelec 1030A monitors, with subwoofer. Control Room B is a Pro Tools 4.0 editing suite.

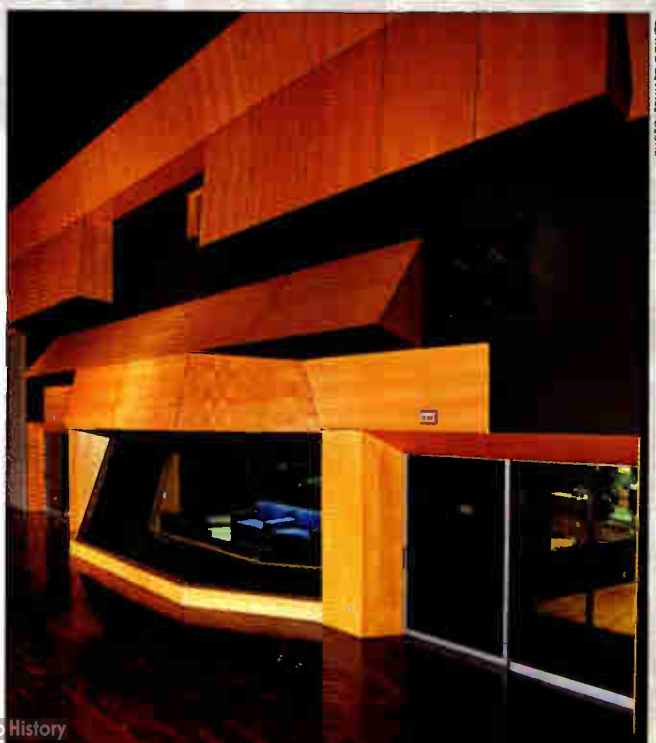
PHOTOS: EDWARD COLVER

The Musician's Institute in Hollywood, Calif., added Studio C, another teaching studio, to its facilities in July 1997. Designed by studio bau:ton, the complex comprises a tracking room, vocal booth and control room, which is equipped with a Neve VX console (with Flying Faders), a 2-inch 24-track Otari MTR-90, custom TEC:ton main monitors and Genelec 1031A and Tannoy PBM 6.5 near-fields.

PHOTO: EDWARD COLVER

Chris Pelonis designed the main room at La Casa Studios (L.A.), opened this past December. The studio is used largely for music recording sessions for the Universal-distributed Surco label, which was nominated for a Grammy this year for its work with Molotov. The console is a Speck M72, and the room is equipped with Pro Tools 24, JBL LSR 32 and Yamaha NS-10 reference monitors, 32 tracks of Alesis ADAT XT and a large collection of vintage mics.

In October 1997, 20th Century Fox re-opened the rededicated, entirely remodeled Newman Scoring Stage (Los Angeles). studio bau:ton handled the acoustic and architectural redesign, with help from Larry Goga and John Rotondi at Fox and scoring mixer Dan Wallin. Gordon & Williams was the general contractor. Added to the stage was a new, 1,500-square-foot control room, which features a 96-input SSL 9000 J Series console and Genelec monitoring system, with 1035Bs for LCR and 1038As for surrounds. All recording formats can be accommodated.



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CIRCLE #023 ON PRODUCT INFO CARD

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Opened in November 1997 and designed by owner/chief engineer Al Ursini, Studiochicago features an SSL 4056E/G/TR console, custom time-aligned and bi-amped Lakeside/TAD monitors, Genelec 1030As, Otari MTR-90III analog 24-track and an Otari RADAR 24-track digital recorder. The complex also includes a Sonic Solutions mastering suite.

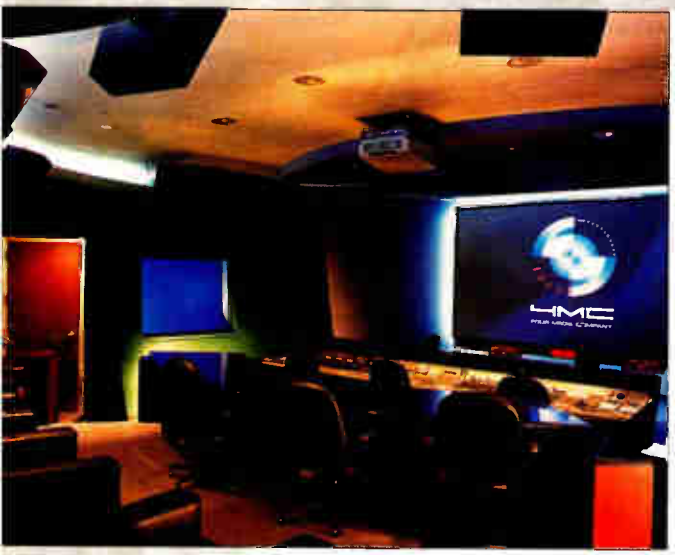
PHOTO: RANDY GERALDI

PHOTO: EDWARD COLVER

Los Angeles-based, full-service international entertainment marketing firm Another Large Production boosts a new room designed by Chris Pelonis. Equipment includes a Eurodesk MX8000 console, Pro Tools 4.0, Mackie and Auratone near-field speakers and Tannoy 10DMT mains.

Santos mahogany floors, custom-perforated aluminum poneling and vibrant fabric wall surfaces create a contemporary style for Earth Wind & Fire leader Maurice White's private studio, Magnet Vision/Kalimba International (Santa Monica, Calif.). Designed by Studio 440 Architecture & Acoustics and opened in September of '97, the 1,800-square-foot facility features an 80-fader Euphonix CS3000, an Apogee AD8000, two Studer A827s, and PMC MB1A midfields and Genelec 1031A near-fields.

PHOTO: EDWARD COLVER



4MC Studios, located in Burbank, Calif., recently opened Studio B. Designed by Tom Holman and built by architects Heathcote & Associates, in conjunction with acoustician Veneklasen & Associates, the 45x34-foot room houses a144-input Harrison SeriesTwelve film console, 20-foot viewing screen, THX-approved monitoring system, 35mm film and video projection, analog tape or multitrack film recording and is equipped for Dolby Surround, Dolby Digital, DTS, SDDS, as well as large-format shows such as IMAX and Showscan.

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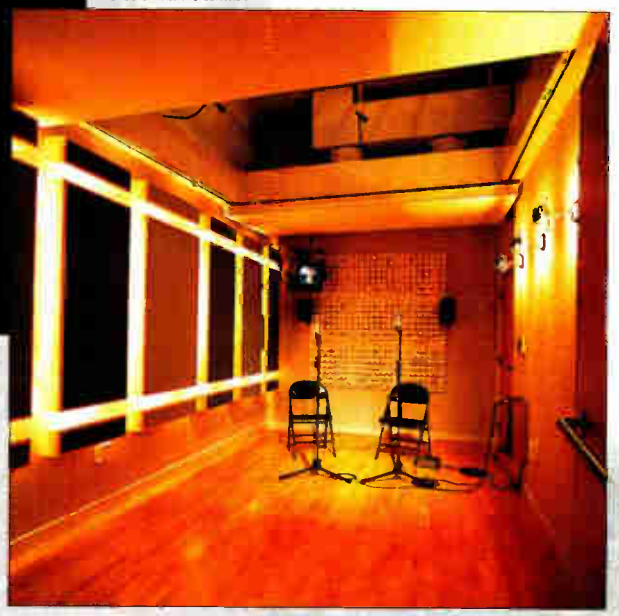

The Ultimate Music Corporation (Cambridge, Mass.) opened in late '97 and was designed and wired by Rosati Acoustics and Multimedia. The facility houses a pre-production suite with a Tactile Technology M4000C 48x8 console with mute/moving fader audiomotion. Control Room A features an Otari Status 48x12x4 with dynamics and mute/moving fader automation and recall. Multitracks include a Sony 3324S 24-track, Otari RADAR, Alesis ADAT, Pro Tools and Sony PCM800. The ceiling includes a custom-designed, remote-control overhead door system to adjust room volume and acoustics.

Glenn Sound in Seattle opened Studio B, an all-digital post-production room designed by Studio Pacifica. Studio B features Avid AudioVision PCI, Pro Tools and a Yamaha 02R. The monitors are KRK, powered by Hafler amps. The studio also offers a Media 100 nonlinear video editing system with After Effects.

PHOTO: [illegible]

PHOTO: GEORGE D. HALLOWELL

Seventeen Grand Recording's new 5.1-channel surround sound mixing room on Nashville's Music Row was designed by owner Jake Niceley and Michael Cronin Acoustic Construction and opened in October '97. The room is equipped with a 96-fader Euphonix CS3000 with an Audio Cube routing matrix for surround sound capability, Dynaudio Acoustics monitoring and a Mitsubishi X-850 and two Studer D827 digital recorders.

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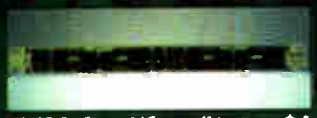

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Studio A at Atlanta full-service production facility Tree Sound Studios has been up and running since November '97. The room was designed by acoustician George Augspurger and architect Anthony Costantino. The control room features a custom Augspurger monitoring system and houses an SSL 4064 G+ with Ultimation, two Studer 827 24-track recorders with Lynx synchronizers and a large array of outboard equipment. A mastering studio also is located in the 18,000-square-foot building, and plans are under way for construction of Studio B (which will feature an SSL E Series) and for development of a film, video and animation post-production company, dubbed Wood Post. ▶

PHOTO: MARTI GRIFFIN

Top-flight music and post complex The Enterprise (Burbank, Calif.) acquired the former Evergreen facility last year, renaming it Enterprise 2 and hiring designer George Augspurger for renovations. E2 includes a large scoring stage that can comfortably handle an 80-piece orchestra. Pictured is Control J, with its 101-channel SSL 9000 J console. Recorders include Sony HR48 digital and Genex MO models. The facility offers an assortment of classic tube mics as well as Synclaviers, ATC and custom Augspurger main monitors configured for 5.1-channel mixing, and two new Steinway 9 foot concert grands with internal recording computers. ▼

PHOTO: RICHARD BINSTADT

▲ The Discovery Channel LABF Audio Mix studio opened in Miami in late '97, designed by Russ Berger Design Group. The console is an SSL Scenaria, the monitors are Quested, and technical systems are by Harris Allied. The facility also features six master control rooms (each capable of monitoring three simultaneous audio feeds), a quality control room, a transmission center, five audio playback control rooms, three video post rooms, six Avid rooms and a screening room.

PHOTO: EDWARD COLVER

Superdupe Recording, located on Madison Avenue in New York City, completed Studio Two in the summer of '97. Known as the Audio for Video Suite, it was designed by John Storyk of Walters-Storyk Design Group. The studio features a Fairlight F.A.M.E. console, Doremi hard disk video recorder, Neve mic preamps, Motion Worker synchronizer and Spendor monitors. The room, which sees a variety of television and radio spot work, is prewired for 5.1-channel mixing. ▼

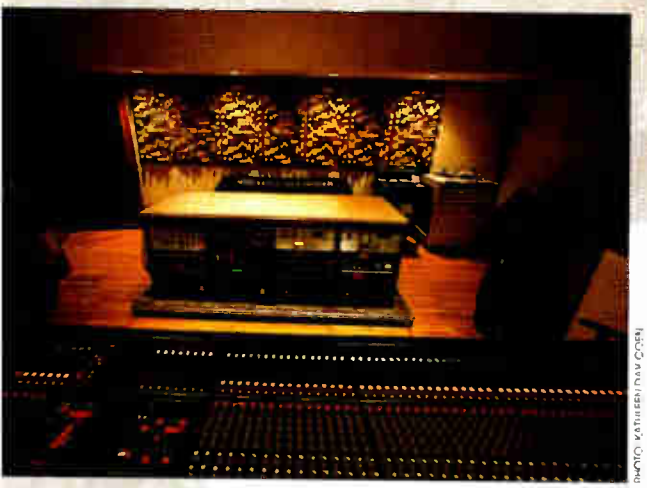

PHOTO: KATHLEEN NAVONEN

▲ One of Minneapolis' most vibrant studios, Burr Holland Recording re-opened in its new facility in August 1997. Owners Joshua Holland, Taylor Burr, Eric Olsen, Stephen Buck and Peter Kelsch refitted an existing structure, acoustically designing and constructing three aesthetic recording spaces around a centrally placed control room. The studio features an 80-input, 48-bus Amek APC1000 console with GML moving fader automation and recall, an Otari MTR-90 2-inch 24-track and 24 tracks of ADAT XT, monitors including Genelec 1032As, Yamaha NS-10Ms and Auratones, and a wide variety of outboard gear and mics.

PHOTO: ROBERT HOLICH

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THE YOUNG TURKS

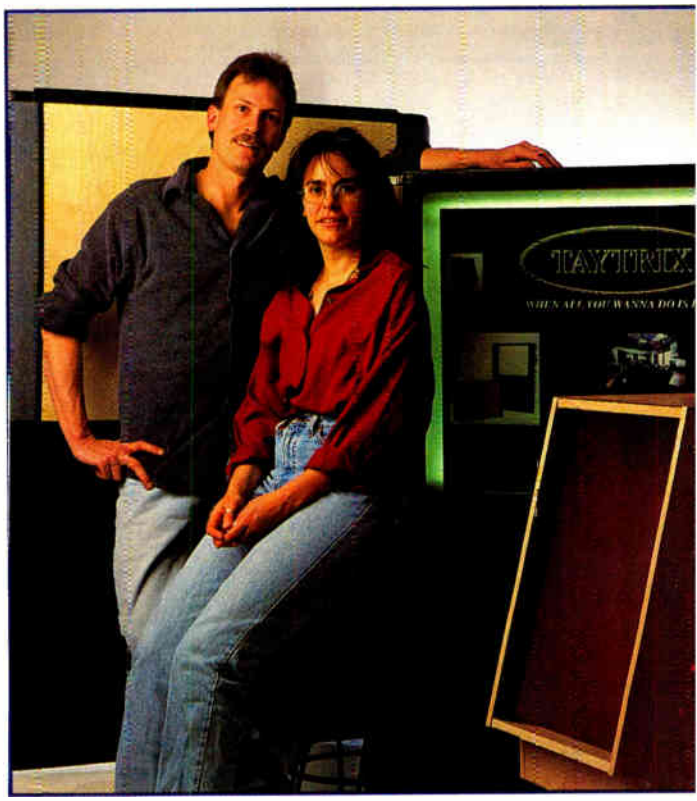
BY DAN DALEY

STUDIO DESIGN'S NEXT GENERATION COMES OF AGE

In the beginning there were the Elders, a neutral and respectful term for the generation of studio designers that defined the glory days of high-end recording studios from the 1970s to mid-1980s. And while members of this august group—which includes luminaries like Tom Hidley, Russ Berger, John Storyk, Andy Munro, Neil Grant, Vincent Van Haaff and others—are still quite active and in demand, it's apparent that another generation is approaching its own rendezvous with destiny, manifest or not.

PHOTO: GEORGE PETERSEN

A few blocks from their offices, Recording Architecture's Roger D'Arcy (L) and Nick Whitaker pause alongside the famed Cutty Sark, docked at Greenwich Pier on the River Thames.



Above: Studio designers Charlie and Tay Hoyle

Left: Studio designer Dave Hampton

Below: Phil Ramone and designer John Arthur Jr.

They are in their 30s and early 40s; not unlike their forebears, they work singly and in teams. But several factors set them apart from the previous generation, not the least of which is the context of the industry they work in. When the Elders began their careers, the world was a considerably more orderly place: Studios were owned largely by entrepreneurial engineers or major record labels; the cost of equipment and the expertise needed to operate them it kept this group limited.

The relationship between studio and designer evolved so that the rooms they designed took on their names. The phrase "Hidley room" has a certain meaning in our industry, sort of like the way a "Frank Lloyd Wright" or "I.M. Pei" describes a particular architectural style. Their names defined their work, and in the process, the design field became the most ideological component of the professional sound business. Studio design shared with mastering the sense of being a black art, opaque to the layperson. And woe to those with hubris enough to attempt to enter the kingdom except by apprenticeship to one of its recognized sorcerers.

Then things got a hell of a lot less orderly. The rise of personal recording technology changed the very definition of studios. After a previous generation had come to grips with the concept of a garage band, the next is facing those same artistic entities in their own garage studios, from which they also run garage record labels, and software-based mastering facilities (when the notion of mastering is actually addressed). Studio design's Generation X came into a world in which certainties were elusive and concepts fluid and protean. The physics behind acoustical concepts may remain fixed, but ideology seems useless in a world in which Version 2.1.1 comes out three weeks after Version 2.1.0.

The design challenges in today's studio environment are multifarious, the pressures on the economic side tremendous. And the overriding trend is toward small, power-packed producer/artist-based studios. Flexibility in design is the watch-word; large rooms are few and far between. Young designers may sometimes look back through tinted lenses at a time when a run-of-the-mill design job called for a 20x30-foot tracking room instead of today's compact, technology-laden control rooms with small, attached overdub booths. But in the ever-changing cosmos of music and post-production, the most crucial job might be to redefine the notion of the studio before the technology itself does. The following group of people is by no means comprehensive of the growing armies of designers in the world, but is instead a representative sample.

We don't have any overarching philosophies of design. We base designs on the space at hand and the client's wants and needs. —Roger D'Arcy

RECORDING ARCHITECTURE

Roger D'Arcy, 40, and Nick Whitaker, 36, formed Recording Architecture a decade ago in the Greenwich Market section of London. D'Arcy is voluble, immensely charming, a novelist's invention of an archetypal, cosmopolitan architect. Whitaker, the acoustician, was one of the first graduates of Salford University's acoustical sciences degree program in 1984. He is slight, mathematically precise in his speech and quick to laugh. Both worked under Andy Munro, whose parting words when they struck off on their own in 1987 were, "You won't last a year out there," D'Arcy recalls with the appropriate degree of sarcasm. But the duo believed that studios on the high end needed a new eye. "We knew there were ways of achieving an acoustically and aesthetically workable solution to studio design that didn't involve carpets and sheet rock walls," says D'Arcy. "I loved the idea of the science of acoustics, and the brochure at the university had a recording studio on it, and that sparked my imagination," recalls Whitaker.

Recording Architecture's initial steps built on the work D'Arcy and Whitaker had done under Munro's aegis at facilities like Ray Davies' Konk Studio, Orinoco and Great Linford Manor. "Those all employed radical design departures," explains D'Arcy. "They used tension structures—cables that suspended acoustical treatments in space. There were raw, exposed steel beams for both aesthetic and acoustical effects, and we used New York City traffic lights for Orinoco's Record indicators." Once established as Recording Architecture—now grown to a staff of nine and also marketing its Black Box acoustical conditioning system—they did second and third rooms at at least one of those facilities.

As is usually the case in the studio business, word of mouth boosted the company, but the focus shifted quickly toward the industry's new Zeitgeist, artist/producer's studios. Project studio clients came in groups, including Bananarama producers Tony Swain and Steve Jolley (both in manor houses), Genesis guitarist Steve Hackett, and recording artists Kim Wilde, Sade and Gilbert O'Sullivan. They've now done more than 200 facilities in 30 countries, as many as half being personal facilities.

"The old generation didn't see the coming of the high-end producer/artist studio," D'Arcy maintains. "They didn't act on that market—they reacted to it. They were more used to doing ground-up types of facilities." Adds Whitaker: "The previous generation of designers tended to have stock designs that they had built up over the years, and they would try to shoe-horn them into the smaller producer-studio spaces. Instead, we learned an entirely different set of rules, then we set about breaking them as needed. As time went by, we were offered larger facilities to do, but the things we learned on the smaller ones are invaluable in any setting. I think that's part of the difference be-

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tween this generation and the last. We work for a balance, using as many methodologies as we think we need. We don't build rooms that are all based on some wonderful, mysterious [acronym]. You still see rooms built based solely on diffusion. To us, diffusion is simply one element of acoustical control that has its place along with low-frequency control and balancing early reflections." D'Arcy sums it up when he observes, "The main difference is, we don't have any overarching philosophies of design. We base designs on the space at hand and the client's wants and needs."

TAYTRIX

The facility design business has traditionally been a male bastion and has rarely been breached by women. Tay Hoyle, the 35-year-old North Carolina native who has run New Jersey-based design company Taytrix with her brother Charlie since 1990, is well aware of this. She laughs about encounters in which appointments have been made by a man in her office and her non-gender-specific name didn't give her away until she arrived at the prospective client's office. "At which point I get this blank look like, 'Who are you? You're the designer?' And then we talk about designs and it's never an issue again. It's a society thing, and the studio business is part of society. But it's a business where all people really are concerned about is, 'Can you deliver what I need on time, on budget?' That's the bottom line."

Hoyle and her brother developed what she calls a turnkey approach to studio design, incorporating not just walls but wiring, as well. Making use of the many years she spent as a maintenance/recording engineer at New York City studios of all calibers—from Unique, Sigma, Vanguard and Atlantic to other, funkier spaces—Hoyle developed a keen understanding of what an artist and producer need in a facility. She was asked in 1990 to design producer Randy Battiste's Six String City personal studio in Jamaica, Queens. "The challenge was to make everything fit in a bedroom space," she recalls, "to make a bedroom function like a studio. To do that, the design had to include everything, from floated floors to the cabinetry work." Since then, Taytrix—now with 11 employees in a 5,000-square-foot work space—has done numerous personal studios, including producer/composer Andy Marvel's (Celine Dion, Diana King) Manhattan penthouse-suite studio, as well as several commercial and mixed-use spaces, such as Latin music producer Sergio George's studio and a production/mix facility for producer Tony Moran.

"What sets this generation apart is the fact that you now design around the individual," she says. "It's about facilitating a studio around the way someone wants to work. And you're often designing for an artist or producer who doesn't necessarily engineer, so you also have to keep in mind the fact that many different engineers will be passing through it, too. And these studios are often in homes, so you have to make the aesthetics work in that kind of environment. That's why cabinetry work, which might have been a minor detail a generation ago, is now a part of the basic design."

Most of Hoyle's personal-studio work is budgeted in the $20,000 to $100,000 range, not including equipment. Fees are generally a percentage of the total construction budget. No one gets rich on those budgets, Hoyle acknowledges, and revenues are augmented by fixed-rate consulting and studio construction contractor work, such as the finishing work the company did on C&C Music Factory's Hot House Studios in New York. Taytrix also has an expanding line of prefab acoustical treatment items that Hoyle says are as much products of studio design as studios themselves. "But you want to think of clients as lifers," says Hoyle, "so that when they build that next, bigger facility, they'll come back to you for it."

JOHN ARTHUR DESIGN GROUP

One of the youngest of the new breed at 33, John Arthur Jr. was exposed to the studio world by John Arthur Sr., who is still one of the leading studio construction specialists in the Miami area, having done building work on most of the region's major facilities, including Crescent Moon, South Beach Studios, International Sound and expansions at Criteria Studios.

However, the younger Arthur took his career to the next step, creating his own studio designs. "I had learned the mechanics of what it took to put a room together," he says. "But I've always been more architecturally driven." He started out doing independent acoustical consulting work on noise and isolation problems in regional studios, taking courses in acoustical and architectural sciences, and in 1988 started his own firm in Miami. His first design was a hi-

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fi store's listening room; the first studio was a small private facility in Coconut Grove. The most recent is Circle House, the private studio of urban-reggae group/producers Inner Circle.

"My formal training has come on the job from facilities that were designed by the older generation," he says. "I feel like I have a very personal connection to them through people like [designer and LEDE conceptualist] Chips Davis and [RPG founder] Peter D'Antonio. But the kind of rooms we work on are quite different."

So are the clients. Where the Elders were often working with studio industry veterans, the current crop of clients are often acoustically illiterate, and their perceptions of technology may be based to a large extent on small, powerful downmarket products. The focus might hinge on cost-effectiveness.

"You can buy an equipment package for around $125,000 with a couple of 02Rs and good outboard, so you want the client to spend more on the construction aspects," says Arthur. "But they don't understand what it takes to build walls and achieve proper isolation. The smaller project studio clientele are less aware of what it takes to do it right, so they wonder why [design] costs as much as it does. And you can't blame them some of the time; they're coming to you after they see a group down the street make a hit record in their garage with no acoustical treatments."

Arthur's response has been to expand his range of projects and his geography, branching into post and broadcast, as well as performance spaces (he recently completed work on an auditorium-cum-recording studio in Santiago, Chile). "You have to [diversify]; otherwise, you're looking at a situation in which there are almost too many projects and not enough money each to do them right. It takes a certain amount of money to put a sufficient amount of time into the design. And now you have the same music stores that are selling the [recording] equipment also selling products that supposedly correct acoustical problems, but they're not selling the expertise along with them. Sam Ash sells the same products I sometimes specify as a designer, but they can't tell you how to use them. This is contributing to a growing pool of ignorance out there. A big part of studio design in this generation is educating the clients.

"I came up as the big rooms stopped and the black boxes came in," he concludes. "But a sense of that kind of recording is coming back in vogue. And I believe that between that and the proper applications of new technology, a designer can still make a name for himself on the same kind of scale that some of the people in the generation before us did."

A big part of studio design in this generation is educating the clients. —John Arthur

DAVID HAMPTON

David Hampton followed an interesting path to studio design. Now 37, the Los Angeles resident started work at Oberheim Electronics after two years of study at L.A. Trade Tech and completing Cal State-Dominguez Hills' Electronic Music bachelor's degree program in the mid-1980s. It was during that time, Hampton recalls, that project studio technology was incubating. His six years at Oberheim formed a conduit to the other side of the business.

"Being an African American, I couldn't just walk into the studio business," he says. "But being Dave from Oberheim was another thing. It got me through doors, doing custom work on synthesizer patches and cartage work in studios."

An early design effort came while he was still in college, when a term paper he did on home studio design elicited a request for help on precisely that topic from a local producer. Those calls continued to come, referred through a growing network of friends and colleagues, particularly in Urban music genres. Hampton's first official studio design effort came a few years after college, when he did a home studio for producer/composer Andre Simone, husband of singer Jody Watley.

Hampton is direct in his evalua-

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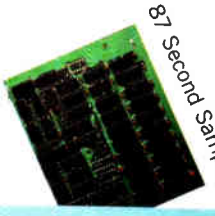

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tion of his chosen trade. "I build a billable room," he states. "That's a room in someone's home that conforms with their comfort zone but which a record company executive can come to and not feel bad about cutting you a check. There's a lot of young producers coming into money up-front, and they put it into equipment and a studio."

Like most of his compatriots, Hampton has done mostly private home studios, including Herbie Hancock's Garage Sale Recording, although he also designed Kenny "Babyface" Edmonds' wife Tracy's studio, Yab-Yum, located on the site of the former ABC Dunhill (later Lion's Share) studios. He is currently working on a large, multiroom facility in Chicago for a local gospel producer and a three-room private complex in Las Vegas.

Hampton admits to lionizing the Elders, particularly Vincent Van Haaff, whom he met at an AES show. "I shook his hand, but he probably doesn't remember me," he says. On the other hand, Hampton is aware that he and other new designers are breaking with the formalities of the previous generation. In describing his own method of working, he says, "I represent a one-man gang on a roll."

But he did study the Elders, and he says he tries to bring large-room thinking into the smaller spaces that constitute so much of studio building today. "People will tell you, 'Don't do a compression ceiling in a garage space,'" he explains. "I'll do exactly that. If someone wants a MIDI room that looks like a large control room, I'll soffit-mount mid-field monitors. I'll definitely pimp-out a small room with large-room sensibilities."

Hampton also believes that technology is changing the role and position of the designer, saying that designing is simply a stage in his career, one which might be determined as much by software as by personal choice. "Everything is turning toward the computer," he says. "I'm working with companies now that are researching ways to capture acoustics in a computer. I figure the next stage in this is that I'll be designing a place where you hit a button and convert the room into anything. As the type of music that a producer or artist does changes, so will their studio needs. So that kind of technological evolution makes perfect sense." ■

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

UNDERSTANDING PROJECT STUDIO ACOUSTICS

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NOT THE ROOM

Recording studio design has changed dramatically since I first entered the audio industry in 1971. Back then, project studios were called "semi-pro" studios, in part because they typically could not offer the electronic and acoustical performance of the professional 16-track studios. In the intervening 27 years, professional studio designers have taken advantage of advances in room acoustics and psychoacoustics research and the availability of innovative acoustical products. Computerized acoustical measurement, computer modeling and simulation tools are now readily available. On the other hand, project studio owners have mainly concentrated on upgrading their electronic gear and have tended to ignore or work around acoustical issues. As a result, though the hardware gap between professional and project studios has been narrowed by new electronic digital technology, the acoustic gap has widened.

In this article I address the relevant acoustical issues facing project studio designers and owners. In order for you to solve the acoustical anomalies that may trouble your project room, it is important that you understand the source of the problems. Once you have a basic comprehension of these principles, you'll be prepared to take the right approach to correcting acoustical problems; a wide variety of materials, room analysis software and consulting services are available to help you in this process.

ROOM REFLECTIONS CAUSE ACOUSTIC DISTORTION

Unlike the concert hall, where the room contributes to the character of the sound of the performers, critical listening rooms should be neutral. The sound that we hear in a critical listening room is determined by complex interaction among the quality of the electronics, the quality and placement of the loudspeakers, the hearing ability and placement of the listener, the room dimensions (or geometry if non-cuboid), and the acoustical condition of the room's boundary surfaces and contents. The recording control room or project studio is essentially a "small" room acoustically, with a volume of approximately 2,000 to 3,000 cubic feet (57 to 85 cubic meters). Decay time is roughly 100 to 400 ms, and the room's acoustical signature is strongly characterized by its low-frequency modal response and speaker-boundary interference, strong

BY PETER D'ANTONIO

early reflection interference from surfaces, consoles and equipment racks, flutter echoes from untreated parallel reflective surfaces and sparse late reflection density and spatiality. All too often, these factors are ignored and emphasis is placed solely on the quality of the loudspeakers. However, the tonal balance and timbre of a given loudspeaker can vary significantly, depending on the placement of the listener and loudspeaker and the room acoustic conditions. In some cases, the disparity between different loudspeakers placed in the same location in a room can actually be less than the differences created by moving the same loudspeaker to different locations.

When the sound from a loudspeaker comes in contact with the walls of a room, a complex series of reflections occurs. It is difficult to isolate the direct sound alone, because these reflections interact with it and, among themselves, produce a wide range of effects, which we will call acoustical distortion. Without proper acoustic design, a room can introduce sonic distortion that prevents the listener from hearing all of the detailed information the loudspeakers and electronics are capable of delivering. Some causes of acoustic distortion are:

- Modal Coupling: the acoustical coupling between the loudspeakers and listener with the room's modal pressure variations or room modes.
- Speaker-Boundary Interference: the coherent interaction between the direct sound and the early reflections from the room's adjacent boundaries.
- Comb Filtering: the coherent constructive and destructive interference between the direct sound and the early reflections.
- Sound Diffusion: the spatial and temporal reflection pattern due to mid- and late-arriving reflection.

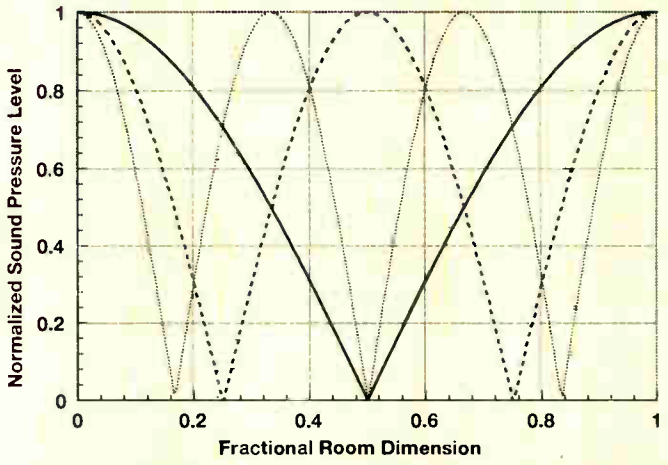

Figure 1: Normalized energy distribution of the first three modes in a room: The solid line is the fundamental, the broken line is the first harmonic and the dotted line is the second harmonic.

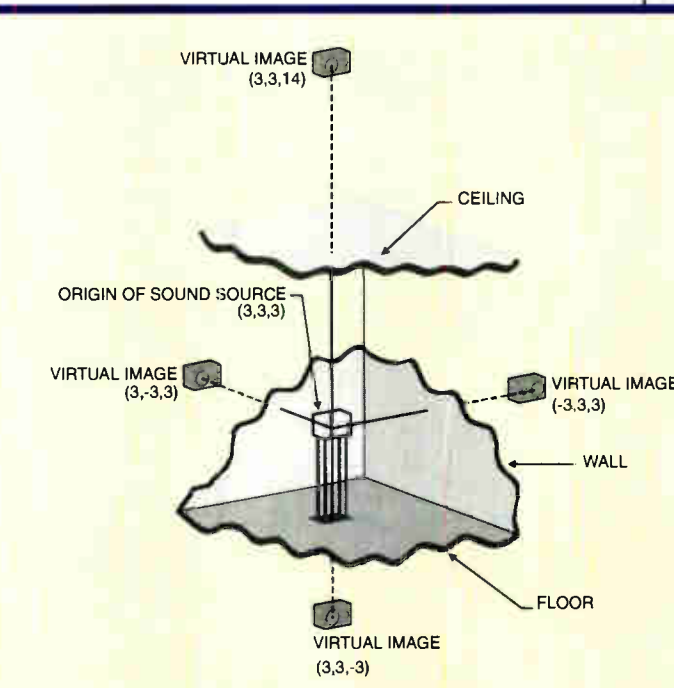

Figure 2: Speaker-Boundary Interference is caused by the combination of sound from real and "virtual" (boundary reflection) speakers.

MODAL COUPLING

All mechanical systems have natural resonances. In rooms, sound waves coherently interfere as they reflect back and forth between hard walls. This interference results in resonances at frequencies determined by the geometry of the room. Most project studios are rectangular simply because they are converted bedrooms, offices, garages, etc. One advantage of using a rectangular room is that we can calculate the modal frequencies and pressure distributions.

High- and low-pressure zones throughout the room characterize this modal response. The loudspeaker placement will accentuate or diminish modal frequencies, depending on placement. Similarly, a listener will hear different modal responses, depending on where he or she is seated. Figure 1 is an example of sound energy distributed along a room dimension. The room dimension is shown as a fraction ranging from 0 to 1; 0.5 would be in the center of the room, and 1 would be against a wall. Examining Fig. 1 reveals that the fundamental has no energy in the center of the room. Physically, this means that if you were sitting in the middle of the room you would not hear this frequency. The first harmonic, however, is at a maximum. It can be inferred from this plot that, in the center of the room all odd harmonics are absent and all even harmonics are at a maximum.

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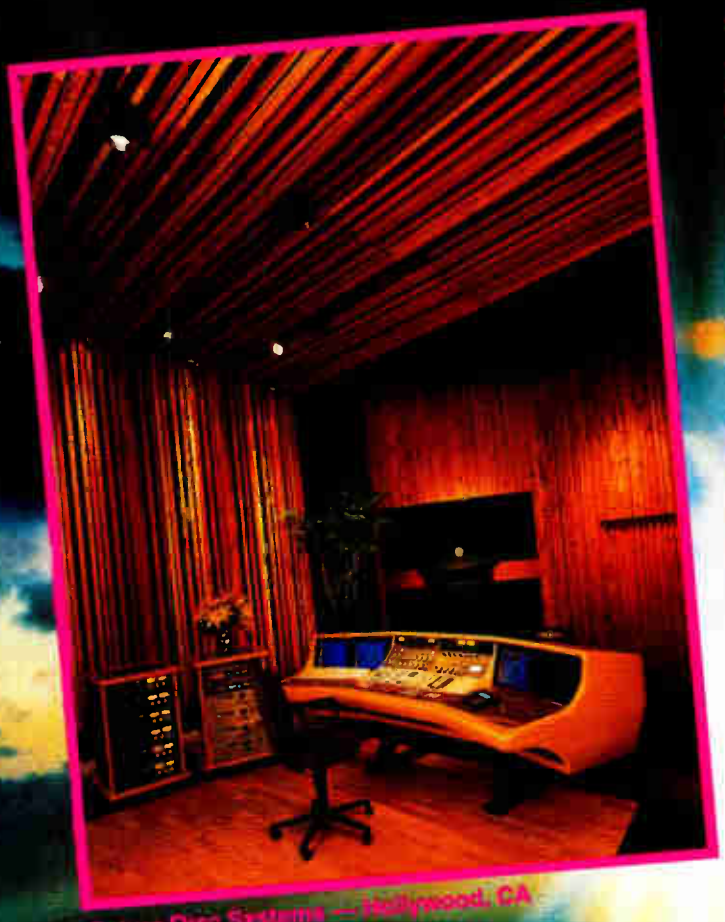

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Total Harmonic Distortion (Master Output)	Less than 0.1 % (THD+N) @20 Hz–20 kHz, @+14 dB output into 600Ω Less than 0.01 % (2nd–10th) @20 Hz–20 kHz, @+14 dB output into 600Ω
Frequency Response (Master Output)	0 +1. –3 dB 20 Hz<20 kHz @+4 dB output into 600Ω
Hum & Noise (20 Hz–20 kHz) Rs=150Ω Input Gain= Max. Input Pad= OFF Input Sensitivity= –60 dB	–128 dB equivalent input noise. –99 dB residual output noise. –64 dB (68 dB S/N) MIX OUT, Master level control and one Ch fader at nominal level. –81 dB (85 dB S/N) STEREO OUT, Master fader at nominal level and all Ch assign SW's off and all MIX to ST SW's off. –77 dB (81 dB S/N) MIX OUT, Master level control at nominal level and all Ch assign SW's off. –83 dB (87 dB S/N) MIX 1–8 OUT (FIX), Master level control at nominal level and all Ch assign SW's off. –90 dB (94 dB S/N) MATRIX OUT, Master level control at nominal level and all Matrix Mix controls at minimum level.
Crosstalk	–80 dB @1 kHz adjacent inputs, –70 dB @1 kHz input to output (Ch Input), –50 dB @1 kHz input to output (ST Input)
Ch Input PAD SW	26 dB
Ch Input Gain Control	44 dB variable
ST Input Gain Control	40 dB variable (ST IN A), 30 dB variable (ST IN B)
Ch Input High Pass Filter	12 dB/octave, roll off bellow 20–400 Hz at –3 dB point.
Ch Input Equalization +15, –15 dB maximum	HIGH: 1k–20 kHz (peaking, Q= 0.5), HIGH-MID: 400–8 kHz (peaking, Q= 0.5/3) LOW-MID: 80–1.6 kHz (peaking, Q= 0.5/3), LOW: 30–600 Hz (peaking, Q= 0.5)
ST Input Equalization +15, –15 dB maximum	HIGH: 20 kHz (peaking, Q= 0.5), HIGH-MID: 3 kHz (peaking, Q= 0.5/3) LOW-MID: 800 Hz (peaking, Q= 0.5/3), LOW: 30 Hz (peaking, Q= 0.5)
Oscillator/Noise	Switchable sine wave @100 Hz, 1 kHz or 10 kHz (1% T.H.D. @+4 dB output), or pink noise.
Scene Memory	Direct Scene Memory recall switches (1–8), Switchable Scene Memory recall (1–128)
VU Meters	12 illuminated meters
Power Consumption	USA and Canada: 120 V AC 60 Hz, AT: 240 V AC 50 Hz, Other: 230 V AC 50 Hz
Dimensions (WxHxD)	2042×265×877 mm
Weight	115 kg

Input Specifications

Connection	PAD	Gain Trim	Actual Load Impedance	For Use With Nominal	Input Level			Connectors In Mixer
					Sensitivity	Nominal	Max. before Clip	
CH IN (1–40)	0	–60	3 KΩ	50–600Ω Mics & 600Ω Lines	–80 dB (0.078 mV)	–60 dB (0.775 mV)	–40 dB (0.775 mV)	XLR-3-31 type
	26				–54 dB (1.55 mV)	–34 dB (15.5 mV)	–14 dB (155 mV)	
	0	–16			–36 dB (12.3 mV)	–16 dB (123 mV)	+4 dB (1.23 V)	
	26				–10 dB (245 mV)	+10 dB (2.45 V)	+30 dB (24.5 V)	
ST IN (1–40) [L, R]	A	–30	5 KΩ	600Ω Lines	–50 dB (2.45 mV)	–30 dB (24.5 mV)	–10 dB (245 mV)	XLR-3-31 type
		+10			–10 dB (245 mV)	+10 dB (2.45 V)	+30 dB (24.5 V)	
	B	–20	10 KΩ	600Ω Lines	–40 dB (7.75 mV)	–20 dB (77.5 mV)	0 dB (0.775 V)	Phono Jack
		+10			–10 dB (245 mV)	+10 dB (2.45 V)	+30 dB (24.5 V)	
TALKBACK IN			10 KΩ	50–600Ω Mics	–66 dB (0.338 mV)	–50 dB (2.45 mV)	–20 dB (77.5 mV)	XLR-3-31 type
2TR IN 1 [L, R]			10 KΩ	600Ω Lines	–2 dB (0.616 V)	+4 dB (1.23 V)	+24 dB (12.3 V)	XLR-3-31 type
2TR IN 2 [L, R]			10 KΩ	600Ω Lines	–13.8 dB (158 mV)	–7.8 dB (316 mV)	+12.2 dB (3.15 V)	Phono Jack
CUE SUB IN [L, R] MATRIX SUB IN [L, R]			10 KΩ	600Ω Lines	–2 dB (0.616 V)	+4 dB (1.23 V)	+24 dB (12.3 V)	Phone Jack (TRS)
STEREO SUB IN [L, R] MIX (1–16) SUB IN					–6 dB (388 mV)			
CH IN (1–40) INSERT IN			10 KΩ	600Ω Lines	–20 dB (77.5 mV)	0 dB (0.775 V)	+20 dB (7.75 V)	Phone Jack (TRS)
STEREO INSERT IN [L, R] MIX (1–16) INSERT IN					–10 dB (245 mV)			

Output Specifications

Connection	Actual Source Impedance	For Use With Nominal	Output Level		Connectors In Mixer
			Nominal	Max. before Cliping	
STEREO A OUT [L, R] STEREO B OUT [L, R] MIX (1–16) OUT MONITOR OUT [L, R] MATRIX (1–8) OUT	50Ω	600Ω Lines	+4 dB (1.23 V)	+24 dB (12.3 V)	XLR-3-31 type
CH (1–40) DIRECT OUT	600Ω	10 KΩ Lines	0 dB (0.775 V)	+20 dB (7.75 V)	Phone Jack (TRS)
CH IN (1–40) INSERT OUT STEREO INSERT OUT [L, R] MIX (1–16) INSERT OUT	600Ω	10 KΩ Lines	0 dB (0.775 V)	+20 dB (7.75 V)	Phone Jack (TRS)
PHONES OUT [L, R]	100Ω	8Ω Phones	1 mW	20 mW	Stereo Phone Jacks
		40Ω Phones	3 mW	75 mW	

* 0 dB is referenced to 0.775 Vrms.

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BASS TOOLS

The perceived bass response in a room is controlled by a number of factors: the free-field loudspeaker response, the room dimensions, the acoustic coupling of the listener/loudspeakers to the modal pressure variations, the speaker-boundary interference between the direct sound and adjacent reflections, the internal contents of the room, the acoustical nature of the boundary surfaces and surface treatment, and, of course, the hearing response and training of the listener.

The quality of most of today's loudspeakers is sufficiently high that most problems lie in the way they couple with the room.

ROOM DIMENSIONS

There are several approaches to ensuring that modal frequencies are uniformly distributed. When building a new room, for example, it is relatively simple to choose good dimensional ratios. Making a room non-rectangular is not necessarily beneficial, however, because non-rectangular geometry does not make modes disappear; modal behavior is no less pronounced than in an equivalent rectangular room, it's just different. The possible benefits of non-rectangular geometry in a project studio may not outweigh the expense and can introduce non-symmetric effects that may affect imaging.

LISTENER AND LOUDSPEAKER PLACEMENT

Since both modal coupling and speaker-boundary interference are position related, optimizing speaker location is an important first step. Trial and error is feasible for 2-channel monitor placement, but the number of variables involved in a multichannel 5.1 setup makes such methods impractical. Fortunately, a new generation of multidimensional optimization software systems can automate—and speed—the search.

Optimally locating full-range loudspeakers can improve bass response, but the process may adversely affect the higher-frequency effects of imaging; when both goals are not achievable simultaneously, a choice must be made. The use of one or more separate subwoofers offers the opportunity to achieve good bass response by locating the subwoofer independently of the mid-high-frequency loudspeakers. Multiple subwoofers also offer the opportunity to increase modal mixing. Optimum

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OPTIMIZING THE SMALL CONTROL ROOM

ANOTHER VIEW

by Sam Berkow

Optimizing a small control room, which really means trying to get a room to sound its best, is a tricky business. Though it is relatively easy to point to faults in rooms, such as excessive bass or uneven frequency response, there is far less agreement in what the optimum sound of a room should be.

Let's start with the most common scenario: You've built or remodeled a room, installed your equipment and are ready to do some listening/mixing. You notice—either immediately or over time—that the room has a "sound" that may be affecting and/or degrading your mixes. The challenge of system optimization is to make the "sound" at the mix position as accurate as possible.

This being a small control room, we can assume you are monitoring on near-field or semi-near-field speakers. Semi-near-fields are characterized by their small size (a woofer no bigger than 8 or 10 inches) and a low-frequency roll-off. These characteristics usually eliminate some of the larger (and often more costly) problems caused by very low frequencies in smaller rooms. We will also assume that this room is primarily used for stereo, or 2-channel mixing and listening.

In almost every case, there are three issues to address: the position and orientation of the monitors, the acoustics of the room and the frequency characteristics of signals sent to the monitors.

MONITOR POSITION AND ORIENTATION

You want both of the monitors to be positioned an equal distance from the mix position, and a reasonable angle above your head (typically less than 17 degrees above your ears). The distance between the two monitors should not greatly exceed the distance from the mix position to either monitor.

The position of the monitors relative to the mix position is often dictated by the configuration of the console or equipment. However, the position of the monitors within the room must also be addressed. For example, placing monitors in proximity to a wall can increase the amount of low-frequency energy at the mix position. Though there are computer programs that can predict these effects, it is my experience that in small rooms where most equipment is movable, trial and error can be the quickest way to determine the best monitor position.

The orientation of semi-near-field monitors is often overlooked. Most of them use vented enclosures, featuring vent tubes (which look like holes from the front) designed to resonate at low frequencies. When used in a horizontal orientation, the vents of the two loudspeakers will either be on the inside (closer together) or outside (farther apart). Placing the woofer and vent on the inside can cause serious "coupling" at low frequencies, resulting in excessive bass build-up, but when the high-frequency drivers are positioned on the outside, the "image" of the sound at the mix position tends to "spread" farther than is desirable. Both of these problems can be addressed by simply flipping the speakers over so that the tweeters are on the inside with the woofers/ports on the outside. (It should be noted that some cabinet designs place the vents next to the high-frequency drivers, which can complicate the issue.)

ROOM ACOUSTICS

For most small rooms, simple equations and guidelines can be used to determine the correct placement and mounting details for acoustical materials. A common acoustical problem in small control rooms is a lack of effective control at low-mid and low frequencies (80 to 250 Hz). In many cases, the correct materials are already in place, but they are in insufficient quantities or incorrectly mounted, thereby limiting the effectiveness of the materials and treatments at lower

—CONTINUED ON PAGE 235

SPEAKER-BOUNDARY INTERFERENCE RESPONSE

Room modes develop when reflected sound interferes with itself. This type of acoustic distortion is due to the coherent interference between the direct sound of a loudspeaker and the reflections from the room, in particular the corner immediately surrounding it.

SBIR distortion occurs across the entire frequency spectrum, but it is more significant at low frequencies. The room's boundaries surrounding the loudspeaker mirror the loudspeaker, forming virtual images. When these virtual loudspeakers (reflections) combine with the direct sound, they can either enhance or cancel it to varying degrees, depending on the phase relationship between the reflection and direct sound at the listening position. In Fig. 2, a loudspeaker is located three feet from each room surface with coordinates (3,3,3). The four virtual images on opposite sides of the main room boundaries that are responsible for first-order reflections are also shown. A virtual image is located at an equivalent distance on the opposite side of a room boundary from the real speaker. The distance from a virtual source to the listener is equal to the reflected path from source to listener. In addition to the four virtual images shown, there are seven more: three virtual images and one real image in the speaker plane, and four images of these above the ceiling and floor planes. Imagine that the walls are removed and 11 additional physical speakers are located at the virtual image positions. The resultant sound at a listening position would be equivalent to the sound heard from one source and 11 reflections.

The effect of the coherent interference between the direct sound and these virtual images is illustrated in Fig. 3. The SBIR is averaged over all listening positions with the speaker located 4 feet from one, two and three walls surrounding the loudspeaker. It can be seen that as each wall is added, the very low frequency response increases by 6 dB and the notch, at roughly 100 Hz, gets deeper. It is important to note at this point that once this notch is created, due to poor placement, it is virtually impossible to eliminate without moving the listener and loudspeaker, since it is not good practice to electronically compensate for deep notches. This way, the boundary reflections either enhance or cancel the direct sound, depending on the phase relationship between the direct sound and the reflection at the listening position. Initially, the direct sound and reflection are in phase and they add. As the frequency increases, the phase of the reflected sound lags the direct sound. At a certain frequency, the reflection is out of phase with the direct sound and a cancellation occurs. The extent of the null will be determined by the relative amplitudes of the direct sound and reflection. At low frequencies, there is typically very little absorption and the notches can be between 6 and 20 dB. The conclusion is obvious: Never place a speaker's woofer equidistant from the floor and two surrounding walls.

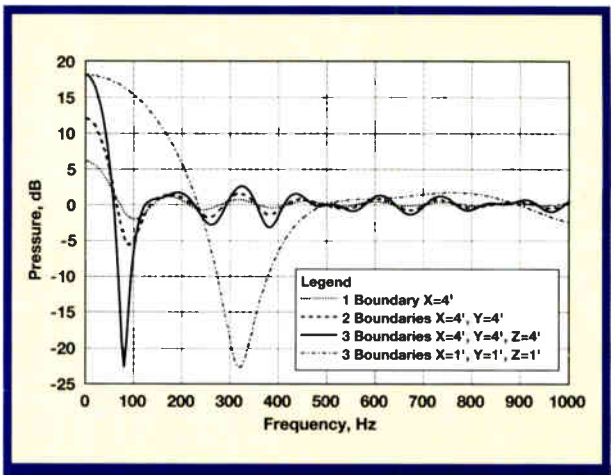

Figure 3: Speaker-Boundary Interference Response for several loudspeaker positions in a corner

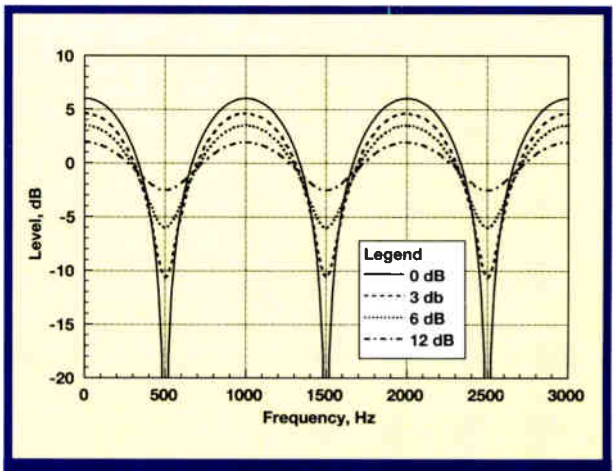

Figure 4: Comb filtering with one reflection delayed by 1 ms with attenuation of 0, 3, 6 and 12 dB relative to the direct sound

COMB FILTERING

Another form of acoustic distortion introduced by room reflections is comb filtering, which is due to interference between direct and reflected sound. In critical listening rooms, we are primarily concerned with the interaction between the direct sound and the first-order (i.e. single-bounce) reflections. Reflections cause time delays, because the reflected path length between the listener and source is longer than the direct sound path.

An example of comb filtering resulting from the addition of a direct sound and a reflection delayed by 1 ms is shown in Fig. 4. Four conditions are illustrated: 0 dB refers to the theoretical situation in which the reflection is at the same level as the direct sound, and the remaining three interference curves indicate situations in which the reflection is attenuated by 3, 6 and 12 dB.

The audible effect of comb filtering is easy to simulate with a delay line. Combine a signal with a delayed version of itself and you will hear various chorusing or flanging effects, depending on the length and variation of the delay. Shorter delays create wider bandwidth notches and thus remove more power than longer delays. This is why microsecond and millisecond delays are so audible.

Comb filtering is controlled by attenuating the room reflections or by controlling the loudspeaker's directivity to minimize boundary reflections. If the loudspeaker has constant directivity as a function of frequency, then broad bandwidth reflection control is necessary. Since the directivity of conventional loudspeakers increases with frequency, low-frequency reflection control is important. For this reason, one would not expect to control low-frequency comb filtering effects with thin porous acoustical foam or panel.

Comb filtering can be controlled by using absorption, which removes energy from the room, or diffusion, which distributes the reflection over time, without absorption. Both approaches are valid and produce different psychoacoustical reactions.

Once we understand some of the acoustical problems inherent in many small studios, we can look at various approaches to solving these problems and how they affect room response.


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THE LION KING

ROARS ON BROADWAY

An Interview With Sound Designer Tony Meola

by Eric Rudolph

Photography by Joan Marcus/Marc Bryan-Brown

The smash Broadway musical *The Lion King* confounds just about every expectation.

The sold-out family show is staged in the beautifully restored New Amsterdam Theater, which sits at the epicenter of Times Square's former sleaze district. Like its once-proud neighbors, the glorious, spacious New Amsterdam had fallen into a state of horrid decay following decades of decline.

The show's Disney-centric demographic is solidly middle-American, and in fact it opened last summer in Minneapolis before moving to Broadway in November. Yet the production was realized by a prominent denizen of New York's edgy, avant-garde, downtown theater world.

And while *The Lion King* is primarily a celebration of nature and of life's resilience, it oddly mixes stately and proud African-inspired music with high-gloss, overtly commercial Elton John pop-rock, as well as mysticism and spirituality with cornball kiddie show and Borscht Belt schtick.

Thankfully, most complaints of this type are ameliorated by the astonishing spectacle of the staging, which brilliantly uses theatrical ideas from all over the world and from throughout the history of theater to achieve the improbable task of bringing the vibrant, brutal life of the savannah to Times Square.

This wasn't easy. Because it was adapted from a highly succesful animated feature film, *The Lion King* faced the challenge of bringing its non-human characters to life. This problem was ingeniously solved by director Julie Taymor (whose official title in the production reads Director, Costume Designer, Mask/Puppet Co-Designer, Additional Music & Lyrics) and her staff by having some actors wear animal masks above their heads while others worked puppet characters

PHOTO: ERIC RUDOLPH

Sound designer Tony Meolo

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(such as the irrepressible meerkat, Timon) in full view of the audience.

Those decisions led to some of the bigger challenges for veteran Great White Way sound designer Tony Meola. "The unusual masks, hats, headdresses and wigs in *The Lion King* meant we often couldn't place the wireless mics at the forehead hairline, at the center, as we would normally do," explains Meola (whose other Broadway credits include the revivals of *Guys and Dolls* and *The King and I,* and *Five Guys Named Moe*). "We had to move many of the mics to the sideburn area, which is less than ideal for sound pickup. Male performers lose high frequencies when the mics go off-center; fortunately, it isn't as big an issue with women."

Other, more radical solutions were devised to cope with bigger problems. Meola says the actress who plays the shaman baboon Rafiki, Tsidii Le Loka, has a very high forehead and hairline, so hiding the mic at her hairline simply didn't work. "We tried it, but it was just too far from her mouth," he says. "We had tested many different mics with her, and we loved the sound of a Sennheiser ME-104, which is kind of large, but we could hide it in her hat with no problem."

That seemed like the answer until it was used in a scene in which Rafiki comes swinging in on a vine. "All we heard was the swoosh of the air rushing through the vents that make the ME-104 a cardioid mic," Meola says. "Of course, the obvious solution, the windscreen, is so big that you can't use it on someone's forehead in the theater. So we switched her to the much smaller Sennheiser MKE-2 and ended up placing it right between her eyebrows, covering the wire with surgical tape. We then painted the mic to match her shaman makeup, which on that part of her face is yellow, red and white. Most of the time you don't see it unless you're really looking for it."

Another key character, the villainous Scar, presented a different obstacle. Scar's lion mask is one of several that move down in front of the actor's face in certain scenes. "We had the mic in the normal position, at the center of the hairline, but we kept picking up the noise of the motor of the animatronic mask when it moved," Meola says. "We moved Scar's mic between his eyebrows and then worked with Michael Curry, who designed the show's animatronics, to lower the noise level of the device."

Another unusual feature of the show that presented headaches for Meola was the imaginative and exciting staging, which features a large, lively chorus dancing and singing from the back of the theater (using their own body mics, not stationary offstage mics, as is more customary), as well as down the aisles. "If a chorus member gets caught in the dressing room because one of their many costume changes takes too long, and they're talking when it is time for the cue, their mic is going to go on no matter what," Meola says. "Or if they put their hat on after it is opened and hit their mic, we'll get a noise. The only way to prevent this is to rely on the stage managers to make sure that doesn't happen, and with the show's large chorus, it is a huge challenge for the stage managers."

Meola was also faced with the unusual dilemma of trying to blend the various musical styles so that each sounds right.

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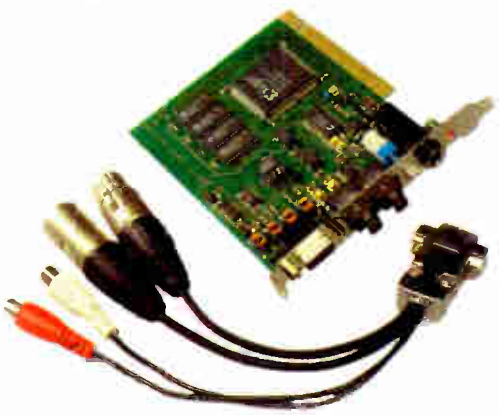

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"The music is a combination of rock and Broadway styles, with some African music," he says. "The challenge was to try to get a big enough sound to keep the people who come from the rock world—who've never done a Broadway show—happy. However, we also had to keep the sound real and not too concert-like, maintaining good location and imaging of voices so that the Broadway people felt that it sounded like the theater."

Meola decided that larger speakers were part of the answer to getting a big sound. "The typical speakers used in theater would not have sounded right at all to the rock people, and I didn't feel they would work for the show. And, of course, the speakers couldn't be so big that they interfered with the scenery."

Meola ended up choosing Meyer CQ-1 powered speakers for the main vocals. Those cabinets are about 30x34 inches, and about 26 inches deep because of the internal amps. The typical vocal speaker on Broadway might be a Meyer Ultra monitor, which is 22x14x14, he explains.

Another way in which Meola was able to help satisfy the rock contingent was through the use of an automated console. "The moving faders that we have on our Cadac J-Type console help to keep the mix precise and clean in a way that worked toward satisfying the rock side of the creative team. These are people who are used to working in the pristine settings of 48-track digital recording studios. The moving faders allow different parts of the music to be mixed in the way that works the best for each section, helping us avoid a compromise mix," Meola notes.

The Cadac console was chosen because "Cadac's are simply the best," Meola says. "I know, I've used them all." The console at *Lion King* was split into three physical sections, with two of the three (orchestra and effects) piggybacked on top of each other to the side, like a keyboard rack in a prog-rock act. "It's all the same console; we just had to split it up into three for space reasons." This is not an unusual way for the semi-custom-made Cadacs to be configured for a major show, Meola says.

The board has 116 inputs in all, 111 of which have moving faders, and Meola explains that the Cadac J automation is quite versatile: "You can do anything you want. You can have a fader in one cue and then record different fader positions for the next cue and tell it to go there in zero time, or in two minutes or in any length of time. You can designate that every fader that is moving up goes up at one rate and every one that is going down goes down at a different rate. You can 'live record' your moves—that is, adjust the fader live and have the board remember the move. It also changes assigns to any one of the 16 different VCAs we have." (Meola notes that most of the principals are mixed from their own input faders, but some are occasionally swapped over to VCAs.)

However, a Broadway theater is not a recording studio. "In live theater, unlike a studio, you're not mixing from a tape, which is a consistent source," he says. "Live theater is subject to a tremendous amount of variables, and as a result, some of the benefit of having that precision mixing ability goes out the window."

Also, he says, "There are substitute musicians in the pit at virtually every

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performance, and often as much as half or more of the [23-piece] orchestra is made up of subs. These substitute musicians are all drop-dead pros, of course. They can all sit down cold and play beautifully straight from the charts. But there is still variation when it is not the same players for every show. You may program a fader up or down 2 to 5 dB, but with subs, you get variations in their playing volume, and so your automated fader position becomes moot. We still benefit from the precision of the automation; the operator just needs to keep an ear trained and his hands on the board, listening for the subs, or for the singer who sings at a different volume from the night before, or the performer who drops a line."

Adding to the problem is the fact that the console operator is normally notified which orchestra positions are occupied by subs only moments before curtain. As an interesting aside, Meola notes that the musicians' union rules favor the use of substitute players, dictating that a musician can be out of the show up to 50% of the time and still keep the coveted job in the pit orchestra.

Because *The Lion King* includes rock-style pop music, vocal monitors were an issue. However, aside from the way they look on a stage, using onstage monitors without close, pop-style miking is a big problem, Meola notes.

"Without the singer being as close to the mic as possible, with vocal monitors you run the risk of ringing and feedback, because the gain on the mic has to be so much higher when it is not right up next to the mouth," he says. "I am adamantly against using vocal monitors onstage in the theater. In fact, I am so dead against it that I have the fact that I will not use them written into my contracts."

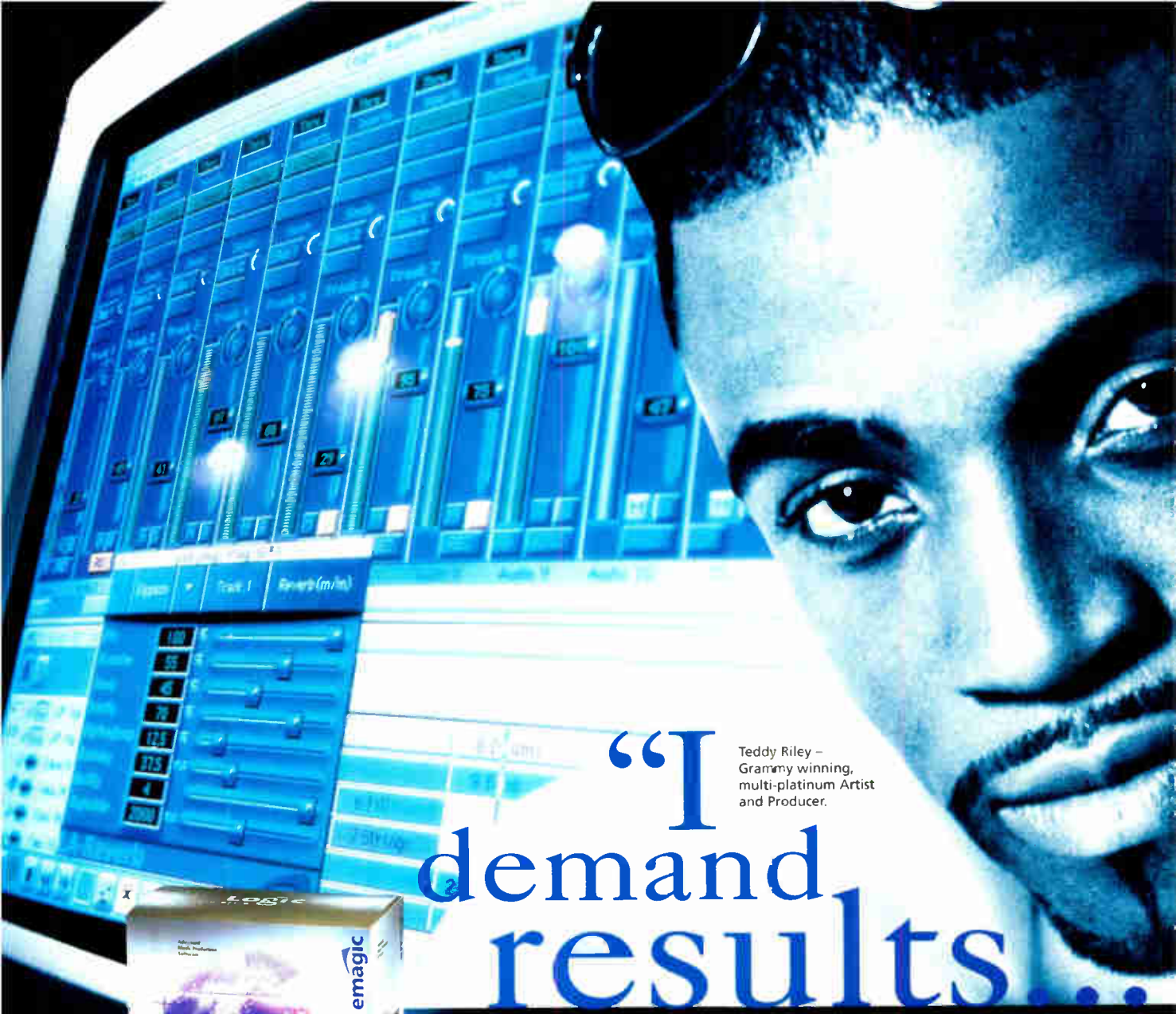
For *The Lion King*, the performers get an orchestra and effects mix from several monitors positioned up near the lights, and that is all. In the pit, where miking is close, Meola easily placed monitors for the musicians.

However, the issue of vocal monitors as far as *The Lion King* and Meola are concerned is not completely settled. "I'm doing the show in Tokyo in November, and the musical theater performers there are quite used to having vocal monitors, I'm told. My proposed solution is going to be in-ear monitors, which is something that has rarely if ever been done in musical theater, mainly because they're hard to hide."

Meola, who has in the past suggested that the ideal place for a loudspeaker in a Broadway show is on the actor's chest, also must think carefully about the house speaker issue, especially when there are close to 100 speaker enclosures and many scenic demands to consider.

"It is important not to intrude on the scenic design with speakers," he explains. "In *Lion King*, I have an overhead array of Meyer CQ-1s for the orchestra, mezzanine and balcony, Apogee SAT-3s for vocal fills on the apron as well as for delay on all three levels. More CQ-1s are arrayed over the orchestra pit for the house in general. There are also two pair of Meyer UPA-1s; two coming our of the pit and two on the procenium. The surround speaker system is a house system that was put in when the theater was renovated, and consists of EAW UB-12 and JF-80s."

The show also demanded a healthy contingent of subwoofers for the intense stampede scene and for the delightful surprise that occurs early in the production, when a thatch-work elephant the size of a cottage walks



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down an aisle and onto the stage, propelled by four actors, one in each human-sized leg. To handle this bombast, there are 14 subs: ten Meyer 650 self-powered units, some hung in the air and others at the sides and rear of each of the three levels of seating; four Meyer USW subs are actually placed directly under the orchestra seats.

Meola says that the subs under the seats take advantage of some outdated theater technology: "We put subwoofers in the plenum chambers, which are large areas under the seats where big blocks of ice used to be placed in the days before air conditioning, as we now know it. The air was sucked in by fans through vents under the seats, where it was forced over the ice and then back into the theater."

The microphones in the orchestra pit are mostly Sennheiser MKH-40s; the only unusual instrumental mics are for the two lively percussionists, who are dramatically perched in audience boxes high up on the left and right walls of the theater. In addition to standard mics, they each wear one Sennheiser ME-104 lapel unit on their stomach area, to pick up some of the plethora of percussion items they play that would otherwise be hard to mike.

Meola is enthusiastic about his processing gear, with special praise reserved for the Lexicon PCM 80 reverb. "It is great-sounding, clear and user-friendly. I use it for vocal reverb and on our five-piece string section to make it sound bigger." A Lexicon 480 provides reverb for the chorus and orchestra.

The compressor/limiters are Valvotronics tube models, which Meola describes as "so smooth, and I've used them for several years with absolutely no trouble." EQ is provided by ten Meyer CP-10 stereo units.

Meola is also enthusiastic about the role that MiniDiscs play in the production: All of the show's effects are stored on the oft-maligned medium. As he explains, "When we were preparing for our out-of-town run in Minneapolis, Julie Taymor said she didn't think we would need any sound effects except for the stampede. But we kept adding and adding effects, mostly environmental, until the effects became fairly complicated.

"Of all the technological advances, MiniDiscs are what have really changed my life, especially when I consider that I go back to the tape and tape cartridge days. I can change the order of effects and can even edit music with relative ease on a Mini, which you can't do with CDs." Meola uses two Denon 995 R MiniDisc machines for effects.

Not surprisingly, designing the sound for Broadway's biggest hit has been a good experience overall for Meola. "Working with Julie Taymor and Lebo M [who wrote the African-inspired music], who have made such beautiful sights and sounds, has been a thrill," he says. "Julie has a great ear for sound and makes accurate, valuable suggestions. It is wonderful to work with such brilliant people."

Finally, there is the matter of the theater itself. Meola and his assistant, Kai Harada, both had nothing but praise for the old belle of Broadway: "The acoustics are fabulous, Meola says." "All the fine plaster detail disperses the high frequencies, and there's no slapback. I think they knew much more about acoustics in 1903 when this theater was built. It is just a pleasure." ■

Eric Rudolph is a freelance writer who just relocated to an historic section of Queens.

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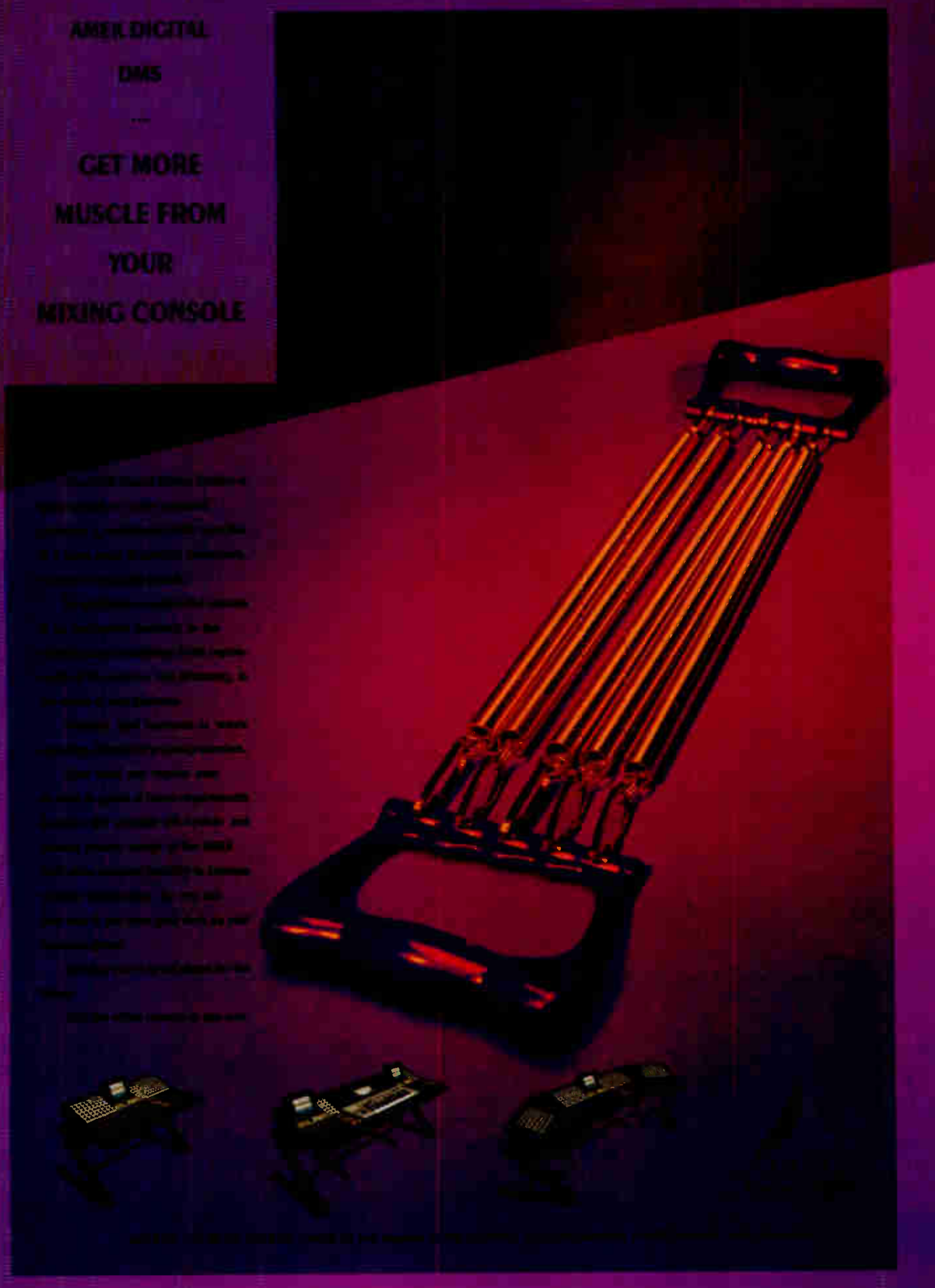


HAL WILLNER

ALL ROADS LEAD TO POE

Since the early '80s, Hal Willner has been creating wild concept albums that offer surprising new ways to hear the work of great composers. Typical of Willner's eclectic approach is *Weird Nightmare*, an homage to Charles Mingus that combines the diverse and unlikely talents of Keith Richards, Elvis Costello, Ray Davies and Bill Frisell. So far, Willner's best-known work is *Stay Awake*, on which a fascinating cast of performers interpret songs from Disney movies. Sinead O'Connor is heartbreaking singing "Someday My Prince Will Come," Los Lobos rock on "I Wanna Be Like You (The Monkey Song)" from *Jungle Book*, and you really haven't lived till you've heard Tom Waits' take on "Heigh Ho (The Dwarfs' Marching Song)."

Other artists whom Willner has honored with his offbeat aesthetic include Thelonious Monk (*That's the Way I Feel Now*); Nino Rota (*Amarcord Nino Rota*), the composer of Fellini's soundtracks; Kurt Weill (*Lost in the Stars*, 1984, and *September Songs*, 1996); and, most recently, Edgar Allen Poe.

The Poe album, *Closed on Account of Rabies*, includes readings and songs by actors as well as musicians. Can you imagine Iggy Pop reading "The Telltale Heart" or Deborah Harry and the Jazz Passengers setting "The City and the Sea" to music? How about Diamanda Galas spitting out "The Black Cat" or Gabriel Byrne capturing "Masque of the Red Death"? Willner has produced a shocking, fresh look at these poetic and disturbing works.

Willner's influence has also been felt in other media. He serves as producer of the sketch music on *Saturday Night Live* and has been the musical director for two of Robert Altman's films: *Shortcuts*, the movie Altman made based on a series of Raymond Carver short stories, and *Kansas City*, which was praised most for its fantastic score.

Willner has also produced albums by Marianne Faithful, the Jazz Passengers and David Sanborn, and spoken-word albums by Allen Ginsberg, William Burroughs, Kathy Acker and others. And Rhino Records is soon to release a Willner-produced six-CD Lenny Bruce collection. Most recently, Willner has been working on his first solo album, a dance record to be released on Howie B's Pussyfoot label. "There you go," Willner quips, "a textbook example of what not to do with my production career." Well, who knows? Marching to a different drummer has worked for Hal Willner so far.

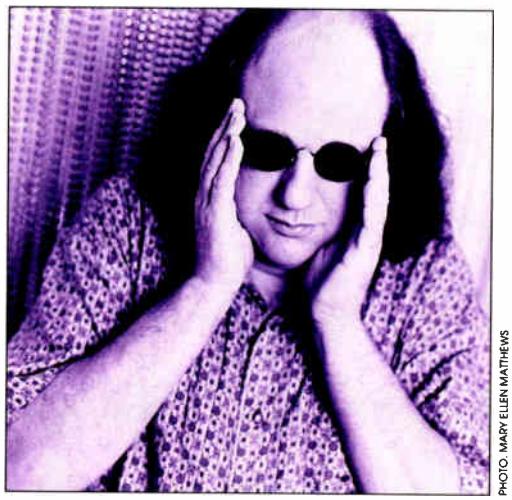


PHOTO: MARY ELLEN MATTHEWS

How did the idea for the Poe project develop?

The idea came from [executive producer] Michael Minzer. Michael is the executive producer of some of the spoken-word projects I've been involved with, like William Burroughs' *Dead City Radio*. He had this vision of Poe to be done in the style of the concept records that I had done, although I had pretty much resigned myself to move on from the concept things for a lot of reasons.

BY BARBARA SCHULTZ

Such as?

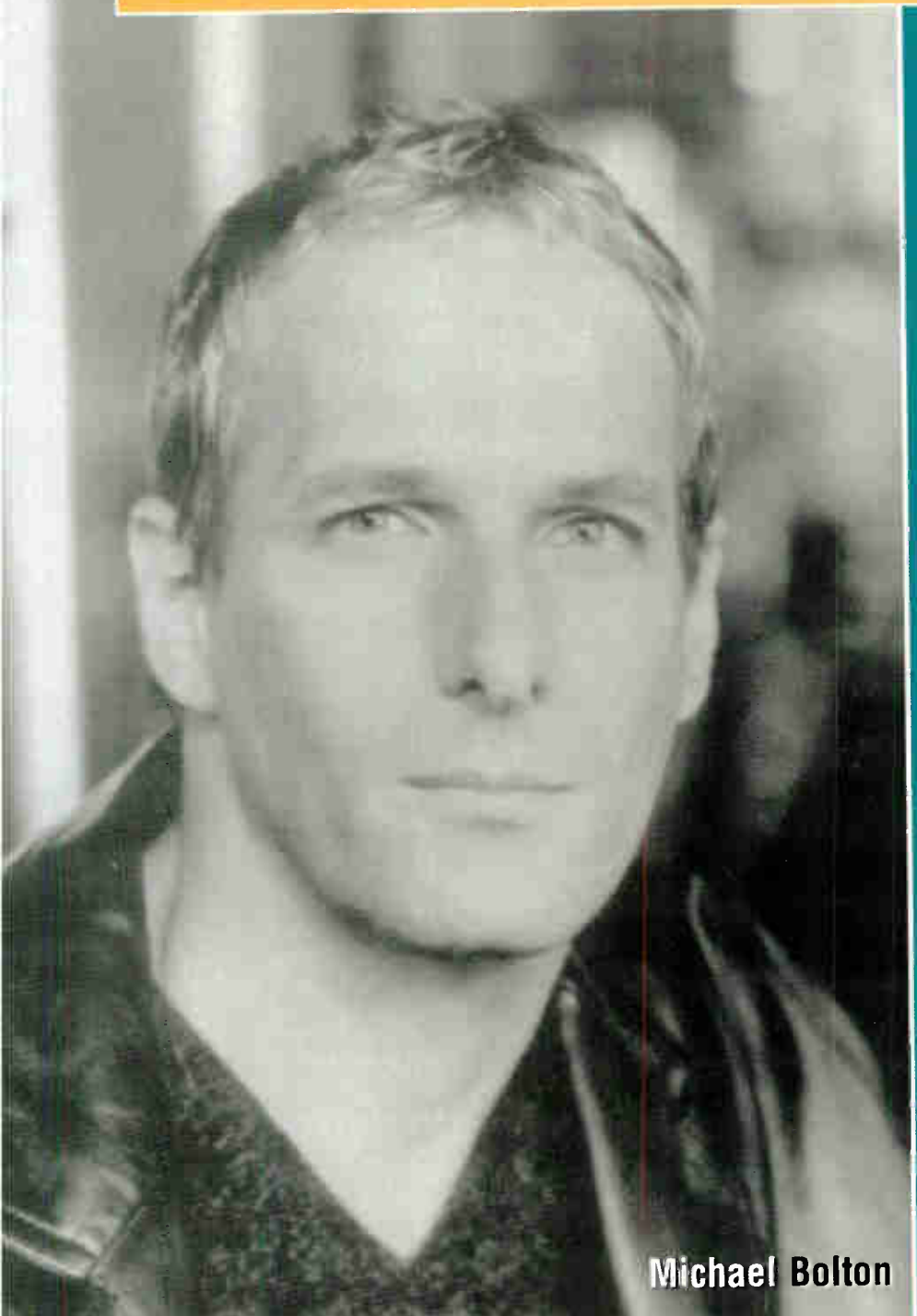
I wasn't interested in repeating myself or competing in a genre that wasn't a genre when I started these records. These projects were made for completely different reasons; they were records I wanted to hear. Coming out of the '60s when there was a natural eclecticism, I was missing that.

See, these weren't really done as tribute records. It was more exploration and trying to find something new using the old. So they kept changing and getting bigger. The Disney album [*Stay Awake*] was real Cecil B. DeMille. And after that, I had it in mind to do Piaf, but when I started, I found that someone else had done Piaf. And then the artists I was calling were going, "Well, he's doing the Buddy Greco tribute, he's doing the Germs tribute, the Liberace tribute," and I'm like "What is this?" Because when we did Rota, this wasn't going on.

Did you feel like you'd created a monster?

No. I didn't create it. There were similar things done before I started. George Wein, for example, used to do multi-artist shows featuring the music of Ellington and other composers. And you may remember the live Woody Guthrie tribute from the early '70s that Columbia and Warner Bros. put out different volumes from. I believe that the Kurt Weill record (*Lost in the Stars*) influenced the records that did set off the whole thing; those are the Neil Young and Cole Porter records. They took it somewhere else. Both were great for charities—they wanted to raise money for those charities and were successful at that. They also were easier to sell, meaning they weren't so eclectic. The Young one featured alternative bands, and the Porter had pretty much all famous artists—and the records were really

"I was wary of putting a speaker in my ear...



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good on top of that. After those, a tidal wave of these things came out.

So, anyway, I went, "Okay it's time to move on," but then Michael Minzer came up with this idea for Poe. And it was refreshing to me, because it put a fresh light on this sort of project. It's totally eclectic, but it doesn't feel that way to me. To go from carousels to sound effects to feedback guitar to classical backing [for] the readers or singers, it just seems like radio—like a natural thing.

I also found myself discovering things about Poe, which is still a large reason to do this type of record. I started to see the connection between Poe's stories, which is they have to do with obsession. Say someone you're around makes noise with food or someone sweeps a broom on cement or something and you can't handle it. You're obsessing on stuff until you end up doing something awful. That's what this all is. It's the raven, or the heart or the cat, the cat, the cat. It just keeps going back to the teeth and the teeth and the teeth. It's really interesting to discover that—and to work musically with each case.

How did you choose the artists to participate?

Michael thought of Christopher Walken [who reads "The Raven"] and Gabriel Byrne. Chris Walken's an obvious choice. He actually read "The Raven" in a film. Gabriel Byrne was a brilliant choice. What a voice. And once that got going, I recorded Marianne [Faithfull: "Annabel Lee" and "Alone"], who I'd worked with many times. Then we did a concert at St. Anne's to try out things, and that process brought in Diamanda Galas and Debbie Harry, who I'd also worked with before. And then Dr. John ["Berenice"] and then Jeff Buckley ["Ulallume—A Ballad"], who I'd known and who lived here in New York, and then we got Ed Sanders ["To Helen" and "The Haunted Palace"]. Everybody on the record was someone I'd worked with before, except for Gabriel and Christopher.

Did you pick the pieces they performed, or did the artists?

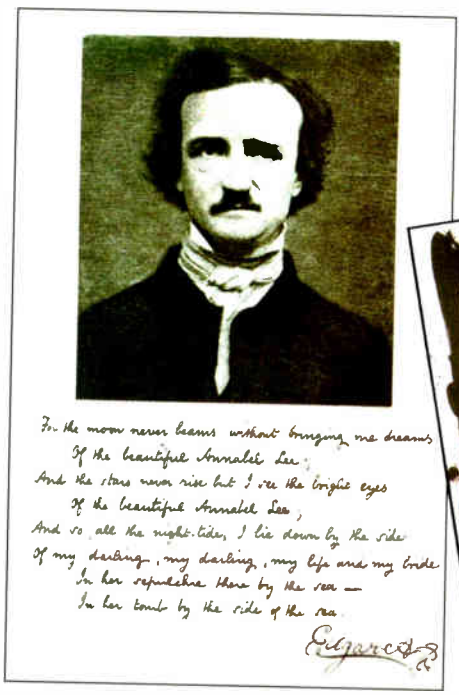
Michael and I did, except for "To Helen" because Ed had written a melody to that, but then we shoved "The Haunted Palace" at him. He didn't, in those cases, know we wanted songs, but it was great that he did them. It's kind of wonderful that he came in with these songs.

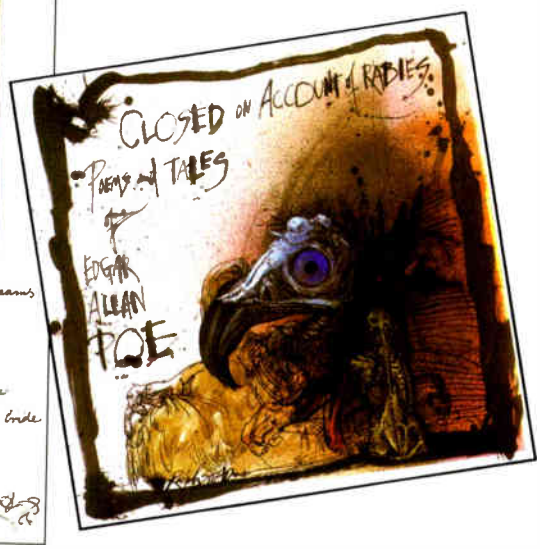
Were there other cases where the artists surprised you with music, or did you decide for the most part which pieces should be read and which should be sung?

It just happened. Debbie Harry read "The City and the Sea," and we thought that Roy Nathanson [of the Jazz Passengers] would write background music for it, but he wrote a song for it, thinking that's what we wanted, and then when I saw where it was going and the ideas he had for the melody, we just went for it. But all the pieces do have music behind, so all these things are musical.

How did you arrive at the musical arrangements? For example, what made you use that beautiful harp for "The Black Cat"?

They're all samples. I have been doing the sketch music for *Saturday Night Live* for a very long time, and I've accumulated a unique library of background music that was made to be background music. The samples were from those kind of records, as opposed to commercially released records.





The idea for Diamanda Galas when she was reading "The Black Cat" was, well, I've always been interested in contrasts. It achieves an incredible effect, I think, to have her reading that story against a beautiful, light background, like she's reading the story in the hotel lobby of the Algonquin, while the harp and cello are playing. It comes off even subtly creepier.

What sort of sounds did you go for when you were recording the voices? On the Gabriel Byrne track, for example, when he starts talking about the different chambers of the house, there's more echo on his voice, which reinforces the impression that he's talking about a very large place.

We mixed it in that way. We tried occasionally, with these long stories, to change the sound of the voice a little bit when it's appropriate, which they did in radio. It's not anything new. Any of the "Shadows" did it; it helps you along with the story.

One thing I can tell you is that on Gabriel, on him and on Marianne only, there was not one composite. He read it three times, and that was the third take, without one edit, without one word fix. What an amazing man. But some of the stories are harder than others. "Berenice," which is a brilliant story, is very difficult. You have to hear it a few times, I think, because it goes on for a while into just getting the character of the person, and then it builds very quickly to the end.

What was interesting at that session was I'd given it to Dr. John a lot earlier, and I didn't re-read it. When I got to the session, I went through it quickly, and I went, "Oh, no, I forgot there's Latin and French in this." But when he got there, he read it, and he nailed this French and Latin. And he looked at me and he said, "Well, I was a choir boy, you know."

Did one engineer record all of the voice sessions?

No. Marty Brumbach did a great deal in New York, and Eric Liljestrand, basically those two.

Eric also worked on the more recent Kurt Weill record you did.

Kurt Weill and *Kansas City*. I tend to stick with the same engineer until they either relocate or outgrow the position. Joe Ferla had been doing all my records for a while. I started working with Eric around

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the time of Altman's *Shortcuts* movie. He recently moved to Los Angeles. Eric is incredible; he has an understanding of sound that is rare. In New York, he was sound-designing a lot of live sound at BAM and Lincoln Center while doing records. I still work with Eric when I'm in Los Angeles, but since he moved, I have found a great working partner in Martin Brumbach in New York. He's very different from anyone I've worked with before, which is good. Technically, the work has been great, and he really cares about everything he does—like the old days! So, I've been very lucky. Besides Eric and Marty, the only other engineer was Blaise, who is Diamanda's engineer. Blaise recorded and edited her session, and Marty and I finished it.

So you recorded the voices first and then took them off to mix with your samples?

Yeah. Went into the studio with a bunch of records and concepts. It was basically mixed in three studios: Philip Glass' studio, The Living Room; Sorcerer in New York; and at Points West Studio, Eric Liljestrand's place in Silver Lake, California.

Tell me some more specifics about the samples you chose: Why the carousel sound for "The Telltale Heart," for example.

The concept there was a John Carpenter movie. You know, those early *Halloweens* have very cheap little soundtracks, and I always found them incredibly effective.

There are whole different genres of horror, from the early days when they used *Swan Lake* in the Bela Lugosi movies—big orchestras—to the little synth sounds of the scores in the late '70s and early '80s. They're all incredibly wonderful. I thought it worked really well, once again, in contrast to what you would normally hear with Iggy, and we really made him scarier, I think. Plus, you don't want to get in the way of the voice. You've got this campfire thing that these stories have—like when a lot of us heard this stuff for the first time—so I wanted to keep the music somewhat minimal.

Why did you ask Iggy Pop to read this story? It sounds almost funny at first in his sort of matter-of-fact Midwestern accent.

Actually, when we were talking about different people to do it, it came down to schedule. We'd talked about using Lyle Lovett, whom I worked with on *Short Cuts*. But we also talked about Iggy, and Michael Minzer said, "He'd be right. He could kill somebody." We talked to them both, because I thought either one of them would have brought their own thing to it—though very different—and Iggy came through first. He's such a pro to work with. He always brings fun to it, and that's what this track is. It's perfect for "The Telltale Heart," because that might be the best-known story that we heard, so it needed a different twist.

And that's another thing about this record that I realized: There are some exceptions, but to my knowledge, the only real recordings of Poe's work have been done by Boris Karloff, Vincent Price, Peter Laurie, Basil Rathbone—all horror voices.

In a press release for this project, you're quoted as saying that a lot of the recording artists you've worked with over the years have cited Poe as an influence and an inspiration. Why do you think people in the performing arts are inspired by Poe?

I think all of us are. My liner notes came from Allen Ginsberg, when he said that "Everything leads to Poe." Because we're all taught "The Raven" in school, and "Annabel Lee." I had them memorized at nine.

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CIRCLE [illegible] ON READER SERVICE CARD

So you think it's partly because it's some of the first great art that we understand and love?

Yes, and because if you're going into the arts, you end up back there; he turns up for some reason. It works when you're a child, and as you get older, you see him in different dimensions.

And he does have that evil kind of thing attached besides the beauty, and that makes him more complicated. Everyone from Baudelaire to Bob Dylan to William Burroughs to Nine Inch Nails—you can find Poe in their work.

How is producing spoken-word records different from producing music records, or is it?

Yeah, it is, but you still have to get a performance out of somebody, whatever that takes. Of course, most of my things are having an artist do something different than they normally do, so I've got a head start already; it's not business as usual.

You've got to create a framework for an artist to be themselves, feel comfortable and get a good performance. It's a philosophy I learned from Joel Dorn years ago. And then, later, working with Robert Altman and seeing how he approaches film, [I learned that] the trick is casting the right people to create a strong framework and then let them do what they do in that framework; let it go from there.

There are certain sessions I've done in my life when I basically just sat there and ordered food, and some where I had to take over every aspect. I felt I did just as adequate a job on the one where I did nothing. You've got to know that the result is what's on the tape, and the way to work is however you get to that. I'm in the middle, I guess, of being able to let something happen as it needs to and being able to take over if I have to.

Tell me about your latest Kurt Weill collection, September Songs. ***How did you end up revisiting this Weill material?***

Rhombus approached me when I was in Canada promoting [the first Weill collection] *Lost in the Stars* years ago. They had an idea to make a film based on the Weill material.

Now, with all of those records, even starting with Nino Rota, I was always getting approached by people wanting to do a concert or a film, and I'd say, "Yeah right, sure. You know how complicated that would be?" We're going to do the Disney album live, you know. We're going to get Michael Stipe and then Ringo and U2. I mean, if they could pull this off, I'd be thrilled, but I wasn't expecting anything. But a few years later, here they come with the ability to do it.

But it was Larry Weinstein's film. Totally Larry's film. I just made suggestions, came and produced the music and then disappeared and put the soundtrack album together, which also includes archive pieces. I don't consider that part of my series, but it was a great opportunity to re-look into Kurt Weill.

Did you choose all the artists or did the filmmakers choose them?

Some of the artists, they picked, and then I just had to go work with them. They picked PJ Harvey. I picked Buster Poindexter. We both picked Nick Cave. There are some things on there I really love. Recording Elvis Costello with the Brodsky Quartet, William Burroughs, Mary Margaret O'Hara, which is my favorite, and Betty Carter—it was great. The only problem with that project was that a lot of it had to be done in February in Toronto, and I couldn't believe it. You couldn't even go out.

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CIRCLE #053 ON PRODUCT INFO CARD

the new are wonderfully seamless on this album, musically and soundwise.
The sequence was a collaboration of Larry, Sony Classical and myself. And Eric Liljestrand did a great job mastering in his own Points West studio. He also recorded most of the record—that and the Robert Altman films. Eric and I did those together.

Tell me what your responsibilities were on the film **Kansas City.**
Basically, Robert Altman gave me a very strong framework; I knew what he wanted, and that was to re-create 1934 Kansas City after-hours clubs. So I put together a great team using Steve Bernstein and Butch Morris to help me out on arrangements. Jazz has become so segregated, but we picked a few people from each jazz scene we liked, many of whom we knew wouldn't like each other. We knew they'd come down and there would be mounted up tension; they'd try to outplay each other, and that's what Bob [Altman] wanted.

I heard that this music was recorded live during filming. Is that true?
All of it. Everything that's on the film is live. You can't lip-synch that. Eric did an amazing job. You did not see one microphone. He had them hidden in Coke bottles, shoes, flower pots. There was only one time when there was a breakdown in the sound, and it was all done within a two-week period. I think the *Saturday Night Live* experience helped me there, where you get these people together and then the show's on Saturday. A lot of other people don't normally work like that.

Now, we've got a Volume 2 that's just out, and we're going to do another record with that same band next year; we're having them work with contemporary artists but in that style.

There's a quote from Wif Stenger in your bio that says, "As the walls between jazz and rock and pop crumbled in the '80s, one of the bravest hammers was Hal Willner." Are you conscious of trying to break down barriers between genres or eras of music?
That was already done. That's what I came out of. I come out of being locked in my room, watching the Ed Sullivan show going from the Rolling Stones to a monkey act to Jackie Mason to plate spinners, to listening to '60s underground radio rock stations: Dylan, Hendrix, Captain Beefheart, Orson Welles, Ornette Coleman on the same station. That's just how I hear stuff. It's one big melting pot for me. ■

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CIRCLE #059 ON PRODUCT INFO CARD

PAUL WICKLIFFE

ON HIS OWN TERMS

PHOTO: JIM CURRY

Paul Wickliffe (seated, front) with Special EFX members Chieli Minucci (L) and George Jinda (R), working in Room 3 at Skyline Studios in 1994

Paul Wickliffe has a lot to say, but don't expect a lot of sweet talk coming down the data stream—he has been around the studio business for more than two decades. A New Jersey native, Wickliffe currently resides in the central portion of the Garden state with his wife, the highly regarded jazz diva Roseanna Vitro, and their 14-year-old daughter, Sarah.

Wickliffe originally studied filmmaking at NYU's film school, where he made films with classmates Joel Silver (producer of *48 Hours* and *Die Hard*), Robert Colesbury (producer of *Mississippi Burning*) and Amy Heckerling (writer/ director of *Look Who's Talking* and *Clueless*). He had played guitar, piano and drums since grade school and continued to be drawn to music throughout college. Eventually, Wickliffe opened his own project studio, Studio 28, in New York.

Studio 28 started by attracting a jazz and folk clientele, plus jingle and publishing demo work. After three years, it became apparent that the Otari 8-track room would have to yield to a larger multitrack space and, in 1979, Wickliffe opened Skyline Studios. Skyline began attracting "A" clients from the jump, and Meat Loaf, Pat Benatar and Kashif, plus ad agencies and top-shelf industrial shows regularly tracked there.

Things really took off when Wickliffe installed an SSL console in 1985. Within two months, Nile Rodgers, then riding a wave of success with Madonna's *Like a Virgin*, came by to check out the facility. Rodgers must have liked what he saw and heard; he booked the single-room studio for five days a week, 50 weeks a year, for seven years.

Rodgers brought with him many fabled clients, including Sheena Easton, Al Jarreau, Duran Duran, the Vaughn Brothers and the B-52's, who recorded "Love Shack" at Skyline. Rodgers also brought James Farber, his personal engineer, and Skyline's technical staff was already in place. Work was flowing, and Wickliffe was the proud papa of a one-year-old girl; he felt that it was time to step back, and he took a two-year break.

What did you do in your two-year hiatus?

I engineered weekend gigs and got back to my roots. I was able to pick and choose the clients I wanted to work with more selectively than I would if I was struggling to make a living. I picked up Special EFX as a client, and the first record I engineered for them resulted in a Grammy nomination for Best Engineering in 1986.

I focused on the design and construction of the second 48-track SSL room [added in 1987] and a MIDI production suite in 1988. By then, it was time for me to get back to full-time engineering.

Eric Clapton recorded at Skyline during this period, and Mariah Carey's first two albums were recorded there as well. The New York studio scene was extremely competitive at that time. What made Skyline so attractive to this level of clientele?

First and foremost, we were known for impeccable maintenance. I had three full-time maintenance techs working around the clock—literally. That adds bucks onto the rate, because the best techs get paid well. Reliability is a most prized commodity in the studio business.

Why did you decide to close Skyline when it had been so successful?

In 1994, the MIDI/ADAT revolution was eroding the dominance of the full-service studio and rate wars were common. I spent more time sweating the business than making records. I either had to downsize and offer lower-quality service or go out of the business on top!

Mix readers had nominated us for five consecutive TEC Awards as one of the top facilities from 1989 to 1993. While I didn't relish the thought of leaving New York, the idea of compromising what we had achieved was totally unacceptable.

BY GARY ESKOW

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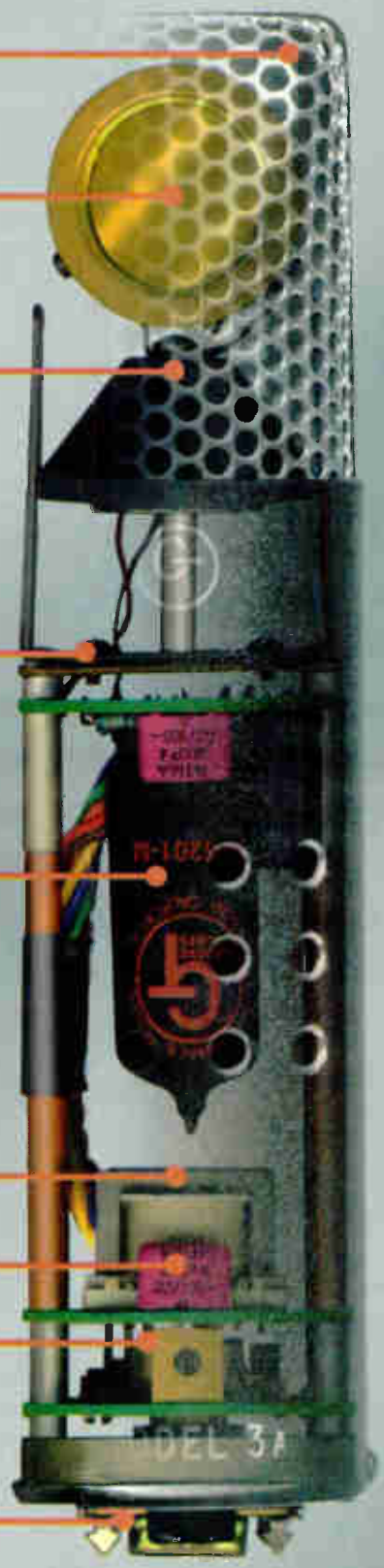

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CIRCLE #057 ON PRODUCT INFO CARD

I would like clear up the false impression that Nile Rodgers' decision to leave Skyline was the reason I closed the studio. The fact is, an unscrupulous New York studio owner—who will remain unnamed—made Nile an offer he couldn't refuse, selling him studio time below their cost, not because he wanted Nile as a client, but simply because he didn't want me to have him. Nile took the offer, but he only stayed at this facility for a few months, nothing like the seven years he spent at Skyline.

When things were really smoking at Skyline, you were able to take some time off and you built a small studio in your New Jersey home. This actually worked out quite well for you in the long run, didn't it?

Absolutely. Back in '85, when I got locked out of my own room, I put in a studio in my house and continued to work in it. I found out that with a staff of one and no rent, I could make as much money as I was running Skyline with 15 employees and a million a year in overhead!

How would you distinguish the roles of engineer and producer?

The producer gets involved in the creative process, making decisions about the content of the music itself, whereas the engineer, at least in theory, makes decisions that affect only the resulting sound coloration of the music, not its content.

But, most engineers will tell you that they start producing as soon as they've mastered engineering to a degree. An engineer can't help but become part of the creative process. Lots of artists can't afford to hire producers, and so the engineer becomes a default producer—although he or she is rarely given credit for it later on.

Compare working at home to tracking in an "A" facility like Skyline.

One obvious distinction is that the time/money equation favors the well-equipped home studio. It's a lot more relaxed of an atmosphere for everyone to work in. When you work in a large room in the city, the producer really has to work out time tables specifically, as far as union schedules go. Out here, you're generally booking players by the tune, so things are looser.

Still, you had SSLs and any piece of gear a producer could ask for at Skyline. Is it hard to work in more modest circumstances?

My console here is the Amek 2500 that came from Skyline's MIDI room. I gutted it, repotted it, put in all new capacitors and modified the routing so that it behaves like an SSL.

I use Optifile Tetra Automation, which is great. It's an add-on package to the 2500 that emulates SSL VCA automation or Flying Fader-style automation. The EQ on this board is fabulous: four-band full parametric that's very musical-sounding. So, as far as the console goes, I don't feel shortchanged as a producer working this room one bit.

Now my take on gear is this: I hear some guys whine that they can't get a sound on anything but a Class A Neve and the "box du jour." I believe a good

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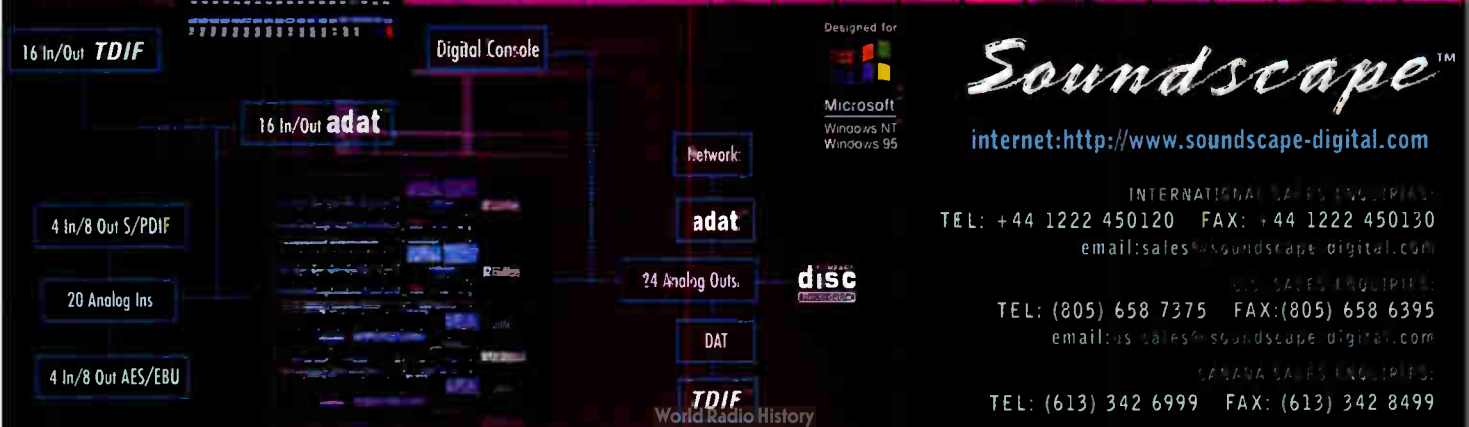

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engineer can get a great sound on a Mackie, if he knows what he's doing. High-priced toys are great but not essential. I hate those gear snobs who quote the hype out of magazines but can't learn how to make the most out of less!

What's your monitoring setup?

I use a pair of Tannoy DMT8s and a pair of Yamaha NS-10's. The DMT8s emulate your warm and sparkly hi-fi speakers, while the NS-10's are the polar opposite. If you have a mix that works on both extremes, it works.

Your listening area is fine, but there's no way it can compare to the acoustic environment you created at Skyline. How do you deal with that?

I stay relatively close inside the listening triangle, about four feet equilaterally, when I'm judging a mix. Near-field monitoring makes the acoustics outside less of a factor. I don't back speakers up against the wall and have about 20 feet of dispersion room behind me, which really helps the standing waves. I made sure that all parallel reflective surfaces were damped or broken up.

At Skyline, I designed rooms that were large enough to record modest orchestral dates. The control rooms had to be spacious enough to handle a flood of ad clientele or large pop acts with their entourage. A much larger area had to sound good, so you needed to pay closer attention to acoustic accuracy and design.

As a studio owner, if you're lusting after the biggest names in the biz, you have to have all the details working as perfectly as possible. In truth, you can make great-sounding records with far less resources.

Paul Wickliffe in Skyline Studia 6.

You seem to favor live playing. How do you feel about the state of MIDI in pop music these days?

MIDI has made musicians lazier! Players become insulated in their own home studio environments, and that's bad. As powerful as sequencers are, they have little soul and no collective consciousness. A band is more than just the sum of its parts; compare the Lennon-McCartney tunes to any work written by them as individuals.

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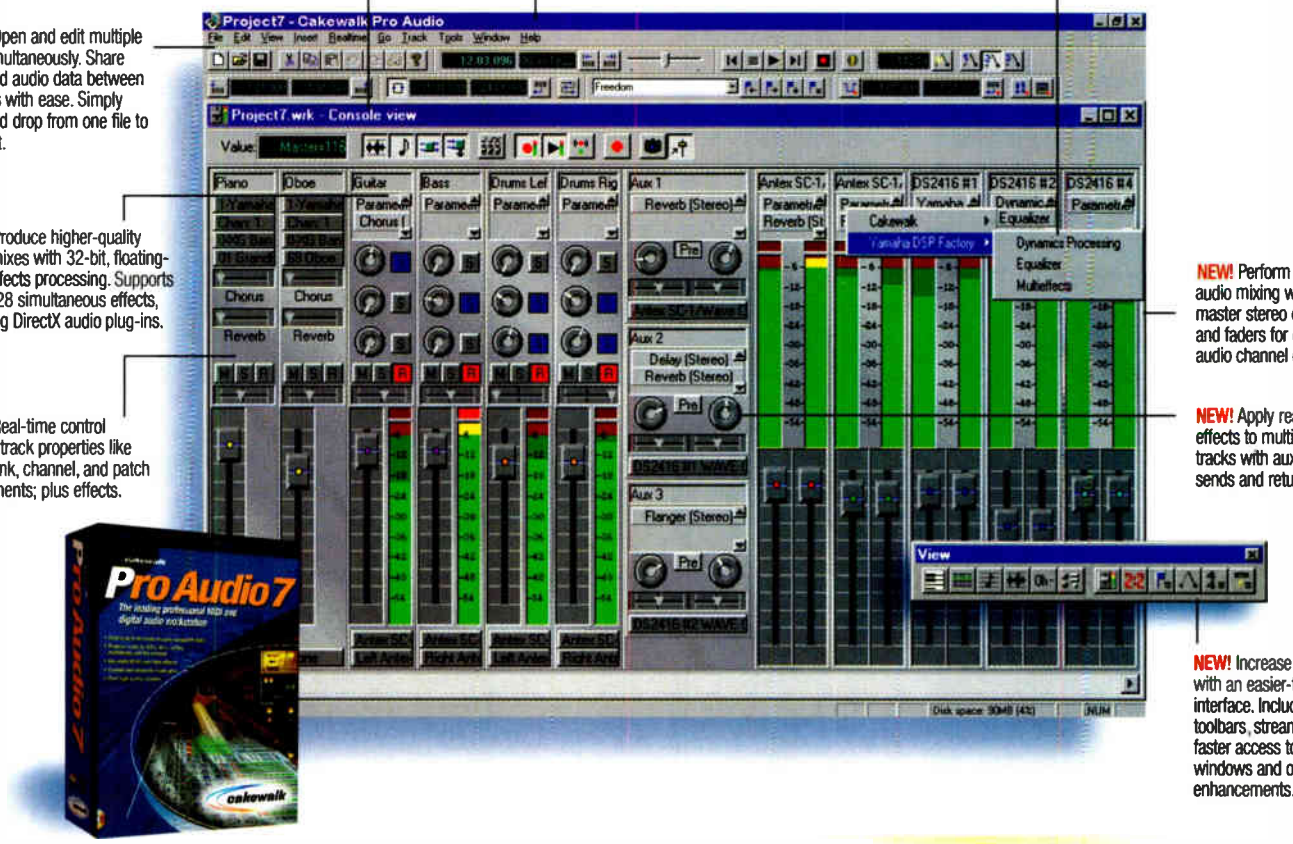

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CIRCLE #061 ON PRODUCT INFO CARD

PRODUCER'S DESK

If you're sitting and programming a sequencer all day, for God's sake go out and play with people at night or on weekends. When sequences came into vogue in pop music is when I made my move to jazz. Unfortunately, now most contemporary jazz is sequenced. I find myself "unquantizing" tracks before they are laid down to make them more believable as performances. I hate quantized horn and string patches; no section ever played like that.

How important is it for music producers and artists to be market-savvy from the get go?

Essential! The term "music business" is an oxymoron. What is good for music, like innovation, virtuosity and uniqueness, is bad for marketing, and what's good for marketing, like imitation, predictability and the lowest common denominator, is bad for music. The role of a successful producer is to find the balance between the two concepts. As a producer of contemporary jazz records, if I produced what I like musically, it would be fusion, funk and acid jazz. Unfortunately, the radio doesn't play those records; they play only "smooth jazz," because they care more about selling more advertising than playing what's hip.

There is a format consulting service known as Broadcast Architecture that puts together a test audience based on the demographics of black females between the ages of 25 and 35 to audition contemporary jazz records. They control the play lists for most stations in this format nationwide. They've discovered that if you put Kenny G., George Benson and Marvin Gaye's "Sexual Healing" into a blender, what comes out is "smooth jazz," and if you don't taste like that, you're the wrong flavor. Record companies know that if there is no air play, there are no sales, so they have to force their artists to conform to the unwritten rules of the format.

Artists don't want to hear from rules, but until the de Medicis take over the record business, we're stuck with them. The artists who wish to produce themselves may have the technical skills, but without the marketing savvy, they could end up with a lot of digital coasters.

Well, if musicians don't want to make records that fit into neat little categories, they can put out their own CDs, right?

Since everyone has the technology to make their own records, there are tens of thousands of artists who wouldn't ordinarily have had record deals who now have their own records. The market is flooded with product, and retail is choking on it. There is such a glut of product that most retail chains require you to cough up a product placement fee of several grand to, in essence, "rent" shelf space from them at your own risk.

It is possible to bend the rules. I produced a record for traditional jazz vocalist Roseanna Vitro called *Catchin' Some Rays—The Music of Ray Charles* last year. Her label, Telarc, didn't want a second "traditional" jazz record because the sales demographic for straight ahead was too small.

The problem was if she made a contemporary jazz record, her traditional jazz audience would shun her as a "sell-out" and blackball the record. We solved the problem by doing "Unchain My Heart" in a quasi-Miles/Tutu kinda way and made most of the rest of the record straight ahead. We convinced New York's CD 101 to test it, and the record got a very high score. It was added to the daily rotation in February, six months after its initial release.

Any advice for the musician who is an aspiring producer?

A common fault for most beginners in the studio is that they want to record every idea they ever had on a certain piece! The end result is "Where's Waldo?—The Musical," with Waldo playing the melody. "Less is more" is more than a trite catch phrase; it's the mantra. Focus on what is the most important element for the listener to hear from moment to moment and get the other stuff out of the way.

Find a balance between technical perfection on one hand and raw emotional spontaneity on the other. Most jazz musicians are out to show off their chops and technical prowess. I try to point out that if you're out to make records to impress other musicians, you'll go broke. Most people who will buy your records won't know Phrygian mode from a Frigidaire. I go for the emotional connection, flaws and all. To me, that's the key to making a record that will make people want to hear it often enough to buy it. Sometimes I have to fight the artist for the flaws. Imagine standing awestruck before the Venus de Milo and the sculptor is screaming, "What's the matter with you people? Can't you see she's got no arms!" ■

• • •

A discography of Paul Wickliffe's work can be found at his Web site: http://members.aol.com/skylinepro.

Gary Eskow is a New Jersey-based freelance writer and producer.

MIX MAGAZINE PRESENTS

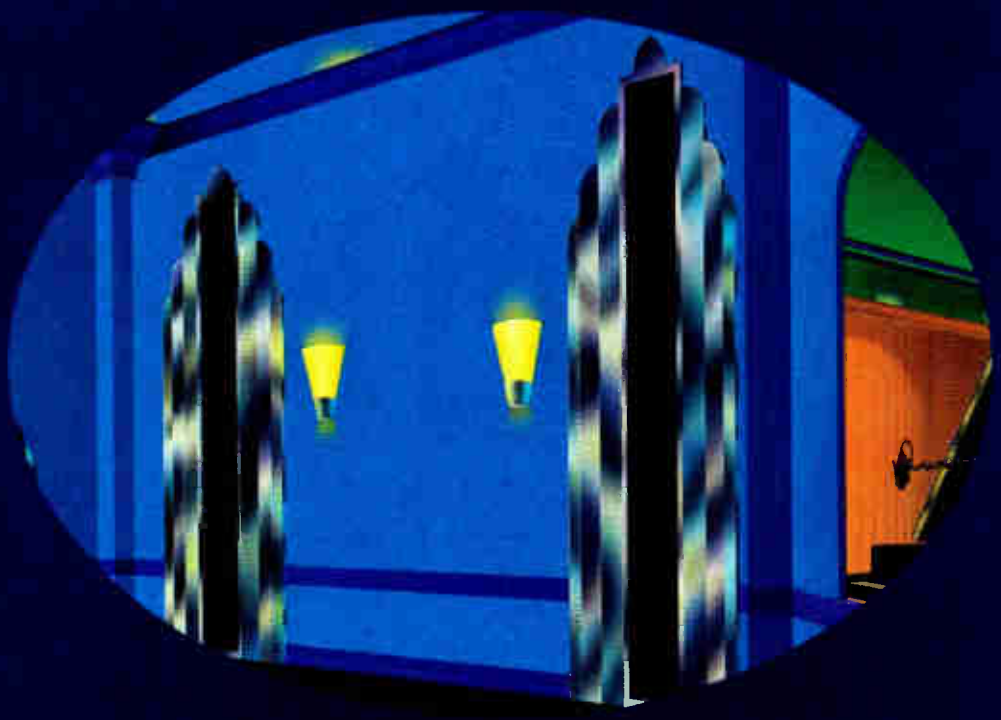
New York's Finest Studios

A WORLD-CLASS COLLECTION OF STUDIOS

New York's Finest

IN THE WORLD'S GREATEST CITY

BY DAN DALEY



Mix's "New York's Finest" supplement arrives serendipitously with the 100th anniversary of the unification of the five boroughs that comprise New York City: It was in 1898 that Brooklyn stopped being the country's fifth largest city and, along with Queens, The Bronx, Staten Island and Manhattan, helped make New York the expansive metropolis that it is.

Much has been made of the literal and figurative "Disneyfication" of New York in recent years. With a continually declining crime rate, cleaner streets, jay-walking barriers, required English for cab drivers, food courts at LaGuardia and $50 million of new investment at JFK that could actually make it a livable airport once again, New York is truly a warmer and fuzzier place than it was a decade ago. But while the first example of professional audio to greet you in New York may be those annoying recordings of Joe Torre, Dr. Ruth Westheimer or Jackie Mason urging you to buckle up after you step into a cab (prolonged exposure to which could eventually reverse the homicide trend), this kinder, gentler city hasn't lost its creative edge. It's still home to many of the world's leading studios, as well as the site of the annual Grammy Awards ceremony. In fact, Manhattan continues to have a higher density of world-class recording facilities than any other city in the world.

New York City is where the modern recording industry began. Within 40 years after Thomas Edison had perfected the cylindrical recording machine in his Menlo Park laboratories, across the Hudson River in New Jersey, most of the major record labels—including Decca, Columbia and RCA—had established their own recording studios in Manhattan. At a time when the recording studio business was making the transition from being a subset of the radio industry, these new label-owned facilities built the large, ambient spaces that would come to define the way records would sound for decades to come, from the Big Bands to rock bands. And it was in New York that the trend toward individually owned studios began to emerge, with facilities like A&R Recording and Nola Sound Studios cropping up in the late 1950s and 1960s, serving a new and growing niche of independent producers and setting the stage for the golden age of New York recording, when classic facilities like Media Sound, Skyline Studios, Record Plant and Power Station ruled the roost.

While the mantle of cultural trendiness has been passed back and forth between New York, Los Angeles, London, San Francisco, Miami, Nashville, Athens, Minneapolis and Seattle over the past three decades, New York City has retained its position at the top of the heap thanks to its combi-

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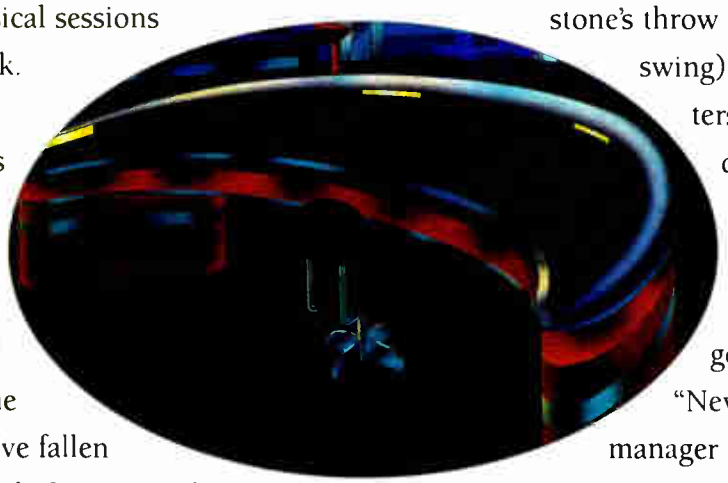
Cover illustration: Michael Carter
Art direction: Judy Oliver
Internal design: Michael Zipkin, Lucid Design

nation of top-quality studios and the comprehensive entertainment industry infrastructure that exists there—from record label headquarters to talent and booking agencies to the Wall Street investment firms that now underwrite so much of the entertainment business.

The pull of Madison Avenue—still vibrant, though several major advertising agencies have migrated to the trendier environs of SoHo and TriBeCa—has maintained New York's position as the locus of the television commercial industry in the U.S. And many people believe that the city's studio musicians are unsurpassed. Certainly, there is tremendous variety for session players, from commercial jingles to rock records to classical sessions and soundtrack work.



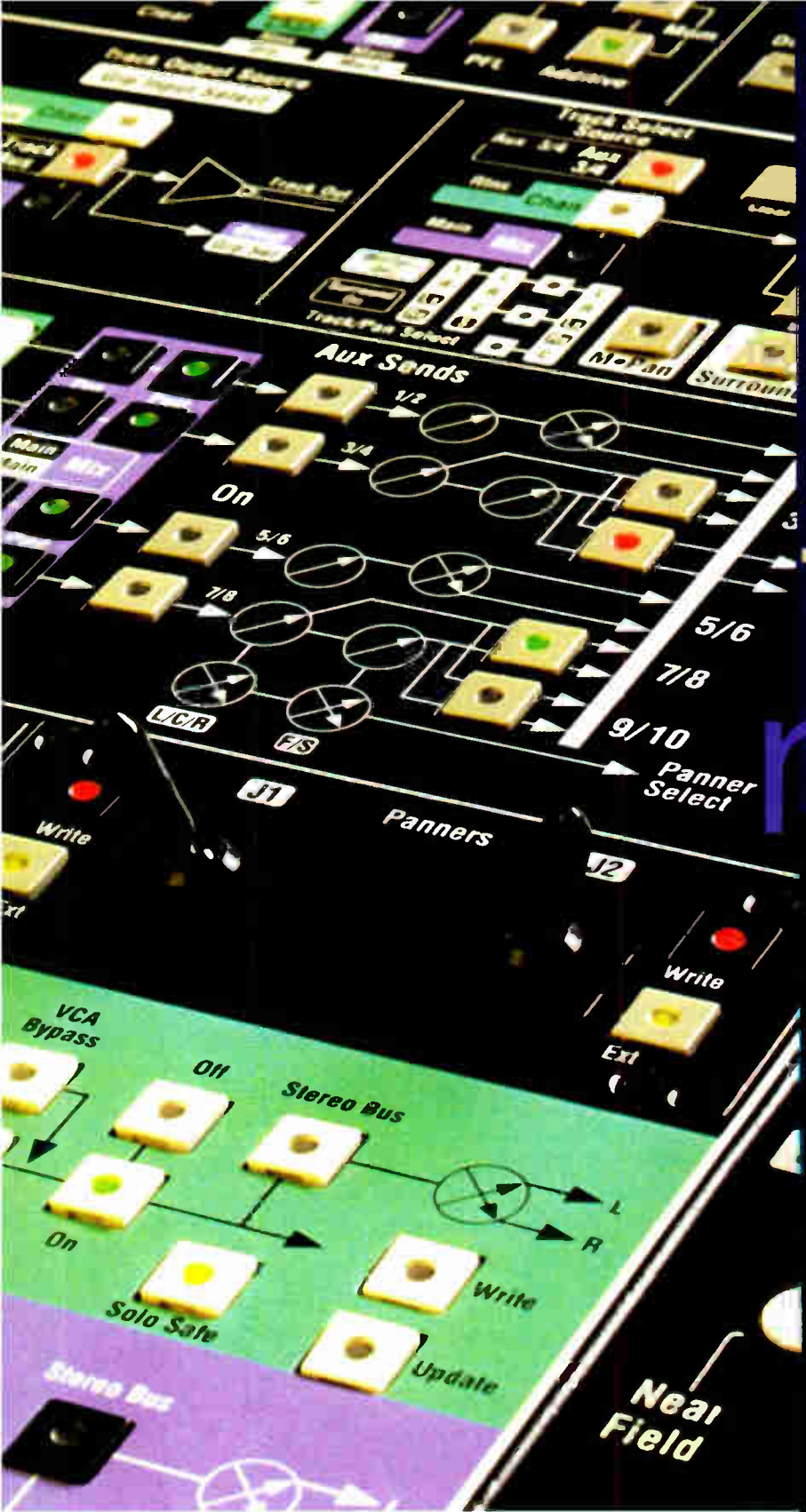
Meanwhile, the city's studio base has remained robust throughout the periodic upheavals of the entertainment business. While some recording studios have fallen to the changes wrought by personal facilities and new-media technologies, the vast array that remain are strong and diverse. The vertically driven nature of Manhattan real estate has produced multiroom facilities on different floors of the same building, or in more than one building, with a range of studio and control room types. New York also has achieved a level of rate stability that most studio communities envy, making this city both affordable for clients and economically viable for facilities.

Technologically, New York is at the apex of the industry, with everything from SSL 9000J to Neve Capricorn digital consoles and an assortment of vintage gear that would fill a history book (as well as several major equipment rental agencies, which fill in any gaps). New York is a magnet for talent of all types, so the pool of engineers, producers, musicians, composers, copyists, arrangers and all the other talent needed to make up a world-class audio center are abundant.

But as good as the studios, technology and talent are, it is New York's unparalleled cultural life that makes it the amazing place it is: Many of the world's finest hotels, restaurants, museums, theaters, cinemas, parks and an array of services that can cater to any need are within a stone's throw (or at least a golf swing) of the recording centers. And New York studios have learned to avail themselves and their clients of this cornucopia of services, goods and culture. A "New York's Finest" studio manager is as much a five-star concierge as he or she is a facility executive. The inside joke in the jingle industry was that New York kept the lead in that business simply because it has the best bagels. New Yorkers will tell you the city has the best of *everything*, and that's what clients of "New York's Finest" can expect at these studios: simply, the best.

(Oh, and a parting tip of the hat to the group that was officially dubbed "New York's Finest" long before there were recording studios anywhere: the NYPD.)

Dan Daley is Mix's East Coast editor.



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JONNIE MILES

Avatar Recording Studios

Avatar Studios continues to build on the legend of the Power Station Studios site it now occupies. An entire pantheon of contemporary artists—from Bruce Springsteen to Eric Clapton to Barbra Streisand—who have generated dozens of Gold and Platinum awards were recorded within the massive brick walls of what once was a New York City subway power substation. When new owner Voikunthanath Kanamori purchased the studio in 1996, he immediately recognized the magic of the facility and set about enhancing the foundation of the studio's sonic excellence and creative atmosphere, along with the high level of client and technical service portrayed by the staff.

"What sets us apart are the rooms at Avatar," explains Zoe Thrall, president and general manager. "Acoustically, this is undeniably one of the great recording facilities of the world; that's clear from the studio's clientele, and it's what keeps leading engineers and producers like Kevin Shirley, Al Schmitt, Tommy LiPuma, Joe Ferla, Jim Anderson and Jason Corsaro coming back. And the depth of our current client list, which includes Aerosmith, Sean 'Puffy' Combs, Diana Krall, Moby, Journey and film scores like *Armageddon*, is wider than ever. But what has changed is that we extend the benefits of this facility to as wide a range of artists and music as possible, from unsigned bands to up-and-coming producers and engineers. Avatar's philosophy is 'more access to excellence.'"

Studio A is a large, ambient, three-way modular tracking room with a spacious control room housing a classic 40-input Neve 8068 console. Studio B offers a punchier sound with its divided tracking space and SSL E/G console. Studio C is a spacious rectangular recording room that can be divided into three areas with an additional three iso booths. The control room's 72-input Neve VRP console includes a custom 24-bit/96kHz A-to-D converter. Though it offers a spacious 323-square-foot overdub room, Studio D's large control room was conceived as a mix room and audio-for-video/film studio, and its 80-input SSL 4000 Series console with G computer is designed to handle the large number of inputs that contemporary film, video and record projects require. Its custom Augspuger monitors and subwoofer keep the sound consistently accurate and articulate.

All of the studios at Avatar can access the facility's full-format arsenal of Studer A800 24-track analog decks (w/Dolby A or SR and 16-track headstacks available), Sony 3348 and 3324 digital decks, and Otari 32-track DTR-9000 machines, as well as an extensive array of outboard equipment and classic microphones.

"The acoustical and technical aspects of Avatar are always of primary importance," says Thrall. "But equally important is the emphasis we place on the uniqueness of each individual artist's and producer's needs. Everything here—the technology, the studios and the staff—is geared to making the music and visions of the artists everything they can be."

Studio Specs

Owner: TPB, Inc., Voikunthanath Kanamori, chairman. **Manager:** Zoe Thrall, president/general manager, Tino Passante, assistant manager. **Engineers:** Roger Keay, chief maintenance technician; Dan Gellert, chief engineer. **Dimensions:** Studio A 52'x48x35, control room 423 sq. ft.; Studio B 30'x20x15, control room 329 sq. ft.; Studio C 40x24x24, control room 432 sq. ft.; Studio D control room 575 sq. ft. **Mixing Consoles:** 48-input custom Neve 6066, 48-input SSL 6060 w/G Series automation, 72-input Neve VRP w/Flying Faders automation, 80-input SSL 4000 w/G Series automation. **Tape Machines:** Studer A800 24-track (w/Dolby A or SR and 16-track headstacks available), Sony 3348 and 3324, and Otari 32-track DTR-9000, Studer A80, A820 2-tracks, Sony 3402 digital 2-track, Panasonic DATs. **Signal Processing:** Large array of vintage and contemporary signal processing, with over 60 Pultec EQs. **Monitors:** Altec Big Red, UREI 813, Augspurger custom, large array of reference monitors, Bryston 7B and Yamaha P-2200 amplifiers. **Of Special Interest:** Pro Tools 24, EDNet ISDN capability in all rooms, Dolby Surround, 2 live chambers, 7 EMT plates, Telefunken Redd 17 12-input console (EMI), large selection of tube, ribbon and FET microphones.

AVATAR STUDIOS

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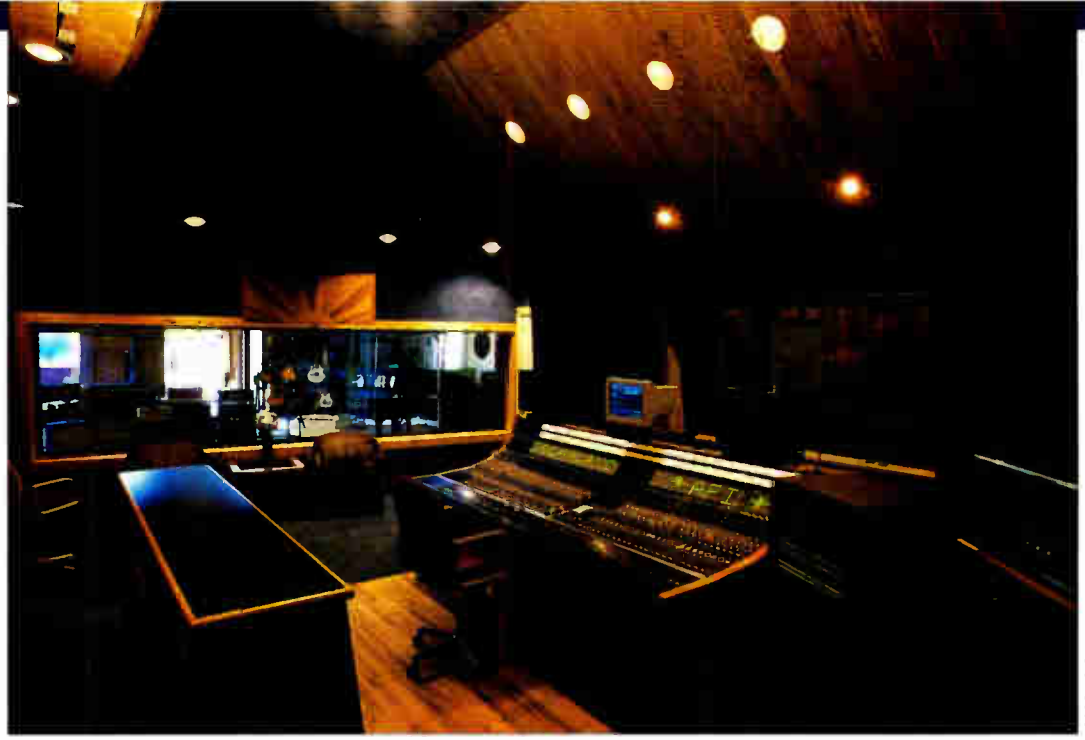


DION OGUST

Dreamland Recording Studio

Dreamland Recording Studio is nestled in the idyllic setting of the upper Hudson River Valley, near the legendary music/cultural center of Woodstock. The studio is housed in what was once St. John's Church, which was built in 1896 and whose capacious main room is now an acoustically gorgeous recording studio. Opened by owner Joel Bluestein in 1986, the studio takes full advantage of the large wooden structure, providing an ambient and accommodating space for bands, orchestras, and string and horn sections.

The original design by Bluestein, in consultation with Vincent Van Haaff, capitalizes on the natural sound of the church interior and adds a highly original wiring design that allows innovative microphone placement throughout the room. Four isolation booths—one with a marble stone interior wall—provide a variety of acoustical environments, so the the spacious ambience of the main room can be combined with the tight, controlled sound of the two largest (25x15 and 14x14) isos. The control room underwent extensive renovation four years ago, and by nearly doubling the size of the original, the sight lines and comfort were markedly improved. A vintage 48x48 API Discrete Series console, which has been updated with Flying Faders automation, is complemented by Studer A820 and Otari MTR-90 MkII analog multitrack decks, as well as an extensive microphone collection and a large selection of vintage instruments and guitar amps.

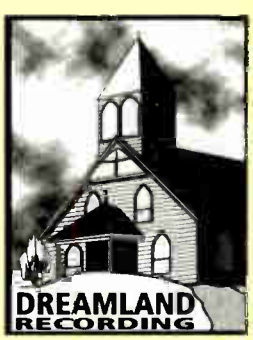
Artists who have been charmed by Dreamland's bucolic setting and classic gear include The Mighty Mighty Bosstones, the B-52's, 10,000 Maniacs, Lisa Loeb, Yo-Yo Ma, Pat Metheny, Better Than Ezra, Tripping Daisy and Joe Jackson, as well as producers Butch Vig, Frank Filipetti and Don Gehman.

"Dreamland is more than the sum of its parts," observes Bluestein. "We put a lot of effort into the technical and acoustical side of the studio, but we've made sure that the personal side is equally addressed." That includes a large client lounge area, kitchen, basketball court, swimming pool, barbecue and video game room. Also included in the daily rate are on- and off-site accommodations, which can host up to nine visitors (luxurious private homes in the area are also available for an additional fee).

"The one thing that we like to point out to people is that this is a one-studio facility," says Bluestein. "When a client rents Dreamland, it's all theirs. It's incredibly private and peaceful, yet it's also creatively stimulating. There are acres of forest and meadowlands, and the Ashokan Reservoir is right around the corner. People really get a lot accomplished in this place. And it's exactly 100 miles from New York City, so everything you could possibly need is just a short trip away."

Studio Specs

Owner: Joel Bluestein **Manager:** Joel Bluestein; Bathsheba Orlando, assistant manager. **Engineers:** John Yates, Suzanne Kapa. **Dimensions:** Studio 40x50x35, control room 25x30x17, 4 iso booths (15x25, 14x14, 4x8, 4x6). **Mixing Consoles:** 48x48-input API Discrete Series w/Flying Faders automation. **Tape Machines:** Studer A820 and Otari MTR-90 Mk I analog multitracks; Ampex ATR-102 2-track, Panasonic and Sony DAT. **Signal Processing:** 6 channels of Shep/Neve 4-band 1073 EQ, 2 channels of Neve 1073 EQ, 5 channels of Neve 3119 EQ, Focusrite, TubeTech and GML mic pre's, EMT 140 plate with Martech upgrade, Teletronix LA2A (2), Pultec EQ (7), Universal Audio 175 comp/limiter, Eventide H3000 (2), Eventide H4000, GML 8200 stereo EQ (2), Neve 33609 comp/limiter, SSL G384 stereo comp/limiter. **Monitors:** Custom JBL 4350 w/Mastering Lab crossovers, Meyer HD-1, Genelec 1031A, Yamaha, Auratone. **Of Special Interest:** 16 channels Pro Tools 24, outdoor swimming pool, fresh air and natural light in the studio and control room.



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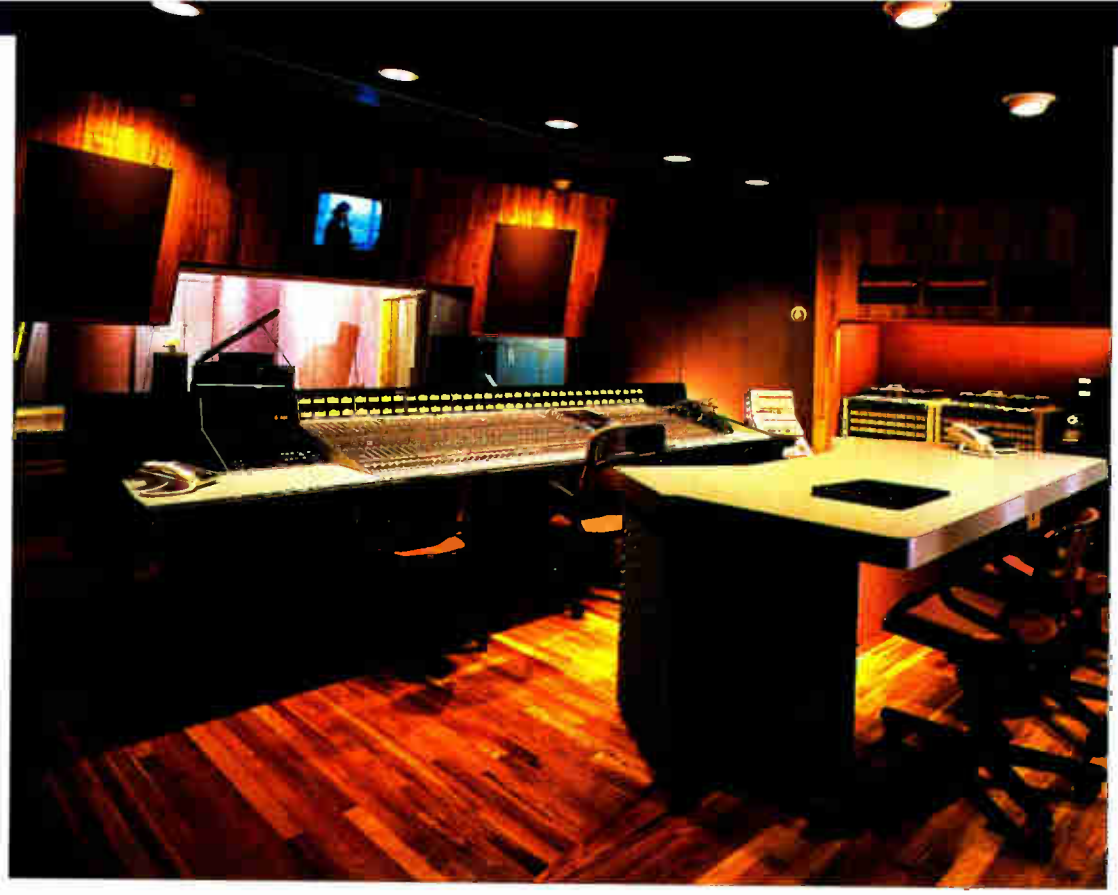

The Edison Recording Studio

The Edison Recording Studio occupies one of the classic acoustical spaces in New York. Originally built over three decades ago in what was once one of Manhattan's premier 1930s Big Band ballrooms, the facility was completely renovated in 1986 under the supervision of Chief Engineer Gary Chester, a longtime veteran of New York's recording community and an acknowledged expert in large-scale sessions. The studio's 3,600 square feet, high ceilings and unique, strategically placed Tectum acoustical treatment material on the walls allow The Edison to handle sessions of up to 60 pieces easily and with perfect fidelity and clarity.

Chester, who has been in the industry since the 1970s, is as much a part of the room's sound as are its size and acoustics. His 20-plus years of engineering includes work on numerous feature film soundtracks, including *Miller's Crossing*, *Dead Man Walking* and *A Bronx Tale*; records for leading artists such as Carly Simon, Sinead O'Connor, the late Carl Perkins, Vanessa Williams and Barry Manilow; Broadway cast albums, including *Jekyll & Hyde* and *Victor/Victoria*; and dozens of television specials for major broadcast and cable networks.

The Edison's studio and staff are extremely versatile, handling jazz combos one day and symphony orchestras the next. "There aren't many big rooms left, and fewer that sound as good as this room," notes Chester. "The beauty of this big room, though, is that it also sounds good with a small band. You truly do get back what you put into it. It's an incredibly accurate live room. And just as important as everything else, all of our clients seem to have as much fun working here as we do."

While it offers space enough to accommodate orchestral and symphonic scoring sessions, The Edison is a single-room facility, so it offers clients a high degree of privacy and dedicated staff support. In terms of technology, The Edison provides a meticulously maintained 56-input SSL 6000E console with G Series computer and Total Recall automation, and as a division of the highly regarded production and post-production facility National Video Center, it also offers a high degree of video and film lock-to-picture capability and expertise, making it a first choice for many film score, television and commercial producers and composers.

Located in the heart of Manhattan's Theater District, The Edison is accessible to most major hotels and many of the city's finest restaurants. The facility's legacy is substantial, but with its growing roster of leading film, television, commercial and theatrical clients, The Edison has made a point of making history on a daily basis.

Studio Specs

Owner: National Video Center/Recording Studios Inc **Manager:** Obie O'Brien **Engineers:** Gary Chester **Dimensions:** Studio 60x60x24, control room 22x22. **Mixing Console:** 56-input SSL 6000E w/G Series computer and Total Recall **Tape Machines:** Sony 3348 digital multitrack, Otari MTR-90 24 track analog (2), Studer A820 2-track, Ampex ATR-104 2-track, Ampex ATR-102 2-track. **Signal Processing:** Large assortment of vintage and contemporary outboard and microphones, EMT 140 plates (2), AKG BX20 (2), AMS RMX16, Lexicon Prime Time II (2), much more. **Monitors:** UREI 813, Yamaha NS-10, Auratone. **Of Special Interest:** Large recording space combined with technical talent experienced in large-scale recording sessions. 24 tracks of Dolby SR available.

The Edison

The Edison Recording Studio
228 West 47th Street
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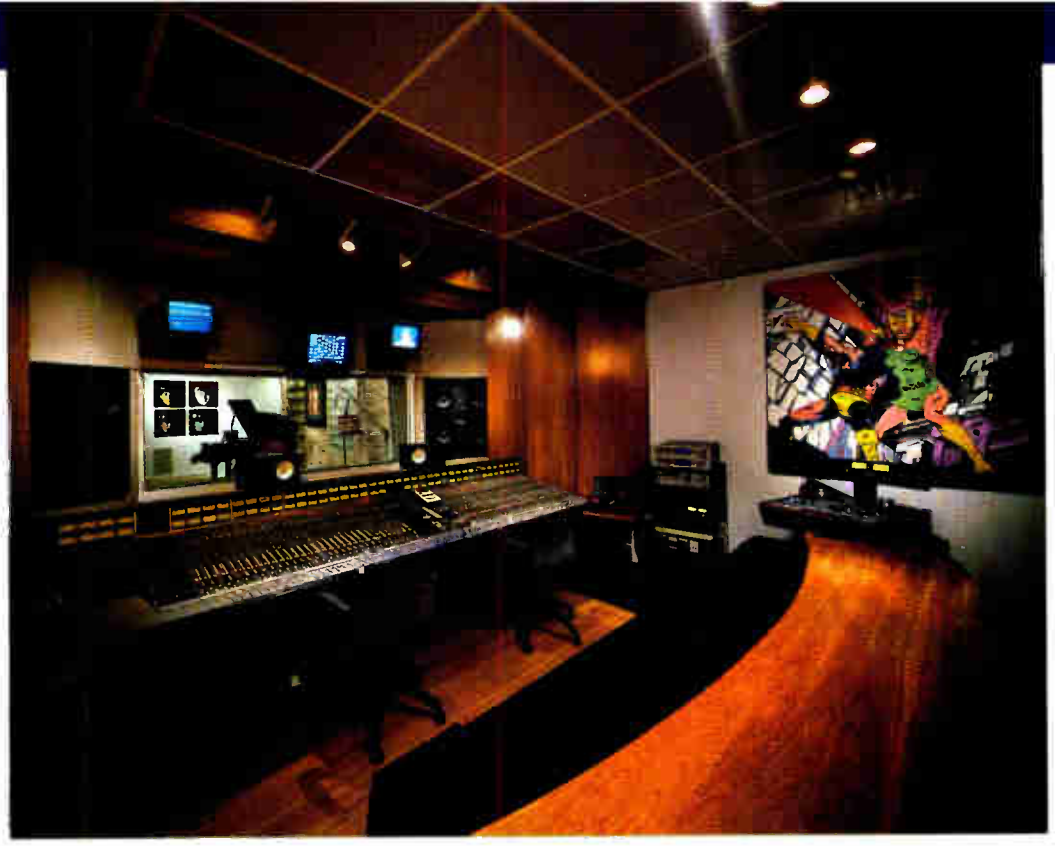

MICHAEL HOLLAND

Gallery Recording Studios

Gallery Recording Studios is quintessentially New York in style, combining the aesthetics of both a recording studio and an art gallery into a single space and giving new meaning to the term "the art of recording." Exhibits of original works by up-and-coming New York artists change twice yearly, and while the studio does sell the works to collectors, Gallery co-owner Clay Sheff says it's the coalescence of visual and audio motifs that creates more than the sum of their parts.

"We wanted a facility in which the people who work here are surrounded and inspired by beauty," Sheff explains. "It truly has an amazing effect on people when they are inspired by their surroundings. It has a tremendous effect on their own art."

Gallery, opened in 1996 as an extension of Sheff's earlier Smash Studios and as a joint venture with partner Bruce Hoernecke, is located in Manhattan's Chelsea neighborhood, regarded by many as the successor to the SoHo vibe of galleries, restaurants and clubs. And befitting the local color, Gallery's main recording room's 34-foot-long walls are as stylish as they are functional, lined by red brick and floored with cherry planking. It's an intimate, interesting and ambient atmosphere, illuminated by natural light filtered through glass bricks and capped by cherry wood arches at the front of the control room that serve the very practical task of diffusing sound while looking quite good doing it.

The two studios were designed by Sheff, noted audio analysis software guru Sam Berkow, Bernie Chlopp and Greg Vizza to complement each other, with Studio A's large, ambient tracking room and the overdub-friendly Studio B often handling entire projects start to finish. Artists and producers who have sampled Gallery's tastes in art and acoustics include The Berman Brothers, Hanson (the monster 1997 single "Mmmbop"), The Real McCoy, Amber, David Byrne, React, Spin Doctors, She Moves, Jackaranda and Alex Bradon.

Large, comfortable pre-production rehearsal spaces located on other floors of the same building remain an integral part of the facility's services. "Gallery is built on the success of the original concept of rehearsal spaces and Smash Studios," says Sheff. "By offering the kind of pre-production facilities that can be used by entire bands in conjunction with the recording studios, Gallery can provide an organic, creative synergy not found anywhere else. It's quite common for artists to develop large-scale projects in the pre-production spaces and move them directly into the studios, which keeps the creative process fresh."

Just as the facility has built upon its past success, Gallery has a vision for its future: Plans include the addition of more recording studios, mastering capability, tape and disc duplication and other services. "Like music itself, Gallery is an ongoing process," says Sheff. "But while we pride ourselves here on our capabilities and services, the art gallery helps us focus on what this is all about: art. The art of music."

Studio Specs

Owner: Clay Sheff & Bruce Hoernecke **Manager:** Yuval Meron **Dimensions:** Studio A 38x26, control room 27-18, Studio B 20x20, control room 15x12 **Mixing Consoles:** SSL 6064E w/G Black EQs and Total Recall, Trident **Tape Machines:** Studer A827 24-track analog (2), Tascam ATR-80 24-track analog, Tascam DA-88 (3), Alesis ADAT (2), Studer A820 2-track 1/2-inch, Otari MX5050 1/4-inch, numerous DATs. **Signal Processing:** Lexicon 480l and 300L, Pultec EQs, Neve mic pre's/EQs, Focusrite mic pre's, TC Electronic M5000, Summit Audio tube EQ/compressor, Tube Tech EQ and compressors, etc. **Monitors:** Quested 410, Quested 208, Genelec, Yamaha, KRK, Tannoy. **Of Special Interest:** Pro Tools 16-track, vintage mahogany Steinway grand piano, large vintage tube microphone collection, large art collection.

GALLERY
RECORDING STUDIOS

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DOIGO NEWGART

Greene Street Recording

Greene Street Recording lies behind an unprepossessing doorway in the heart of Manhattan's SoHo district, where for 22 years it has stood as one of New York's premier facilities. Over the past two decades, the studio has become a magnet for emerging music genres and has remained a base for many seminal artists as they leap onto the world stage. The studio, says Greene Street owner Steve Loeb, became one of the central focuses of downtown Manhattan's emerging new media community, attracting a plethora of multimedia artists—composers, musicians and performance artists—before that term had entered the language.

Greene Street (formerly Big Apple and Basement Recording) has covered a lot of artistic bases: The heavy metal band Riot, whose 11 albums were produced by Loeb, used Greene Street as the foundation for their multi-Platinum success; rappers Kurtis Blow cut "The Breaks," and Shannon recorded "Let the Music Play" at Greene Street—both significant records that helped steer rap into the mainstream. And while recording at Greene Street, young Brooklyn rappers Run-D.M.C. heard Loeb's Riot productions and, according to their autobiography, credited the experience as sparking their groundbreaking fusion of rock and rap. "I remember saying to them, 'Hey, can you do that?'" recalls Loeb with a laugh. "Next thing I know, 'Rock Box' is a huge hit." Sonic Youth made *Daydream Nation* at Greene Street, Philip Glass recorded his classic *Einstein on the Beach* there, and alternative acts Luscious Jackson and John Spencer Blues Explosion continue to make their records at the studio.

Studio A, originally designed by John Woram and Greg Shriver (the studio is featured on Woram's classic book *Handbook of Recording*), once housed New York's first Neve console and today features a new, all-discrete, 32-input API Legacy with a 24-channel monitor section and Neve Flying Faders automation. The board combines with a vintage Studer A800 MkIII 24-track to produce a classic sound. Studio B, designed by Francis Daniel and Vin Gizzi, has an Amek APC 1000 with Massenburg automation and Total Recall, with Studer A820 and A827 24-track analog machines. Studio C is a comfortable hard disk editing suite, featuring Sound Tools. Each studio has a copious array of dedicated vintage and new outboard equipment, and all three studios share a large assortment of floating outboard, microphones and monitors.

The secret of Greene Street's magic is that it has always been regarded as a nurturing home to creativity as much as a recording studio. As in a family, wisdom has been passed down over generations—from former chief engineer Wieslaw Woszczyk (now head of Montreal's McGill University Tonmeister program) to his protege, engineer/mixer Roddy Hui, who went on to cut several seminal Urban records at Greene Street, as well as pop hits like Bonnie Tyler's "Total Eclipse of the Heart." "A number of engineers who got their starts here and went on to make great records come back all the time," says Loeb. "It's a reflection of how we can make anyone feel comfortable here. It was producer John Robie, who has been recording here for 20 years, that paid the studio the highest compliment when he said, 'You don't feel like you're coming to work when you come here. It's more like visiting a friend.'"

Studio Specs

Owner: Steve Loeb **Manager:** Dave Harrington, VP of operations. **Engineers:** Rolf Hui, VP/chief engineer. **Dimensions:** Studio A 40x18x10, control room 15x27, Studio B control room 28x18 **Mixing Consoles:** 32-input API Legacy w/Flying Faders automation, Amek APC 1000 w/GML automation and Synch Reset **Tape Machines:** Studer A800 MkIII, A820 and A827 24-track decks. Studer A810VU 1/2-inch 2-track (2), Studio A827 1/2-inch 2-track, Panasonic DATs, HHB CD burner **Signal Processing:** UREI LA2A, LA3A (2), 1176 (11), ADL1000 (5), Joemeek, Gates Sta-Level, SA-39B, Neve 224/E, TubeTech LCA2A (2), Altec 1612A, dbx, API, Eventide, large selection of Pultec, Lang, Mavec, GML, API and Manley EQs: Lexicon 480L, 224XL, PCM42, PCM60, PCM70, AMS, EMT, AKG, Publison, Eventide **Monitors:** Meyer 833, Quested 412 softdome, Yamaha NS-10, Tannoy PBM 6.5, KRK 7000, Peavey/AMR Phase Reference **Of Special Interest:** Mics include Neumann, Schoeps, Microtech Gefell, AKG, Sennheiser, Sanken, Sony, Shure.

GREENE STREET RECORDING

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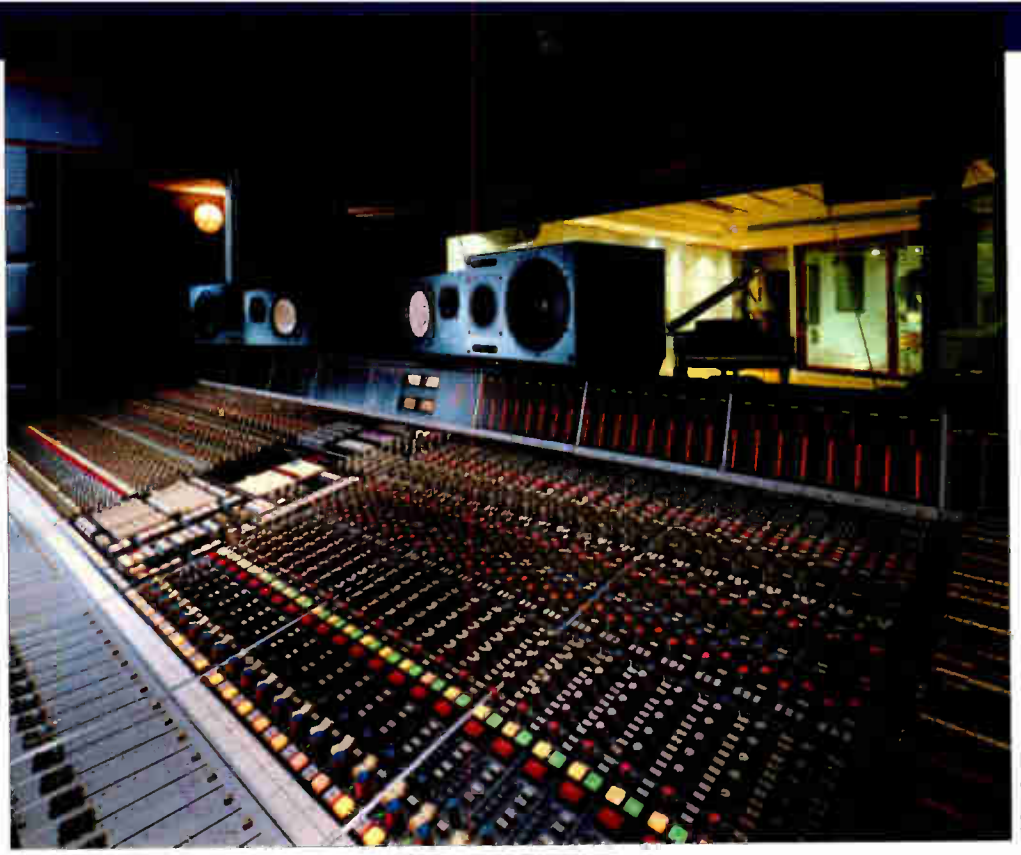

TOM REISS

Kampo Audio/Video

Kampo Audio/Video is a four-studio complex as eclectic as the colorful NoHo neighborhood in which it's located. Established in 1982 as the locus of a diverse Japanese cultural foundation, the studio quickly took on a life and reputation of its own. From a single original room, Kampo grew and today offers four highly individual studios in a five-story Bond Street building.

While its technology and acoustics are state-of-the-art, the floors above and below the music and post-production rooms make Kampo that much more unique. Kampo Hall is a ground-level theater space that doubles as a very large, very live tracking room with tielines to Studio A and B control rooms. In addition, Kampo is one of only a handful of residential recording studios in Manhattan. The fifth floor offers accommodations and a large, flexible creative space in which studio management will assemble a pre-production mini-studio using in-house and rental equipment, based on client requests.

Studio A has a magnificent live recording/tracking room, with hardwood floors and variable-geometry walls that provide the room with a broad palette of sonic possibilities. A 56-input SSL G Plus console with Ultimation and Total Recall rounds out Kampo's premier music room.

Studio B, one of the facility's audio post rooms, shows off Kampo's versatility. Centered around an SSL ScreenSound with v.5.0 software and a large array of high-end video editing equipment, audio and video from this room can be brought up in each of the other rooms at Kampo.

Studio C is the facility's hybrid studio, combining 24-track music recording, a ScreenSound 8-track hard disk editing system, an SSL E Series console and video synchronization and playback equipment, all in an intimate, comfortable, yet creatively intensive control room rendered by the Walters/Storyk Design Group. At a time when music is playing an increasingly large role in all types of video and film production, Studio C has become one of the facility's biggest attractions.

Studio M is a highly cost-effective room that offers access to a wide assortment of analog audio gear and digital sequencing, recording and editing technology, with a large selection of software to boot. A sizable inventory of MIDI equipment, ranging from Nord, Roland and Yamaha synths and controllers to Akai, Yamaha and Korg sound modules, turns Studio M into a formidable pre-production suite that can output the kind of quality that easily transfers over to the next stage of production.

Kampo is unique among the world's multi-studio facilities on a number of levels. But it also shares with them a commitment to excellence that is evident in every aspect of the company.

Studio Specs

Owner: Kampo Cultural Foundation **Manager:** Alex Abrash. **Engineers:** Dave Robbins, Jim McNamara, Frank Verderosa, Kenji Shimoda **Dimensions:** Studio A 25x25 **Mixing Consoles:** SSL 4056 G Series w/Ultimation and Total Recall SSL 4044 E w/G computer and Total Recall, Mackie 32x8, 40-input DDA DMP 2:2 with snapshot recall. **Tape Machines:** Sony 3348 digital multitrack, Studer A820 analog 24-track (2), Tascam DA-88 (4), Otari MX80 24-track analog, Studer A820 1/2-inch 2-track, Ampex ATR 102 2-track w/1/4- and 1/2-inch heads, Otari time-code-capable MTR 12 2-track, Otari MTR-10 2-track, Panasonic and Tascam DAT decks. **Signal Processing:** Large selection of vintage and modern equipment, including Neve 1066 dual mic pre/EQ ('70), SSL FX G384 comp/limiter, TubeTech MP1A mic pre, UREI LA-2A, LA-3A and LA-4 compressors **Monitors:** UREI, Genelec, Yamaha, Auratone **Of Special Interest:** SSL ScreenSound v.5.0 networked to two studios, Pro Tools 8-track w/888 digital interface, Steinway B 7-foot grand piano, Hammond B-3 w/Leslie, Hohner clavinet, Fender Rhodes, Apogee 20-bit AD1000 converters.

KAMPO AUDIO/VIDEO

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MICHAEL HOILAND

Lobo Recording Studios

Lobo Recording Studios, located on Long Island and a short drive from Manhattan, was conceived from the start as a multiroom, multilevel facility that puts as much emphasis on client comfort as on technology. Two new Vincent Van Haaff-designed rooms in what will ultimately be a complex of five studios will be on line in mid-1998; a third Van Haaff-designed room, which will occupy the facility's entire lower level and will easily accommodate large orchestras for film scoring sessions, is expected to be completed by the end of the year.

An AMS-Neve VR72 with Flying Faders automation and an SSL 9096J with Ultimation and Total Recall will fill two of the rooms, and a digital console is anticipated for the third. These three newest studios will be complemented by the two original studios at Lobo, each of which are outfitted with Amek Angela II consoles with Virtual Dynamics automation. All of the studios are located in a three-level, highly secure complex that includes a complete and private recreational area, including massage, whirlpool, steam and sauna rooms. The facility offers several private lounges, as well as a large private parking lot and access to the studio's own yacht and limousine.

The facility's interior design features marble surfaces, skylight atriums and mirrors, presenting a unique and beautiful environment that both stimulates creativity and induces relaxation. Van Haaff's acoustical and architectural design of the three most recent studios is efficient, accurate and sonically diverse.

Lobo's personnel are as cutting-edge as the rest of the studio. Chief engineer Dominick Maita brings a wealth of experience to Lobo, having helmed numerous engineering and mixing sessions for artists and producers including Vanessa Williams, Billy Joel, Herbie Hancock, Bryan Ferry, Phil Ramone, Mike Thorne and Michael Beinhorn. Maita's presence assures peak technology performance from every aspect of Lobo. Longtime industry veteran Nick Balsamo, who has been affiliated with several major facilities and professional audio equipment manufacturers over the years, has been the studio's consultant since its inception, lending his expertise to technology decisions. And director of studio operations Paul Sloman has managed and supervised construction of numerous major facilities over the last two decades, including the Record Plant, Atlantic Recording Studios and Sony Music Studios in New York, and A&M Recording Studios in Los Angeles.

Lobo Recording provides an alternative to Manhattan while still being only a short half-hour drive away. It's close to both LaGuardia and JFK airports, and it's perfectly situated for artists and producers who spend summers in Long Island's beautiful resort areas.

"This is a world-class facility," observes Sloman. "The owner, Carlos Avilés, has a philosophy of excellence in everything he undertakes, and that's certainly present at Lobo, as well—it includes the design, the technology and the people. In terms of recording facilities, this is truly as good as it gets."

Studio Specs

Owner: Carlos E. Avilés, M.D. **Manager:** Amada Lama **Engineers:** Dominick Maita, chief engineer. **Dimensions:** Studio A—357 sq. ft. w/105 sq.ft. iso booth, control room 449 sq ft., Studio B—control room 310 sq. ft.; Studio C—927 sq. ft. w/307 sq. ft. and 86 sq. ft. iso booths. **Mixing Consoles:** 72-input SSL 9000J w/Ultimation and Total Recall; 72 input AMS-Neve VR72 w/Flying Faders automation, Amek Angela II console (2) with Virtual Dynamics automation. **Tape Machines:** Studer A80 (2), A827 (2) 24-track analog multitracks, Studer D827 digital multitrack, Alesis ADAT-XT (8), Panasonic DAT (4). **Signal Processing:** Large array of contemporary and vintage outboard equipment, including Lexicon, UREI, Neve, Eventide, Manley. **Monitors:** Genelec, ProAc, Yamaha, Alesis. **Of Special Interest:** Digidesign Pro Tools system, extensive microphone assortment, full recreational facilities.

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MICHAEL HOILAND

Manhattan Center Studios

Manhattan Center Studios occupies one of the world's largest indoor recording environments. Part of a full-service audio, video/graphics and events production facility, Manhattan Center has been home to some of the most renowned classical, opera and pop recording events in the annals of the industry, including full productions of the New York Metropolitan Opera, New York Philharmonic Orchestra and numerous film scoring dates seating in excess of 200 musicians and vocalists at a time.

The recording studios are housed in the original home of The Manhattan Opera, commissioned by legendary impresario Oscar Hammerstein and constructed in 1904. Two massive ballrooms, The Hammerstein Ballroom and The Grand Ballroom, built as a Masonic Hall in the 1930s, offer over 40,000 square feet of ambient, acoustically rich and architecturally fascinating space.

"There are few recording facilities like this left in the world," observes Dan Gillberg, vice president of audio. "So we take what we do here very seriously in the sense that we are both preserving history and at the same time working on a day-to-day basis with our clients in all types of sessions and musical forms, ranging from pop to rock to classical—for records, film, TV and video. It's very inspiring to work at a place like this, where you one day do a major feature film like *Sphere* or *Primary Colors*, and the next day the Grammys pre-records with Phil Ramone or an MTV broadcast."

In recent years, great emphasis has been placed on film scoring. All of the major film companies, including Warner Bros., 20th Century Fox, Universal, Paramount, Sony Pictures, Miramax and MGM have become clients, and composers such as Oscar-nominated Elliot Goldenthal, Carter Burwell and others regularly bring their projects to Manhattan Center. "For a New York studio to focus a great deal of its efforts on the largely L.A.-based film industry takes a very special commitment," says Gillberg. "But, when Elliot started bringing his projects here, we knew we were on the right track."

With its Neve VR72 console, Sony 48-track digital deck, sizable live recording and control rooms and private lounge, Studio 4 (the studios are designated by their floor numbers) is intimate, with a rustic motif, and has become a favorite among jazz, R&B and rock producers and musicians. Studio 7's control room was the first one built but has been completely updated with a design by Fran Manzella and a Neve VR 96, surround mixing capability and 120 tielines to both the Grand Ballroom and the Hammerstein Ballroom.

Manhattan Center Studios is an integrated facility with video, audio and graphics capabilities, making it a one-of-a-kind resource for many types of projects. But, as Gillberg says, "Our department's prime focus is on sound and music, and we bring the full range of our experience to make sure that every project turns out as good as it can possibly be."

Studio Specs

Owner: Manhattan Center Studios, Inc. **Managers:** Dan Gillberg, VP of audio division; Edric Debos, assistant studio manager, Victor Moore, sales. **Engineers:** Roy Clark, Tom Miho, Alistair Farrant, Lawrence Manchester, Kurt Garrison, producer/engineer Brian Hardgrove. **Dimensions:** Studio 4 control room 28x20, live room 28x22; Studio 7 control room 26x23, live room 98x96 (ballroom with 45-foot ceiling) and 60x80 full performance stage. **Mixing Consoles:** 84-input (12 stereo) Neve VR72 w/Flying Faders, 108-input (12 stereo) Neve VR96 w/Flying Faders. **Tape Machines:** Sony 3348 digital 48-track, Studer A827 analog 48-track, Otari MX80 analog 24-track, Tascam DA-88, Studer A807 1/2 inch 2/4-track, Otari MTR-10 1/4 inch 2-track, Tascam and Sony DAT machines. **Signal Processing:** Large assortment of vintage and modern equipment, including Lexicon, Summit TubeTech, Eventide, Demeter, Drawmer, Quantec, Aphex, Studer, Hardy, Boulder, Apogee and AMS. **Monitors:** Tannoy 215 powered by Perreaux amps, ATC 100 surround system, Genelec, Yamaha. **Microphones:** AKG, B&K, Neumann, Beyer, Microtech Gefell, Oktava, Sony, Sennheiser, Audio-Technica, Schoeps. **Of Special Interest:** Pro Tools in both studios, full video lockup, Synclavier 9600 w/32 MB RAM and optical drive, Roland Space Surround system, full lounges, kitchenettes and bathrooms in each studio, Steinway pianos.

MANHATTAN CENTER STUDIOS
MUSIC VIDEO GRAPHICS EVENTS

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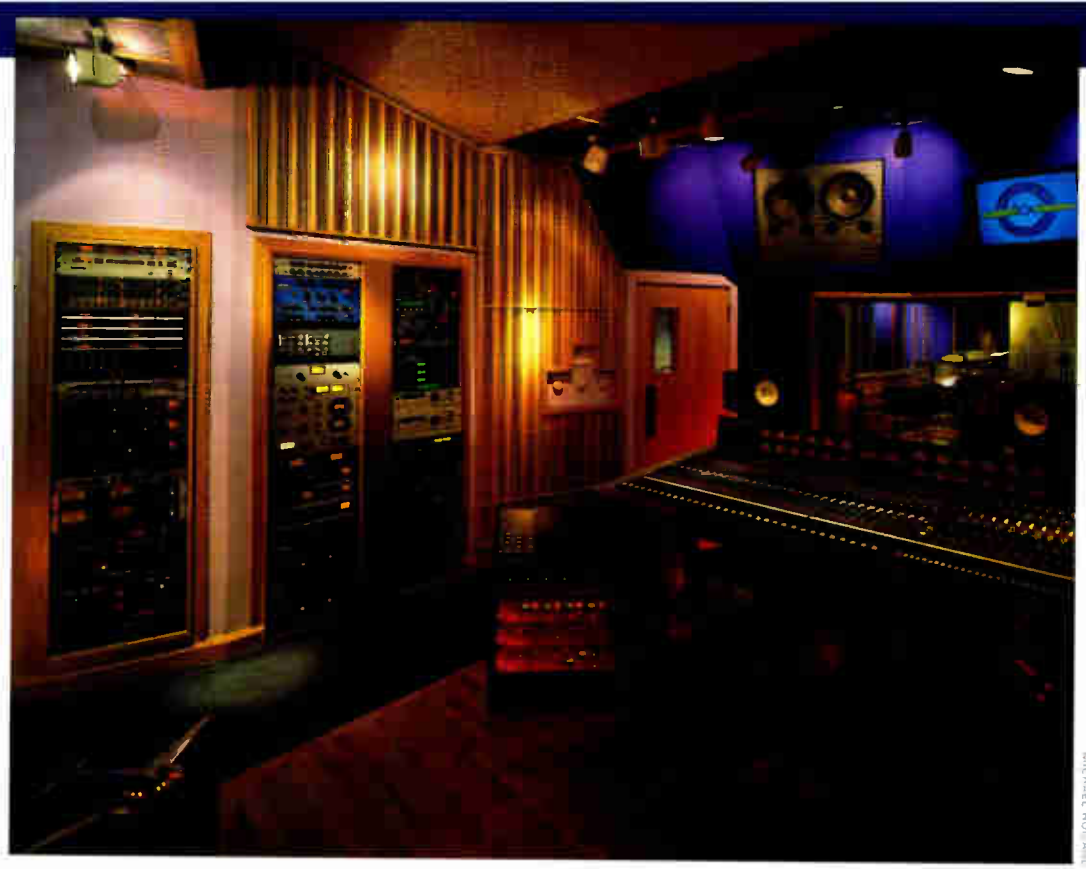

Pilot Recording Studios

Pilot Recording Studios provides the ultimate in tracking and mixing environments, featuring an acoustically exceptional live room with high ceilings, isolation booths and an unsurpassed room ambience. This spacious studio, located in the heart of Manhattan's Chelsea neighborhood, was founded by owner Will Schillinger in 1992 and was designed by Frank Comentale, with additional design by Wilbur Systems Limited.

Pilot has earned, with the aid of noted resident drummer Steve Holley, a reputation for recording outstanding drum sounds and basic tracks. The facility is equipped with a large variety of vintage instruments, including a 1926 Steinway grand piano, Hammond B-3 with Leslie, Clavinet, Wurlitzer, Estey pump organ, two Harmoniums, toy pianos, over 25 acoustic and electric guitars, many guitar and bass amps, and a wide selection of drums (including over 20 snares). The tracking room has been the site of sessions ranging from major label music projects to multimedia CD-ROM work to film scoring and more.

The spacious 24/48-track analog and digital control room features a Trident Series 80C console with Uptown/P&G Moving Fader automation, Otari and Studer analog machines, and a Sony 3324 digital recorder. The room is also equipped with Tascam DA-88 and Alesis ADAT machines for transfers. Pilot offers one of the most extensive microphone collections available, with over 150 models, including vintage matched pairs with and without tubes and a variety of ribbon mics, including dozens of RCAs. The outboard list is lengthy, including many Class-A mic pre's, over 35 limiters, a collection of new and vintage effects and a variety of high-end tube equalizers. Pilot's monitoring system incorporates the new Tannoy DMT 15 MkII speakers, powered by Perreaux 9000B amplifiers, as well as an assortment of Hot House-powered near-field speakers. Some recent clients include Junior Brown, Marshall Crenshaw, Yoko Ono/IMA Live, Patty Scialfa and the Lemonheads.

In addition to Studio A, Pilot also has a Pro Tools editing suite with a Mackie 32x8 and a full complement of MIDI gear and software, which has been used for many applications, from film scoring and digital editing to CD mastering. Pilot takes pride in its mastering work and accommodates many formats, including audio production for multimedia. There is also a very comfortable lounge with numerous client amenities.

Pilot Recording Studios takes its name from Schillinger's love of flying, a passion second only to audio and recording. The kind of precision, attention to detail and reliability that are critical to aviation are amply evident in Pilot's carefully considered design and its high standards of maintenance.

Studio Specs

Owner: Will Schillinger **Dimensions:** Studio 32x27, control room 15x22 **Mixing Consoles:** Trident Series 80C console w/Uptown/P&G Moving Fader automation **Tape Machines:** Otari MX 80 24/32-track and Studer A827 analog machines, Sony 3324 digital, various transfer formats available, including DA-88 and ADAT **Monitors:** Tannoy DMT 15 MkII speakers, powered by Perreaux 9000B amplifiers, various Hot House-powered near-field speakers.

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MICHAEL HOILAND

Platinum Island

No Hype...just great music. That's what Platinum Island's all about. Since its inception, in 1986, Platinum Island has effectively blended high-end technology, a talented staff and a diverse array of support services to create an optimal environment of creativity and comfort. "The great studios are the ones where artists are inspired to do their best work," observes Platinum Island owner Richie Kessler. "And at Platinum Island, we've always focused on providing all of the elements—tangible and intangible—that can make that happen."

The studio's classic SSL-and-Neve console combination and emphasis on vintage Studer tape machines and outboard signal processing is part of the studio's primarily analog philosophy. "It's no accident that top mastering facilities throughout the country report that the vast majority of their work still originates in the analog domain," says Kessler. "Analog is still the sonically superior medium, and that's why Platinum Island is first and foremost an analog recording facility, where digital is available by request."

The facility's downtown location is steps away from landmark clubs like CBGB's and The Bottom Line, as well as the shops, restaurants and galleries that make the Village/SoHo area one of the creative epicenters of the world. As a studio that's "run by artists, for artists," creativity is its cornerstone. And Platinum Island's creative diversity, as evidenced by its two in-house indie labels, three production companies, three publishing companies and its two studios, exemplify its comprehensive and multifaceted support of music and the artists that make it.

Platinum East, its flagship studio, is modeled after the classic Muscle Shoals Sound live room and features an SSL 4000 E/G Plus and 48 tracks of Studer A800 MkIII analog. Over the years, East has hosted tracking and mixing for White Zombie, Michael Jackson, Miles Davis, Madonna, The Ramones and Iggy Pop, among others. Platinum West houses a Neve 8128 console with Flying Faders and 48 tracks of Studer A827 analog; the room has seen tracking and mixing for an array of artists including Janet Jackson, Boosty Collins, Chaka Khan, Roseanne Cash, Anthrax and Tina Turner, as well as scoring for such films as *Men In Black*, *Clockers* and Spike Lee's *School Daze* and *Do the Right Thing*. The Jim Falconer/Audible Structures room designs provide for tight, ambient tracking and highly accurate playback and mixing environments, making the facility a regular in *Billboard*'s weekly Studio Action charts.

"We're a music facility, and our focus has always been to support the artist," says Kessler. "The combination of the studios and the wide range of support services we offer, all located in the same downtown loft building, creates a vibrant sense of artistic community, as well as a non-invasive support structure which allows artists to deeply connect with their greatest inspiration."

Studio Specs

Owner: Richie Kessler. **Manager:** Matt Marino. **Engineers:** Sean Coffey, Kevin Crouse, Bruce Tergesen; tech support John Charette. **Dimensions:** Platinum East 32x20, control room 22x20, booth 8x6; Platinum West 18x14, control room 21x18, booth 7x5. **Mixing Consoles:** 64-input SSL 4000E w/G computer, G Plus center-section upgrade, Total Recall, 24 channels E/40 channels G I/O; 56-input Neve 8128 w/Flying Faders. **Tape Machines:** Studer A800 MkIII 24-track analog (2), Studer A827 24-track analog (2), Studer A820 1/2-inch 2-track, Ampex ATR-102 1/2-inch 2-track (2), Panasonic 3700, 3800 DATs. **Signal Processing:** Outboard overkill! An overabundance of leading-edge and vintage outboard gear, including 10 API mic pre's per studio in powered racks; EMT plates, Lexicon 480L and 224XL, AMS RMX16 and AKG 64K reverbs, API, Neve, Pultec and Trident A-Range EQs, RCA BA6A, LA-2A, and Neve 2254E limiters, and more (see Web site). **Monitors:** UREI 813C and 813B, tuned by Bob Hodas; Genelec, Auratone, Yamaha available; Manley, Perreaux, Bryston, Crown amps. **Of Special Interest:** "We are all synced into the non-simultaneous aggregate of complex frequency integrated, multi-degrees-of-freedom permitted, individualized sequences, of experience evolutions, which we wave-modulatingly identify, in the subconsciously formulated, tongue & lips shaped, omnidirectionally propagated, air wave patterning—Sound World." —*Buckminster Fuller*

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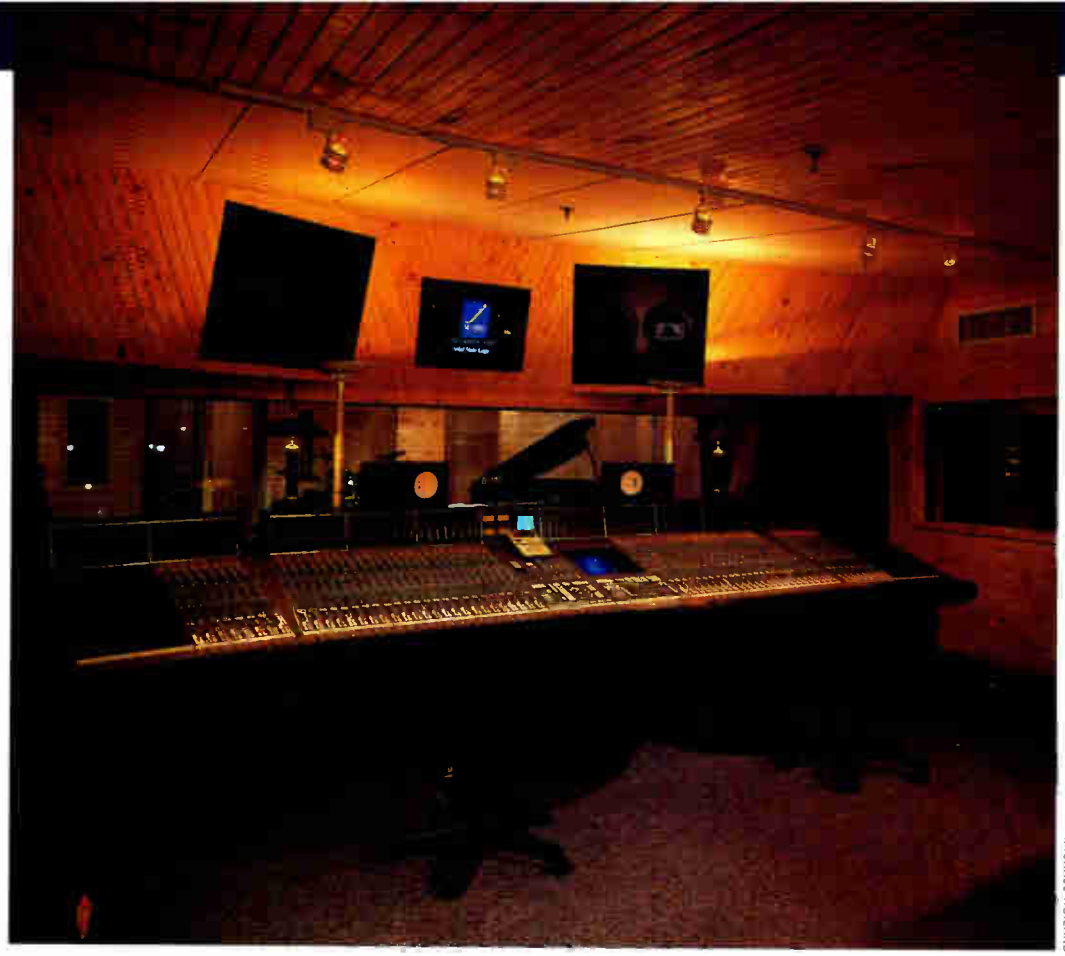

MICHAEL HOLLAND

Quad Recording

Quad Recording, founded on the principles of tradition and innovation so typical of New York, celebrated its 20th anniversary in 1998. It was designed and built by its sole owner and New York studio community veteran Lou Gonzales, whose hands-on approach to studio management and operation recalls the intensely entrepreneurial recording industry as it was two decades ago.

In an interesting link between past and future, the studio's name is derived from Quadraphonic sound, the predecessor to DVD-Audio. "Who would have thought it would have taken this long for that format to start to make it?" laughs Gonzales. On the other hand, during every one of its 20 years, Quad has remained state-of-the-art. Gonzales installed one of the first SSL 9000J consoles, and Quad is the only facility in New York with two, in Studios A and III. Studios B and C each have an SSL 4000E with G Series computers and Total Recall. The newest addition to Quad, The Penthouse, was completed earlier this year and features an SSL 4096 G Plus with Ultimation.

The recording rooms at Quad are spacious and wood-trimmed, with complex sonic nuances that have aided the creation of two decades' worth of hit records for artists including Mariah Carey, Michael Bolton, Hole, Metallica and Jon Bon Jovi. They also have become longtime favorites of leading producers, engineers and mixers, including 1998 Grammy Award winner Frankie Knuckles, David Morales, David Kahne and Deric Angeletti.

Meanwhile, Quad has carved out a niche for itself by pioneering the restoration of deteriorating analog masters, restoring and transferring archival recordings of John Lennon and Journey, among others. That experience, said studio manager Mark Springer, will be combined in the future with transfer and remixing of archived masters for surround mixes and DVD, as well as new multichannel mixing projects.

Monitoring in Studio A, Studio III and The Penthouse is through Dynaudio M4-Plus speakers, which combine with the innovative control room acoustics to produce accurate, consistent results without fatigue. A full array of outboard equipment is standard in each studio, and rentals are easily available. The studio specializes in complete projects, and its tradition of putting the client first includes highly personalized service tailored to meet the needs of every conceivable type of music recording project. One of the most telling facts about Quad is that its staff members tend to be long-term employees. "You look for persistence and dedication in a staff member," says Gonzales. "You want people who are in this for the long run, because that's one of the foundations of this studio."

Studio Specs

Owner: Lou Gonzales. **Managers:** Mark Springer, Carla Springer. **Dimensions:** Studio A 27x34, control room 22x20, three iso booths, Studio 3 28x21, control room 21x20 Studio C 26x18, control room 18x16, Studio III 20x25, control room 20 x 21, 3 iso booths, The Penthouse 29x18, control room 24x20. **Mixing Consoles:** 72-input SSL 9000J (2), 96-input SSL G Plus w/Ultimation, 72-input SSL 4000E w/G computer and Total Recall, 32-input SSL 4000E w/G computer and Total Recall. **Tape Machines:** Studer A800 MkIII 24-track (4), Studer A827 24-track (2), Otari MTR-90 II 24-track (3), Studer A80 1/2-inch and 1/4-inch 2 track decks, Panasonic DAT. **Signal Processing:** Pultec, UREI, Pacilson, API, AMS and other vintage pieces, as well as contemporary systems including Eventide, Lexicon and Drawmer. **Monitors:** Dynaudio M4-Plus, Tannoy 6.5 and 8, Yamaha NS-10, Auratone. **Of Special Interest:** Three Steinway grand pianos.

Producers and Engineers Unite!

The community of creative music producers and audio engineers has established the MPGA to create a forum to assure the proper direction of our craft. Our goal is to represent the interests of our profession, the music, and to define the creative role of producers and engineers in the professional audio industry of today and tomorrow. This is a unique opportunity to join the quest to secure intellectual rights, special members sevices, and to establish audio standards. Don't let this opportunity pass. This is about your future. Support your profession!

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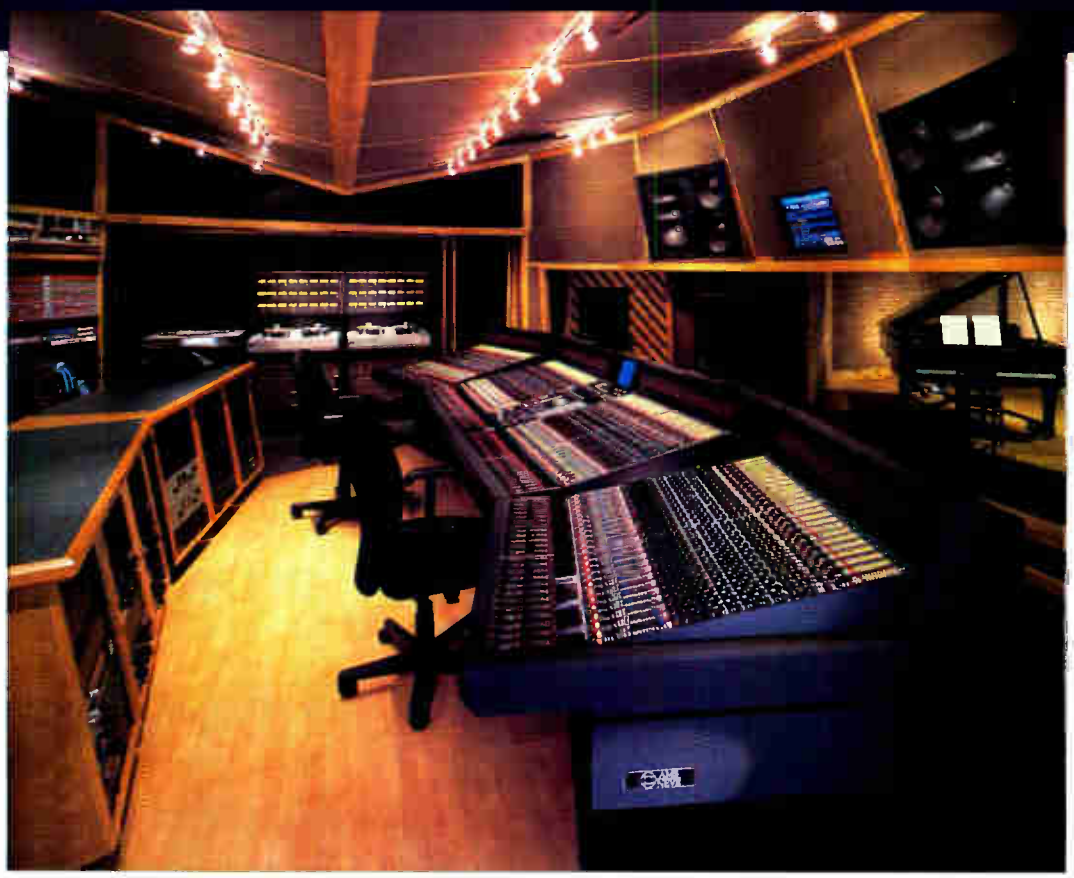

MICHAEL PARTENIO

Right Track Recording

Behind a seemingly anonymous doorway on Manhattan's famous music business street is one of the world's most distinctive studios. Right Track Recording has been a leading-edge facility virtually since its inception over two decades ago, and it has maintained that status with its Studio B complement of an AMS Neve Capricorn digital console, a pair of Sony 3348HR digital multitrack decks and a Sony PCM 9000 optical disc recorder. This was the room where Frank Filipetti earned two Grammy Awards for his work on James Taylor's *Hourglass*.

With the world's first AMS Neve VX console in Studio A and an SSL 9000J in Studio C, Right Track has been sought out by a long and illustrious list of artists, producers and engineers over the years, both for its technical wizardry and its acoustical magic. Will Smith, Dee Dee Bridgewater and Pat Metheny won 1998 Grammys for material recorded at Right Track, and numerous other major artists, including Busta Rhymes, Barbra Streisand, Metallica, David Bowie, Billy Joel, R. Kelly, Nas, Pavarotti, Celine Dion and the Rolling Stones have all found a home for their music at the facility.

"One of the things that people really respond to is the fact that they can work completely in a 24-bit digital environment here," explains Simon Andrews, Right Track's owner and founder. "On the other hand, we also have the two finest high-end analog consoles in the world, the Neve VX and the SSL 9000J, along with classic Studer and Ampex analog multitrack and 2-track decks, and incredible vintage and contemporary outboard equipment. So it's truly the best of both worlds here."

Acoustically, Right Track is marvelous. All of the studios were designed with ensemble recording in mind, as evidenced by the exceptional sight lines between the four spacious isolation booths that dot Studio A's large main room and the 21-foot ceilings in Studio C. Yet Right Track is quite capable of creating a comfortable, intimate atmosphere, which many of the world's leading vocalists have used to create masterpieces.

The attention to detail that is so evident in Right Track's technology and acoustics is equally present in the facility's high level of client service. "When you review our client list, you see that these are artists who require a high degree of attention," says general manager Barry Bongiovi. "We anticipate client needs and keep maintenance extremely high, which enables us to make the studios places of creativity. You bring the music, we'll take care of the rest."

Studio Specs

Owner: Simon Andrews. **General Manager**: Barry Bongiovi. **Engineer**: Dominick Costanzo. **Dimensions**: Studio A 45x40, control room 25x20, four iso booths; Studio B 32x25, control room 21x23, two iso booths; Studio C 25x18, control room 21x20. **Mixing Consoles**: 96-input AMS Neve VX w/Flying Faders and 48 integrated Neve 1081-style mic pre/EQs, 96-input (72 faders) AMS Neve Capricorn; 96-input SSL 9000J w/Ultimation and Total Recall. **Tape Machines**: Analog: Studer A800 MkIII, Ampex ATR-102 1/2-inch 2-track, Studer A80 1/2-inch 2-track; Digital: Sony 3348 (2) and Sony 3348HR (2), Studer D827 (all digital multitracks are 24-bit MADI-capable), Sony PCM-9000 24-bit 2 track, Tascam DA-88 (2) and DA-98 (2), Alesis ADAT, Digidesign 24-bit 16-track Pro Tools. **Signal Processing**: Large array of contemporary and vintage outboard, with complement of all-digital outboard in Studio B. **Monitors**: Genelec 1035A, Genelec 1034A mains, Genelec 1031A, Yamaha, Auratone. **Of Special Interest**: dB Technologies AD122 24-bit converters, dB Technologies AD3000S sample-rate converter.

Right Track RECORDING

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JULIAN JAIME

Room With A View

Room With A View is a very private pied á terre in Manhattan run by an Italian hôtelier with a penchant for fine wines, Argentinean beef and SSL consoles. "At Room With A View, we believe the ultimate studio consists of a delicate balance between technology, service and beauty," explains owner Alessandro Cecconi. "Sure, there are lots of big rooms that offer all the latest equipment, but all of us here were tired of working in sterile, impersonal environments, with no personality and no windows. So we built a studio that has all the toys you could imagine along with serenity and spectacular views, where you can produce your next hit on our new SSL 9000J while taking in the beauty of a sunset over the Hudson River. In a place like Manhattan, it's the ultimate studio. Our name says it all."

Room With A View, founded in 1990 and ensconced in a 15th-floor penthouse on Fifth Avenue, has become known worldwide as a mixing facility par excellence. The installation last year of a new 64-input SSL 9000J console—it replaced an SSL G Plus—keeps the facility on the cutting edge and has attracted a global clientele that includes producers Jerry Harrison, Michael Bienhorn, Russ Titelman, Dave Bianco, Brian Malouf, Steve Lillywhite and Lou Giordano, as well as engineers Tom Lord-Alge, Frank Filipetti, Kevin Killen, Susan Rogers and Tony Maserati. Mix dates have included records for artists such as Paula Cole, Carly Simon, Dave Matthews Band, Ozzy Osbourne, Matchbox 20, Red Hot Chili Peppers, David Byrne, Tricky and Milton Nascimento.

While known primarily as a mixing studio, the principals understand that projects sometimes never seem quite finished, and the studio prides itself on a deep and comprehensive microphone closet, with many models in matched pairs, such as the Elam 251, Sony C-37A, Neumann U47, U48 and U67, AKG C-12 and C-12A, and Telefunken MB221. Room Service, an adjacent Pro Tools-equipped editing suite, is intended to offer mix clients the additional services of digital editing and sequencing prior to mastering.

But as rich as Room With A View's technical complement is, it is the studios comfortable layout, high atop Manhattan, that has been perhaps its biggest draw. "The premise of the studio is the same as it's always been—it's still a home-like studio in a residential building," Cecconi says. "There's nothing else like that in New York, except maybe a home studio, and you can't get this level of technology and service in anybody's home but mine."

Studio Specs

Owner: Alessandro Cecconi. **Manager:** Laura Hansen. **Dimensions:** Studio 12x14, control room 32x18. **Mixing Consoles:** 64-input SSL 9000J w/Ultimation and Total Recall. **Tape Machines:** Studer A827 and Sony JH-24 analog 24-track, Mitsubishi 32-track X-880, Studer A820 1/2-inch 2-track. **Signal Processing:** Large array of vintage gear including Pultec "Q (4) and Neve 1073 EQ (8). **Monitors:** Westlake BBSM 12 assorted near-fields, including Yamaha and Genelec. **Of Special Interest:** The View, naturally.

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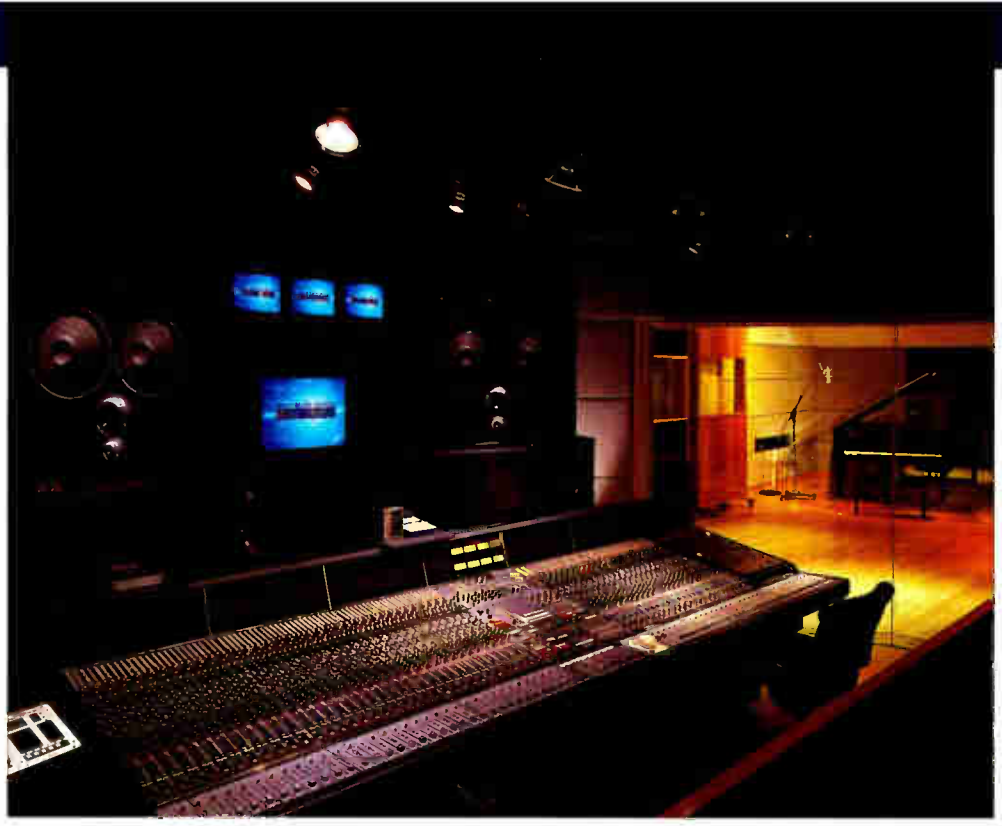

MICHAEL HOLAND

Sony Music Studios

Sony Music Studios redefines the concept of the "one-stop shop"—with eight recording studios, more than 40 individual audio production and pre-production rooms, multiple mastering suites, audio and video post-production, a massive shooting stage, and an equally massive assortment of top-end technology, the facility is the equivalent of a self-supporting city. "Our objective from day one has been to create an environment that offers the artistic community the ultimate in technology and creative choices under one roof, and I think we've done that," says Andy Kadison, senior vice president of studio operations for Sony Music.

"Most artists come in initially to record," adds Ian Huckabee, director of audio operations and marketing. "But once they're exposed to the range of services that we offer, many of them continue to work here on other aspects of their projects. For example, an artist can come here initially to work on songwriting in one of our many private suites and end up shooting and posting their video and rehearsing their tour."

The most recent addition to the facility is the new digital surround studio, known informally as the DVD Room, which opened to rave reviews at the 1997 AES Convention in New York and has been booked nonstop since. Featuring a Neve Capricorn digital console, the room supports all current and forthcoming surround formats, from Dolby Stereo through 7.1, and addresses the different acoustical needs of television and film audio. It also is linked to the facility's main shooting stage via a 100-channel, bi-directional fiber-optic cable.

Digital is second nature at Sony Music Studios; all departments now incorporate 24-bit technology and are equipped to operate at 96 kHz. Pro Tools and SSL ScreenSound hard disk recording and editing systems are available in all studios and suites (with an SSL OmniMix in the post room). However, the facility has a sizable complement of vintage tube outboard equipment, including Neve, UREI, Pultec, Tube Tech, Manley and Lexicon signal processors. The combination of technology and talent has made Sony Music Studios a regular stop for hundreds of major recording artists, engineers and producers, including Celine Dion, Barbra Streisand, Sean "Puffy" Combs, Sting and Garth Brooks.

Enumerating all the components at Sony Music Studios would be a lengthy task—the audio department alone is divided into five "boutique" divisions: tracking/mixing, mastering, production/duplication, classical (including remote recording), and audio post-production, each with its own manager and assistant. "We're part of the New York community of studios," says Huckabee. "But within these walls, the studio is a kind of community itself. With all the technology and rooms that make up Sony Music Studios, we've never let the human touch get away from us."

Studio Specs

Owner: Sony Music. **Manager:** Ian Huckabee. **Dimensions:** Studio A 19x19, control room 25x24; Studio B 27x25, control room 22x21, iso booths 12x9 and 14x10; Studio C control room 22x21, Studio D 21x20, control room 22x20, iso booths 11x10 (2); Studio E 13x8, control room 21x14, Studio F control room 18x16; Studio G control room 18x16, iso booth 13x7.7; Main Stage studio (with shooting balcony) 94x75 w/35x30 insert stage, pre-production and mastering suites also available, as is a fully mobile recording package. **Mixing Consoles:** SSL 4096G (48 channels each of E and G Series EQ) w/Ultimation, SSL 9000J w/Ultimation, SSL 6064G w/Ultimation, SSL OmniMix 72-channel digital I/O and 32-channel analog I/O, Neve Capricorn digital console, 72-input Neve VSP w/Recall & Flying Faders, 72-input Neve 8078 w/Flying Faders, Euphonix DCS 28 Mixing Console, Yamaha O2/R, Mackie 24x8x8 8-bus console, Neve Digital Transfer mastering console w/Prism digital EQ. **Tape Machines:** Sony 3348 digital multitrack (numerous), Studer A800 and A827 multitrack decks (numerous), Studer A820 and A800 2-track decks (numerous), Sony & Tascam DAT, Alesis ADAT, Studer A820 mastering 2-track recorder w/Cello electronics. **Signal Processing:** Too extensive to list individually. You name it, they've got it. **Monitors:** Boxer T5 (Studios A, B, C, D), Boxer T4 (Studio E), Boxer T2 (Studio G), ATC custom surround sound monitors, Meyer HD-1, large assortment of other near-field speakers.

ROBERT WOLSCH

Sound On Sound Recording

Sound On Sound has acquired a worldwide reputation for sonic consistency and service, and its two-room facility has earned fame with the leaders in an array of musical genres, from jazz to blues to rock to R&B. An eclectic client list ranging from Michael Jackson to Tony Bennett, Sean "Puffy" Combs to Roger Daltrey, Sonic Youth to Branford Marsalis, and projects regularly coming in from Europe, South America and Japan, reflect Sound On Sound's global appeal. Sound On Sound's two studios offer comfort and personality, fostering a creative atmosphere based on attention to client needs and respect for privacy.

Each studio, located on separate floors, has its own lounge and client areas. Recent upgrades to the monitoring in each studio have brought a new level of accuracy and consistency to recordings and mixes. New George Augspurger monitors with TAD components and powered by Bryston 4B amplifiers were installed in each studio in 1997, providing what Sound On Sound owner Dave Amlen characterizes as "considerably smoother high frequencies and more consistent reproduction across the spectrum. Monitoring has evolved considerably over the years as the technology gets better and the requirements of music change. We offer a range of near-field monitors, but one of the things that sets these studios apart is that we have created a very accurate and consistent far-field monitoring environment with a combination of the Augspurgers and the room design itself. The reaction of clients to the sound in both rooms has been excellent across the board."

Sound On Sound offers top-end editions of the two classic modern recording consoles: Studio A has a Neve VR60 with Flying Faders and Recall automation; Studio B has an SSL 4064 G Plus with Ultimation and Total Recall automation. The facility also has extensive experience and investment in sound-for-picture, with both studios housing TimeLine Lynx synchronizers with CCU/SSU machine control for Sony BVU800 3/4-inch video decks, along with Studer analog and Sony digital multitrack and 2-track machines, and Panasonic DAT decks.

Sound On Sound is a unique mix of sophisticated acoustic design and use of space. Studio A has a large main recording room with three isolation booths, all with excellent sight lines for tracking sessions. Studio B, opened in 1993, is a distinctive design with two isolation booths, and each space offers an acoustically complex combination of ambiences.

No one studio could ever be all things to all clients, but Sound On Sound's variety and acoustic consistency has made it the choice of many of the world's leading artists.

Studio Specs

Owner: David Amlen. **Manager:** Ann Selznick. **Engineers:** Bradshaw Leigh, Devin Emke. **Dimensions:** Studio A 30x26, control room 19x8, three iso booths. Studio B 22x17, control room 22x21, two iso booths. **Mixing Consoles:** Neve VR60 w/Flying Faders and Recall; SSL 4064 G Plus with Ultimation and Total Recall. **Tape Machines:** Studer A827 24-track analog (32 48 tracks upon request, Sony PCM-3348, Studer A820 and A80VU 2-track decks, Sony PCM 1600 (2), Tascam DA-88 (4), Panasonic DAT decks, Studer D740 CD-R decks. **Signal Processing:** Large array of vintage and contemporary outboard standard in each studio, including Lexicon 480L, AMS DMX 1580S and RMX 16, dbx, EMT 140 plate reverbs, Focusrite Red Series, TubeTech LCA2B, Teletronix LA2A, Pultec tube and Neve equalizers. **Monitors:** Custom Augspurger monitors with TAD components, Genelec 1031A, Yamaha NS-10M, JBL 4401 surrounds, JBL 4430 and 4425, EV Sentry 100A. **Of Special Interest:** Each studio has its own Yamaha 7-foot grand piano, and the facility's microphone collection is extensive and features numerous tube, ribbon and FET models.

SOUND ON SOUND RECORDING

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SONIC YOUTH'S ECHO CAÑON

NYC DOWNTOWN DIGS

Now the underground's highest-profile experimental rock guitar pioneers, Sonic Youth formed in 1981 and released a dozen records on indie labels before signing with Geffen in 1990. Members Thurston Moore (guitar, vocals), Kim Gordon (bass, guitar, vocals), Lee Ranaldo (guitar, vocals) and Steve Shelley (drums) are also all involved in different side and solo projects. Their continual immersion in music kept them working in studios all over New York City until about two years ago when the band decided to find a space where they could set up their own studio.

They rented a loft in a commercial building downtown, made it their headquarters and named it Echo Cañon. The lair provides the perfect environment for creating their insane, engaging streams of noise, pop and free-verse. "It's pretty cushy for us," says Ranaldo. "It's a fairly large-sized control room and a good-sized playing room that's basically our rehearsal space. Beyond that, there's a B room, with glass panels in it. There's a piano in there, and it would be a place to put large amps. We haven't got mic lines running into it at the moment, but it's on our list. Adjacent to it is a walk-in closet that we're using as a tape storage library. Across the hall there's an even larger room where we store our touring gear. Then there's the shop where we have secretarial work done and keep stuff that needs to be repaired."

Instrumental in getting Echo Cañon up and running was engineer/producer Wharton Tiers. A long-time associate of the band, Tiers has run his own studio, Fun City, since 1982 and has recorded many ground-breakers in addition to Sonic Youth, such as The Swans, Dinosaur Jr. and Helmet. He outfitted the control room at Echo Cañon with a 24-channel, late-'70s Neve 8108 BBC mobile-recording board, NS-10 and Boston Acoustic monitors and a 2-inch 16-track Studer recorder. There are also half-inch 2-track Ampex and ¼-inch 2-track Revox machines.

PHOTO: MIKE HASHIMOTO

At Echo Cañon (L to R): Ranaldo, Shelley, Moore. Seated is Gordon.

When asked if they'd indulged in any acoustical consulting or room tuning, Tiers laughs. "In New York, you get a lease for a couple of years and it's really hard to invest the kind of money you want to do that kind of job when you know that the rent's going to be quadrupled. The one thing they said when I was putting everything in was to make it as portable as possible. The wiring is basically pluggable and unpluggable, so we could move to another space if need be."

Tiers says that since there was already some sound-proofing and acoustical tiling on the walls, he found there was good isolation between the studio and the control room. The band decided not to worry much about bleed in the tracking room; the drums are set up in a little alcove that has a higher ceiling than the rest of the playing room, and the heavy padding that came with the space was torn out to make it more live. The band built a Plexiglas panel that seals off about three-quarters of the opening, but neither band nor engineer are convinced they need to employ it for every recording session, so it's currently stowed away. Great care went into amp and mic placement so the band could jam, document ideas and full-on record without having to radically alter their standard configuration. "You want it to sound pretty pleasing to sit in for long periods and be able to play so that you can hear everybody," Ranaldo says. "We've kind of got it down at this point. We record every time we play, so it's got to be set up for the rehearsal aspect of it, and then the recording sort of follows from that."

Although Ranaldo says they're not gear-crazy, in addition to the four compressors in the console they do own a small amount of choice outboard equipment, like a Drawmer 1960 tube compressor, some Aphex 109s, Gatex and Dynamite gates. They also have what Tiers calls a "tangential computer setup. It's not like a full-blown Pro Tools thing; we usually just run mixes in and try edits on it."

Sonic Youth has flourished in their new environs. To date they've used the studio for three EPs and the new Geffen release, *A Thousand Leaves*, all engineered and co-produced by Tiers. ■

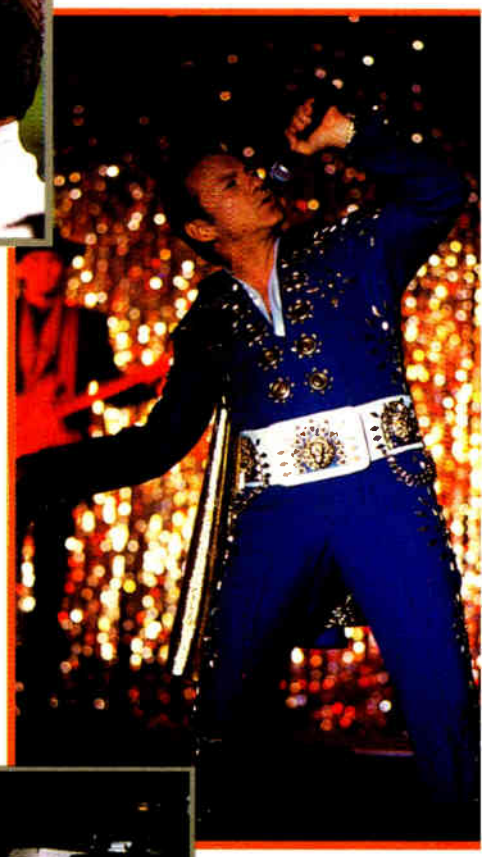
BY ANNE EICKELBERG

Anne Eickelberg, Mix's editorial assistant, first heard Sonic Youth in a V.F.W. hall in 1985.

"FINDING GRACELAND"

MEMPHIS GUITAR, WITH ORCHESTRA

by Tom Kenny



Harvey Keitel as Elvis? The street-tough lead of *Mean Streets*, the *Bad Lieutenant* and *Reservoir Dogs* as the King? It's a bold casting decision, but it pays off in the new film *Finding Graceland* (Avenue Pictures/Largo Entertainment). Part road movie, part soul-searching metaphor, *Finding Graceland* tells the story of a young man who, following the death of his new bride, who was hit by a train near Memphis, loses the will to participate in life and hits the road. In New Mexico, he comes across a drifter-hitchhiker claiming to be Elvis. Elvis, it seems, wants to return to Graceland for the candlelight vigil commemorating the 20th anniversary of his death. The young man wants nothing to do with Memphis.

Naturally, they hit the road, encountering barroom fights, arrests, a Marilyn Monroe impersonator (Bridget Fonda) and, ultimately, the graves at Graceland (it's the first film ever shot inside the King's former mansion). Elvis songs play throughout the film, some of them sung by Keitel, and the score is a blend of full orchestra with Memphis-style guitar. Composer Stephen Endelman (*The Englishman Who Went Up a Hill but Came Down a Mountain, City of Industry, A Bronx Tale*, among many others) wrote the rather evocative 55 minutes of score, recorded and mixed by Gary Chester at The Edison, New York City.

"It's a very music-driven movie," Endelman says. "There were two or three main things I wanted to focus on. One is the recurring dream, based on the fact that he lost his wife in an accident. Then there's the whole musical impression of the train, which I created using the low strings, guitar and certain kinds of percussion [including spoons and bones]—very much as an effect. I used a lot of Southern stuff that you occasionally pick up in old Elvis recordings or recordings from that time.

"The third thing is that there's this warmth that develops through this film—from this very cold, closed person to this young man who at the end comes to terms with the fact that his wife has died," he continues. "I try to mirror that in the score. The music starts off almost like a road movie—quirky, unusual, sort of a cross between orchestral music blended with Southern guitar. I wanted a Memphis sound to fit in with an orchestra in a way that was both emotionally rewarding and drove the picture in the early scenes. Gradually, that transforms so that by the end of the film, once we get to Graceland, it's emotionally broad. By the end, there are no electric guitars. We have left that and are now just into orchestral colors. Quite a lot of piano. The only thing that always returns is this sort of eighth-note pattern in the lower strings, which is then taken over by piano by the time we get to Graceland. That's always there in the background, and we mixed it very much so that there's this element you always hearken back to."

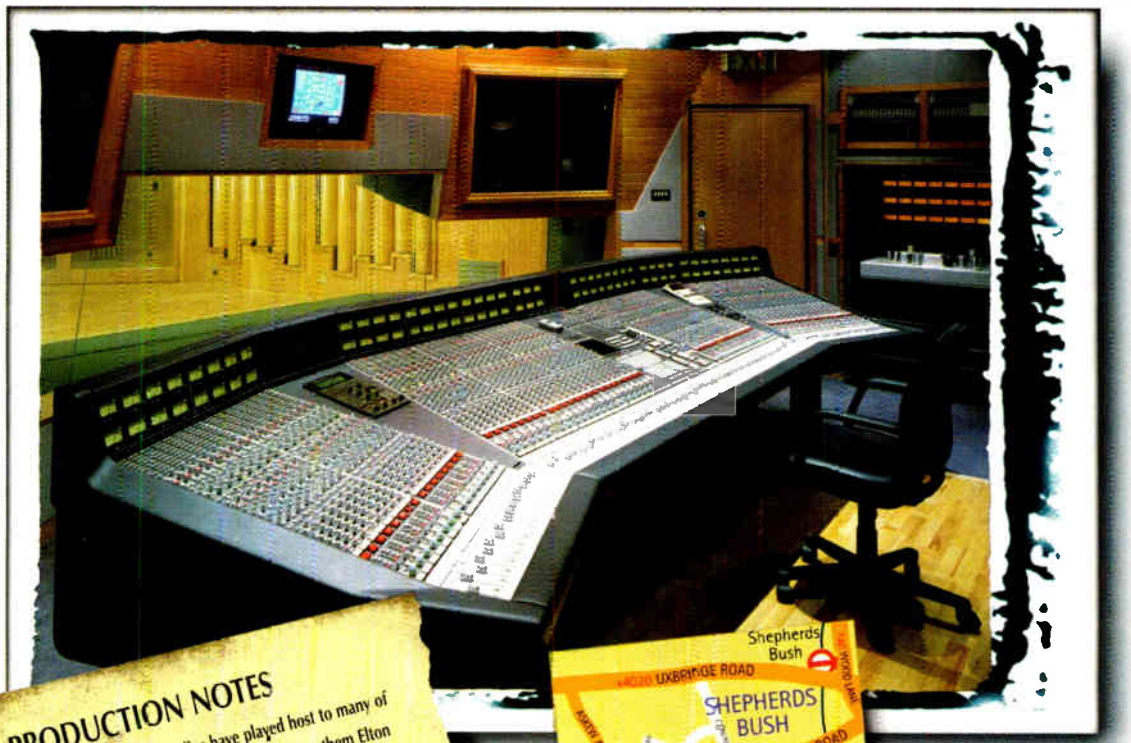
At left: Engineer Gary Chester, left, with composer Stephen Endelman, at The Edison's SSL 4062

The music was tracked and mixed entirely at The Edison (Endelman says he loves the size of the room and the creative efficiency of engineer Chester) on the SSL 4062. Steven Benson added 99% of the guitar in New York; Bob Boykin overdubbed a small piece in L.A.

Endelman chooses films based on an emotional response to the material. The young man's journey toward grace, and the presence of Keitel, sold him on *Finding Graceland*. A resident artist at the New York Metropolitan Opera, Endelman this past spring conducted his new 80-minute score for the 1917 silent film classic *The Outlaw and His Wife*. This November, an opera he wrote (his third) will be performed at the Walter Reed Theater in Lincoln Center. He is planning a new opera based on the John Updike novel *Brazil*.

"I'm much more interested in the subtext, as opposed to the actual text—what you don't see, what you don't know, what you can't touch," he says. "How can music get into that? In theater, we deal all the time with what is behind the performance. It's very much about what a character has gone through in their past. I think very much like that musically. What are we trying to say with the music that we don't necessarily see? Here, you start to really feel the loss that this character has with his wife dying, and the parallel loss that Elvis has, because he's come back to Graceland and realized there's no place for him anymore. He could be an impersonator, he could be the ghost of Elvis, he could be an angel. But there's that mirror image between the two characters, this parallel journey we're taken down, that you really don't know anything about until the end of the film. And then we're inside Graceland." ■

Great Studios Of The World



PRODUCTION NOTES

London's Town House Studios have played host to many of the world's great artists over the years, among them Elton John, Genesis and Grammy award winners Jamiroquai, who mixed their 6 million selling album 'Travelling Without Moving' on the SSL G+ console in Studio 1.

"The G+ console is a classic and remains as popular with our clients now as the day it was first installed," says Director of Operations Ian Davidson.

THE TOWN HOUSE

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CIRCLE #063 ON PRODUCT INFO CARD

—FROM PAGE 98, GATHERING EFFECTS

ple users; you still have to download to a local hard drive. And sound effects are only one part of the puzzle: Dialog and music are unique to each film and not likely to be found on a CD changer.

I shouldn't make too much of my incorrectly predicting the central server issue, because the main point of my column was that it would make sense for the industry to adopt a standardized approach to the computer organization of sound libraries, both in terms of the database field structure and the terms used to describe and cross-reference sound effects.

One of my faithful readers, Richard Stumpf of Universal Studios, suggested that I put my time where my journalistic pen was and chair a SMPTE committee (actually, they're called "Working Groups") to come up with a set of standards (actually, what we were aiming at is called a "Recommended Practice"), and by early 1988 we were officially sanctioned.

Many people attended meetings over the next three years, and in the end we had a fantastic cross-section of sound editors, programmers and sound librarians. The final committee members were Louis Benioff, Hagai Gefen, Brian Kelly, Mark Mangini, Marcia Slawson, Dale Strumpell, Marvin Walowitz and David Whittaker. In the course of many daylong Saturday meetings over the next few years, with pizza, we fought over every aspect of the sound library equation, from "Where do we put wheelbarrows?" to "Should birds be in their own category or under the main Animal category?" It was a lot of fun, and looking back, I'm actually quite amazed at how much time we put into those meetings considering that we met during off-hours.

In my straw-man proposal to get the Working Group started, I put forth a simple base-10 system, with ten major categories each containing ten subcategories. I thought that this would have been the most elegant way to go because the location of effects would quickly become second nature.

However, my colleagues thought that the top-most category should be more far-reaching and specific, so they resoundingly rejected this scheme. We ended up with 37 major categories, with divisions among autos, motorcycles and trucks, and explosions, guns and weapons. Within each category, we created a series of subcategories, sometimes going three levels deep, such as Backgrounds—Nature—Swamps. Some subcategories appear in many different categories. For example, there are science fiction/fantasy and antique subcategories under major headings like Aircraft, Autos and Guns.

Whenever I would tell someone of our Working Group and our idealistic goal of creating a unified lexicon for sound library databases, I could predict a series of questions in much the same way that Kubrick probably did in the summer of 1968, when people would ask him "What happened to the monkeys?" "What if I don't want to follow your recommendations?" "What if I want to call it a car instead of an auto?"

The answer, of course, is Don't. As I said, this is a recommended practice, not a standard like SMPTE/EBU timecode, which demands very specific and tight guidelines. Since no two sound libraries or no two sound effects categorization schemes were anything alike, if half the major companies adopted half of our recommendations, the industry would be far better off. If your work was primarily in cartoons, clearly you would break out the sounds that you do every day into greater detail. And so on. But we believe that our final categories will appeal to the majority of sound editors.

Our best-case goal was to have all commercial CD libraries follow our category structure, so that you would know to look for the "Mechanical—Audio/Visual Equipment" subcategory to find slide projectors. The breakdown of categories would not only look familiar, it would easily flow together when you imported database information for a new set of effects CDs from a Web site. And, of course, you could go from facility to facility, each using different workstations and different database programs, and the general look and feel would be the same, as it is when you go from public library to library. It wouldn't matter if the material was unique to that facility or from CD.

Not only would commercial CD libraries be defined (retroactively, even) using our terms, but they could also be recorded and organized according to our categories. We have actually had a good head start, since the two heads of the most notable sound library organizing programs at that time—Gefen System's M&E Organizer and Leonardo's Professional Librarian—were on our Working Group, and their programs ship with a category scheme based on our final document.

I should make some mention of the less glamorous part of our group—the recommended database field structure. Clearly, we went for the centerfield stands and

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came up with a field name (and minimum recommended field length) for everything under the sun, from obvious choices like recording format and date, to more arcane ones like product media/batch number—perhaps useful in finding out where your most bakeable masters reside! At the very least, every field will find a home in somebody's library.

I handed out a few dozen copies of drafts of our work to manufacturers at AES and SMPTE conventions, and for the most part was met by resounding silence. As I said earlier, I have always assumed that workstations would have an integrated sound database management system. I still hold true to the ideal and hope that workstation manufacturers will take this issue to heart and create a system that talks to a sound library database, but also to the sound database of nonlinear picture editing systems. No matter what manufacturers tell you, it ain't here yet.

Our final document was submitted to SMPTE in August 1995, and after passing through the A12 Audio subcommittee with flying colors, is now being prepared for publication in the *SMPTE Journal*. I urge anyone who is interested in this subject—manufacturers and users alike—to get hold of our work and throw stones at us before it becomes welded into a recommended practice. To get a copy of this document, please e-mail Mark Hyman of SMPTE at mhyman@smpte.org or write him at their headquarters, 595 W. Hartsdale Ave., White Plains, NY 10607, and ask for Working Group document A12.94. Send your opinions back to him, since he is the keeper to the standardization process gates, although don't forget to cc: me with your comments.

One of the key aspects of library organization was not touched on by the Working Group simply because it is a matter of personal taste and fiscal means: Do you organize your library by subject or by film? It's certainly easiest to number tapes by project, and it's certainly best in the long run to organize by subject. The latter system requires much more organization and forethought (you don't want two people in your facility working on two different films calling the next gunshot in the library Gun005), but will ultimately reap benefits in ease of access.

One school of thought says that as long as you can access all sounds in a democratic fashion, it doesn't really matter if you are organized by subject as long as you can search via computer database. I disagree. Organizing by subject is easier today, I think, because you are not physically placing one take behind the other, although you can make maximum use of the by-subject approach if you use a system for editing your field tapes like the one I described in last month's column.

As storage prices continue to plummet and as new technologies come online for both the backing up and transporting of large files, the practical matters of editing and organizing a sound effects library will be going by the wayside.

Then, as now, the only thing that will matter, in the big scheme of things, is how many first-class effects you have in your library—no matter how you access them or what they were recorded on.

Next month I'm going to get away from the world of sound effects and talk about tips for using standard recording studio equipment in the creation of film soundtracks. As always, I can be reached at 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 is two time zones away from the Mix *editors when his column is past due.*

Our customers' comments

"Ghost is Killer! Classic fat British EQ like you've always dreamed of. And the faders are awesome...the taper on them is as smooth as anything I've ever used. Incredible. Ghost has just about everything I look for in a quality console; great tone....great feel...looks...even the name! I'd swear you custom made this for me. I could not have picked a better console for sound, features and feel."

Geno Porfido, Boulevard Recording Co. New Milford, NJ

"Other consoles I've worked with in the past just couldn't deliver the levels of punch and clarity I felt the music deserved. I never have this problem with my Soundcraft Ghost. The Ghost gives me the flexibility I need over a wide range of frequencies and has the body and warmth to really bring my music to life."

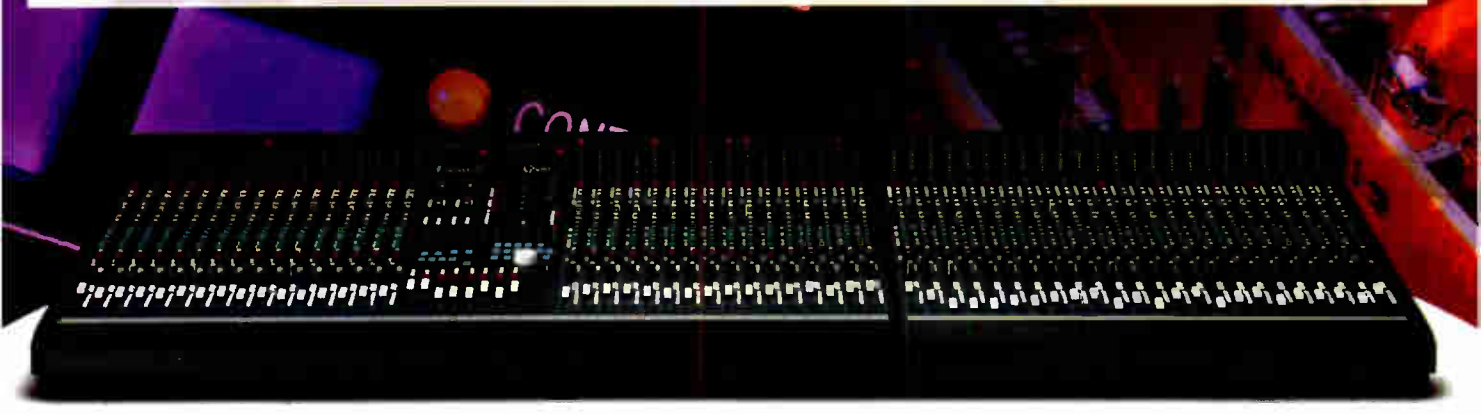
Johnathan Moffett, Drummer with Michael Jackson and Madonna

"After the first mix I did, I realised I was in a whole new league. This thing sounds beautiful. Very silky in the high end and full in the lows. The EQ is totally cool and the board has a quality feel to it. I know of nothing that touches it in its price range and I have been recommending Ghost for months to anybody who's looking for a console."

Garth Webber, Red Rooster Studio, Berkeley CA

"I've worked on many competing 8 bus consoles and none can compare to the Ghost in features, ergonomics and, most importantly, sound. The Ghost, simply put, sounds warm and musical - you don't have to work hard to get great sounding mixes on this board. The EQ is very flexible and we compared the mic preamps (using a Neumann U-47) to the Neve 1066s in our studio. We were very surprised at how favourably they compared to these megabuck classics."

Peter Thorn, What If? Productions.



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—FROM PAGE 99, NIAGARA, NIAGARA

story p. 99). Dior, whose film resume includes work on *Apollo 13*, *Dead Man Walking*, *Ransom* and *The Paper*, brought a special quality to this film, according to Gosse. "Audio engineers definitely have individual styles—at least the good ones do," says Gosse. "Rick has a way of prioritizing sounds and effecting them in a way that advances fiction beautifully."

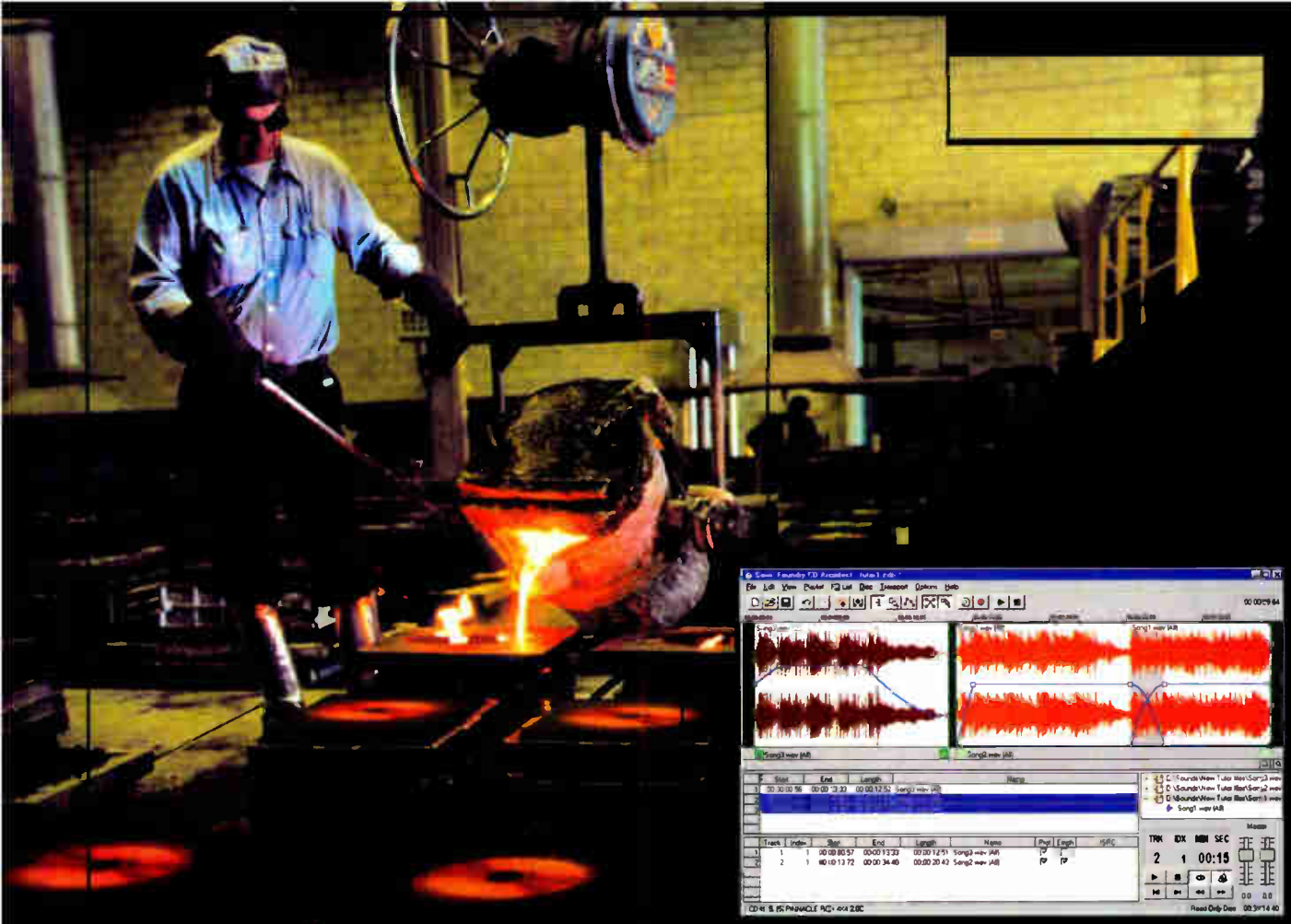
Kushner says that the great advantage of working at TSG is the close communication that the company promulgates throughout the production process. "One of the things that stamp independent films as having a low-budget quality about them is the audio," observes Kushner. "On most independent films, you take a one- or two-person crew out on audio, working blind, so to speak, with respect to the overall creative vision of the project. Beyond production, their involvement ceases. We can communicate during production about specific ideas, unique effects and ambiences that can serve the overall vision and creative design of the film. With limited time in post, we need the absolute best production recordings we can get. ADR, as it is, is something we want to avoid for aesthetic reasons, as well as the obvious budgetary constraints."

At TSG, Kushner, who has known Gosse since their undergraduate days, is intimately involved with a film from day one. On *Sling Blade*, he was the entire audio post crew; same for the late-1997 film *illtown*, with assistance from Pete Conlin, who edited dialog. "We talk about the kind of score we're going to have, the nature of character and the place that sound will have in defining characters," says Kushner, who studied acting at the Royal Academy of Dramatic Arts and worked in repertory theater for several years. "I was very serious about [theater], and it's helped me to understand how to use sound as a tool to support character and content—basically integrating sound into the story."

TSG budgets are not unlimited, but Kushner and his assistant, Nadine Finzi Maybruck, are able to record a number of original stereo ambiences and effects for each project, and "with each film we seem to get budgets that allow us more people, equipment and libraries to use," he says. "We've been able to expand to the optimal level of what you'd want a post-production facility to be, especially with the growth of our library."

Gosse says that his job is to quarterback audio and leave it to pros like Kushner and Dior to handle the details. "For example, I knew that I wanted to have an unusual sound associated with the female lead," Gosse says. "Jeff came up with the idea of blending horse sounds into the background tracks and bringing that sound in when she's onscreen. Seth's character's father screams at one point in the picture, and Jeff used that scream as an underlying, subliminal texture later in the film. No one would be able to pick the scream out as an audible element, but it's something there in your consciousness that refers you to the earlier scene."

"There was nothing out of the ordinary on this film in terms of the audio mix, but the project definitely features a unique directorial vision," Dior says. "The problem was that we had a limited amount of time to mix—we definitely could have used another week! The dialog had to be cleaned up with notch filters. I like to use the Dolby 430 frequency band suppressor to eliminate rumbles and hiss in conjunction with the UREI LA-3A and 4A notch filter/compressors. The release and attack times on the 430 are very smooth and clean, and the unit doesn't color anything.



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"Dialog work was step one on this picture," continues Dior. "We executed dialog against background ambiences. Jeff gave me multiple backgrounds—crickets, cicadas, etc. Some of these we placed in the front and some in the rear speakers. In general, we make a wide stereo field to cover exterior shots and tighten things up a bit for interiors."

A lot of the action in *Niagara* takes place inside a car, and creating just the right sound was critical to Kushner. "Jeff was specific about wanting the car to have an older sound to it—a rattle, the sense that the suspension is bumping around the chassis, and the loud idling you'd associate with an older vehicle," Dior says. "Scenes of the car took up about three to four stereo passes each."

"Normally I don't treat music until the final mix, but music was extremely important to Bob Gosse, and so we worked on the soundtrack right after we finished the dialog work," explains Kushner. "After the music was placed against dialog to a point where Bob was comfortable, we slid in the effects. There are at least three montage sequences where the effects are pulled completely to let the music speak—we might let the effects creep in, but music was carrying the weight in these spots. When the music was in its correct place, we laid in the effects and Foley."

To save time, TSG assistant Pete Conlin was also at the mix, manning an Avid AudioVision. Conlin had access to hundreds of Kushner's sound files and was capable of locking to picture at any moment. Offline, Conlin and Kushner were constantly checking out sounds that might be used to beef up a scene. Kushner says that this use of the Avid was critical. "No matter how well you think you're hearing a film, there's a huge difference between working in an edit bay and being in a theater with a mixer like Rick Dior executing the final mix. Carrying all our sounds with us, and having them available at a moment's notice as offline elements, helps us to get the most out of the mix."

Kushner has since gone independent, but he still maintains an edit room at The Shooting Gallery complex. He recently wrapped up picture and sound editing work on *Frogs for Snakes*, an Amos Poe film starring Barbara Hershey. That was mixed with Dior at the new Digital Cinema stage. And as we went to press, he had just completed the picture edit, in preparation for the sound edit, on *Dee Snider's Strangeland*. *Niagara, Niagara* opened to excellent reviews in late March-early April. Check it out. ■

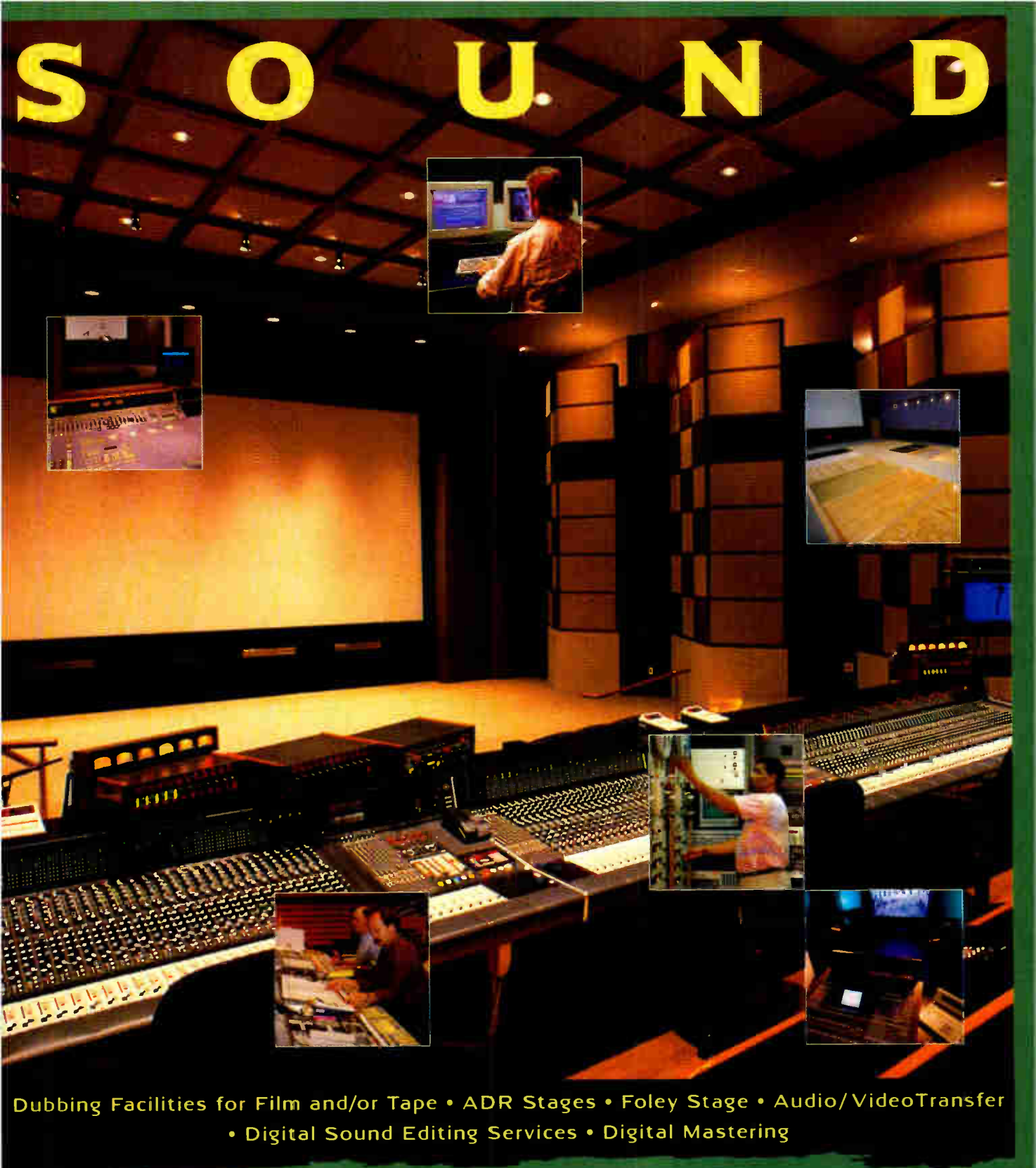
—FROM PAGE 99, SYNC SOUND

pare other versions without going back to the tapes. There are a lot of competing products out there, with more to come, but Akai had a good head start and had the most mature, complete product."

"We are completely digital; no analog audio goes in or out of the board," Hahn adds. "The only analog audio at Digital Cinema is the sound that comes out of the speakers."

Hahn's key reason for going digital all the way, for playback and recording, as well as with the console, is simple: "When you pot up one channel from a DA-88 and convert it to analog for mixing, and then bring up the other channels, you hear the noise increase with each fader. Imagine the noise with 20, 30, 40 or more channels!

"The DA-88 is a wonderful machine, but its digital-to-analog converters are its weakness," he adds. "I'm not necessarily pro-digital, but I am anti-digital-to-analog converter. When people com-



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plain about the sound of digital, they are complaining about the D-to-As. We've solved that problem in a simple, direct way; we don't use them!"

The typical feature film soundtrack, mixed analog and including premixes and stems, passes through D-to-A converters up to 200 times. "That's a lot of quantizing noise," Marino says. "When you're digital all the way, that noise build-up is absent."

Hahn and Marino's experience at Sync Sound, a primarily television post house, made for a relatively smooth transition in opening New York's first fully digital feature post-production room.

"Going fully digital would not be a jump for most other people in the business; it would be a great leap," Marino says. "For us, it was a walk, because of the lessons we learned at Sync, where we have been using the AMS Neve Logic II for five years."

Sync's digital experience was also crucial to convincing Dior to join the fold. "I wasn't going to leave Todd-AO unless Ken, Bill and myself were certain we had everything in place to do digital sound for feature films the right way," Dior says. "Sync's experience, especially with digital mixing, was one of several factors which convinced me to come aboard. Likewise, my reputation after 27 years of doing feature and documentary sound in New York was crucial to our ability to make Digital Cinema a reality."

Timing was also crucial to the realization of Digital Cinema. "If we had opened a year earlier, our equipment room would be twice as big, and there would be ten times as many mag film dubbers as there are now," Hahn explains. "We felt there was a tremendous advantage to starting Digital Cinema from scratch, and our timing just made that so much easier. We didn't drag any outdated technology along to the new room."

But three rather disparate factors had to come together to make Digital Cinema a reality. "One, the film community had to embrace the modular multitrack and disk-based digital technology; two, we had to create a full-size, first-class room; and three, we had to have a high-profile, Oscar-winning feature film mixer like Rick Dior," Hahn says.

Dior is known for his work with film director Ron Howard, who lives in nearby Connecticut and consequently keeps much of his production and post-production on the East Coast. Their collaboration has been fruitful: Dior won an Oscar for Best Sound for *Apollo 13*; he is the only New York mixer to have taken home an Academy Award.

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John Meyer holds numerous patents including a low distortion driver/horn combination which is utilized in the UM-1P, and one for the perfectly aligned phase response through crossover (zero-pole crossover) utilized in both the UPA-P and UM-P.

not be overemphasized, Hahn insists. "Rick has been a major mixer in New York for 20 years, and he brings us the credibility of a feature film mixer with an incredible reputation and stature in the industry." Dior had been with Todd-AO and TransAudio for years before joining Hahn and Marino. Other Dior credits include *Dead Man Walking, Dirty Dancing, The Pelican Brief, Presumed Innocent* and the Ron Howard films *Ransom, Parenthood, The Paper* and *Gung Ho*.

Market conditions seemed to be begging for another major new mix theater in the city. The city's approximately 30 soundstages are normally booked solid, and 1997's film production numbers came out looking very healthy. According to the Mayor's Office of Film, Theatre and Broadcasting, for the fourth year in a row, direct filmmaking expenditures grew to $2.37 billion (in 1996 the total was $2.23 billion).

Specifically, 213 feature films shot 4,236 days of principal photography in the city in 1997, against 201 films and 4,147 shooting days in 1996. Direct expenditures for features in 1997 totaled $847,200,000, compared to $829,400,000 in 1996.

Despite the boom in major feature production, New York is still a bit of a backwater when it comes to mixing "tentpole" event features, with their attendant complex soundtracks. "There is still resistance to mixing really big pictures in New York," Hahn says. "People still think of Los Angeles first. But we're making headway."

One way in which Hahn hopes to convince filmmakers that mixing can be done in New York just as well as in Hollywood involves breaking with local tradition and offering two- or three-operator positions at the console, Hollywood-style.

"Using two or three mixers, one or two for music and dialog and one for effects, is a tradition in Hollywood; they even do it on television shows," Hahn says. "You could debate the wisdom of it forever, but we decided to make it an option at Digital Cinema."

Dior explains that the AMS Neve Digital Film Console board can be set up in "split mode," so that two or three mixers can work, with full automation, at the same time. "Each mixer can have up to 24 bus outputs each," he says.

The fully automated Neve DFC is a crucial part of making a new facility like Digital Cinema feasible. "A lot of what this business is about now is how quickly and efficiently you can run your operation to accommodate these squeezed, very demanding schedules," Hahn says. "Clients want to be able to make changes quickly; that's why we have a completely automated console.

" Euphonix is the future of mixing consoles - the specific combination of digital control and the high-quality analog signal path rivals traditional consoles that are noted for their sound and far surpasses other consoles that have sacrificed some sound quality in favor of control."

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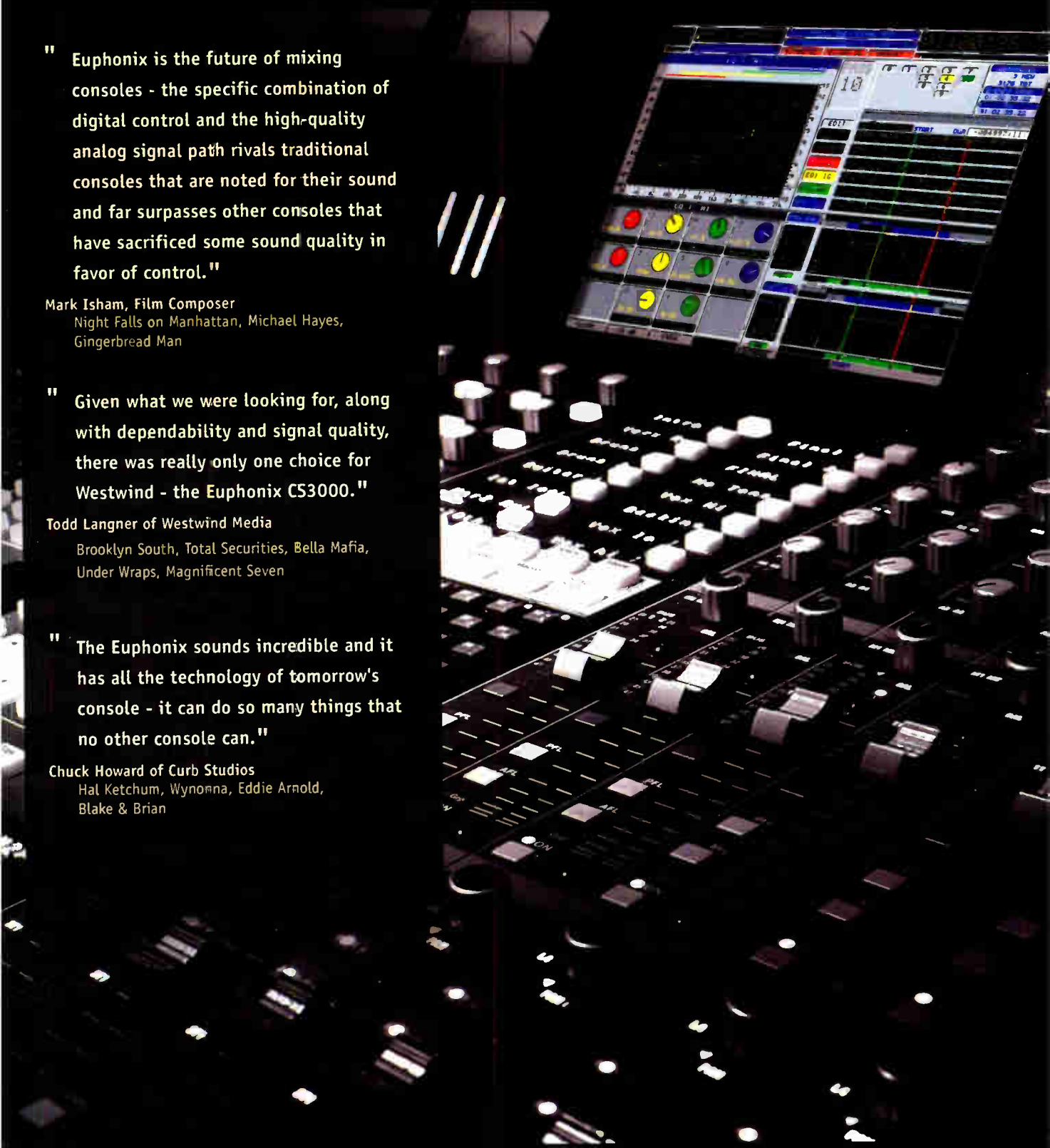
" The Euphonix sounds incredible and it has all the technology of tomorrow's console - it can do so many things that no other console can."

Chuck Howard of Curb Studios
Hal Ketchum, Wynonna, Eddie Arnold, Blake & Brian



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The MMP-16 Modular Multitrack Player from Tascam (Montebello, CA) replaces 35mm analog film dubbers and can play up to 16 channels of 16- or 24-bit audio from its removable hard disk. The MMP-16 can directly load and play Digidesign Pro Tools session files and WaveFrame projects and supports OMF/Sound Designer II. Features include track slip capability, region- and event-based editing and comprehensive synchronization functionality. Sample rates are 44.1 and 48 kHz, and the unit supports all pull up/down variations. Up to 100 MMP-16s may be interconnected via the MMR bus, and the removable hard drive offers standard SCSI interface.

NEOTEK SURROUND SOUND CONTROLLER

Neotek (a division of Martinsound, Alhambra, CA) introduces the MultiMAX™ MultiFormat Monitor Controller for surround sound monitoring. The single-rack-space unit facilitates LCRS, 5.1 and 7.1 mixdown monitoring with any console equipped with eight or more output buses. The system allows for the insertion of an encode/decode processor, and Dolby Digital, MPEG-2, Dolby SR-D, CP65, Sony SDDS and IMAX formats are supported. MultiMAX also provides global monitor level control and individual speaker muting. Price is $1,995.

Circle 301 on Product Info Card

AARDVARK DIGITAL AUDIO ADAPTERS

Aardvark (Ann Arbor, MI) offers digital audio format adapters in the form of hardware connector barrels. The adapters convert digital audio between the professional AES/EBU standard and the co-ax S/PDIF digital audio standard, providing simple interfaces to DATs, digital mixers, audio cards, CD players and digital audio workstations. Adapters also match impedances and allow for easy integration of professional audio gear with consumer devices. Price is $65 each.

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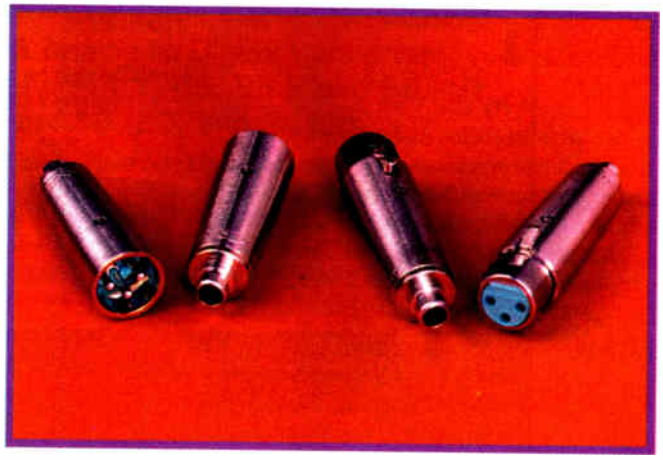

BGW CROSSOVER CARD

The TMC-2 theater crossover card from BGW (Hawthorne, CA) provides crossover and signal processing functions for two-way theater loudspeaker systems powered by BGW's THX-approved Millennium Series 2 and 3 power amps. Features of the internally mounted crossover card include 500Hz and 800Hz switch-selectable, fourth-order Linkwitz Riley 24dB/octave crossover; EQ to compensate for screen loss/x curve and constant directivity horns; delays ranging from 700 microseconds to 1.9 milliseconds for alignment of HF signals; and HF attenuator. Price is $149.

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Fostex (Norwalk, CA) offers the PS-3 Personal Studio powered monitoring system for personal studio and workstation applications. The three-piece system includes a single powered bass reflex subwoofer (15 watts) with a 5.25-inch cone and two satellite powered speakers (5 watts), each containing a 3-inch midrange driver and 1-inch tweeter. Speakers are magnetically shielded, and accessories include fixed and swivel stand mounts for the satellite speakers. Price is $349.

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it takes years. I've had songs that have been hanging around for years and years, and I can't seem to get past the first verse. Or you think you've said it all in the first verse and you can't think of anything else to say. So that may be all there is to it, but you want to find a way to turn it into a record. You have to find a way of writing the shortest pop song in the world, like everyone's been trying to do for years. ***Are any of the songs on the new record ones that have been hanging around for a long time?***

"A FAMILY PORTRAIT"

MOTHER AND SON DUET

by Barbara Schultz

This project is truly a family affair. *A Family Portrait* (IRC Records) is the first of three CDs to be released featuring the classical cello work of 33-year-old Benjamin Shapira.

Featured in duet with Benjamin is his mother, Shulameth Shapira, a graduate of the State Conservatory of Music in Bucharest, Romania. Shulameth met her husband, composer Sergiu Shapira, there, and the couple emigrated to Jerusalem, where Benjamin was born and raised. All three family members have received numerous awards and honors in Israel and the U.S.

So, Benjamin comes by his devotion to classical music quite naturally, and his playing is fluid, emotional and strong. On compositions by Rachmaninoff (Sonata Op. 19 for Cello and Piano, and Vocalise) and Schumann (Three Fantasy Pieces Op. 73), the mother and son play together in an entirely compatible way. The instruments are never at odds with each other; the musicians play and are recorded so that the piano relaxes into almost a background for the strongest cello parts, and vice versa.

A Family Portrait is a collaboration between Benjamin Shapira and his parents, Shulameth and Sergiu.

To complete the familial trio, the pair also perform an original composition by Benjamin's father, Sergiu, called *Largo Dolente*, a more modern work with a spareness and sadness that contrast with the more traditional pieces.

Though it is just this year being released in the U.S., *A Family Portrait* was recorded in the summer of 1995, in Eshel Studios in Tel Aviv by engineer/studio owner Rafi Eshel. The musicians played together, as in a recital, in Eshel's main recording room, which is about 18.5x22 feet and is equipped with an Amek Einstein console. Eshel recorded to a Sony DAT machine, close-miking the cello with two Neumann M49s and the piano with three M49s. The only outboard gear used was a Lexicon 300 reverb, which sounds nothing but natural on the disc. During the recording process, Eshel monitored on the recording room's KRK monitors, but he mixes in a separate editing room, where he uses JBLs.

These days, Benjamin Shapira makes his home in New Jersey. He performs frequently in East Coast venues such as Lincoln Center's Alice Tully Hall, the Weill Recital Hall at Carnegie Hall and the National Gallery in Washington, D.C. His next CD, the second disc in this trilogy, will contain the complete set of Bach's suites for solo cello and is scheduled for a September 1998 release. ■

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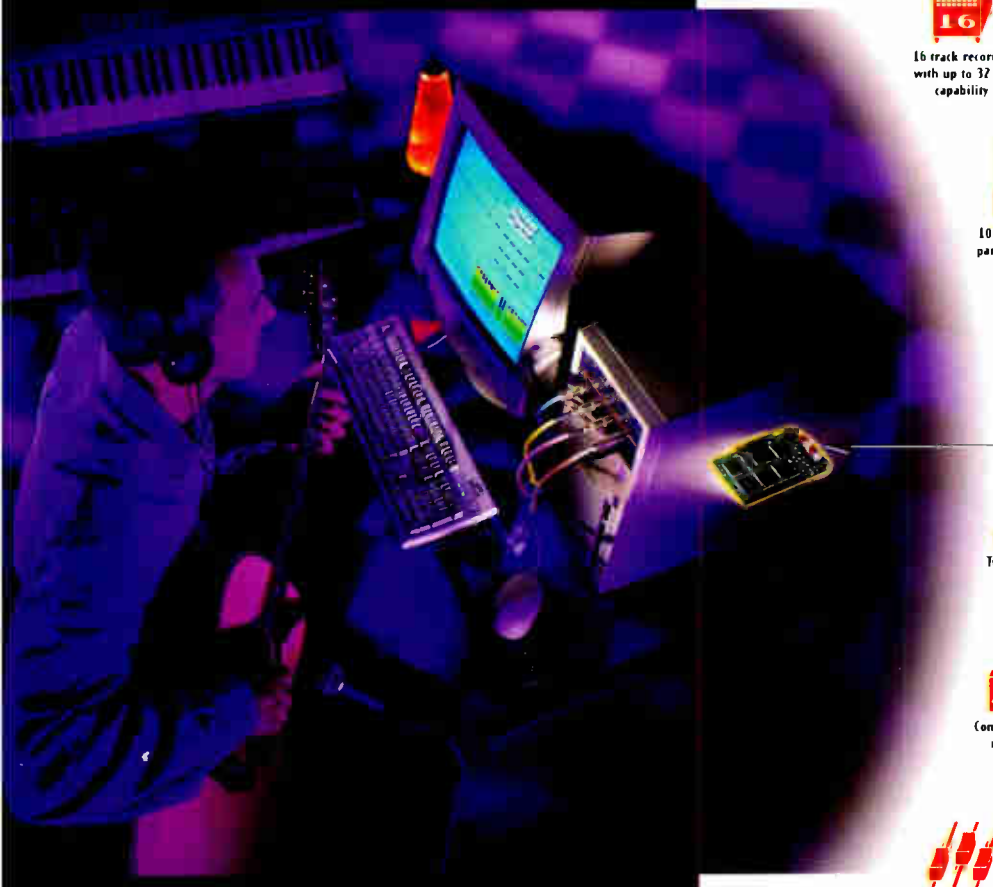

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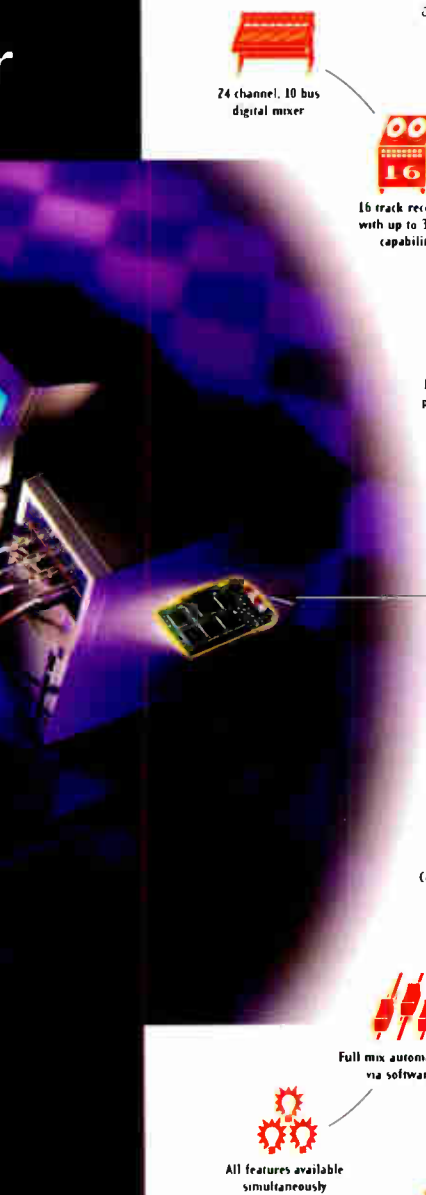

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No. I don't think they have. These all came along later. And there's two cover songs: one which a friend of mine wrote, called "Failed Christian," and the other one is an old Ivory Joe Hunter song that's called "Cold Grey Light of Dawn."

After I've got some songs, I go to this little place around the corner from where I live. It's sort of a little dance hall, a community center. They have aerobics classes there, the Cub Scouts, and I rent this place. It's got fantastic acoustics in it. I rent it by the afternoon, and I go in there and I sing these songs into the room. I sing them over and over and over again.

The idea is not to get the definitive single way of how the song goes. In fact, it's quite the reverse. It's so that after a while, after I've sung it enough times, it almost seems as if they're not my songs anymore. It seems like I'm singing cover songs. And when that happens, the song will take any kind of abuse. You can sing it any way. All you know is you open your mouth and a version of it will come out.

When it comes time to record, because I record doing the vocals live—

RECORDING "DIG MY MOOD"

Neil Brockbank is the engineer/co-producer who helps make sure Nick Lowe's final tracks are rare and not raw. He joined Lowe and the bandmembers to record the first few tracks for *Dig My Mood* in July of '96 at Rak Studios. The project eventually took Brockbank and the performers to three more studios, intermittently, over the course of a year. Brockbank told *Mix* a few stories about the recording process, and about what each of these London studios offers.

RAK STUDIOS

"We kicked off at Rak studios—really a favorite studio of mine. It's a busy studio, but we managed to go there to cut the first three songs: 'You Inspire Me,' 'I Must Be Getting Over You' and 'Time I Took a Holiday.' Rak is owned by Mickie Most, the record producer, and he always kept his old equipment from when he was making big hits back in the '60s and '70s. It's got the most fantastic API board, Studer A800 analog tape recorders, Tannoy monitors, and they've got a great selection of old German and American microphones. All this vintage gear is maintained by studio manager Hugh Tenant, who came to Rak after serving at Olympic in the '60s.

"During tracking, everybody was in the same room; we used screens to get the separation we needed. On Nick's vocal, we used a Neumann M50, which is now a very rare omnidirectional microphone. It's such a big sound: You can whisper into it, and it sounds like a house. Sometimes with valve mics, though, something goes wrong in the middle of the take. Well, that happened in the middle of 'I Must Be Getting Over You.' When it gets right to the end, the band drop out, and the vocal's left almost in solo. At that exact point, something really weird happened, and it sounds like there's a little ghost vocal in the background. I think what you hear is harmonics being generated by the valve circuitry, and I went mad for it. It's an accident that just sounds great!"

SEPTEMBER SOUND

"We never got back into Rak Studios, because it was booked, so we did the bulk of the rest of the recording and mixing in September Sound, which is owned by the Cocteau Twins and was formerly owned by Pete Townshend. It's right on the River Thames; you can see the barges going by. They have an Amek Galileo, Amek's top-of-the-range analog board. It's digitally controlled with virtual dynamics and automation on a lot of functions, including insert and EQ switching. Our setup for recording was nearly the same: Everybody set up together, though at September Sound we put the drums in a booth.

"September Sound doesn't have any valve mics of the same ilk as Rak, so I hired a U47 valve on the first date, but I wasn't happy with it. Then we tried a regular Neumann U87 FET, and that sounded great—the midrange was very articulated—

—CONTINUED ON PAGE 126

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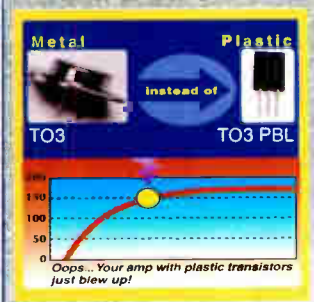
How many plastic frying pans have you ever seen?



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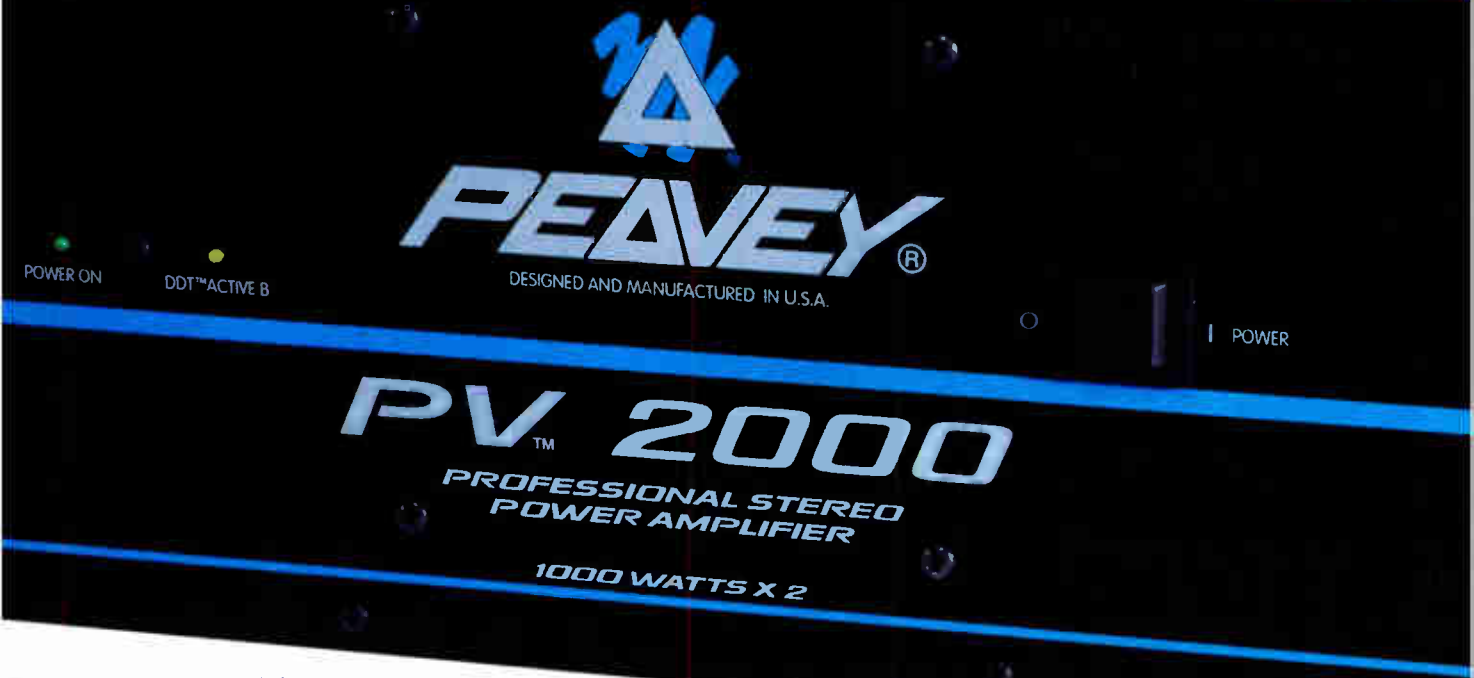

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that's the only way that this thing really works is to go in and actually perform—I go in there with my boys that play with me, and I show them the song only about two times so that they don't know it at all, but I know it inside out. And then we record it. And they're really fantastic musicians. They know they've got to listen really carefully to the vocal to get it. Sometimes it doesn't work, but a lot of times it does work, and you get this strange sort of atmospheric thing coming into the record.

You've got to be careful, because it's only a kiss away from just being really inept and hopeless. But when you get it right, you have this lovely sort of fragile thing that happens to it, which really interests me. You're not just doing the same old licks and chops again that you always do.

Do the arrangements evolve out of working with the musicians, or do you already have those ideas formulated when you start working with them?

That process is done when I'm in the little village hall, or in the writing. Nowadays, I try to let the song say where it wants to go much more than I used to. When I was younger, I used to think, "Oh, here comes a song. Sounds like a rock 'n' roll song. They go like this." Then you've got to force the song into a box, which, in fact, is a shame, because sometimes the song wants to go off somewhere and change a little bit, so each verse is a little different, or you have two different middle eighths or something like that, if it wants that.

I go to lots and lots of trouble to make it sound like my records didn't take any trouble at all.

Tell me about rehearsals, and at what point does Neil Brockbank come in?

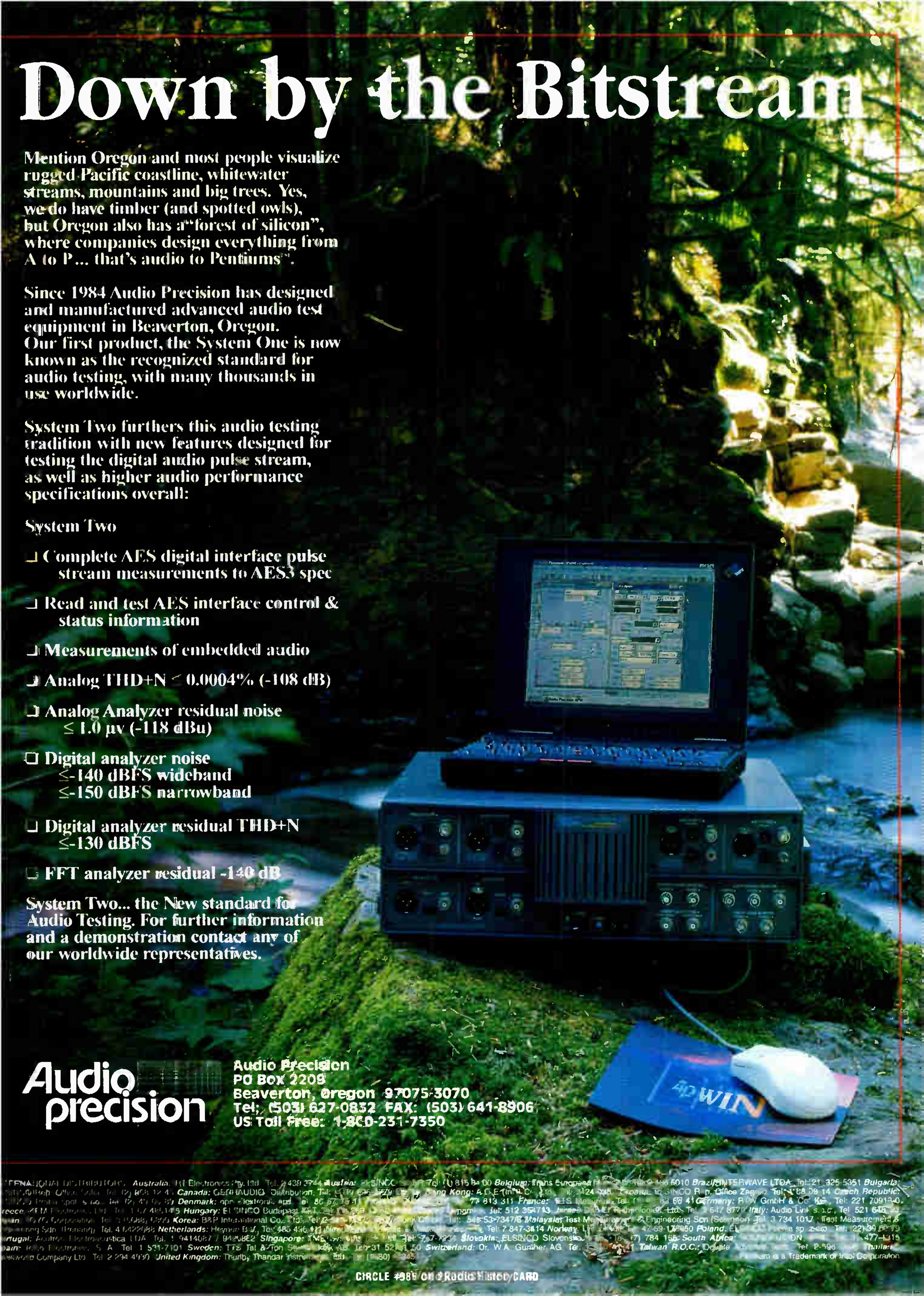
The only real rehearsal I do, apart from the rehearsal I do by myself as the vocalist, is with the drummer, Robert Trehern. His role was very crucial in this, because [this music] is of a slow tempo, but you want it to swing. It's got to swing and feel like there's movement; otherwise, everyone will just go to sleep. So I get together with him in this little hall, and I just show him a song. We just do an afternoon, and he's the only guy apart from me who'll know how it goes when we go into the studio.

What is Neil's role as co-producer? What do you feel he brings to the work?

He does all the technical stuff. But he definitely brings something else to it. If it was left to me, I think the records would be even less produced than they are. As it is, they sound slightly undercooked, and I like that. But if it was left up to me, they'd be raw.

Neil's always saying, "Look, put a little backing vocal here, or just put a little rhythm guitar here, and it'll help that hi-hat thing. I think you could just put this in here..." He won't let me go home, basically.

And after we've got our version and I've sung it right, and we've got our backing track with a vocal on it, then we go to work. We put sweetener on, but we try to do stuff that is sweetening without being apparent that it's sweetening. Neil gets down in the mix, doing little jobs without bashing you over the head.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INTERNATIONAL UPDATE

Did you work on one song at a time and take it from beginning to end, through the mix, or record a lot of tracks and then go in and mix an album?

We recorded a lot of tracks and then mixed. But very, very often, as happens to me more and more now—though it's sort of cliché; you hear people say this all the time—we used the monitor mixes. Generally after we'd been working on that track that day so that everyone was pleased with it, I'd say, "Let's just do a quick mix," and I think there's about five of those on this record that when we came to actually mix, it was all gone away. You just can't make it work, but the monitor mix, for some reason, had a life of its own, and when that happens you shouldn't fight it.

You do a lot of different things vocally on this record than I've heard you do before—different sounds and different styles. Did you work especially hard on the vocals for this record?

Actually no, though I'm ever so pleased that you think that. That is the point of those afternoons, singing the songs over and over, so that when the red light goes on and I open my mouth, I don't really know what's going to come out. All I know is that I know how the song goes.

How I'll interpret it in that moment is quite unknown. But as soon as I start hearing myself go to work on singing, that's when I can't stand it. I really cannot bear hearing myself sounding like me. But I like this other bloke that comes along—I like the other bloke to come along and do it for me. He's much better than I am. [Laughs]

I think that's why I can't bear doing my vocal over the track. That's the usual thing: You get the track cooking along, and then you do the vocal on top. Well, I sound *so* bad doing that...I got so fed up with cringing at hearing myself go to work that I thought, "Well, how is it that when I sit at home and sing into my little Walkman it sounds really natural and nice, and when I go

—FROM PAGE 122, "DIG MY MOOD"

so the vocals on all the tracks that were recorded outside of Rak were with a U87.

"There's a lot of acoustic piano on the album. On the song 'You Inspire Me,' which we recorded at Rak, you hear their fantastic Yamaha concert grand. At September Sound, we hired an upright piano from Marksams. Sometimes a grand's too grand, and the upright has more of an informal sound, though I find that it's more difficult to record. Generally speaking, I use a single U87 in a kind of half-overhead position, in front of the piano, trying to capture the whole action, because two mics on an upright piano sound really odd, phasingwise."

THE BONAPARTE ROOMS

"This is Pete Thomas' place, an ADAT/Mackie room. We transferred onto ADAT and went to Pete Thomas' to do the few overdubs that we did, and then the ADAT material was transferred back onto 2-inch and married back up with the original tapes for analog mixing. But funnily enough, that didn't always work out. Half the album ended up being monitor mixes from that studio.

"From a sonic point of view, I was fairly desperate, because those monitor mixes are not only off DAT, they're off the ADAT copies of the original. My instinct was telling me that 48-track, half inch, 15 ips, Dolby SR—it's got to be better. If you think about it too much, you could go mad: 'I know we've just spent £2,000 mixing this song, but the one you did in half an hour down at Pete Thomas' place is better.' But in the end, Nick has an uncanny knack of seeing what is good, and he was right in every case."

R. G. JONES

"When the record was finished, Nick came up with another song. It was the song that actually opens the album: 'Faithless Lover,' which we recorded and mixed at R. G. Jones in Wimbledon. It's an SSL room, and this studio had a real lot of luck in the late '70s, early '80s, and then it went out of favor and started to get used more to do incidental music for TV. But Bobby [Trehern], the drummer, has always said, 'Why don't we go to R.G. Jones,' because we like studios that are used to doing live music, and they do a lot of orchestral stuff. Sure enough, when we actually did go there, it was brilliant, and we'll probably go there again." ■

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to the studio, it sounds really stiff and horrible and forced and fake?" I try to find a way of recording myself so it doesn't sound fake and it doesn't make people nervous.

This type of music can make people uneasy, too, especially as it hasn't got a metronomic beat, which everyone is used to in pop music now. I can't bear that. I think pop songs are supposed to slow down and speed up, surge into the chorus, and then after the chorus it settles back down again. So you've got to help the listener, or else they get nervous if they hear what they think is sort of sloppy.

The older I get, what I want to sing about is love and the lack of it. There doesn't seem to me to be anything else more interesting than that.

To record this album, you worked in a few different studios. Did you do different types of work in different rooms, or was it just a matter of where you could book time when you needed it?

More like [the latter], because recording in this way, I had to go to studios that had a good room. The last record I did, *The Impossible Bird*, I actually recorded a big slice of in this little village hall I was just talking about, but I found out that it was quite expensive to do it like that when you add everything up: the transportation costs and hiring in screens and things like that. So we decided to do this one in the studio, so I had to go to the good studios in London, and there's one or two which have quite old-fashioned equipment but it's very well maintained.

A lot of the studios have old-fashioned equipment, and we all know that valves [tubes] are great, blah blah blah, but those damn places break down, and people have to take time out while great squeaks and noises are located. So, I wanted to go to studios that have good rooms and good equipment—good mics and stuff that works—and with those places, you have to wait till they're free. Like Rak in St. John's Wood, which is a really fantastic studio. It's Mickie Most's studio, and tons of hits have been done there. And then some other stuff was recorded on ADAT and transferred to analog.

Producing has become less and less a part of your career. Are you interested in doing much of that lately?

Not really. I think it's a young man's job. I do get asked quite a lot to do it, and I don't rule out going to watch somebody make a single or something, but to do a whole album with someone, you've got to really dedicate yourself to it.

See, I think a lot of producers know how to make a record, and the artist doesn't. So they go in there and they'll help the artist. They don't really like it; they'll just use their tricks and their wiles and help the artist make a professional-sounding record. It's impossible for all producers to like absolutely everybody they work with. Well, I can't really do that anymore. I've got to really get behind it to find the energy to do a good job.

What music do you like to listen to these days?

Quite a lot. I must admit, though, I only listen to contemporary music when I'm driving in my car. If I'm at home and I put music on, it's always old stuff. I listen to old R&B, country & western, and blues, or even jazz or classical music. The modern stuff sounds too strident to me at home. I can never get the volume right. Either it's too damn loud, or if I turn it down, all that's left is this sort of trebly squeak. All the tone goes out of it. It's all recorded so hi-fi nowadays, whereas the older stuff seems to sound great at a very low volume. But I like Funloving Criminals. They're an American group. And Beck—I think he's fantastic, because it's great music and it's funny, too, and that's always a pleasure.

This record you just made is not very funny, which I think is different from a lot of the recordings you've made before. Do you think that's true?

Yeah, I think so, but I hope it's not po-faced and precious. I've tried to figure out a way of using the fact that I'm getting older as an asset, as an advantage, as opposed to it being a real hindrance in a business that values youth, in a lot of cases, at least as much if not more than talent. And the older I get, what I want to sing about is love and the lack of it. There doesn't seem to me to be

anything else more interesting than that. Everything revolves and spins off of that.

When you're young, you can't really sing about that stuff convincingly, and it's a bit like being a comedian. I don't think very young comedians are funny. They become funny when they've had some sort of experience. And so it is, I think, with music. I find that I've got to an age now when I can write songs and sing songs like this, and they cheer me up. I feel real great singing this stuff.

I definitely know what it feels like to be blue, and in a way, it's a kind of glorious thing. You can feel sort of righteously misunderstood, you surge up and down on this sea of emotion. I'd rather not feel that way, but there is something glorious about it and very human. Everyone's got to have a bad love affair. It's a rite of passage. So whilst I'm not putting my diary to music—I don't think it's necessarily autobiographical—I certainly know what I'm singing. ■

Mix associate editor Barbara Schultz is particularly fond of the songs "You Inspire Me," and "Lucky Dog."

BITS & PIECES

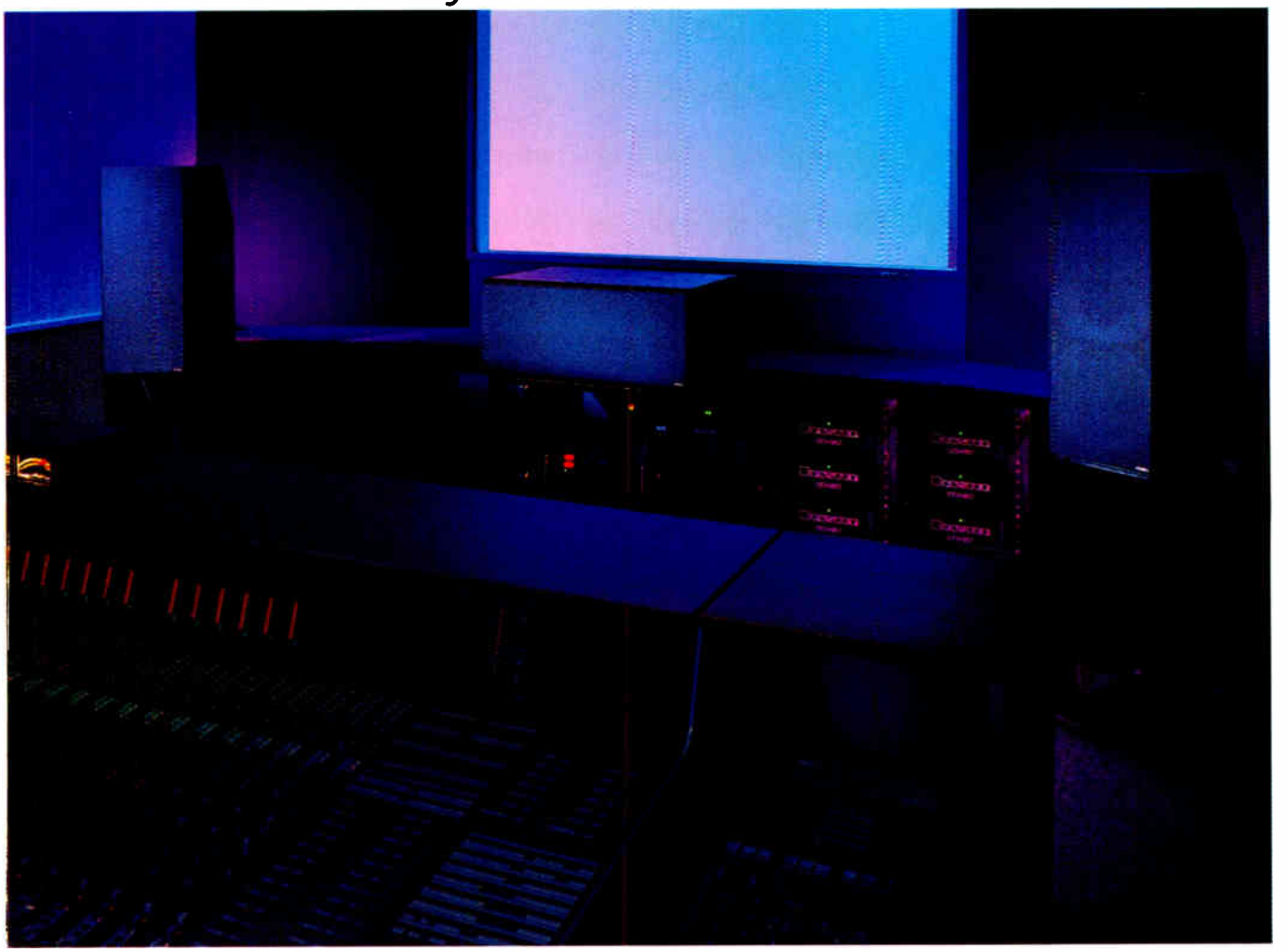
EUROPE AND UK

Soundtracs announced the completion of its new digital demonstration suite, situated in the company's offices in Epsom, Surrey. This facility will serve as a demonstration room for the manufacturer's Virtua and DPCII digital consoles...The recently released *BBC Sessions Compilation* from **Led Zeppelin** was remastered by Jon Astley and Jimmy Page on the SADiE Master System in Astley's home studio. The tapes were first transferred via dCS converters to a Genex 8000 8-track MO recorder at 24-bit/96kHz. The output of the Genex was recorded into the SADiE via a TL Audio EQ2 through dCS converters. Editing and de-noising were performed on the SADiE using the CEDAR De-Noise plug-in and a stand-alone CEDAR De-Crackler. The final Sony 1630 CD pre-master was made by **Metropolis Mastering** in London...German pro audio rental company **Westfalensound** purchased three 48-channel DDA QIIs from EVI Audio, Germany. DDA also reports that TTT Co. of Moscow supplied a QII for a Russian touring production of *Hamlet*...**Abbey Road Studios** (London) purchased a TL Audio M-2 8-channel mixer...**Marco Sound Design**, a studio located inside the **Condor** post-production facilities in Amsterdam, acquired a Fairlight FAME system. Condor, a video post house, established Marco Sound Design in collaboration with engineer Marco Baay to provide its clients with more complete post-production service...**Turku City Theatre**, Finland, took delivery of a 60-input Cadac F-Type console.

ASIA

Amek reports the first installation of its DMS (Digital Mixing System) console. The board was acquired by **Answers Studio** in Tokyo. Answers is an independent post-production facility whose clients include Japanese broadcasters Fuji TV and TV Tokyo...**Western Outdoor**, a leading Indian audio/video production and post house, upgraded its DAR system with the Genesis operating platform and DAR's PowerFrame and Advanced Signal Processing. This 30-year-old facility handles a diverse range of projects, including classical music recording, audio for interactive CD-ROMs, jingles, commercials and television production. ■

PMC and Bryston — The Final Mix



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James C. Hodson, Advantage Audio, Burbank, CA

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CIRCLE #092 OR PRODUCT INFO CARD

WHAT'S NEW IN NEAR-FIELD STUDIO MONITORS

A few years back, active near-field speakers were so bass-happy that they vibrated right off the console. Today, the majority of near-field studio monitors introduced are active designs with built-in amplifiers and electronics. Passive models still have their place, but you'd be hard-pressed to find a monitor manufacturer that's not selling or designing a self-powered near-field. Even amplifier and console manufacturers are getting into the game, selling active monitors that use their electronics.

JBL LSR 2B Series

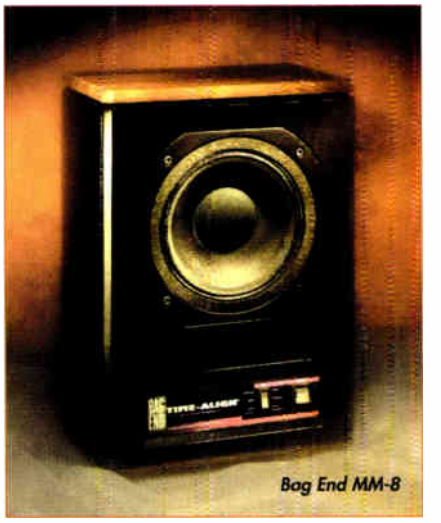
Event 20/20bas

SPOTTING AN ACTIVE TREND

BY LOREN ALLDRIN


Miller & Kreisel MPS subwoofer


Quested F11


Bag End MM-8

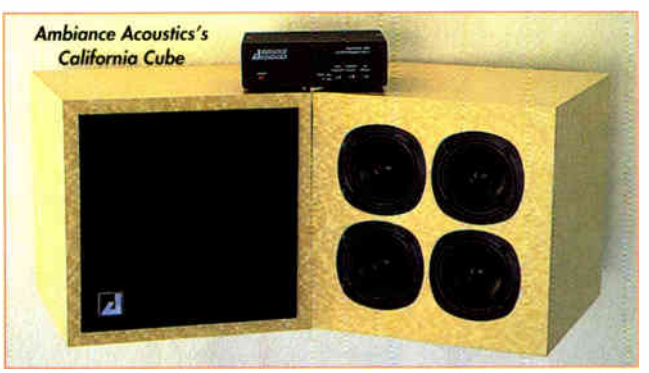
The benefits of self-powered monitors and subwoofers are numerous. Sonically, active near-fields enjoy a perfect match between driver and amp, coupled by an extremely short chunk of cable. Electronic crossovers offer less distortion and power loss than their passive counterparts. Active monitors are convenient and compact, as they need no external amp to perform their magic.

Despite the trend toward active monitors, passive designs are far from endangered. Passive models offer the benefits of lower price, lighter weight, no heat generation and no active components to fail. Best of all, passive monitors allow you to use the amplifier of your choice, be it inexpensive MOSFET design or esoteric tube model.

Regardless of what type of monitor you prefer, the past year-and-a-half has seen many new near-field designs introduced. Whether your budget is $300 or $20,000, you'll find a pair of monitors to bring your music to life.

Here, in alphabetical order, is the latest crop of passive and active monitors and subwoofers on the market.


KRK RoKits


Ambiance Acoustics's California Cube

ACTIVE PARTICIPANTS

The new SCM20A active near-field studio monitor from ATC is housed in a unique die-cast aluminum housing that improves structural rigidity and heat dissipation. The British-made SCM20A ($4,595 per pair) uses a 6-inch woofer and 1-inch tweeter, 250-watt and 50-watt amplifier sections and phase-corrected active crossover. A rear-panel selector provides five different low-frequency boost settings for optimum sound in diverse listening environments.

Bag End establishes new pricing for its Infrasub 18 subwoofer and MM-8 active near-fields. The Infrasub 18 (now


Hafler TRM-8s

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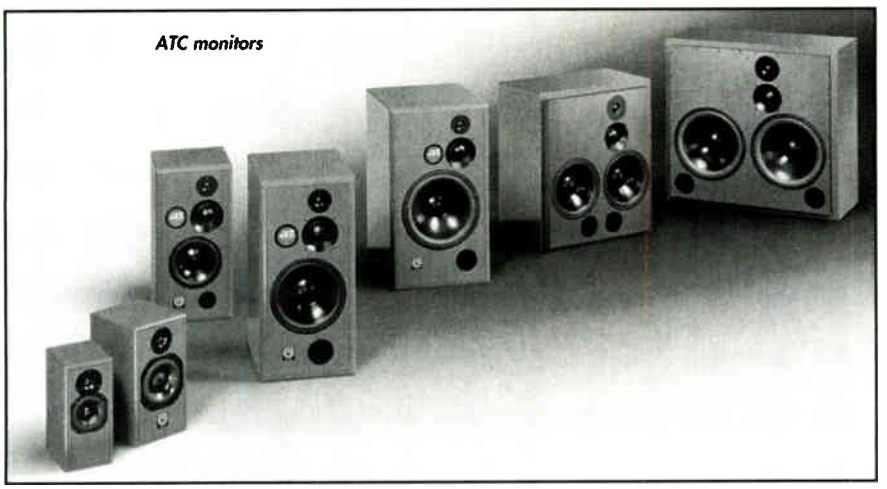
CIRCLE #151 ON PRODUCT INFO CARD

$1,495) uses an 18-inch driver, 400-watt amplifier, active crossover with highpass outputs and ELF integrator for output down to 8 Hz. The MM-8 (now $1,240 each) is a coaxial time-aligned monitor with 8-inch cone and 1-inch high-frequency compression driver. Three high-frequency EQ settings allow compensation for mix position and application.

The DIVA Genesis 8 and Genesis 10 monitors are the latest offerings from **Barbetta Manufacturing**. Both are self-powered designs with Multiloop Feedback™ MOSFET amplifiers, shielded bass-reflex cabinet with rear-firing port, 1-inch titanium-dome tweeter, 90 watts RMS output power per driver and midrange/treble trim controls. The DIVA Genesis 8 ($1,395 per pair) uses an 8-inch long-throw woofer; the DIVA Genesis 10 ($1,595) uses a similar 10-inch woofer for deeper bass response and higher overall output levels.



ATC monitors

Dynaudio Acoustics expands its BM Series monitor line with the active BM6A and the BM15A. The BM6A ($2,599 per pair) uses a 7-inch woofer, Esotec tweeter, rear-firing port and two 100-watt discrete MOSFET amplifiers. The BM6A also offers variable-Q equalization on the low-frequency channel, as well as a slow-acting optical limiter circuit for high-frequency driver protection. The BM15A ($3,599 per pair) uses a 10-inch woofer and 200-watt amplifier, front-ported cabinet, adjustable high- and low-frequency trim and optical high-frequency limiter.

Dynoudio Acoustics BM15As

Following their successful 20/20bas active and 20/20 passive monitors, **Event Electronics** has taken a unique approach to self-powered monitors with its new 20/20p ($599 a pair). Instead of two power amps per speaker,

MONITOR MANUFACTURERS CONTACT INFORMATION

Alesis
310/558-4530
Web site: www.alesis.com
Circle 201 on Product Info Card

Ambiance Acoustics
619/485-7514
Web site: www.calcube.com
Circle 202 on Product Info Card

ATC, distributed by Independent Audio
207/773-2424
Circle 203 on Product Info Card

Audix
503/682-6933
Web site: www.audixusa.com
Circle 204 on Product Info Card

Bag End Loudspeakers
847/382-4550
Web site: www.bagend.com
Circle 205 on Product Info Card

Barbetta Manufacturing
805/529-3607
Web site: www.barbetta.com
Circle 206 on Product Info Card

Digital Designs
888/563-4448 or 405/239-2800
Web site: www.digitaldesignsaudio.com
Circle 207 on Product Info Card

Dynaudio Acoustics
617/982-2626
Web site: www.aximarketing.com
Circle 208 on Product Info Card

Event Electronics
805/566-7777
Web site: www.event1.com
Circle 209 on Product Info Card

Focus Audio
615/252-8778
Web site: www.canorus.com
Circle 210 on Product Info Card

Genelec
508/652-0900
Web site: www.genelec.com
Circle 211 on Product Info Card

Hafler
602/967-3565
Web site: www.rockfordcorp.com
Circle 212 on Product Info Card

Hot House Professional Audio
914/691-6077
Circle 213 on Product Info Card

JBL Professional
818/895-3499
Web site: www.jblpro.com

Korg USA
516/333-9100
Web site: www.korg.com
Circle 215 on Product Info Card

KRK Systems
714/841-1600
Web site: www.g1ltd.com
Circle 216 on Product Info Card

Miller & Kreisel
310/204 2854
Web site: www.mksound.com
Circle 217 on Product Info Card

Mackie Designs
800/898-3211 or 206/487-4333
Web site: www.mackie.com
Circle 218 on Product Info Card

Meyer Sound Laboratories Inc.
510/486-1166
Web site: www.meyersound.com
Circle 219 on Product Info Card

Neosonik
760/944-0866
Web site: www.neosonik.com
Circle 220 on Product Info Card

Professional Monitor Company
800/632-8217
Web site: www.bryston.com
Circle 221 on Product Info Card

Quested, Distributed
by Audio Independence
608/831-8700
Circle 222 on Product Info Card

Shedworks TLC
818/225-1809
Web site: www.angelfire.com/biz/theloudspeakerco/
Circle 223 on Product Info Card

Spendor
905/469-8080
Web site: www.sascom.com
Circle 224 on Product Info Card

Spirit by Soundcraft
916/888-0488
Web site: www.spiritbysoundcraft.com
Circle 225 on Product Info Card

Sumiko
510/843-4500
Circle 226 on Product Info Card

Sundholm Acoustics
503/794-2661
Circle 227 on Product Info Card

Tannoy, distributed by T.G.I. North America
519/745-1158
Web site: www.tannoy.com
Circle 228 on Product Info Card

Westlake Audio
213/851-9800
Web site: www.westlakeaudio.com
Circle 229 on Product Info Card

one of the Event 20/20p enclosures contains two full-range 100-watt power amps (one for the powered speaker and one for the passive satellite). The 20/20p offers an 8-inch woofer, 1-inch silk dome tweeter and high- and low-frequency trim controls. Event's Tria workstation monitor ($849) is a tri-amplified system that consists of a subwoofer with all five amplifiers and two-way satellite speakers. Fully shielded and compact, the Tria satellites make the system well-suited to computer-based audio production, multimedia and audio post.

Designed for classical recording and other critical monitoring, the **Focus Audio** Model 68 is a two-way design using a 1-inch dome ScanSpeak tweeter and 5.5-inch Eton Kevlar woofer in a 13x7x10-inch (HxWxD), 20-pound enclosure finished in black piano lacquer. Frequency response is rated at 45 to 22k Hz, ±3 dB. The passive crossover uses 1% high-grade MIT and Solen components. The 68 is designed for listening spaces from 1,000 to 2,000 cubic feet; other models are available for larger rooms. Retail is $2,500/pair.

Genelec's 1091 A subwoofer and 1029A monitors

New from **Genelec** are the 1092A and 1094A subwoofer systems, as well as the 1029A active monitor system and companion 1091A subwoofer. The dual 8-inch 1092A ($2,150) and 15-inch 1094A ($3,699) are redesigned to offer a discrete subwoofer input channel, in addition to left, center and right inputs and outputs. The 1029A bi-amplified monitors ($1,070 per pair) offer a ¾-inch metal dome tweeter on Genelec's Directivity Control Waveguide, 5-inch woofer, a pair of 40-watt amplifiers and treble/bass filter controls. Adding the new 8-inch 1091A active subwoofer ($680) extends low-frequency response of the 1029A system down to 38 Hz.

Hafler's TRM-8 Trans•nova powered

reference monitors are bi-amplified studio near-field speakers. Inside the compact vented cabinets is an active crossover with two amps using Hafler's patented Trans-nova design, with 75 watts for the 1-inch dome tweeter and 150 watts for the 8-inch woofer. Other features include a tweeter waveguide, magnetic shielding, dual clip lights and rear-mounted EQ adjustments for tailing room acoustics. Retail is $2,400/pair.

The Hot House just got a little hotter, thanks to three new powered subwoofers from Hot House Professional Audio. All three offer MOSFET amplifiers, long-excursion drivers, sixth-order-tuned enclosures and high-SPL output down to 20 Hz. The ASB 212 ($4,999) offers two 12-inch drivers coupled to a 600-watt amplifier. The ASB 112 ($3,499) and ASB 110 ($2,999) offer a single 12-inch and 10-inch driver, with 450 watts of power from the internal amplifier. A pair of Hot House ASB 212s are available as a package with the Tannoy AMS12A concentric 12-inch monitors for high-SPL, wide-bandwidth monitoring applications ($18,000).

JBL Linear Spatial Reference line of studio monitors offer even response through a 60° horizontal and 30° vertical dispersion field. Design advancements include a dual-voice coil woofer with dynamic braking coil, noise-free port and spheroidal tweeter waveguide. The LSR line includes a passive three-way system with 12-inch woofer, 5-inch midrange and composite tweeter ($999), a self-powered two-way system with 8-inch woofer and composite tweeter ($999), and self-powered 12-inch subwoofer ($1,099).

KRK expands its reference monitor line with addition of the self-powered Exposé E7, E8 and affordable V8 self-powered near-fields. The E7 and E8 are both two-way designs with dual 140-watt fully discrete amplifiers, high-frequency attenuation controls, 1-inch dome tweeters and Kevlar woofers. The E7 ($2,995/pair) uses a 7-inch woofer; the E8 ($3,995/ pair) uses an 8-inch woofer. The V8 near-field ($1,249 per pair) is an active two-way design with an 8-inch Kevlar woofer, soft-dome tweeter, 130-watt low-frequency and 70-watt high-frequency amplifiers, and high-frequency trim control.

Mackie Designs' first entry into studio near-fields is the HR824, a self-powered design with an 8-inch woofer and 1-inch aluminum-dome tweeter. The HR824 ($1,495 per pair) houses a pair of Mackie's Fast Recovery Series amplifiers supplying 150 watts to the woofer and 100 watts to the tweeter. Instead of the common ported bass-reflex enclosure, the HR824 uses a large passive radiator mounted to the back of the cabinet. Electronic controls include acoustic space compensation, highpass filtering and high-frequency trim.

KRK Exposé E7 & E8

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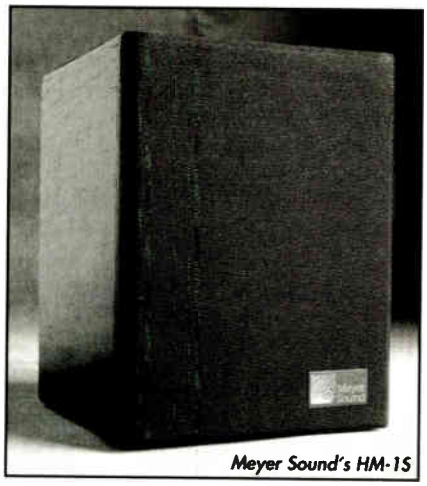
CIRCLE #098 ON PRODUCT INFO CARD

One of the pioneers of active studio monitoring, **Meyer Sound** has concentrated its efforts more in the area of live sound than recording since the introduction of its revered HD-1 active monitor. Now Meyer introduces the HM-1S self-powered studio near-field. The HM-1S ($1,700 each with power supply) uses a dual-concentric driver that pairs a 7-inch graphite woofer and 1-inch soft-dome tweeter, dual 200-watt amps, magnetically shielded enclosures and phase-corrected crossover (to 15 kHz). Each HM-1S will power an additional HM-1S Subwoofer ($650), which uses a front-firing 10-inch woofer to improve system output down to 42 Hz.

Quested's line of studio monitors expands with the addition of a new powered subwoofer and active near-field speaker. The VS1115 subwoofer ($3,702) uses a 15-inch woofer in a ported enclosure, 400-watt amplifier, three normal inputs and one effects input and numerous highpass outputs for use in a variety of applications. The compact F11 active monitor ($1,032 each) boasts a 6.5-inch woofer and 1-inch soft-dome tweeter matched to a 100-watt and 35-watt amp respectively.



Meyer Sound's HM-1S

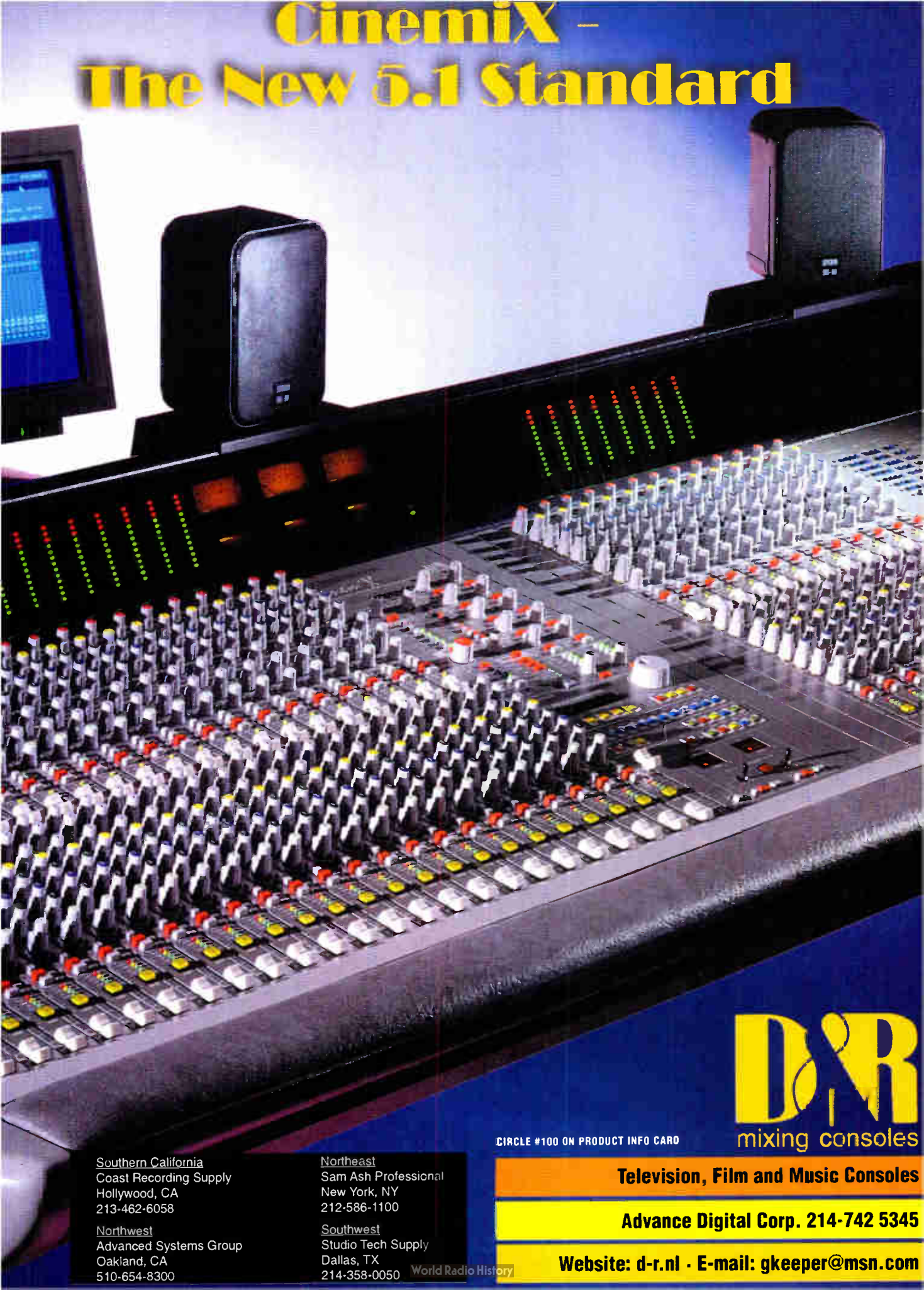
The F11's magnetically shielded enclosure is molded out of a dense, acoustically inert mineral-loaded material. Electronic controls include high- and low-frequency contour equalization.

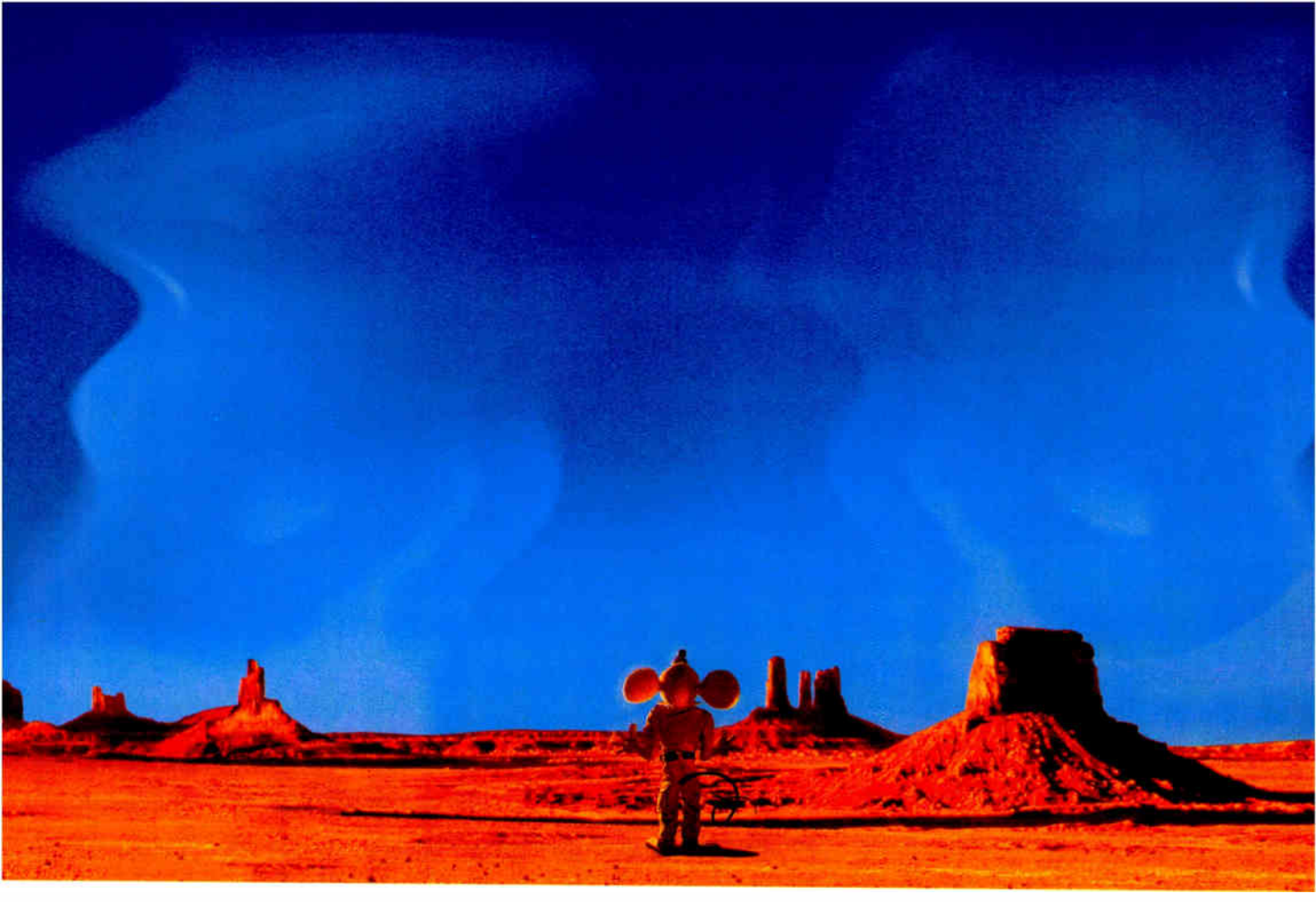
The SA-200 and SA-300 monitors are the newest offerings from **Spendor**. Both are self-powered designs that utilize a high-density MDF ported cabinet, 1-inch silk soft-dome tweeter, 50-watt treble and 130-watt bass amplifiers, delayed on/off circuit for transient protection and high/low-frequency equalization. The SA-200 ($2,495/pair) uses a 6.5-inch woofer; the SA-300 ($3,695) uses an 8-inch woofer.

The latest monitor in the **Spirit** family is the bi-amped 4P active near-field. The 4P ($1,300 a pair) uses a pair of 100-watt amps to drive a 6.5-inch long-throw woofer and 1-inch soft-dome tweeter; both drivers are shielded for placement near a video monitor. Vented cabinet uses a large, flared port to maintain bass response even at high volumes. Active crossover provides time compensation for driver alignment.

New additions to the **REL** subwoofer line by **Sumiko** include the Stentor II, Storm and Q-100 E. The Reference Series Stentor II ($4,000) offers a 300-watt amp driving a pair of 10-inch woofers; Acoustic Resistive Matrix loading increases bass control and extension down to 15 Hz. The Storm ($1,595) uses a 10-inch woofer coupled to an internal 100-watt amp. The Q-100E ($995) loads a 12-inch woofer and 100-watt amp in a compact 16-inch cube cabinet.

Tannoy, best known for its point-source coaxial designs, introduces two new self-powered coaxial studio mon-





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CIRCLE #101 ON PRODUCT INFO CARD

itors. The System 600A ($1,595 per pair) uses a 6.5-inch dual-concentric driver matched to a pair of 70-watt amplifiers; electronic controls include low-frequency and high-frequency contour switches. The System 800A ($2,295) uses an 8-inch dual-concentric driver with two 90-watt amplifiers. Both systems offer magnetically shielded cabinets. Tannoy also released the low-cost Reveal monitor ($399 a pair), a speaker that uses a traditional dual-driver design consisting of a 6.5-inch woofer and 1-inch soft-dome tweeter. The Reveal is magnetically shielded for placement close to video monitors.

PASSIVE AGGRESSIVE

Alesis is now shipping its SMS™ Surround Monitoring System, which debuted at NAMM a year ago. The SMS system includes two different models, the Point Source ($199/each) set of three low-profile shielded speakers for the left/center/right channels and Point Surround ($499/pair) with two wall-mountable surround speakers. A standard setup includes three LCR and two surround speakers. The LCR speaker has three response settings for approximating theater listening conditions. The surround speaker has settings to emulate Dolby Pro Logic and Dolby Digital/DTS playback curves.

Ambiance Acoustics introduces a unique full-range monitor system with the California Cube. Using multiple 4.5-inch full-range drivers and an outboard EQ processor, the California Cubes claim to offer tight dispersion and sharp imaging. With no crossovers used, the California Cubes ($1,395 including equalizer) have no phase distortion and no circuitry between amp and speaker. The EQC-1 equalizer offers bass roll-off filter, tape monitor loop and EQ bypass.

Audix has upgraded its flagship studio monitors: Formerly known as the Nile V and Nile X, the new N5 ($1,495/pair) and N10 ($1,995) speakers now feature dense 13-ply Baltic birch cabinets in either blond or black finishes. Available with a 1-inch cloth dome tweeter and either single or dual 7-inch Kevlar woofers, the speakers have a stated frequency response of 40 to 20k Hz (±3 dB).

Direct sales on the Internet have allowed **Digital Designs** to reduce the prices on its DD161-FB and M6b-FB monitors dramatically. Both offer ported bass-reflex design, 6.5-inch woofer and adjustable bass alignment (remov-

Korg RM8

able port plugs). The M6b-FB ($219, was $449) offers a liquid-cooled 20mm tweeter; the DD161d ($399, was $889) offers magnetic shielding, a larger woofer magnet structure than the M6b-FB, midrange EQ switch and 1-inch aluminum alloy tweeter.

Dynaudio Acoustics adds a new passive monitor to its BM Series: the BM6. The BM6 monitor ($1,169/pair) is a compact two-way design with 7-inch woofer, Esotec tweeter, rear-firing port and impedance-compensated crossover.

Jointly developed by Korg and Boston Acoustics, the **Korg** RM8 reference studio monitor RM8 ($210) is a ported design with 7-inch woofer and 1-inch Kortec dome tweeter. MDF cabinet and "window pane bracing" eliminate unwanted box resonance, while a flared port reduces audible port turbulence at high volumes. The RM8 is magnetically shielded.

In addition to its new active designs, **KRK** introduces the passive RoKit personal monitors. The inexpensive and compact RoKit monitors ($329 a pair) offer a 6.5-inch woofer, 1-inch silk dome tweeter and 75-watt power handling. The RoKit monitors are video-shielded, for multimedia and audio post applications.

With the introduction of the AC-3 speaker system, **M&K** addresses the needs of professionals mixing music and soundtracks in 5.1 surround. The THX-approved AC-3 consists of the MPS-150 speakers for the front channels, the MPS-150 SUR surround speakers and a choice of three different powered subwoofers. MPS-150 front speakers are available in several different angled configurations to assure optimum coverage; MPS SUR speakers can be remotely switched between standard dipole, direct radiator and M&K's unique Tripole™ mode. System price, depending on options, starts around $7,000.

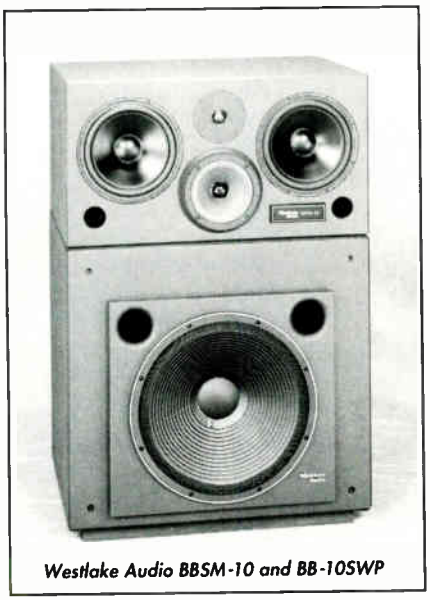
A new player in the studio market, **Neosonik** debuts a pair of two-way monitors, the Z1 and Z2. Both use advanced composite materials and proprietary drivers to reduce harmonic distortion. The Z1 and Z2 are passive designs with a 1-inch silk-dome tweeter, non-resonant cabinet with sandwiched damping material, linear-excursion kevlar woofers and magnetic shielding. The Z1 ($1,200 per pair) uses a 5-inch woofer, while the Z2 ($2,000 per pair) uses a 6-inch woofer.

The Professional Monitor Company introduces the IB1S mid-/near-field reference monitor, a passive three-way design that uses transmission line technology for extended bass reproduction, lower distortion and higher output levels. The IB1S ($4,500 a pair) uses an ultra-stiff carbon fiber/Nomex woofer as well as soft fabric mid- and high-frequency dome drivers.

With a unique driver arrangement and even more unique name, the Bath Camera near-fields from **Shedworks** TLC are compact, three-way monitors designed for console-top use. The pas-

sive Bath Camera monitors ($899 a pair) use a rear-firing 6.5-inch woofer, 5.25-inch midrange driver and neodymium dome tweeter in a sealed enclosure. Crossover is a phase-corrected design with five-way binding posts; system power handling is 90 watts RMS.

Sundholm Acoustics introduces two new passive monitors: the SL6.5e ($795 per pair) and the SL8.0 ($995 per pair). The SL6.5e offers a 6.5-inch mineral-filled woofer, 1-inch soft-dome tweeter and gold-plated bi-wire connectors. The SL8.0 boasts an 8-inch woofer, 1-inch aluminum dome tweeter and phase-correction front plate. Adding a pair of Sundholm subwoofers to the SL6.5e system creates the SL6.5s ($2,095 per pair). The subwoofer component of this system offers 10-inch front-mounted drivers in tall bass-reflex cabinets that function as speaker stands for the SL6.5e monitors.



Westlake Audio BBSM-10 and BB-10SWP

Known for its high-end studio monitors and distinctive wooden horns, Westlake Audio introduces a subwoofer companion to its popular BBSM-10, the BB-10SWP. The BB-10SWP ($9,850 per pair) offers a single front-mounted 18-inch driver in a ported enclosure and highpass outputs for passive bi-amp or tri-amp applications. When used with the BBSM-10, the BB-10SWP forms an ultra-rigid speaker stand for the full-range monitors. ■

Loren Alldrin is a producer/engineer and owner of Resonance Recording in Nashville. His new Mix Books title, The Home Studio Guide to Microphones, *is now available.*

HHB CDR-800

PROFESSIONAL COMPACT DISC RECORDER

Technology can be a beautiful thing. Ten years ago, the only CD recorder on the market cost $70,000, and a blank disc (if you could find one) sold for about $350. Five years ago, CD recorders became more affordable, but still carried price tags in the $10,000 to $15,000 range, while disc prices hovered at around $30. Now, with CD-R blanks in the $2 to $4 range (sometimes even less when rebates are in effect), HHB offers its CDR-800 CD recorder at an affordable $2,195.

Housed in a three-rackspace chassis, the HHB CDR-800 is a stand-alone CD recorder that requires no computer or external components. The input source may be analog (balanced or unbalanced line) or digital (i.e., workstation, A/D converter, CD or DAT player with AES/EBU, S/PDIF co-ax or Toslink optical output).

The CDR-800 is only slightly more complicated to use than a DAT deck and offers familiar controls for eject/stop/play/pause/record/track advance and forward/reverse audio scan. The main unit has no numeric keypad, so to access track number 99 without a lot of button pushes, you must use the (included) wireless remote control, which duplicates the transport/operations keys and adds a keypad for immediately accessing any track.

At the center of the CDR-800 is a large LED display that includes 9-step record/play level meters and shows track number, record status and timing information. The latter function is switchable to show elapsed time, time remaining, total time or time required for finalizing the track (writing the TOC). The display also shows input sampling rate and source selected. (When the CDR-800 is copying from digital sources, the onboard sample rate converter instantly recognizes sample rates between 32 and 48 kHz and converts them to the 44.1 kHz CD standard.) Some displays are obvious—"analog" means analog line input, Digital 1 is AES/EBU input and Digital 2 is S/PDIF co-ax—but when both digital 1 and 2 are lit, this somehow indicates S/PDIF optical is selected. You figure it out.

Analog levels are adjusted with a Record Level and a Balance knob. I rarely used the Balance knob, as we pros have things like consoles that make such adjustments superfluous. The rear panel has RCA and balanced XLR (pin 2 hot) analog inputs, but analog outs are RCA only. Digital I/Os are S/PDIF co-ax or optical, with AES/EBU for input only. A recessed DIP switch disables the wireless remote and sets copy permit/prohibit preferences. An eight-pin DIN socket is provided for parallel operation, and the manual includes a pinout diagram for making a custom controller for broadcast automation or duplication chains.

The sound quality from analog sources is excellent, thanks to the unit's 1-bit ADCs. Another clever design touch is the use of a heavy platter (rather than a plastic tray) for the CD transport, which is stable and rock-solid—two necessary requirements for accurate CD recording. Discs must be inserted into the CDR-800 with the recording side facing up, which takes a little getting used to.

The CDR-800's multisession capability allows continuous or stop/start recording, and discs can be removed at any time; additional tracks may be added at a later time, as long as the disc is not "finalized." Until that time, the discs are Orange Book compatible—playable on the CDR-800 only. But once the discs are finalized with a standard CD TOC, the discs are no longer recordable but will play back on any CD player.

CD index points can be written manually or automatically, and the CDR-800's built-in indexer function is designed to convert DAT IDs to CD track advance marks. Trying nearly a dozen DAT decks, I found the CDR-800 successfully translated the DAT index points into CD indexes, in all but the most ancient DAT decks. I especially liked the CDR-800's synchronous dubbing feature, which allows digital copying of index points along with audio data from CDs when fed from S/PDIF optical or coax sources and was always flawless.

There are numerous computer-based CD-ROM/CD-Audio burners on the market today (and these certainly have their place), but there's a certain immediacy in cutting discs on a hardware-based CD recorder such as the CDR-800. I took the CDR-800 to some acoustic shows at a local coffeehouse, and—armed with a high-quality preamp and a pair of decent condenser mics—I made some excellent direct-to-disc (I haven't used *that* phrase in years) recordings. Other than the fun of reverting to such primitive (stereo) miking techniques, there's an innate coolness in cutting a CD on the spot. And by using some of those $2.00 discs, I kept my entire budget for three hours of digital recording to about eight bucks—less than the cost of two 90-minute DAT tapes. Hey—this thing's fun!

HHB Communications USA, 626 Santa Monica Blvd., Suite 110, Santa Monica, CA 90401; 310/319-1111; fax 310/319-1311. Web site: www.hhb.co.uk. ■

BY GEORGE PETERSEN

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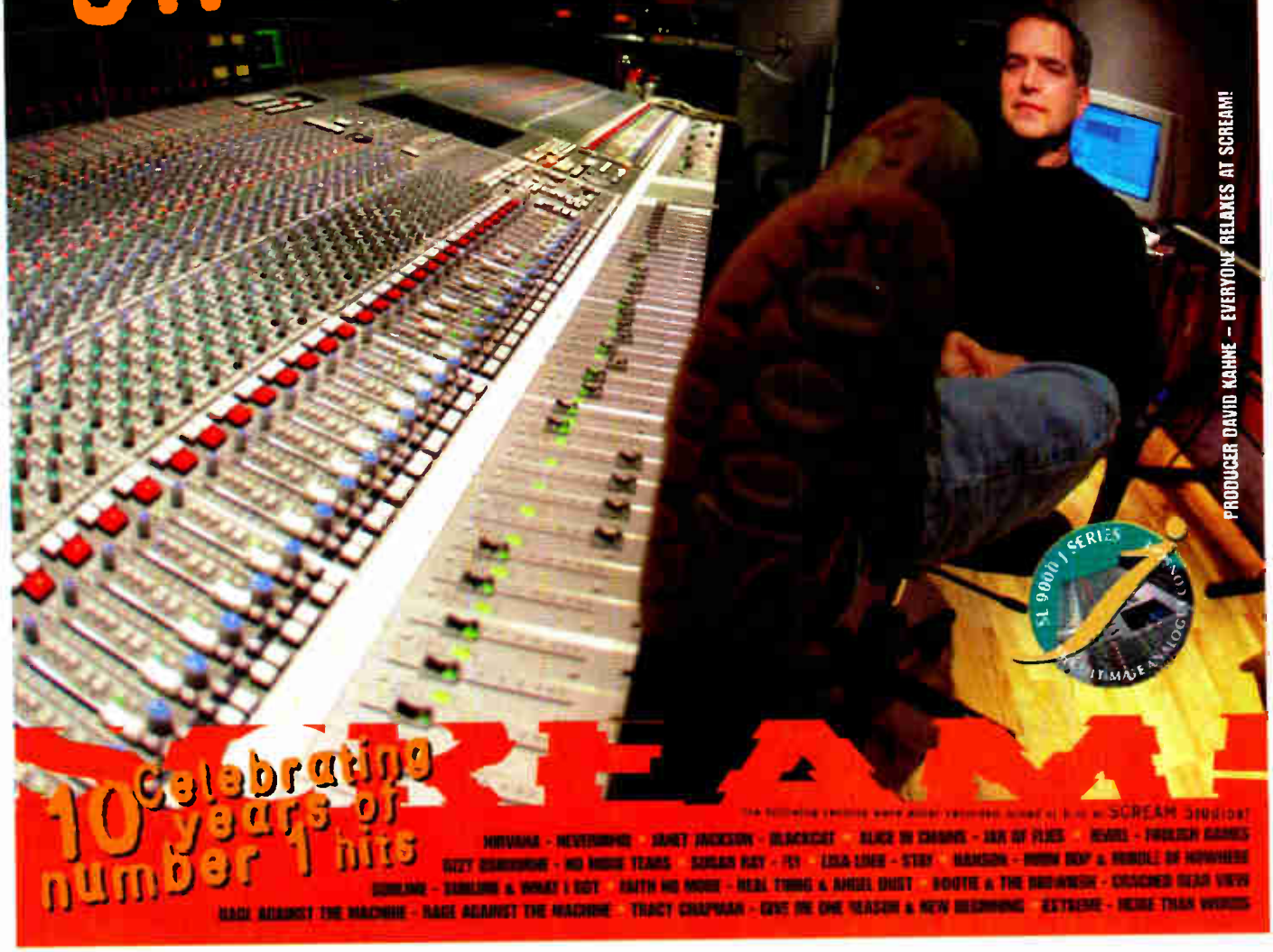

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RAGE AGAINST THE MACHINE · RAGE AGAINST THE MACHINE · TRACY CHAPMAN · GIVE ME ONE REASON & NEW BEGINNING · EXTREME · HERE THAN WORDS

PREVIEW

TASCAM TM-D1000 DIGITAL MIXER

New from Tascam (Montebello, CA) is the TM-D1000, an automated 16-channel, 4-bus digital mixer for $1,199. The TM-D100 offers four XLR mic inputs (with phantom power), eight channels of TDIF I/O, plus two XLR AES/EBU and two RCA S/PDIF outs. An optional interface expansion card adds eight channels of TDIF and four channels of AES/EBU or S/PDIF; an optional effects card adds four channels of dynamics processing plus one stereo reverb/delay/chorus etc. Up to 128 scenes can be recalled, via front panel or MIDI message. The TM-D1000 also transmits MIDI Machine Control messages.

ORAM SONICOMP II

The Sonicomp® II from Oram Professional Audio (Meopham, Kent, UK) is a 2-channel analog compressor with switchable solid-state and vintage light dependent resistor (LDR) attenuators; the latter offer inherent slower speed and smoothing characteristics. Featuring large VU meters, the two-rackspace Sonicomp II has input level, threshold, ratio, attack, release and output level controls, and stereo link and bypass switches. Retail: $2,870.

Circle 328 on Product Info Card

SYMETRIX DISTRIBUTION AMP

The Symetrix (Lynnwood, WA) 581E Distribution Amplifier (4x4) is a 4-in by 16-out distribution amp combining four 1-in/4-out modules in a single rackspace. Euroblock detachable terminal blocks speed installation, and simple rewiring can create 2x8 and 1x16 configurations. The unit has four LED input meters, and all inputs and outputs may be individually trimmed via the front panel. Retail: $549.

Circle 329 on Product Info Card

BSS OPAL DPR-944 2+2

The Opal Series DPR-944 2+2 Parametric Compressor/Gate from BSS Audio (Nashville) is a 4-channel unit with a range of dynamic processing options. The DPR-944 includes two parametric compressors, useful for wideband processing and for tailoring compression effects, including "de-popping," reducing proximity effect, de-essing and declicking; and two frequency-conscious gates, featuring parametric sidechain filter control plus sidechain monitoring. The four channels of processing are independent, so gate and compressor may be assigned in any order. Front panel controls select threshold and release time. Gates and compressors are linkable for stereo processing. I/Os are electronically balanced. Retail: $899.

Circle 330 on Product Info Card

SPECK XTRAMIX UPGRADE

Speck Electronics (Fallbrook, CA) has upgraded its XTRAMIX 40x8x2 line-level mixer, a four-rackspace unit with 20 stereo line inputs, eight subgroups/recording buses and a stereo master out. New features of the XTRAMIXcxi include stereo effects sends from each channel and eight effects returns assignable to any or all eight buses, low-noise electronically balanced inputs that accept inputs from -20 to +22dBu, integral talkback with slate to tape, and low-noise pots and switches. Retail: $4,215.

Circle 331 on Product Info Card

JOEMEEK SC2.2 STEREO COMPRESSOR

JoeMeek (distributed by PMI, Torrance, CA) announces the SC2.2 Stereo Compressor, a lower-cost version of

PREVIEW

the company's successful SC2. New features include a redesigned PC board and smaller chassis, a fifth position on the Slope control, input/gain reduction switching for the meter and front panel access to the output gain control. Retail: $1,499.99.

Circle 332 on Product Info Card

NEW FRONTIER SURGE SUPPRESSOR

New Frontier Electronics' (New Hope, PA) Surge-X® SX115R surge suppressor—a single-rackspace device—provides 15-amp protection, stopping surges of up to 6,000 volts. The unit has six switched and two unswitched, rear panel, grounded AC receptacles and includes self-testing circuitry and front panel LED status indicators. Optional features include remote turn-on capability and front panel connectors for Littlite™ gooseneck lamps.

Circle 333 on Product Info Card

FOSTEX FD-4

The FD-4 from Fostex (Norwalk, CA) is a mini-DAW with four dedicated recording tracks and an analog mixer with 3-band swept mid EQ. Inputs include two

balanced XLRs (two tracks may be recorded simultaneously). When full, the four dedicated tracks can be mixed to two virtual tracks and then refilled. The four dedicated and two virtual tracks can then be mixed and stored to external media via a SCSI-II port or to an optional internal IDE hard drive. All digital audio is uncompressed. Additional features include cut/copy/move/paste editing, undo/redo, vari-pitch, onboard MMC/MTC/MIDI clock and a jog/shuttle scrubbing wheel. Retail: $599.

Circle 334 on Product Info Card

BARBETTA CHANNEL ONE

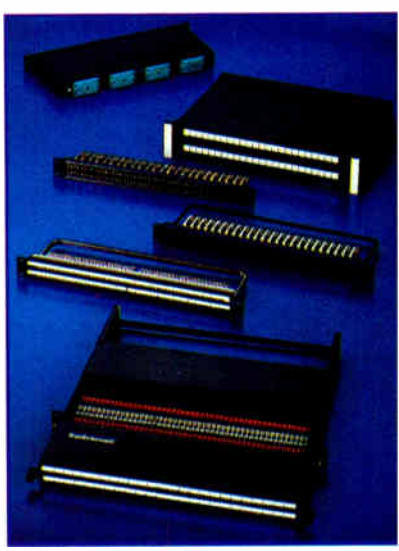
The Channel One from Barbetta Manufacturing (Moorpark, CA) combines an EQ/dynamics processor and low-noise mic/line preamp (with phantom power and phase reverse switches). A TRS line input accepts balanced or unbalanced signals. High-impedance instrument input is also provided. The 3-band parametric EQ section offers overlapping ranges, ±20dB cut/boost and a hard-wire bypass. The dynamics section has a noise gate with frequency-shaped sensitivity and a compressor with ratio, threshold, attack and release controls. Two meters indicate gain reduction, output or internal system levels. Retail: $799.

Circle 335 on Product Info Card

SWITCHCRAFT PATCH PANELS

Switchcraft (Chicago, IL) offers its TTP96 audio patch panels in a variety of styles. All models feature a steel frame and anodized aluminum face with labeling strips, nickel-plated jacks, gold switching contacts and cable tie bar. Available in full normal, half normal and open circuit configurations, the TTP96 can be specified as a complete patch panel or a kit and in a front access version. EDAC connectors are optional.

Circle 336 on Product Info Card



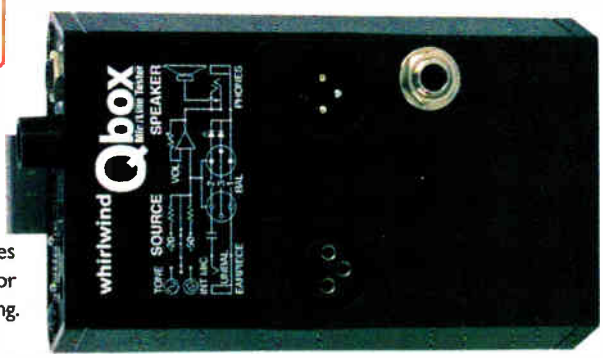
TOOLBOX MAGIC

Whirlwind custom panels and wiring systems ensure the reliability and performance of installations throughout the world. But many of our favorite products in the field are housed in smaller venues — toolboxes, toolbags, briefcases and gadget drawers. These are the magic items that get you through the day on an installation or trouble-shooting mission, and we dedicate them to everyone who has had to make a system work on a deadline.

On-Off Switch with Battery Good LED

The TESTER quickly and reliably checks cables with almost any combination of XLR, Phone, and Phono connectors for shorts, opens, or cross wiring.

MICPOWER provides phantom power for most condenser mics from two 9V batteries.

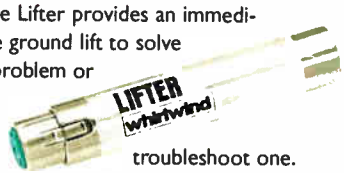


The Qbox® packs a built-in speaker with amp, a built-in mic with preamp, a built-in reference tone generator and Voltage Present LEDs for detecting phantom or 3-wire intercom power. It drives headphones and carbon earpieces and operates at mic or line level. A real life saver for audio line testing.

The PHASE REVERSER is the quick cure for an "out of phase" mic

or piece of processing gear.

The Lifter provides an immediate ground lift to solve a problem or

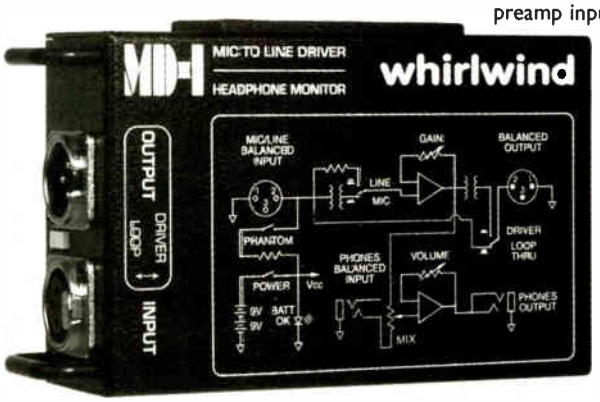


troubleshoot one.

IMP PADs come in 10, 20, 30, and 40dB versions for temporary or

permanent level correction.

The MD-1™ combines a studio-quality mic preamp with a transformer-isolated line driver and a built-in headphone amp. The mic input and headphone driver have individual gain adjustments and phantom power is switch selectable. An innovative Mix control mixes the preamp input and a separate aux input to permit simultaneous headphone monitoring of an additional line level signal.



The LINE BALANCER SPLITTER balances and isolates or splits line level signals. With individual ground lift switches on each output and both XLR and 1/4" TRS for maximum flexibility.

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CIRCLE #108 ON PRODUCT INFO CARD

PREVIEW

EVENTIDE DSP4500 ULTRAHARMONIZER

Eventide's (Little Ferry, NJ) DSP4500 UltraHarmonizer® combines all of the features of the company's three 4000 Series models (DSP4000, GTR4000 and DSP4000B) and offers more than 1,000 standard presets, including the Alchemy 101 library developed by Scott Gilfix, an 87-second sampler and advanced stereo looping and multiple looping capabilities. Additional features include digital and analog I/Os, upgraded 24-bit ADCs and 147 user-generated effects module locations. Price is $5,895.

Circle 337 on Product Info Card

LA AUDIO MILLENNIUM SPX2

The Millennium SPX2 Stereo Source Selector & Preamp from LA Audio (distributed by SCV America, Keene, NH) is designed to enhance the monitoring facilities available on budget consoles. The single-rackspace unit has six selectable inputs with multiple balanced and unbalanced input connectors (XLR, TRS, RCA) and two independently controlled TRS outputs. Pushbuttons select and sum sources to the outputs and level trims on each input balance +4dBu and -10dBv sources. Input one offers a parallel set of front-panel balanced TRS inputs. The output section features an overall balance control, a -20dB pad and a mono button. A record output and headphone monitor output are also provided. Retail: $449.

Circle 338 on Product Info Card

FOCUSRITE VOICEBOX 2

Focusrite Audio Engineering, distributed in the U.S. by Group One Ltd., of Farmingdale, NY, introduces the Voicebox 2—the update to its successful Green 3 Voicebox—and the first in a series of "new look" Green Range processors. The Voicebox 2 mic preamp offers Focusrite EQ, compressor, de-esser and noise-reduction expander but adds a line-level input. Due to requests from users in broadcast and audio post, all new Green series units will have a more conservative look, rather than the artsy "windows" of earlier units.

Circle 339 on Product Info Card

HOT OFF THE SHELF

Version 2.0 software for the Fostex DMT8VL 8-track disk recording/editing system adds Edit Preview, Bounce Forward and a facility to expand the number of "partitions" from five to nine. Call 310/921-1112... **Rackcraft's Desktop Studio Rack is a complete tabletop studio equipment rack** for a rackmount mixer, six rackspaces of processing gear, an amplifier and stereo speakers for $299.95. Call 913/262-3949 or e-mail to Rackcraft@aol.com... **A Version 2 upgrade to the Motionworks R2P2 Remote Controller** for serial tape machines and other Sony P2-compatible devices offers programmable gearing of the jog wheel, instant capture of cue times, revised menu systems, expanded machine library (200-plus machines), playback speed matched to camera and custom menu access for Doremi V1. Call 207/773-2424... **The Entertainment Services and Technology Association (ESTA)** has two drafted American National Standards available for public review. BSR E1.6 establishes safety requirements for motorized flying systems in theaters, studios, theme parks, etc. BSR E1.8 describes structural requirements for flown loudspeaker enclosures. Copies of the draft standards may be obtained from the ESTA Web site at www.esta.org... **Rip-Tie's® range of Velcro® CableWraps** allow quick and simple cable organization for routing chores. A variety of colors and sizes (including custom) are available. Call 415/543-0170 or visit www.riptie.com... Posthorn Recordings debuts **two in-line, active, highpass filters for Schoeps CCM Series compact mics**. The LC 60 and LC 120 offer 60 and 120Hz filtering. Call 212/242-3737...**GEPCO International's 5522M digital audio microphone cable** has two twisted 22-gauge tinned copper conductors with a 22-gauge tinned copper drain wire, all insulated in a low-density polyethylene dielectric and a durable jacket. Call 312/733-6416... **The 1998 Jensen Tools Master Catalog** runs 300 color pages, with a wealth of products for the electronics industries. For a free copy, call 800/426-1194... Now available are **two new Quantegy analog audio cassette lines**: Quantegy AVX Professional Audio Cassettes and Quantegy IRC Instant Record Cassettes in 10, 20, 30, 46, 60, 90 and 120-minute lengths. Call 770/486-2800...**Belden Wire & Cable Company** adds the 1883A Line Level Analog Audio Cable to its Brilliance family. Call 765/983-5200 or visit www.belden.com... The 80+-page **Shure 1998 Master Catalog** includes four-color photos, charts and selection guides, and frequency response curves for many Shure transducer products. For a free copy, call 800/25SHURE or surf to www.shure.com. ■

SOFTWARE AND HARDWARE FOR AUDIO PRODUCTION

MICROBOARDS CD-R/ DVD-R DUPLICATOR

Microboards Technology (Chanhassen, MN) debuts a duplicator capable of copying DVD-R authored discs. The $6,995 DSR8000 provides high-speed, high-volume CD-R and DVD-R duplication: An optimum 8-DVD-R drive external configuration creates up to eight DVD-R discs simultaneously within 54 minutes. Features include a Direct SCSI interface and three Versatile Media Interface slots (each VMI slot card supports two DVD recorders). In CD-R mode, up to ten 20-drive units can be daisy-chained. A DVD-R-only Power Box ($5,300) that incorporates existing DVD recorders into a stand-alone DVD duplication station is planned. Additionally, the Pioneer S101 DVD-R recorder is offered at $16,995.

Circle 340 on Product Info Card

SYNCHRO ARTS PLUG-IN UPDATES

Synchro Arts Ltd. (Epsom, UK) has upgraded and reduced the pricing of its VocALign and TITAN post-production tools. VocALign audio alignment software pricing is now $999, and Version 2.4.8 adds full 8/16/24-bit Pro Tools audio support. TITAN Version 1.0.2 is now $999 (from $1,495) and features a new Cut and Move (Reconform) function, which uses EDL data to automatically recut and move audio regions from selected tracks in an existing Pro Tools file. Additionally, Synchro Arts' ToolBelt V.1.4.8 is now Pro Tools-compatible. A free CD-ROM from Synchro Arts and Digi dealers offers demo versions of all three applications.

Circle 341 on Product Info Card

TC WORKS MASTERING PLUG-IN

New from TC Works (Westlake Village, CA) is MasterX, a multiband dynamics processing plug-in for Pro Tools TDM systems. MasterX provides integrated multiband expansion, compression and limiting, all optimized for mastering applications. Crossover points and gain adjust for the three bands are configured via a large graphic display, and MasterX includes accurate level metering, a digital ceiling parameter and a Look Ahead feature that searches for sudden anomalies in the program material. Retail: $999.

Circle 342 on Product Info Card

CAKEWALK AUDIO FX-1 EFFECTS PLUG-IN

Cakewalk (Cambridge, MA) recently introduced Cakewalk Audio FX-1, the first in a new series of low-price 32-bit, real-time stereo effects plug-ins for Windows applications. Audio FX-1 comprises four dynamic processing effects, Cakewalk Compressor/Gate, Cakewalk Expander/Gate, Cakewalk Limiter and Cakewalk Dynamics Processor, a multipurpose tool combining the limiter, expander/gate and compressor/gate. Audio FX-1 is available at a street price of $149; more Audio FX plug-ins are due later this year.

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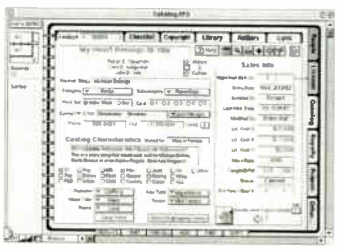

WORKING SOLUTIONZ SONG TRACKER

SongTracker™ from Working Solutionz (Simi Valley, CA) is a music business application for FileMaker Pro. Designed for songwriters, musicians, publishers and pro studios, SongTracker ($249) manages contact information; tracks projects, pitching efforts and song evaluations; manages sound files and creates tape library forms, calendars and cue sheets; and generates 130 reports, such as PA and SR copyright forms, agreements and licenses, and ASCAP, BMI and Harry Fox forms. An optional Pro version ($798) also tracks copyright administration, including contract, royalty and license tracking, and offers extensive recording project management. Both versions are Mac/Windows-compatible, networkable for up to 100 users and customizable with FileMaker Pro.

Circle 344 on Product Info Card

UPGRADES AND UPDATES

E-mu Systems (www.emu.com) and **Metalithic** (www.metalithic.com) announced a strategic alliance in which E-mu will bundle a basic version of Metalithic's Digital Wings for Audio hard disk recording software with E-mu's Audio Production Studio PCI card, and Metalithic will license the APS card for sale with the full version of DWA...**SADiE** announced its fourth free upgrade, V.3.04, for **SADiE and Octavia DAWs**, available at www.sadie.com...**Emagic** (www.emagic.de) announced support of **Steinberg**'s VST plug-in format for the new Logic Audio Series on Macintosh. The company is distributing free plug-ins for Cubase VST Windows and Wavelab 2.0; find the plug-ins at www.steinberg.net. Steinberg is also now distributing **SonicWORX Studio** mastering and post-production tools...**Princeton Diskette** (www.princeton-diskette.com) offers the CDXpress stand-alone duplicators at $1,695 for a 2x-write/4x-read version, and $1,995 for a 4x-write/6x-read version... New from **Waves** (www.waves.com) is a DSP plug-in, DeEsser for Pro Tools 24... Berkley Integrated Audio Software (www.bias-inc.com) released **Version 2.0 of both BIAS Peak and BIAS Peak LE**; both packages feature useful new tools and improved user interface. The upgrade to Peak 2.0 is $129; the upgrade to Peak LE is $29 (package MSRPs are $499 and $99, respectively). ■

E-MU EOS VERSION 3.0

EMULATOR IV OPERATING SYSTEM UPGRADE

Since its introduction more than three years ago, the Emulator IV family of samplers has built on E-mu's reputation for sterling sound and powerful control features. With its latest software revision, EOS (Emulator Operating System) 3.0, E-mu's flagship becomes more flexible, with enhancements and options that blur the distinction between sampler and workstation. These include new modulation sources and destinations, optimized performance features, a revamped 48-track sequencer, support for Emagic's SoundDiver preset editor and an upgrade option for the E-Synth 16MB ROM board.

CORDS, CORDS!

For those of you unfamiliar with the E-IV line's software architecture, the key word is "control." The heart of EOS is a flexible modulation routing scheme that provides manifold options for programmers. This system is facilitated by 18 "cords"—virtual patchcords within a voice that can interconnect more than 60 modulation sources and destinations. All cords are fine-tunable and have adjustable positive and negative values, determining the amount of modulation applied to a given destination. Source parameters include pitch and mod wheel, footswitch and pedal, LFOs, envelope generators, random sources plus MIDI continuous control info; destinations affected include pitch, panning, LFO rate, envelope and glide. In essence, the industrious programmer can experiment and create a custom instrument.

Already providing an exhaustive array of options, EOS 3.0 adds a few more modulation sources to the palette. These are very useful MIDI clock modulation sources that can sync LFOs, trigger samples and envelope generators, and/or provide a square wave modulation source. MIDI clock (generated by the new sequencer and arpeggiator covered below) is available in six divisions, from double-whole-note down to sixteenth-note resolution. Essentially, clock modulation opens up intricate rhythmic and timbral possibilities, aided by routing different clock patterns to the same destination, triggering and synching LFOs or modulating the filter envelope. For me, this worked well for interweaving complex percussion parts, but there are countless applications. As for new modulation destination sources, these are all re-trigger functions for the sampler's auxiliary envelope, filter envelope, and the two LFOs and can be addressed by any of the modulation sources.

It's worth mentioning now that E-mu's manual for EOS is surprisingly good. Sections appropriately cross-reference each other, margins contain tips and warnings, and the main text is peppered with suggestions for users. The E-IV is fairly complex, so the amount of repetition is actually reinforcing, and in the end, you become comfortable with the unit.

PERFORMANCE FEATURES

EOS 3.0 provides the ability to split presets into several MIDI zones, each optimally controlled from either the E-IVK or the E-Synth (which perhaps increases their value as master controllers). The rackmount versions can act as filters for limited controllers, providing MIDI zone information for the rest of a MIDI rig. Zones can be assigned a MIDI channel, key range, velocity range, program change, transposition and other parameters. Each MIDI zone can filter control information, like pitch and modulation. (This worked particularly well with my controller.) You have the ability to split a voice in two and process each voice in two different ranges of the keyboard. Last, you can layer voices within two ranges, as well as positionally crossfade voices to mask transitions.

BY ALEX ARTAUD

SEQUENCING CHORES

One of the more notable improvements in EOS 3.0 is the sequencer, which in the E-IVK was limited to 16 tracks and was clearly designed as a MIDI scratchpad. The new sequencer has 48 tracks, with loop record, expanded editing features, normal and swing quantizing, channel re-assigning, and real-time erase. Navigating through the sequencer screens is a tad unwieldy, though, especially when working with limited LCD screen size. Fortunately, everything is labeled fairly well, and most functions are pretty easy to figure out without the manual.

There are two primary windows: Sequence Manage and Sequence Edit. Sequence Manage primarily handles erasing, copying, sequence looping and MIDI file export chores. It also has a Jukebox feature that allows you to play up to seven sequences in series—usable to audition work or perhaps serve as live backing tracks.

All central functions of the sequencer can be found in the Sequence Edit screen. Once there, you can do all the assigning, tracking and editing you need. Since the E-IV does not have separate transport controls (they only come standard on the E-IVK and E-Synth), E-mu provides a work-around solution, doubling the six Functions buttons (below the LCD) for return-to-zero (RTZ), Stop, Play, Record and Abort commands. The sixth button acts as a toggle between these transport functions and the editing parameters.

Track layout in Edit mode is intelligent and easy-to-operate. Up to 48 tracks are stacked with fields for Mode (record, play, mute, etc.), MIDI channel, Preset, Volume, Pan and Submix assignments. The upper left-hand corner has a Bar-Beats-Ticks counter, with sequence number and tempo of the sequence. If you're quantizing at the input or are in Loop mode, a small 'QL' icon in the upper right hand reminds you—nice touch to save some hassles.

Tracking and editing were quick and painless for me. The only thing I wanted was to be able to stay active in loop record as I moved from track to track, covering parts. Since real-time erase is implemented, it's not a big deal, though. As far as live performance applications, a friend suggested including a template for muting on-the-fly during playback. Perhaps function or keypad buttons could serve as mutes while the sequencer runs? Something to consider for future versions.

The bottom line is that the sequencer works well to gather ideas and save them for later refinement—far better than the E-IVK. Plus, the sequencer can also be used as MIDI data filer, i.e. recording MIDI SysEx messages. Also, I found loading and playing Standard MIDI files was a breeze, and both Mac and PC-formatted disks can be used.

ARPEGGIATOR REVISITED

Oh so many years ago, there was Emax, and it had an arpeggiator. Yet E-mu hasn't consistently added it since then. Apparently, this time someone thought better, and they've included a decent arpeggiator with 3.0. Features include up, down, up/down and, best of all, random directions; a three-octave range; and tempo division down to 32nd-note triplets for the manic in you. If you want to arpeggiate against an arpeggiated sequence, there's a Resync feature to lock the patterns together. Sure, an arpeggiator is not for everybody, but it was smart to include it.

EXTRAS

With the improved SysEx implementation that came with Version 2.5, virtually every function could be addressed via SysEx, allowing for use of editor/librarian. While librarians are still on the horizon, EOS 3.0 comes bundled with a special version of Emagic SoundDiver. With SoundDiver, all presets in the Emulator IV family can be saved in a Mac or PC. The graphic interface is excellent, and all editable features are covered. This makes a big difference.

Another bonus feature that's supported by software Version 3.2 is the E-Synth 16MB ROM board ($495) for E-IV. This is a great selection of 256 sounds that cover pads, strings, acoustic and electric piano and bass, various drum kits, warm analog leads, orchestral sounds...the list goes on. The sounds are fabulous, and those with an E-IVK will have extended real-time features to control filter, resonance, chorus, LFO rate, etc. Not a critical addition but worth having.

In sum, EOS 3.0 showcases the E-IV line's strengths, making it useful for discriminating sound designers and performing artists. It is the first true workstation software platform that E-mu has developed, and to their credit, they've made its most critical features available to those on limited budgets. That says a lot for the commitment they've made to musicians, and bodes well for the future. The EOS upgrade is free for units purchased in the last year; upgrades for samplers purchased more than a year ago are $199, including SoundDiver.

E-mu Systems Inc. PO Box 66015, Scotts Valley, CA 95067-0015; 408/438-1921; Fax 408/438-8612. ■

Alex Artaud is the editor of Mix—Edicion en Español.

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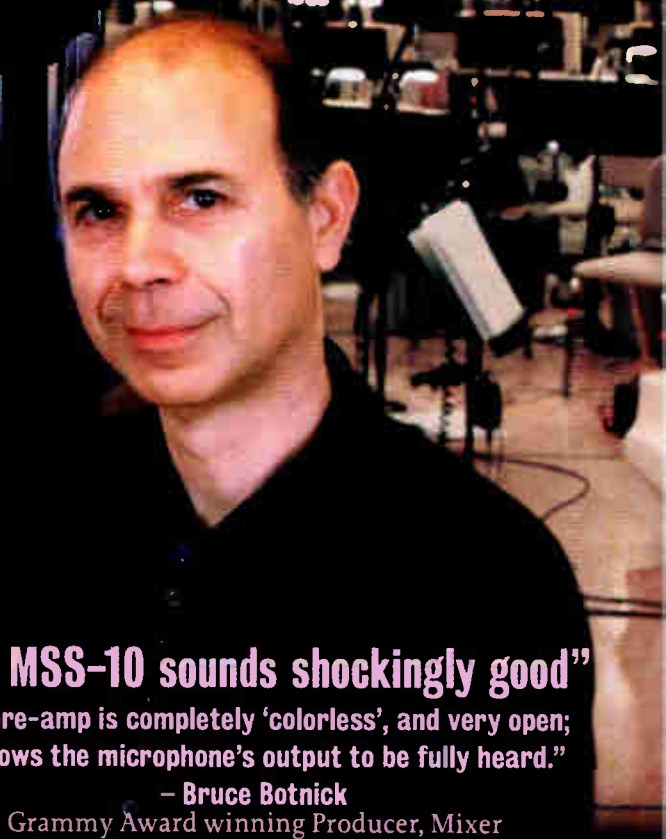

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you really want to hear what your best microphones sound ke, plug them into an MSS-10 and prepare for the sweet uth." – Mike Sokol, EQ Magazine, October 1997

ic preamps are not created equal. They may measure e same, but sound wildly different. That's why the ost meaningful test procedure we use is quite simple, ut revealing.

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MARTECH

PRO TOOLS | 24

AUDIO PRODUCTION SYSTEM

There are numerous DAWs with a sizable installed base, but none that really comes close to Digidesign's Pro Tools as a *de facto lingua franca* (I wish I'd taken Latin in school).

Pro Tools' dominance in the industry means that a major introduction in the product line is both a bellwether of the prevailing market currents and a harbinger of the market's future direction.

Although Pro Tools software updates can be significant enhancements, it is usually new hardware that signifies a technological corner being turned. A good example of this is the impact of TDM's introduction, well before native processing had more than a shred of viability. With the incredible support by plug-in manufacturers for the real-time TDM format (as well as the file-based AudioSuite plug-in format introduced with the release of Pro Tools 4 software), the ability to expand processing power with more hardware, and integrated QuickTime movie playback, today's Pro Tools can be built into a multitrack recording, editing and mixing environment powerful enough that one may never need to go outside it during a project.

With Pro Tools | 24, Digidesign enters into direct competition with high-end system vendors Sonic Solutions, SADiE and others. Extended (i.e. greater than 16-bit) resolution offers more accurate sonics (especially for low-level signals) and better headroom, and Digidesign clearly intends to stake out a chunk in the new market. The company's first foray into the extended-resolution multitrack format, Pro Tools | 24 hits the mark.

HARDWARE

The Pro Tools | 24 core system ($7,995) consists of two PCI plug-in cards, the d24 I/O card and a DSP Farm, and Pro Tools 4.1.1 (as of this writing) software. The d24 card is capable of recording and playing up to 32 tracks of 24-bit or 16-bit audio, provided that the hard disk and SCSI bus are fast enough.

The DSP Farm is a card that can be apportioned among a number of different real-time audio processing tasks, including mixing, EQ, dynamics, effects and dithering. Multiple DSP Farms can be (and typically are) stacked up in a system, usually hitting the limit of the wallet before that of the system. (Additional DSP Farms are $2,495 each.) More DSP Farms means the ability to more elaborately mix and process a greater number of channels. The included software utility Allocator gives the user a window on DSP Farms usage.

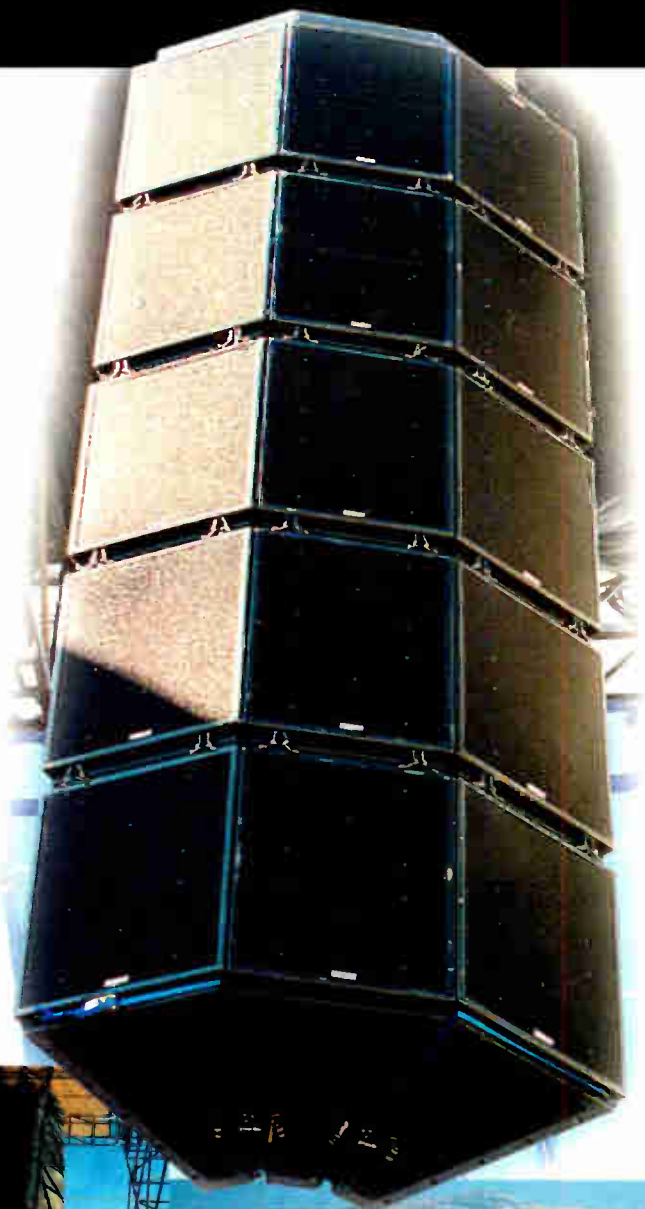
The I/O card (the d24, in Pro Tools | 24) and the DSP Farms communicate over a proprietary high-speed parallel bus called TDM (for Time Division Multiplexing, a commonly used technical term before it was appropriated as a trade name). Physically, TDM is manifested only as a ribbon cable attached to a connector at the top of each card. Pro Tools | 24 comes with a selection of TDM plug-ins, including multiband parametric EQ, delay, dynamics and dither. A selection of AudioSuite plug-ins is also bundled, including time compression/expansion and pitch shift algorithms that are greatly improved over those in Sound Designer II.

Audio comes in and out of Pro Tools systems through outboard interface boxes featuring both digital and analog I/O. Until now, the top of the Digidesign interface heap was the 888 I/O, which provides eight channels of digital and 18-bit analog I/O. The new 888 | 24 ($3,495) offers 24-bit A/D conversion and 20-bit D/A conversion and 44.1kHz or 48kHz sampling rate. The 888 | 24 can also operate in a stand-alone mode without being connected to the Pro Tools cards, in which case it acts simply as an 8-channel A/D/A box. Pro Tools | 24 will work with the existing 888 A/Ds, but it will, of course, only be at 18-bit resolution.

How far can you take Pro Tools | 24 hardware? The Pro Tools | 24 Expansion Kit ($5,995)

BY LARRY THE O

tech•nol•o•gy n 2: applied science



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adds another d24 and DSP Farm, and you can stack up to a total of nine DSP Farms (assuming you have enough expansion slots) and nine interfaces into a system, allowing up to 64 channels of audio and 72 channels of I/O.

INSTALLATION

Computer hardware requirements for Pro Tools|24 can be somewhat involved (see sidebar). Digidesign's Web site contains a list of Digidesign-compatible computer hardware and disk drives.

The 888|24 I/O connects with a single SCSI-2 custom cable (included) to the d24 card. Like the 888, the 888|24 offers eight channels of balanced analog I/O on XLR connectors, four AES/EBU ports and an S/PDIF connector. The front panel has a power switch, four pairs of level meters and assorted message lights, plus level trim pots for all analog inputs and outputs. Multiple interfaces can also be used in a system when more discrete I/O is needed. A second 888|24 can be run off the d24 card with a special cable available from Digidesign and, if this still isn't enough, each DSP Farm in the system also has an interface port.

It's a good thing the level trim pots are so convenient—it wasn't until I was well into a recording session with Pro Tools|24 that I realized that the interface was out of calibration. There was better than 3 dB of difference between the hottest and weakest outputs when passing tone through all inputs to outputs. Check the calibration of your interface before your first session.

SOFTWARE

Pro Tools Version 4 software has already been reviewed in *Mix* (see July '97 Field Test for more information), so I'm only going to mention some of the changes in Version 4.1.

Among the new features is support for Digidesign's Universal Slave Driver (USD). The USD ($1,995) is a master studio synchronization device that can accept a wide variety of sync sources as master clock (video black-burst, Digidesign Super Clock, VITC, composite video, word clock, LTC, AES/EBU "black," Bi-phase/Tach, pilot tone or the USD's internal clock) and generate from that LTC, VITC, MIDI Time Code (MTC), word clock, Super Clock or AES/EBU black. The USD can also generate timecode "window burns" for work print videos and up to six GPI outputs (it also accepts up to four GPI inputs). There are other devices, such as Mark of the Unicorn's Digital Timepiece and Opcode's Studio 64XTC, which offer some of these capabilities (most notably SuperClock), as well as some functions—like MIDI features and ADAT or DA-88 sync—that the USD does not, but the USD accommodates film production methods (Bi-phase/Tach, pilot tone), which the others do not.

Version 4.1 also provides support for the major new control surfaces. Currently supported are the Mackie HUI, JL-Cooper CS10 series, Penny & Giles DC16/MM16 and Peavey's PC1600. Digidesign's own Pro Control will also be supported when V.4.2 ships. Control surface support is accomplished by loading "personality files" for these controllers. If you ever wished that Pro Tools had the same level of tactile interaction as an analog mixing console, your day has come.

The downside is that it is no longer possible to map a volume or pan control quickly and intuitively by command-clicking it and wiggling the MIDI controller you want to use to control it. In fact, if you have an unsupported controller (including Lexicon MRC or JL-

Cooper FaderMaster), you either have to program it to act like a supported controller or you're SOL.

Version 4.1 also adds automation of all TDM plug-in parameters.

MASTERING RARE JAZZ

One of the tasks to which I put Pro Tools|24 was remastering some rare jazz recordings dating from the '40s. I used Arboretum's Ionizer and Waves Q10 for de-noising and EQ, but the processed files still needed level-matching and other processing to bring some consistency to the wildly variable tonal qualities of the recordings.

Having mastered with an old, 4-channel Pro Tools system for several years, I was well aware of its strengths and limitations for this sort of work, especially in the area of EQ, which is absolutely critical for mastering. Pro Tools|24 does not improve on the ±0.5dB resolution of the EQ, but it sure does improve on its sound. Although I would not say that Pro Tools' EQ sounds as "warm" or "fat" as the best analog EQ, it no longer has the slight grunge of the older system's filters and sounded pleasing even when I had to apply it quite heavily.

Similarly, I found Digidesign's TDM compressor plug-in to be quite satisfactory for overall leveling of the final mix. Of course, if you want better compression, a variety of plug-ins are available from Digidesign development partners.

LIVE MULTITRACK RECORDING

I could not fairly say I had evaluated Pro Tools|24 without putting it to a real-world test of some live multitrack recording of delicate acoustic instrument sounds. As it happens, San Francisco's Different Fur Recording is near my house, and the studio was amenable to investigating how Pro Tools|24 did in the heat of battle. Keyboardist Ira Stein came over with cellist/producer Hans Christian and percussionist/engineer John Loose, who was playing a clay pot on this occasion. We were also joined by digital audio consultant Oliver Masciarotte. The test we conducted was not scientifically carried out but was absolutely in line with the way studios and engineers work and evaluate equipment on a day-to-day basis.

Different Fur engineer Adam Muñoz and his second, Justin Lieberman, set us up to record six tracks simultaneously to Pro Tools|24 and a 16-bit ADAT-XT and a 2-track mix to a Panasonic SV3800 and a Sonic Solutions SonicStudio, also set to 24-bit mode. As the studio's Apogee A/D converters were out of the studio at that moment, the SonicStudio was fed by the SV3800's converters, although its output was returned by Apogee D/A converters.

After everything was hooked up, we realized that we were feeding the 888|24 (which is +4dBu nominal operating level) and ADAT-XT (-10dBV nominal) from the same source. Well, you can't change the ADAT's operating level (without the requisite Elco snake to access its balanced, +4dBu I/O), but each input and output of the 888|24 can be independently set to be either +4 or -10; you just need to move around some jumpers inside the box. More than ten screws have to be removed to even get inside the 888|24, so hopefully you don't have to get in there very often.

The ability to change the input and output levels is a beautiful thing, and most people won't need to switch levels often. Still, I would rather have a button on the back that switches all the inputs and one that switches the outputs. Better still, Digi could offer an option that broke the inputs or outputs into a group

of four at -10 and four at +4.

While inside the 888|24, we noticed that Digidesign used transformers on every AES/EBU port, in accordance with the standard.

The instruments were miked with a selection of high-quality microphones, mostly Neumanns, and fed to the recorders with no EQ or compression. While setting levels, we came to the uncomfortable realization that there are no calibration marks of any kind in the Pro Tools software metering. Further, the 888|24's meters show output levels only. (It would be nice if it were possible to toggle them between showing output and input levels.) This means that the only way in Pro Tools to accurately meter an input signal's actual level is through the software meters, which were meant for that job.

CRITICAL LISTENING

We recorded several takes of a short piece by Stein. The results were interesting, perhaps mostly because we all arrived at exactly the same conclusions within moments. At the bottom of the heap was the SV3800. There was simply not much clarity in the image. The very sharp transients of the clay pot being slapped on the side were mushy, and the cello sounded edgy. The piano sound had no depth and space. The 16-bit XT fared rather better, with more definition in general, most noticeably on the clay pot transients. Still, there was more mush in the sound than I expected.

As soon as we switched to Pro Tools|24, the difference was clear, as was the sound. Image width can be a subtle property that requires a bit of concentration to hear. Not in this case. Switching between Pro Tools|24 and the ADAT-XT, the width of the image plainly expanded by as much as 30 degrees. The piano sound was more even and rich, with more of that elusive "air," and the cello sound was more accurate, especially the rosin sound on the note attacks. Another subtlety easily heard was soundstage depth. In the 888|24 design, Digidesign has put considerable emphasis on analog electronics and jitter reduction; improved image depth and width reward that emphasis.

The big surprise was that the Sonic-Studio sounded a little better yet, even having used the SV3800 A/D converters. The slap of the clay pot was as sharp as it had been listening to the live performance, and the clarity of the

CONFIGURING FOR PRO TOOLS|24

Configuring your computer system for Pro Tools|24 can be tricky. For a start, only six models of Macintosh are currently qualified by Digidesign for Pro Tools|24: Apple G3/266, 9600, 9500, 8600, and 7300 and the Power Computer PowerTower Pro. Of these, only the G3/266 and a 9600 running at 300 MHz or better is capable of supporting a fully expanded (greater than 32 tracks) Pro Tools|24 system.

If you are only running a core system, as I did for this review, and don't need to squeeze out a whole lot of simultaneous tracks, you don't have too many problems. I encountered no problems installing Pro Tools|24 in my G3 266MHz desktop: I popped it open, slid the d24 and DSP Farms in, connected the TDM cable, closed it up and was ready to rock. Software installation was equally painless, other than FWB's Hard Disk Toolkit—Personal Edition, which was bundled with Pro Tools|24, presumably as the disk formatter of choice; it doesn't support Mac OS 8.1, and it locked up my Mac every time I tried to boot it.

Realistically, if you want to achieve the maximum track count, you will need more processing and as much speed as you can muster. For "more processing," read "more DSP Farms," which, in addition to the financial implications, also equates to "more card slots." For a 32-track system with enough power to let you use EQ and TDM plug-ins on lots of channels simultaneously, figure on adding at least two extra DSP Farms.

More speed is best attacked by souping up disk access with fast disks and a fast SCSI bus. Pro Tools|24 returns to the Pro Tools 2 scheme of using the Mac SCSI for disk I/O, instead of the dedicated Digidesign SCSI bus used by the Pro Tools III and Project cards. So the speed of your Mac's SCSI is again an issue.

Here's where configuration starts getting involved. Three-slot Macs have standard, not-so-fast SCSI-1 buses (5 MB/sec). To get maximum track count, you have to add a SCSI accelerator card, like Adaptec's popular 2940UW or 3940UW, or the ATTO Disk Express cards.

If you have a G3, you can add a SCSI accelerator, but now all three of your slots are full and you've only installed a core system! Can you say "expansion chassis"? That's good, because you're going to need to say it to your computer dealer fairly shortly after saying "Pro Tools" to your audio dealer. But you also better be able to say "Bit 3," because theirs are the only expansion chassis qualified right now by Digidesign for use with Pro Tools hardware.

The qualified six-slot models, the 9500 and 9600 series, have two SCSI buses: a standard SCSI-1 external, and a faster (10 MB/sec) SCSI-2 internal. If you have one of these and aren't using more than one slot already (probably for a video card), you can put Digidesign-qualified hard disks on the internal, fast SCSI and have three slots left for another d24 and/or additional DSP Farms. If you have one of these machines, you're fine to this point.

If you are planning to use Pro Tools|24's onboard QuickTime movie playback capabilities, things get even more complicated. Only three video capture cards are qualified by Digidesign, and support for these three varies with your Macintosh model and Pro Tools|24 configuration. Further, Digidesign recommends using a SCSI accelerator card for your audio disks and running QuickTime playback from disks on the internal SCSI bus. All of these cards have to be placed in your machine in the correct order, as specified by Digidesign.

The bottom line is that a G3-based Pro Tools|24 system with a single d24 card and three DSP Farms, intended for use in audio post-production will cost you about $15,500 (MSRP) for the Pro Tools hardware and software alone, plus you have to buy the G3 and monitor, SCSI accelerator, video capture card and expansion chassis. You may also need a synchronizer or ADAT interface.

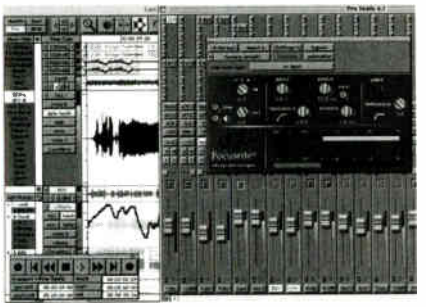
Did I mention RAM? It's a good thing RAM is cheap nowadays, because Pro Tools|24 wants at least 64 MB in the system, and an expanded system (additional d24 cards) requires at least 96 MB. If you're planning to run a MIDI sequencer at the same time, even more RAM is needed. This might also be a good time to point out that 24-bit recording uses 50% again as much data as 16-bit, so your fast new drives better be pretty big, too.

All in all, not a small investment, but one that does yield a seriously powerful DAW. ■

other instruments was improved. Still, the difference between the SonicStudio and Pro Tools|24, while audible, was small compared to the differences between either of those systems and the XT or DAT. Given that the SonicStudio and SV3800 used the same A/Ds, the lesson here seemed to be the importance of jitter in onboard clocking and D/A quality.

REAL WORLD INTERFACES

In the course of doing this review, I became aware that one of the biggest issues surrounding Pro Tools|24 is how it interfaces with the rest of the not-yet-24-bit audio world. The answer is mixed.



An example of Pro Tools' interface

TDM and AudioSuite plug-ins are all 24-bit capable, so there's no problem in that area. If Pro Tools receives digital input from an external device that does not have 24-bit resolution, it simply adds the required number of least-significant bits and sets them to zero. Pro Tools|24 always transmits digital audio from a 24-bit session at 24-bit resolution. If the receiving device is only 16-bit, it will simply truncate the extra bits.

So what's missing from this picture? Dither. When changing a digital audio signal between bit resolutions, adding dither is the best way to avoid ugly quantization noise. It is possible to add dither to signals being sent out of Pro Tools|24 through the use of a TDM dither plug-in. This could be Digidesign's dither or a third-party plug-in with that capability, such as Waves' L1. Of course, each plug-in uses part of a DSP Farm chip (10% per channel), so multichannel transfers will eat up a significant chunk of processing. Keep this in mind when you look at Digidesign's new ADAT Bridge I/O interface with the notion of mov-

ing 16 channels (or more if you chain multiple ADAT Bridge interfaces) back and forth.

Pro Tools|24 can use your old Pro Tools files in one of two ways. Pro Tools|24 sessions can be either 24-bit or 16-bit, so you can simply run a 16-bit session with your old files. The alternative is that Pro Tools|24 will read your 16-bit files and write new 24-bit files, adding zeroes for the lower eight bits. Of course, this requires one-and-a-half times as much disk space as the original files alone.

ASSET MANAGEMENT

The sheer recording, processing, editing and mixing power in a system like Pro Tools|24 makes it viable to do major projects with many tracks in them. The number of regions and files used becomes huge in such a scenario, and more management and manipulation are needed. Given this, the next big area for improvement in Pro Tools|24 (and pretty much every other DAW I've seen) is asset management. *[Editor's note: Pro Tools 4.2, shipping this month, addresses this issue. Also, Avid recently introduced Open Media Management, a file management solution; check out www.avid.com for information.]*

During professional recording or editing sessions, it is easy to build a gigantic list of hundreds of files and regions. Pro Tools stores them all in one bin, with the result that you can spend substantial time searching and scrolling, without even the ability to use the arrow keys on the keyboard to step up or down the list. Version 4 software added some sorting options, which is very helpful, but much more is needed. How about a system with multiple library bins and the ability to treat a selection across several tracks as a single entity? Digidesign's AudioVision (formerly offered by Avid) has had that for several years. At the very least, Pro Tools' Region Bin could show files with drop-down menus of the regions made from them as in Steinberg Cubase VST and Emagic Logic Audio.

If somebody really wanted to be forward-looking, they would provide ODBC or other database hooks into their asset management code. That would open the door for all sorts of third-party asset management packages to connect directly to Pro Tools. And since Pro Tools is on the Mac, how about making a lot of functions AppleScriptable?

Another basic aspect of asset management that could use improvement in Pro Tools is how it handles the problem of files that can't be found on session bootup. Why can't Pro Tools do a Find File-like search of mounted volumes when it can't locate a file it needs and present a list of file name matches that might be the file in question? And when are we going to see "Yes for All" options for operations affecting a number of files instead of having to hit the Enter key a gazillion times in quick succession?

If you want the power of Pro Tools|24 but with more MIDI capabilities, you'll be pleased to hear that the four major sequencer packages (Emagic Logic Audio, Mark of the Unicorn Digital Performer, Opcode StudioVision Pro and Steinberg Cubase Audio) will run on Pro Tools|24 with full 24-bit support by the time you read this.

A VERY POTENT, PROFESSIONAL SYSTEM

When all is said and done, there are really only a few things to say about Pro Tools|24. First, it is clearly a very potent professional system that's expandable to cover virtually any audio application that comes up. Second, it is priced as a professional tool; do not confuse this with one of the many lower-priced but more limited DAWs now reaching the market. Furthermore, you must be thorough in planning and researching your purchase or you are likely to end up ponying up more money after your initial purchase for things you neglected to factor in—possibly as much as a few thousand dollars more. Third, Pro Tools|24 sounds really great, and its software is mature and full-featured.

For those who started with a small Pro Tools or Audiomedia system and need to grow to the next level, Pro Tools|24 is a no-brainer: same interface, better performance. For those just entering the fray, Pro Tools|24 is an excellent choice that can grow with your business, if your budget allows it and your work demands it. If not, consider that prices of Pro Tools III are dropping considerably with the introduction of Pro Tools|24.

Digidesign, 3401-A Hillview Dr., Palo Alto, CA 94304; 650/842-7900; fax 650/842-7999. Web site: www.digidesign.com. ■

Mix contributing editor Larry the O works as a sound designer at Lucasarts.

JOEMEEK VC-2 TUBE CHANNEL

MIC PREAMP/COMPRESSOR/ENHANCER

The British-made Joemeek line of analog processors made its first appearance in the U.S. in 1995, and the various models, all sporting bright-green face plates and retro styling, have since become popular additions to studio equipment racks from coast to coast. The company's VC-2 Tube Channel ($1,999) contains a microphone preamp and opto-compressor followed by an enhancer circuit, all housed in a two-rack-space chassis. But the VC-2 Tube Channel is more than a mic processor: A line input switch bypasses the preamp stage, allowing the VC-2 to be used during both tracking and mixing.

The front panel seems simple enough, with the usual controls for input gain, pad/phantom/phase/roll-off/mic-line switching, and compressor threshold, attack and release pots. The enhancer section has Enhance, Drive and Q controls, whose functions are less obvious, but the well-written manual thoroughly explains these and all other functions, including an unmarked RCA jack that may be used to link two VC-2s for stereo processing.

There's plenty of hookup flexibility: The rear panel has XLR and ¼-inch inputs for mic/line signals, a ¼-inch TRS send/receive insert jack that is placed right after the input stage, a ¼-inch "mix input" jack that combines with the mic/line input just before the compressor stage, and three balanced output jacks: ¼-inch TRS line out and two XLR mic (!) and line-level outs. One nice touch on the rear is a recessed switch that changes the mic input transformer to match normal (200-ohm) or low-impedance (50-ohm) sources, such as older ribbon mics.

CLASSIC PHOTOCELL COMPRESSOR

Before using the VC-2, I examined the insides. The internal power supply can be set to 115 or 230 VAC. The main PC board is double-sided—the sparse componentry on the top belies the apparent simplicity of the unit, as the underside of the PC board has eight ICs and dozens of surface-mount components. The transformer-balanced mic input uses a Raytheon op amp for the mic preamp. Rather than using a VCA for compression, the VC-2 opts for a classic photocell approach. The "Tube Channel" part of the VC-2's name is somewhat of a misnomer, as all audio processing is solid-state, except for the optical compressor and an ECC83 tube driver used as a final gain makeup stage. The PC board "hangs" within the chassis, being secured only by five front panel pots and three ¼-inch jacks on the rear. This minimal support for the board and ½-inch tube-to-top-panel clearance could spell disaster if the unit was used in harsh touring situations. My advice: Leave your VC-2 at home in your studio rack.

I put the unit to work in my studio and found that the mic preamp is clean and extremely low-noise. (The mic pre can be used by itself via the insert send jack.) I liked the -12dB/octave highpass filter (-3 dB at 25 Hz), which acted as a subsonic filter to keep unwanted LF signals out, while having a negligible effect on a vocal track.

But the VC-2's main appeal is the compressor, which like other Joemeek products, offers a slightly unusual approach to compression. Rather than using the modern model of linear compression, Joemeek designer Ted Fletcher has opted for a distinct sound—compression as an effect, rather than simply a dynamics control tool. The result is a recreation of an "in your face" 1960s-style of compression, and here the VC-2 really shines: Lead and background vocals jump out and command attention, while solo tracks—particularly guitars, synth and organs—suddenly have a punch and fury that weren't there without the VC-2. Basses were rich and full, whether routed through DI boxes or miked amps. The VC-2 is also ideal for funk or pop rhythm guitar licks and on simple applications such as snare or kick drum.

ENHANCE TO TASTE

The VC-2's enhancer section is essentially an HF exciter effect and adds some top-end sheen. However, the Joemeek enhancer is a lot like spice in a recipe: Too much can be hideous—scratchy and over-sibilant—while a pinch can add sparkle to a track for more definition without boosting gain.

The VC-2 is a useful studio tool for anyone who wants to achieve that classic 1960s compression sound. The VC-2's high degree of interactivity in the individual compression and enhancer section controls require more experimentation than the usual studio compressor, but the results are well worth the few extra minutes spent.

Joemeek, distributed by Peninsula Marketing, 23773 Madison St., Torrance, CA 90505; 310/373-9129; fax 310/373-4714. Web site: www.joemeek.com. ■

BY GEORGE PETERSEN

PILCHNER SCHOUSTAL ACOUSTIC-X

ROOM OPTIMIZATION SOFTWARE

Poor room acoustics have been a major problem in nearly every project studio as well as many commercial rooms. Often the room is the last stone turned when trouble-shooting. An understanding of your environment and how to optimize it for your particular situation (speakers, space, materials, etc.) is the most important link in the chain. Acoustic-X addresses this issue in a very comprehensive, intuitive fashion with four modules that provide a plethora of information and scenarios relating to room acoustics and treatment.

Each module in Acoustic-X is dedicated to individual acoustic calculation tasks; within each module, the user can specify search parameters or allow the software to find the best results. The four modules are Modal Response, Speaker Boundary Interference Response, Ray Tracing and Reverb Time. Acoustic-X currently runs on PC only, although the designers are considering a Mac version. I ran the program in Windows 95 on my PC and in Virtual PC on my Mac; it works fine on both.

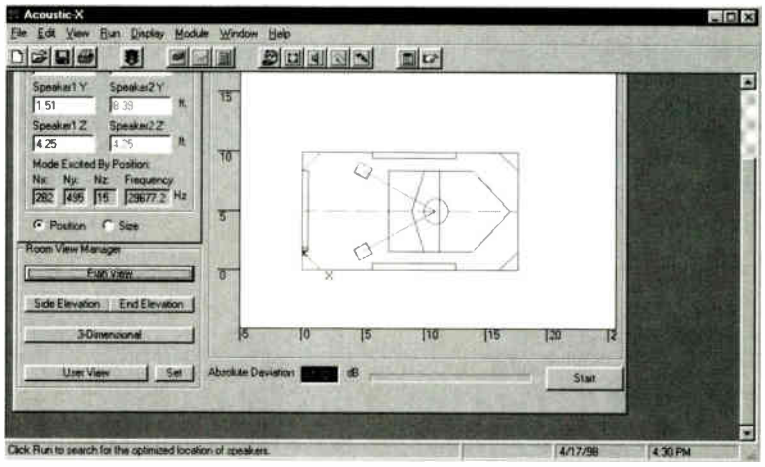


Figure 1: Based on the 8x10x18-foot room dimensions, Acoustic-X predicted this optimal speaker positioning.

MODAL RESPONSE

The Modal Response module calculates the modal responses of any proposed or existing room, based on the dimensions (height, width, depth). Although the module helps identify problems in existing rooms, it is also useful while planning construction. The relevant information is provided as charts and graphs that will either alert users to potential problems or, hopefully, set their minds at ease in completed rooms.

Modal response analysis is based on the fact that each room dimension will resonate at a tonic or root frequency, determined by dividing the speed of sound by the room dimension, then dividing by 2. For example, a room dimension of 10 feet will result in a root frequency of 57 Hz (1,130 feet/second divided by 10, divided by 2). In addition to the root frequency, the rooms are also excited by the harmonics (whole number multiples of the root frequency). Thus, with a root frequency of 20 Hz for a room dimension, 40 Hz, 60 Hz, 80Hz, etc. will also be excited. A favorable ratio between the various room modes distributes the roots and their harmonics evenly up to around 400 to 500 Hz so not to exaggerate or defeat any particular area of the spectrum. To avoid bunching or gaps, simply change one or more of the room dimensions by six inches and recalculate (obviously, this is only possible for rooms in the planning stage). Doing these calculations by hand could take days, but Acoustic-X crunches the variables in seconds. Acoustic-X allows searching for just one dimension or all if you prefer. For example, if you're limited by a 9-foot ceiling and a 20-foot length, the search for the width provides you with numerous options. Information is presented graphically or in a data sheet—I found the graphs useful for quick reference; the data sheet provides the root and harmonic frequencies of each dimension so you can really dial in on them.

BY CHRIS PELONIS

SPEAKER BOUNDARY INTERFERENCE RESPONSE

The Speaker Boundary Interference Response module defines the optimum positioning for speakers and listener. When speakers are free-field, as opposed to flush- or soffit-mounted, low-frequency energy wrapping around the speaker rebounds from the front part of the room and rejoins the direct energy, but as the reflections are delayed, they can cause either constructive or destructive interference, depending on positioning. The SBIR module has a database of speakers and parameters (users can add parameters for additional speakers); after entering speaker information and room dimensions, the module can search and calculate the response of numerous positions until finding the speaker and listening positions with the least amount of deviation. (You can also set up the controls to find the least amount of negative deviation; the results of

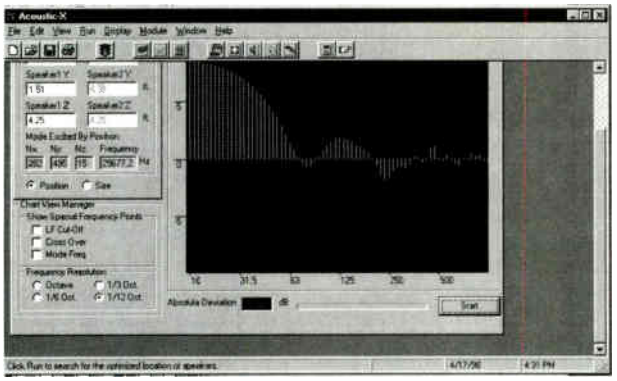


Figure 2A: Acoustic-X's predicted room response, based on the SBIR search.

this position would be less cancellation at the expense of a bit more build-up.) If you have little flexibility, the search parameters can be customized: I was recently in a very tight room and needed to have a walkway between the speakers and the console. Customizing the parameters to search a defined area worked great. The module also shows size and location of specular and corner absorption necessary for maintaining consistency in the designated area. One graphic readout displays the real-time frequency curve during the search until the final position is determined; another shows the speakers moving in the virtual room until the final position is determined. This information is incredibly important in critical listening: When measuring a room in real time, a small change in positioning can make a difference in the bass response, especially in smaller rooms. With this module, the trial-and-error period is cut way down.

RAY TRACING

The third module is the Ray Tracing module. Ray acoustics applies mainly to the mid- and high-frequency range, where sound waves are more directional. This module gives a graphic description of the direct energy and the spectral reflections from wall surfaces. The search can be adjusted to determine the horizontal and vertical dispersion of the speaker, the incremental measurement in degrees and the number of reflections. The direct energy and reflections are displayed in color to easily differentiate which direction you're looking at. The option of applying absorptive materials on surfaces is available; the angle and position of the speakers is also editable.

REVERB TIME

The Reverb Time module calculates the reverb time of a given space and displays the results in a graph form, showing time vs. frequency. The included editable database provides a large variety of materials and devices that can be applied to each surface in square foot increments. For example,

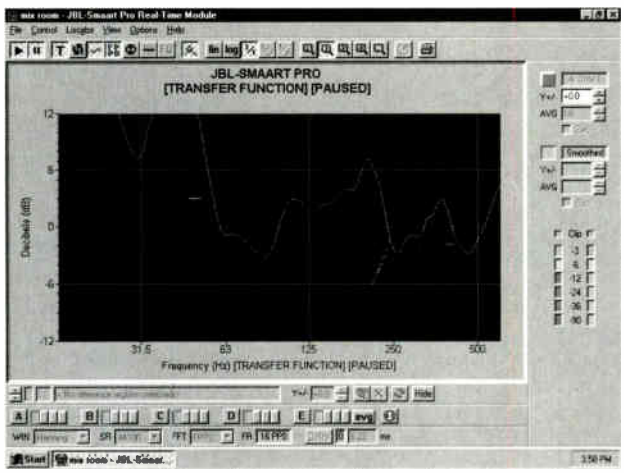


Figure 2B: Actual measurement of room using JBL SMAART Pro software is similar to predicted room response.

if your virtual room displays a longer than desirable decay in a particular frequency range, you can browse the materials until you find the appropriate device to counter the effect. This is a big time saver—in the 17-odd years I have been involved in acoustics, I have spent untold hours installing and un-installing materials until the desired result was achieved. After all these years, methodology and intuition get you started much closer to the finish line, but a veteran acoustician will cost between $100 and $300 an hour. I'm not suggesting that you don't need acousticians anymore (that would be self-destructive), but in many cases the answers may be in this software for the price of a couple hours of consultation.

While testing the software, I applied materials to a virtual room, just as I would have in the real world, and was pleased to find very linear reverb time across the spectrum. As I applied each virtual device, response changed much as I would have expected. One thing that keeps studio design interesting for me is the variety of ways to achieve a sonically friendly room. The Reverb Time module's database provides plenty of tools for creativity.

FIELD TEST

The Acoustic-X software assumes a perfect room, completely empty, and with no variations in surface densities. To see how the system operates in the real world, I analyzed the *Mix* media lab, a smallish rectangular room (roughly 8x10x18-feet, HxWxD) in the magazine's offices. I used my usual acoustical test kit, which includes a TEF PAD, JBL's SMAART PRO software, a B&K 4007 microphone, with *Mix*'s Meyer HD-1 speakers.

To start, I ran the Speaker Boundary Interference Response search to establish optimal speaker and listening (test microphone) positions (see Fig. 1). The Acoustic-X software found a very favorable position, but the predicted response (Fig. 2A) appeared to be inverted from the measured response I derived from my test gear. The deviations were pretty much where the software had predicted, but peaks were dips and dips were peaks. This was consistent between the TEF PAD and the SMAART PRO. When I switched the input of the transfer function on my SMAART PRO program, things matched up a bit better (see Fig. 2B). Also, the

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amount of deviation measured on the test gear was greater in the real world than that predicted by the software. (Variables in the room and its construction may account for some of this, but the Acoustic-X designers are looking into my results. Remember that there is no substitute for proper measurement and critical listening.) At this point I wouldn't set my EQ by the predicted response, however the program did its job in locating a good position for the speakers and listener as well as identifying the areas of deviation.

Next, I compared the actual reverb time in the room with the RT predicted by Acoustic-X in its Reverb Time module. I went into the module and applied the materials that existed in the real room and captured it on the SMAART PRO program. A comparison of the measured and simulated RT proved to be very similar. Though the graph produced by the Acoustic-X software (basically a plot line showing frequency vs. time) is not nearly as detailed as displays available from the SMAART PRO system, the trend of the reverb time was apparent and matched up nicely with the measurements.

CONCLUSION

Acoustic-X is useful for both the novice and the pro. If you have a project studio or are planning to build a studio, and have limited knowledge in the area of acoustics, this product really introduces the world of acoustics. The manual explains the modules and acoustic concepts they are based upon in understandable language. And the opportunity to experiment in cyberspace without lifting a hammer is fantastic. Understanding where you're going and the various ways to get there before you hire on a designer can be of great benefit to both you and the designer.

From the perspective of a professional studio designer/acoustician, I found that having the computer do some of my dirty work left me more time for design creativity and innovation. The program also offers a ton of usable information for the professional, but if I were allowed a wish list, I would like to see the following things added: The ability to import irregular geometry via DXF or DWG files from a CAD design program is a must for me—I would also like to see common studio objects such as recording consoles, sofas, outboard racks, etc. included in the database and to have the ability to apply the materials before running a search. Not to say that the empty room information is not important, but acoustics change when furniture and equipment are brought in.

Acoustic-X designers have informed me that the ability to import DXF or DWG files from CAD programs will be offered in the near future, and that both materials and loudspeaker databases are continually growing and improving. The ability to apply materials before running a search is in the works as well. The features on my wish list are not necessary for most users and should probably be offered as upgrades or a separate package. All in all, at the $399 retail price of Acoustic-X, you're getting more than your money's worth of very important information.

Pilchner Schoustal Inc. 376 Queen St. East, Toronto, Ontario M5A 1T1; 416/868-0809; fax 416/861-0620; Web site: www.pilchner-schoustal.com. ■

Chris Pelonis is a studio designer and acoustician and founder/president of Pelonis Sound and Acoustics. He has been involved in hundreds of design projects, and is the inventor of The Edge bass trap. He is also an engineer, producer and musician.

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KRK SYSTEMS EXPOSÉ SERIES E-8

BI-AMPLIFIED STUDIO MONITOR

Founded 12 years ago, KRK has won wide acceptance in the music recording and post communities for its near-field and main studio monitors. I've been testing the

Exposé model E-8 ($3,995/pair), which tip the scales at 61 pounds each. Weight provides, perhaps, the first clue as to the E-8's primary application: as a mid-field monitor in a medium-to-large listening space.

The Exposé range consists of a series of powered two-way monitors with 7- or 8-inch LF drivers (hence the model numbers E-7 or E-8) and 1-inch inverted dome Kevlar tweeters. The woofers feature two-ply, sandwiched Kevlar cones. Each driver is powered by a 140-watt internal amplifier, routed through an active crossover at 1.7 kHz. The input on each E-8 is a balanced XLR; recessed controls include an input sensitivity pot and a switch for rolling off the high end (up to -1.5 dB max.) in 0.5dB steps. Also on the rear panel is a standard IEC removable AC socket and power switch.

The enclosure itself is a work of art: The tapered hexagonal shape and finned ports on either side of the drivers give it a futuristic look, and the whole is beautifully finished in high-gloss polyurethane. More important, the cabinet's hexagonal footprint substantially reduces the number of parallel surfaces; according to KRK, the E-8's tapered-polygon rear concentrates sound at low frequencies, to optimize LF response. Grilles (which nobody uses anyway) are not provided, and the cabinet corners are rounded to reduce diffraction effects.

Based on the E-8s' substantial 122-lb./pair heft, I resisted the urge to test the structural integrity of my console's meter bridge and instead opted for some sturdy monitor stands. I plugged the monitors in, powered them up and was ready for some listening. The onboard amps are quite clean; on several occasions I forgot to power them down after a session, because there was no amp hiss to remind me. With this in mind, perhaps KRK should add a front panel power LED, because when I turned the console on the next day, a familiar "snap" reminded me of the old lesson: Amps are last-on/first-off devices.

If there is any single word that describes the E-8's sound, it is BIG. The speakers are easily capable of peaks in the 115dB range. Those who really like it loud may appreciate the E-8's onboard thermal shut off and current limiting circuits, which offer protection for the speakers, if not your ears. However, even under more sane listening conditions, the sheer amount of bass the E-8s produce can overwhelm a smaller space. (In such cases, the smaller KRK E-7 speaker would be more appropriate.)

The LF response is smooth and tight, with a 3dB-down point of 47 Hz, although usable bass response extends well below that figure. And like it or not, the E-8s paint an extremely realistic picture of everything in the LF spectrum, whether it's air-conditioning noise, distant subway rumble or any one of a zillion LF artifacts that creep into high-resolution recording systems. In such cases, other speakers may lull

BY GEORGE PETERSEN

LAB ANALYSIS: KRK E-8 MONITORS

by Jack Hidley

PHYSICAL CHARACTERISTICS

The KRK E-8 has a unique cabinet design. Viewed from the top, the cabinet has a hexagonal shape. This reduces the number of parallel internal surfaces, which in turn reduces the intensity of the internal standing waves. All surfaces of the cabinet are 1-inch MDF with large 1-inch radii at the joints. The large radii will reduce baffle diffraction and, as a result, smooth the frequency response. The cabinet is very rigid and well-damped. The exterior finish is a very hard, shiny gray material, perhaps a polyester or epoxy resin. There are no provisions for grilles. The drivers are flush-mounted into the baffle with threaded inserts and machine screws.

The woofer appears to be a popular Focal model. It has a straight-sided, two-layer Kevlar cone with a rubber surround. The voice coil leads are dressed tangentially to the cone, allowing very high excursions before they strike the cone. The woofer is not shielded, although the frame is cast aluminum, which will reduce the effects of stray magnetic fields somewhat. The motor structure (pole piece) is vented to help cool the voice coil and reduce power compression.

The inverted dome Kevlar tweeter with foam surround is similar to a popular Focal model. The voice coil is underhung for increased linearity and drives the dome nodally to decrease the effect of breakup

—CONTINUED ON PAGE 174

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the listener into thinking these gremlins don't exist, but the E-8's flat, true bass response does an excellent job of warning the engineer of potential problems so they can be corrected before an audio creation goes on-air, onscreen or onto store shelves.

The MF response has a slightly forward sound, but this never presented a problem. Interestingly enough, during our tests, we found that blocking the slotted port yielded a somewhat smoother midrange sound, at the expense of a decibel or two of bass response. Whether you want to try this with your E-8s is up to you, but sometimes it's nice to have options. But just as they are, the overall sound of the speakers is open, offering excellent imaging, tight transient response and a well-balanced sound stage with a nice sense of depth and placement of individual elements in the mix. The top-end HF response rolls off somewhat, but the net result is that the E-8s are extremely non-fatiguing, even after extended listening sessions.

In addition, the monitors generate an extremely wide sweet spot, which is ideally suited for larger consoles or situations where several people (such as an engineer, producer and artist) are listening from behind the board at the same time. More important, the sweet spot is wide enough so that when you reach to the side for an outboard device or all the way across a board—say, to EQ a kick drum on channel 1—the E-8's sound remains consistent.

As with nearly all studio monitors, the E-8s require a short period of familiarization. However, once I was accustomed to their "sound," I found that my mixes translated accurately to audio systems of every kind, from boom boxes and car stereos to mid- and high-priced home systems. I work on a number of systems (including Meyer HD-1s, Focus Audio Model 68s and a reliable—but now vintage—pair of KRK 703s), and when I'm using an unfamiliar set of monitors, I generally find that determining the correct amount of bass is the most difficult part of balancing a mix. With the E-8s, the amount of bass in the mix was always spot-on, and after a day of listening to the E-8s, I was confident that my mixes would translate to just about anything. And isn't that what mixing is all about?

KRK Systems Inc., 16612 Burke Lane, Huntington Beach, CA 92647; distributed by Group One Ltd.: 516/249-1399 (East Coast); 760/360-8511 (West Coast). Web site: www.krksys.com. ■

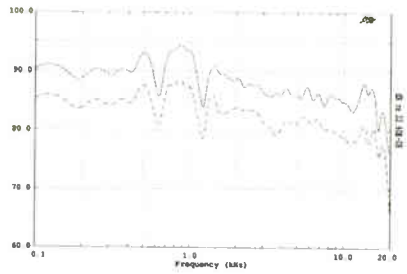

Figure 1: On-axis and 30° off-axis frequency response. Very flat on-axis response and fairly smooth off-axis response.

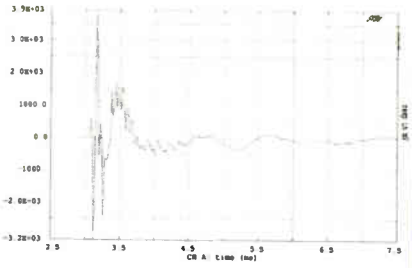

Figure 2: Impulse response test shows non-time-aligned design with moderate ringing in decay.

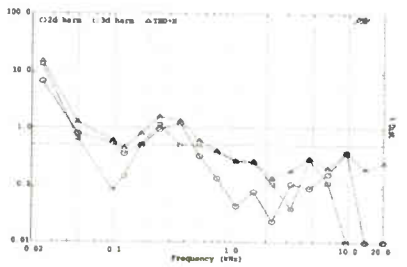

Figure 3: Distortion (THD+N = Δ trace; 2nd Harmonic = ○ trace; 3rd Harmonic = ❑ trace) remains under 1% from 100 Hz upward.

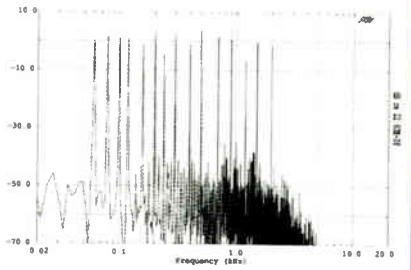

Figure 4: Spectral contamination test compares a series of input signals (tall spikes) to speaker output. Clarity is average, with self-noise 40 dB below input signals.

—FROM PAGE 172, LAB ANALYSIS: KRK E-8 MONITORS

modes. The magnetic structure has a large ferrite magnet and, like the woofer, is not shielded.

There are two separate amplifiers in the E8. One is housed in each of the panels, on either side of the front baffle. This leaves the heat sinks exposed, resulting in a high-tech appearance. The amplifiers are very similar to each other, delivering 170 watts to the woofer and 120 watts to the tweeter. Each amplifier has its own filter capacitors, while the toroidal transformer and crossover circuitry are housed in a subenclosure in the rear of the cabinet. Discrete circuitry is used for both amplifiers. The rear panel has a single XLR balanced input, a continuously variable input sensitivity control, a DIP switch to adjust the tweeter level and a socket for an IEC power cord. The crossover is at 1.6 kHz with slopes of 24 dB/octave. There is a small amount of equalization in both the woofer and tweeter circuits, to flatten the response.

ACOUSTIC CHARACTERISTICS

The E-8's most prominent characteristic is its very wide dispersion. This is achieved by combination of a low 1.6kHz crossover and the use of an inverted dome tweeter. At -30° off-axis, most monitors are down 2 to 5 dB in the midrange and high end. By contrast, the 0° and -30° curves of the E-8 look almost identical to each other. This wide dispersion will give a very consistent tonal character, regardless of the listening distance or the room reflectivity. However, some room treatment may be required in order to control early reflections.

Over most of the frequency range, the response is fairly smooth. There is a 2 to 3dB increase in output between 500 Hz and 2 kHz, which makes the soundstage very large and a little forward. The spectral contamination levels were -40 dB down from the signal tones, which is average performance. The impulse response is typical of a two-way speaker without time alignment. A small amount of ringing is visible on the tail of the impulse.

With 290 watts of amplifier power, high-slope crossovers and moderately sensitive drivers, the E-8s play quite loudly without fear of overload or clipping. At 90 dB SPL above 1 kHz, the THD+N is quite low, below 0.3% over most of the range. Between 50 Hz and 1 kHz, the THD+N is moderate, remaining below 1%. ■

Jack Hidley is a design/test engineer associated with Menlo Scientific, an independent acoustical analysis lab in Berkeley, Calif. For more on testing methodology, refer to the Feb. '98 issue of Mix *or visit www.mixonline.com.*

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CIRCLE #120 ON PRODUCT INFO CARD

NSCA Expo98

BY MARK FRINK

A Report From Las Vegas

Returning to Las Vegas, the nation's capital for installed live entertainment, the National Systems Contractors Association's Expo98 set the stage for some of this year's most important live sound product introductions. Here are my top picks for readers who missed the show.

Jim Gamble (www.gambleboards.com) introduced the DCX digitally controlled, fully automated analog mixing system that he's been working on for the past five years. Besides a screen and a mouse, DCX consists of a rack, patchbay and a card frame that holds 16-inch cards with socketed ICs (no surface-mount components), featuring Analog Devices and TI Excaliber chips. DCX includes gates and compressors on every channel, LCR panning, stereo auxes and submasters and a mono subwoofer bus for easy 5.1 mixing. DCX comes in three sizes: Cabaret has 24 mic and 24 line inputs, Showtime has 40 of each, and Event has 120 mic and 120 line inputs. Each DCX channel has dual mic inputs and two independent solo systems, so while one band plays another can be line-checking. The DCX Event has eight stereo subgroups, eight stereo matrixes and 16 stereo auxes.

"There are no VCAs on this whatsoever," Gamble exclaims, with fire in his eyes. The DCX has Virtual VCAs

Gamble DCX Event

(VVCAs) to control unlimited numbers of inputs together in a linear fashion without adding noise. And with no capacitors in the signal path, frequency response is 1 to 195,000 Hz, resulting in virtually no phase shift within the audio band. Each card has its own onboard processor for digital control of the analog signals; the last card is a 233 MHz Pentium computer.

Gamble feels the audience seats that are saved by the mixer's compact size pays for the board in a matter of months and even allows mixing to be performed from the best seat instead of the back of the house. He is currently working on a USB peripheral device with 16 faders that can be mapped to the different subgroups. Up to eight different control stations can be online at once, and control can be configured in a variety of ways so that monitor and FOH engineers can share the same desk, for example, and even give a handful of faders to musicians onstage to control some of the parameters. It could even be controlled from any spot in the venue over a wireless LAN via a laptop PC. The DCX is definitely the Next Big Thing for live sound. The console is programmable offline, and demonstration software will be available to interested parties, who can purchase the board from Ramtech Industries of Florida or Audiomation of Las Vegas.

Audio Toys Inc. (www.audiotoys.com) showed the second-generation Paragon Monitor console ($125,000), which was shipping directly from NSCA to tour with either Garth Brooks or Steve Miller. The model on display had 48 inputs with fully parametric 4-band EQ, plus gates and compressors. It can be configured for up to 20 stereo output mixes. Both wedge and in-ear mixes can be separately monitored via independent solo buses.

Amek (www.amek.com) was showing the new Rupert Neve input strip

ATI Paragon Monitor console

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for the Recall console. Based on the Amek 9098 mic-pre/equalizer, the Recall RN input provides fully parametric EQ on the two mid bands and greater boost and cut, and the high/lowpass filters can be inserted into the dynamics for frequency-conscious control of compressors and gates. The RN input channels add about $12,000 to the list price of a Recall fitted with standard RL inputs. Amek sales are now handled by Al Nichols in Nashville and Dave Lewty in the Burbank office.

Soundcraft's (www.soundcraft.com) new SM-20 monitor desk is available in 40/48/56 inputs, for $25,000 to $38,500. It has six mono aux sends, seven stereo sends and 4-band input EQ with fully parametric mids, sweep highs/lows (switchable to shelf) and a highpass that sweeps to 400 Hz. It has eight manual mute groups plus a "Mute All" control. Solo and talkback are similar to previous Soundcraft desks, and an alternate cue output mutes the primary cue for listening to in-ear monitors or to a different wedge. A unique feature allows the output solo to automatically select the corresponding EQ page on a BSS Varicurve remote, saving vital seconds for the engineer. In other Soundcraft news, the Series Five Monitor desk was released and will be available as 24/32-bus desks in 40/56-channel versions, with an optional stereo input module. Soundcraft also announced the U.S. launch of the Broadway theater console.

Crest Audio (www.crestaudio.com) debuted the X-Monitor, the latest addition to its X Series of low-cost live-sound consoles, with the 40-channel version listing for $16,900. Also available in 24- and 32-input versions, the X-Monitor's 12 discrete aux mixes can be configured as six stereo mixes for in-ear use. In addition to the stereo mix, there are four additional assignments, routeable to a four-way matrix, providing more outputs for effects, subwoofers, etc. The 12 main outs have 3-band parametric EQ plus swept lows, highs and highpass, eliminating the need for outboard EQ in many situations. Four-band input EQ has swept mids and highpass, and the matrix output EQ is fully swept. Like the X-Eight consoles, there are 128 scenes, plus eight manual mutes. Crest's demo room featured a working V-12 console, which looks gorgeous when lit up and has low phase distortion.

A milestone in sound reinforcement and a monitor engineer's dream! **Meyer Sound** (www.meyersound.com) unveiled the PSW-6 ($15,000), the first commercial subwoofer to provide directional low-frequency control over two full octaves in a cardioid coverage pattern. Utilizing the same internal amplifier technology as the rest of its self-powered speaker line and the same trapezoidal footprint as the large-format MSL-6 speaker, the PSW-6 has a pair each of 18- and 15-inch front-loaded drivers plus another pair of 15s on the back of the enclosure. In an impromptu demonstration with pink noise and an SPL meter, 115 dB was measured in front and 95 dB at the cabinet's rear. The PSW-6's max SPL is 140 dB/1m; operating frequency range is 30 to 125 Hz; and weight is 442 pounds.

Meyer PSW-6 self-powered cardioid subwoofer

Aphex (www.aphexsys.com) showed its 1788 remote-controllable mic preamp ($4,500). The 8-channel, two-space chassis has dual analog outputs and can be ordered with a digital output option. Front panel controls include phantom power, 75Hz highpass, -20dB pad, polarity switch and a headphone out for local monitoring. Remote control of up to 128 channels can be handled with one control line via MIDI, RS-232 or RS-422. Included with the 1788 is Windows 95 software, providing status/control screens, scene save/recall, and AutoLearn, which automatically sets gain based on the input signal's level. In other news, Aphex has released its Signal Processing Boot Camp, a CD-ROM for learning about the variety of signal processing offered.

QSC (www.qscaudio.com) introduced the PLX Series of amplifiers, the second generation of PowerLight technology. The PLX3002 ($1,798) is Class-H and rated at 625W (8 ohms) and 1,500W at 2 ohms. The $1,198 PLX1602 is rated at 350/8 and 800/2. The two-space PLX amps put PowerWave switching technology into a steel chassis that's only 14 inches deep. Other models in the line include the PLX1002 and the PLX2402. In other QSC news, the new PowerLight 9.0 has a rating of 1,800W/channel (8 ohms) and 4,500 watts at 2 ohms. QSC also introduced the BSC-2 BusCard adapter, allowing up to two processing cards to be added to any two-space PowerLight amp. Available cards include the UF-2 universal crossover (24dB/octave filters and CD horn EQ) and the SPL-1 stereo precision limiter using THAT Corp's VCAs.

Group One, Ltd. (www.g1ltd.com) showed **XTA Electronics'** AudioCore DSP 226 Speaker Management System ($3,995). The DP226's design is similar to the DP200, but in a 6-output format, providing multiple crossover formats including stereo three-way. Each output has crossover filters, 5-band parametric EQ, high/low-shelving filters, limiter and delay functions. Six-segment metering on inputs and outputs and mute and access buttons provide quick set up and gain adjustment. The DP226 dual inputs provide 8-filter parametric EQ for room equalization. MIDI, RS-485 and RS-232 interfacing is standard. The DP226 can be operated as a stand-alone device or programmed and operated via AudioCore PC software. Additional features include AES/EBU option, PC card for easy program updates, key locking and saving user settings.

XTA Electronics AudioCore DSP 226 Speaker Management System

While not earth-shattering, these four goodies would be welcome additions to any engineer's tool kit: **Audix** (www.audixusa.com) introduced the $199 TR-40 omnidirectional measurement mic; **Jensen Transformers'** (www.jensen-transformers.com) Iso-Max 2-channel isolation transformer box is $199; **Clear-Com's** (www.clearcom.com) FL-1 Call Signal Flasher is $195; and **Pure Sound** (www.puresound.com) is now distributing the $199 D-3 proximity MicMute.

There were more hits from NSCA, and we'll present these in our regular new products columns in the months to come. Meanwhile, NSCA comes to Nashville next year, April 29 through May 1, 1999. See you there! ■

ON THE OTHER HAND, THE YAMAHA PM4000 IS A SURE BET.

There are a lot of mixing consoles out there. But the Yamaha PM4000 and PM3500 are requested by your clients more often than any other mixers. Far more often. So if you're planning to buy new consoles, don't gamble. Go for the easy money and client satisfaction, the Yamaha PM series.

YAMAHA Commercial AUDIO

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THE SUMMER TOURING SCENE

BIG TOURS, LOW RATES

To find out what's new for the summer season and identify coming trends in the touring business, I spoke with the principals of several of North America's touring sound companies. By the time you read this, a lot of these folks will already be on the road.

For the second year, Jason Sound (Vancouver, B.C.), a division of Westsun, is set to provide sound for Lilith Fair, the all-female artist festival that found critical and commercial success last summer. The tour, which will wind up in Europe after two months in the U.S., will play a few stadiums, including the Pasadena Rose Bowl, and will carry enough sound equipment for audiences of up to 50,000. Whereas Jason sent out RJ-30 speakers on the last tour, this year the company will supply the bigger J-60 speakers (as used for Bryan Adams' tours), which assemble into large arrays more efficiently.

"If we didn't have the Lilith tour as an anchor, we would be very concerned about pricing we've seen," says Jason Sound's Jeff Lily. "A number of festivals are going out to the lowest bidder, and the evidence of that is some contracts are jumping to a different vendor each year." As Lily points out, many companies can achieve 100% equipment rental figures for part of the year, but with the season shrinking and prices remaining at 1980 levels, a lot of companies may question their current inventory. "Everybody complains that they do 70 percent of their business in the summer," Lily says, "but now the season itself is shorter—down to three months from four."

According to Lily, competing bids often compare apples to oranges, with the result that the lowest bid typically offers the poorest coverage and the highest distortion (assuming everyone is getting a fair return on equipment). Lily defines the business challenge as getting a return on investment based on the value of the equipment. "You also have to be able to pull out all your expense items to accurately reflect the 'dry' rental, and lot of people can't do that.

"It's questionable whether the return on investment that's being allowed right now is enough to still do R&D and eventually replace equipment," Lily continues. "Proprietary speaker companies have to keep up just as those that purchase off-the-shelf systems. If rental income only covers a quarter of the investment for that year, you'll have a hard time covering expenses in the long run. If you can cover 50 percent, you've got a shot at being a viable operation. If you're lucky enough to get three percent a week, you need 16 weeks to get to 50 percent, so if your season is only three months long, you can't stay in business in the long run." The touring market in North America does not appear to be expanding, though it still is in Europe. When the market is not expanding, any dollar earned has to come from someone else's pocket; the regrettable consequence is that competitors now commonly accuse each other of stealing business.

"The industry is over-inventoried in consoles right now," Lily continues. "I think that people would like to get their current consoles working. The consoles out there may not be this year's model, but it's up to manufacturers to create a need by providing extra functionality or a lower price point. This is not 1994 where people needed to buy new desks and bought anything that was available."

Last year, Jason picked up a couple of Soundcraft Series Five consoles. This year, the company is replacing non-programmable analog crossovers with BSS and XTA processors. Another new development is Jason's CAVE software, which uses FFT analysis to automate room EQ for large systems with multiple zones; the goal is to match a target EQ curve in 15 minutes. Other new developments at Jason include a new cylindrical theatrical speaker designed for a musical tribute to Broadway choreographer Bob Fosse, and a low-profile, high-output front-fill.

In Baltimore, Ronnie Smith of Maryland Sound (MSI) commented on the continuing trend of "combination touring packages like Wynonna and Michael Bolton, with Audio Analysts providing monitors and control for Wynonna and MSI providing racks and stacks along

—CONTINUED ON PAGE 184

Sarah McLachlan's Lilith Fair will be out again with Jason Sound.

PHOTOS: STEVE JENNINGS

Thom Yorke of Radiohead, who are touring with an Electrotec rig.

BY MARK FRINK

TOM JONES

Three Decades of Hits

PHOTOS: KAREN HOYT

The world first came to know Tom Jones in 1964, when, after striking a record deal that year with Decca, he went on to churn out chart-busting tunes like "Delilah," "Help Yourself," "Never Fall in Love Again," "Without Love" and "What's New Pussycat?"

Jones was also a consummate television entertainer, who was given his own regular spot on ABC in the summer of 1969. His list of hits grew in the '70s ("I Who Have Nothing," "She's a Lady"), as did his drawing power as a crooner of potent power ballads in Las Vegas. Laden with emotional content and sex appeal, his performances then, as now, often left the stage littered with women's undergarments.

But to merely view Jones as a pop figure with the charisma to literally charm the pants off women is to do his talent a great disservice. His barrel-chested baritone, constantly evolving musicianship and sense of self run considerably deeper.

Refusing to pander to prepackaged notions of his own persona, Jones collaborated in 1988 with the UK-based techno-pop group the Art of Noise to create a sizzling cover of Prince's "Kiss." The resulting effort skyrocketed him back onto the charts and placed him in rotation on both MTV and VH-1, where he was exposed to a new generation of fans.

In further defiance of market-driven type-casting, in 1994 Jones inked a deal with Interscope Records (Atlantic/WEA), where he joined a roster of talent including Nine Inch Nails, Dr. Dre, Bush and Snoop Doggy Dog. After a year in the studio, he released *The Lead and How To Swing It*, produced by Trevor Horn, Teddy Riley and others. Critically acclaimed as one of the year's best albums, *The Lead and How To Swing It* allowed Jones to reinvent himself yet again.

A true survivor, Jones accomplished all of this without eschewing his past or losing his often self-deprecating sense of humor. (In evidence of the latter, he provided the voice for an animated version of himself in a 1992 episode of "The Simpsons," serenading Homer and Marge with his signature tune "It's Not Unusual." Likewise, he good-naturedly acknowledged his own camp value in Tim Burton's 1996 cinematic sci-fi spoof *Mars Attacks*, in which he performs the same number during an alien invasion of Las Vegas.)

Today, Jones maintains households in London and Bel Air with his wife of 40 years, Melinda. He is managed by his son Mark Woodward. Still ageless in voice and physical stature, his personal odometer turns some 230 tour dates a year in venues worldwide ranging from small theaters to arenas. Five times a year, his name shows up on the marquee at the MGM Grand in Las Vegas for two-week stands.

Accompanied by a trio of sultry backing vocalists (Cristi Black, Sharon Hendrix and Darelle Holden), a three-piece horn section (Dan Miller, trumpet; Glen Berger, bari/tenor sax; and Fred Simmons on trombone), drums (Graham Ward), bass (Shem Schroeck), guitar (Brian Monroney) and keyboards (Wally Minko), Jones runs through a set list containing his hits as well as an assortment of covers. There's something for everyone in his soulful fusion of R&B and straight-ahead rock 'n' roll, with updated classics like "Pussycat" and "Green Green Grass of Home" sharing equal space with Marc Cohn's soul-stirring "Walking in Memphis," Otis Redding's "Hard to Handle" and Lenny Kravitz's hard-edged "Are You Gonna Go My Way."

FOH engineer Tom Woodcock (seated), tour manager Sandy Battaglia and monitor mixer Ed Ehrbar

Matching the eclecticism of Jones' performances are the crowds that turn out to see him. Ranging from matronly bluehairs to leggy blonde women, boomers of both genders, twenty-ish headshavers and goateed grunge holdovers, the ever-growing faithful

BY GREGORY A. DETOGNE

—CONTINUED ON PAGE 192

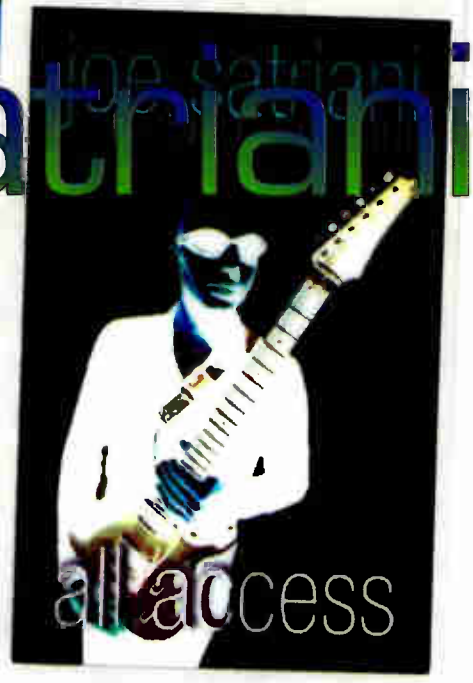
ALL ACCESS

joe satriani

For the fourth show of a world tour promoting his new album, *Crystal Planet*, guitarist Joe Satriani played the Warfield Theatre in his hometown of San Francisco.

Johnny "J.W." Roberts, monitor engineer, has been with Showco for over 20 years; this is his fourth tour with Satriani. The monitor board is a 32-input 16-bus Harrison and all of the monitors are Showco models. "This is a very straight-ahead show," says Roberts. "I'm not using any gates, and no outboard EQ. The Showco Prism SRM monitor is very flat and it requires very little EQ."

Roberts uses a compressor/limiter on Satriani's guitar feed in the monitor mix. "I only compress it just a couple dB," Roberts explains. "The actual patching order of that is I take his guitar through a Klark Teknik. Up to 200 is almost totally rolled out, from 200 to 2k is flat, then at 2k we start rolling back off again, and then we compress that and send it back. That's the only thing really going outboard."



TEXT AND PHOTOS BY STEVE JENNINGS

Jeff Campitelli's drum kit is miked with Shure SM98s for the toms, SM91s on kick, and AKG 414s for overhead and on hi-hat, says drum tech/stage manager Ross Lahey. Campitelli monitors via headphones, but his chair has "thumpers," and he has monitor subwoofers "so he can feel everything that's going on."

The Satriani production is economical: "We're not carrying any racks and stacks," says FOH engineer/tour manager Doug Nightwine. The Showco-supplied FOH board is a Harrison HM5, which Nightwine says has "amazing EQ, very musical; if you take 2 dB of something away, you definitely hear it go away. It's big and beefy, a lot of head room—it's a very powerful sound, which is what we want since it's just a three-piece band with no vocals."

Nightwine uses a pair of Summit tube compressors on Satriani's guitar "to really bring the sound out front," he explains. "But you don't want it to be piercing; it's got to be smooth. You can accomplish this a couple different ways: you can really hack a lot of the top-end EQ out, but you don't have to do that much with tube compressors, and the sound stays smooth." Nightwine's FOH rack also includes another pair of Summit limiters for the bass, Aphex gates, a Lexicon 480, a TC 2290, a PCM 70 and a Harmonizer.

Guitar tech Mike Manning says Satriani's rack has two Chandler delays and a DigiTech 33B. Foot pedals include a Dunlop crybaby, an old Boss DS-1, a DigiTech Wammy, a Fultones Ultimate Octave and a Boss Digital delay.

Bossist Stu Hamm has just started using in-ear monitors for this tour. "He's using Sensaphonic ears and a Sony transmitter and receiver," says monitor engineer Roberts. "The problem in the past was his stage volume carried everywhere in the house, so this way he [plays at lower volume and] gets to be in the P.A. He gets kind of a full mix in his ears, but it's mainly bass."

BIRDLAND
The Next Generation

Though New York City is arguably the jazz capital of the world, fans seeking an enjoyable night in a club often face disappointment. Jazz performance spaces have traditionally been small and intensely crowded, and the tariffs painfully high. By contrast, the new Birdland club west of Times Square is a spacious, attractive room where all the tables are placed two to four feet apart; customers are not shoehorned into uncomfortable cheek-by-jowl seating, as they are at some other joints in town. The entire room and stage were constructed with acoustics as the top priority, and the only table obstructed by a column is always reserved for owners and operators John Valenti and Christine Brainard.

PHOTOS: BY ERIC RUDOLPH

Top: sax player Frank Foster. Above: engineer David Ruffo in the Birdland control room.

A LITTLE HISTORY

The original Birdland club, named for alto saxophone colossus Charlie "Yardbird" Parker, opened in 1949. It was located at 1678 Broadway, at the edge of the famous 52nd Street jazz club strip, in a space previously occupied by several earlier jazz venues: the Ebony, the Ubangi and the Clique.

The first Birdland was owned by Morris Levy, who later became a notorious figure in the pop music business because of his alleged strong-arm tactics and organized crime connections. The club maintained its own radio control booth and wire, which were used for national broadcasts over NBC-Radio. Several of the broadcasts were recorded, and prominent artists such as John Coltrane and Count Basie released live sessions that had been taped during their performances.

The next Birdland club was opened in the late '80s by Valenti and Brainard. It was located at Broadway and 105th. The present-day Birdland opened in October of '96.

BIRDLAND STUDIOS

In keeping with its new, expansive approach to presenting live jazz in the Big Town, the latest Birdland goes above and beyond with the addition of a complete multitrack recording facility. The studio, installed in April 1997, was designed and built by David Ruffo, who installed and ran the house sound system at the previous Birdland. (Ruffo's 20-plus years of experience also include recording sessions with Marianne Faithful, Phoebe Snow, Sarah Vaughan and others, and mastering work for Al Stewart, Fleetwood Mac and Barry White. He also runs a jingle, spot and film/video scoring studio in Connecticut called Outland Productions with partner McNeil Johnston.)

"When gigs were recorded [before the studio was installed] we would have major cables, video lines, mics hanging from the ceiling, equipment in the office and dressing room and on tables in the house," Ruffo recalls. "It was always a major, time-consuming hassle." With the new studio installation, recording is much easier and less disruptive. "It is not a big deal to record at Birdland now," he says. "Everything is there, including video monitoring and talk-back to the stage. No fuss, no muss!"

The Birdland Studios control room is wedged into a 4½x6-foot space in the dressing room and is secured, in fine New York tradition, by a pull-down "deli-gate," as Ruffo colorfully describes it. The studio is a straightforward, no-nonsense setup. A Mackie 24•8 console routes signals to two Tascam DA-38s. "The 38s are a grand cheaper than the DA-88s and have better D/A converters," Ruffo notes, adding that they were chosen over ADATs partly because of the longer tape-running time of just under two hours and the resulting lower tape costs.

The Mackie console was chosen for its small size, affordable price and good EQ sections. "Whenever possible, I use the direct outs to the DA-38s instead of the buses, for simplicity and cleanliness. Why go through the additional electronics if I don't have to?"

The only thing that irks Ruffo about the board is its lack of monitor mutes, which he works around by panning the faders on the direct outs to match the monitor pans; he then uses the solos on the faders as monitor solos (minus reverb, of course). Otherwise, he finds the Mackie "very transparent."

Control room monitors are 200-watt-per-channel Event 20/20 BAS, which cost under $1,000 a pair. Despite the control room's less-than-ideal location, directly behind the stage, Ruffo gets by. "The Event 20/20s are good-sounding and accurate near-field monitors. I use headphones often, but mainly to get a different perspective on the bottom end and to find little details, like glitches, buzzing and reverb trails."

When recording, Ruffo does not

BY ERIC RUDOLPH

simply split off the signals from the house P.A. mics, which are mainly the typical, reliable Shure SM58s and 57s. For the live recording dates, a stash of high-end mics is tapped, including Earthworks TC 30Ks for drum overheads and piano, AKG D112s for kick, SM98s on snare and hi-hat, AKG C3000s on tom toms and AKG 414 TL 2s on bass. Bass sources are also usually taken direct from both the player's pickup and amp, and recorded to three separate tracks. Outboard gear is minimal, consisting of a Lexicon PCM 90 digital reverb, dbx 1066 and Aphex Compeller compressor/limiters and Audio Logic gates.

Birdland charges artists a $750/night recording fee to track one or more dates during their Birdland runs, and several performers are contemplating releases of those live sessions. "Also, we may decide to release some of these sessions ourselves at some point, after negotiating with the artists," says Ruffo.

Some of the acts that have recorded with the system include Stanley Turrentine and Benny Green (who were broadcast live over the Internet via Jazz Central Station, using the club's two ISDN lines and Zephyr modem), Toots Thielmans, Michael Brecker, Andy Bey, John Hicks, Dave Valentin, Christy Baron, Carla White and Michele Petrucciani, Magali Souriau, Paul Motian and Charles Lloyd.

Despite the advantages afforded by the well-planned installation, Ruffo is faced with a slate of problems endemic to live club recording. "The main thing is that I rarely get a sound check; I'm just flying blind once they start playing," he explains. "Most of these players work studio sessions during the day, constantly, and they're not going to give up a paying gig to do a sound check. It usually takes me about one song to get the recording mix about 90 percent there; from that point on it is just tweaking."

He also, of course, faces the usual challenges endemic to live recording. "Live is such an un-ideal recording situation," he says. "For example, the way a solo hits: A musician might take a few notes to find his spot on the mic, and sometimes they just blow off-mic. Also, live is leakage; the key is to make it work for you, not to fight it. For example, I found in a recent session that the cymbals, which were leaking into the piano mic from across the room, gave a nice, sweet sound to the session."

HOUSE SOUND

Ruffo also designed and installed Birdland's house system, for which simplicity was the goal. "We try to keep things as natural and as acoustic as possible, letting the room do most of the work," he notes. "I've been adding RPG diffusion material around the ceiling slowly, hoping to improve the clarity without killing the ambience. Bass traps are next on my room-fixing agenda."

The house console is a Mackie 1604 VLZ. Three Crown Power Base 450-watts/ch. amps power the system: one for mains and two for monitors. Stage EQ is an Ashly GQX 1502 15-band-per-channel unit; a Rane Graphic equalizer handles house EQ. The system also includes an Alesis MidiVerb 4 reverb and a dbx 1066 compressor/limiter. Stage monitors are Electro-Voice FM 1202 ERs. There are six house speakers, all EV SX100's, hung above the stage.

Ruffo, like many boomers, is a rocker recently turned jazz fan, and he has gained a strong appreciation for the music and the staying power of its masters. He sees the Birdland club and studio as playing a part in the music's legacy. "My advice to record companies and musicians is to record as many live performances as possible, especially with jazz artists, whose talent and popularity grow the older they get. I think that live recordings like those we do at Birdland can really mean a lot in the future." ■

—FROM PAGE 180, SUMMER TOURS

with Bolton's equipment." The same applies for Hall & Oates co-billed with Chicago. MSI is also supplying monitors for Phish with Snow Sound providing the rest, taking a stadium system to places like Moscow and Istanbul. Another MSI client, the Reverend Horton Heat is co-headlining on the Warped tour, so there are the usual discussions about who will provide the equipment. "Artists enjoying long-lived careers are still out, with others returning to touring after being in retirement for a while," notes Smith.

Smith also mentions the hesitancy of artists to go out when they can wait and play into the year 2000. "Many artists want to be touring in the last year of the 20th century and crossing over into the next millennium." He speculates that this will put an unusual kind of pressure on our industry's resources. "More people are going to tour toward the end of next year." Another trend he mentions is the effect of corporate in-

vestment in the entertainment industry, not just in developing venues but in promoting the tours that appear at them. "Conglomerates are buying controlling interests in touring and the entertainment industry in general," Smith explains. "Contracts in the past were often based on existing relationships and having done a good job, but the corporate mentality is to take multiple bids and look at the bottom line, and I think that's a threat to the industry." Smith's remarks particularly refer to SFX Entertainment's position as the national promoter for ten tours this summer. SFX has venues in many of the largest markets, including nine amphitheaters in six of the top ten markets.

MSI is still expanding its HC 12 Honeycomb system and is continuing with other R&D projects. "We hardly purchase any consoles; we typically lease them because there's too many variations of what people want," Smith notes. "Not only are there plenty of consoles for hire, there are plenty of quality vendors providing them."

Smith points out that the lack of work in the winter months is a threat to the industry in general. "The annual march to the sheds and overseas puts a big empty hole in the winter market," he says, noting that all production services are affected by the increasingly seasonal nature of the business, including the availability of qualified personnel. If this trend continues, Smith predicts that the key to survival in the long run will be to diversify and find other ways to employ resources in the lean winter months.

Smith further notes the futility of "giving the gear away" to get a company's engineers on a tour. "One of these days everyone will wake up and learn to stop being cut-throat and letting the accountants drive our prices down to the bottom," Smith concludes. "Eventually you can't afford new consoles anymore."

Tom Source has been with A-1 Audio (Hollywood, Calif.; www.a1audio.com) for a year, having made the move from Masque Sound. Van Halen is going out with a V-DOSC speaker rig supplemented with A-1's proprietary Aura Sound dual-18 subs, which Source rates as two to three times as efficient as other subwoofers. Other tours confirmed at press time include Chicago, Cinderella and Aerosmith. "We're talking to several artists and bands that haven't toured for a year or two, but that's still in the formative stage," Source comments. "On the touring side, it looks like it's going to be pretty busy for us." In addition to providing lights for other tours, A-1 is also involved in corporate, theatrical and Las Vegas casino markets.

According to Source, trends in touring production services include "taking into consideration the needs of the end-users on a bottom-line basis. It's no longer simply the features of a system, but how much time it takes to set up and how much trucking space is required. And it's not just the front-end economics of a weekly rental price, but how much money has been saved at the end of a leg," Source explains. "If you just consider the weekly rental and don't take into account the impact on the trucking and labor budget, then you're not really concerning yourself with the bottom line." Source cites last Fall's Motley Crue tour, which trimmed the sound from three trucks down to one by switching over to L-Acoustic V-DOSC speakers. "Eliminating two trucks and drivers plus a half-dozen local crew can mean saving ten grand a week," he says. Source is also seeing a move to higher-end consoles, with Van Halen's use of a Cadac at FOH, as well as Amek Recalls on other tours. Source echoed other vendors who are trying to hold off and see what the next generation of consoles offers.

There's always going to be a touring

market, but many companies are looking to diversify so that they will have a number of profit centers that can compensate for the seasonal nature of touring. "We're fortunate in that we also do legitimate theater, corporate, special events, retail sales, movies and television, and it also helps that we do lighting as well," Source sums up. "We also have a busy operation in Las Vegas that serves the Casinos." Source is upbeat about the touring market, in spite of its cyclical nature, and sees a strong upward trend. "There's going to be even more work for all of us next year," he adds. "We're all going to have to collaborate to pull off the large events on the eve of the millennium."

Carlson Audio (www.carlson-audio.com) in Seattle recently moved to a new facility near the Kingdome and has two large-format concert systems made up from an inventory of more than six dozen EAW KF Series speakers, plus several smaller systems of proprietary speakers. Dave Stevens had just gotten back from Everclear's winter tour when I spoke with him. "We're pretty much done with the box-buying for now," Stevens notes, adding that many of the new "hot" bands are attracted to younger sound companies. His advice for midlevel sound companies is to "keep your focus, don't overextend, try to keep your employees and clients happy, but most of all know what you do—don't try to be everything to everyone."

Carlson is looking forward to new offerings from manufacturers at the end of the year. "I don't know how much sense it makes for midlevel companies to invest $60K in a console when they change every few years," he comments. "Right now there's only a couple of consoles that are a sure bet that anybody would use." Stevens regrets that Carlson is unable to help Everclear on their summer tour, due to ongoing multiyear contracts like the Summer Nights at the Pier series and the Bumbershoot festival. Other technology news at Carlson includes QSC Powerlight amps using QSControl over Ethernet.

Rat Sound (Sun Valley, Calif.; www.ratsound.com) is out again with Pearl Jam, using a 120-box proprietary rig, Ramsa consoles and a new "super-clean FOH drive rack loaded with all kinds of cool toys," says Dave Rat. "The whole rig goes on a single truck, and we've never needed a second truck," he adds. Rat Sound wound up Ben Harper's spring dates by adding full production for the last five shows on the West Coast, and a 16-box system was leaving with Stabbing Westward as we spoke. "Beck has confirmed, and we've been talking to a few other bands about upcoming tours," says Rat. "It looks like another really good year with great bands and cool people, but bids are coming in low." Rat surmises that companies are putting rigs out for cost or below in the hopes of forging relationships with up-and-coming bands. "I can isolate myself from all that because we have no debt," Rat explains. "What would be a loss-leader for other companies can be profitable for us.

"After 18 years as a partnership, we decided it was time to incorporate, and in March became Rat Sound Systems Inc.," he continues. "A new line of credit gives us an added buffer to build up equipment prior to the larger tours." Until now, they have built the entire company with no major loans. All equipment is now consolidated into a single location to increase equipment utilization and system-to-system consistency. "After concentrating almost entirely on touring over the past four years, we've decided to maintain a local P.A. system in addition to our touring inventory."

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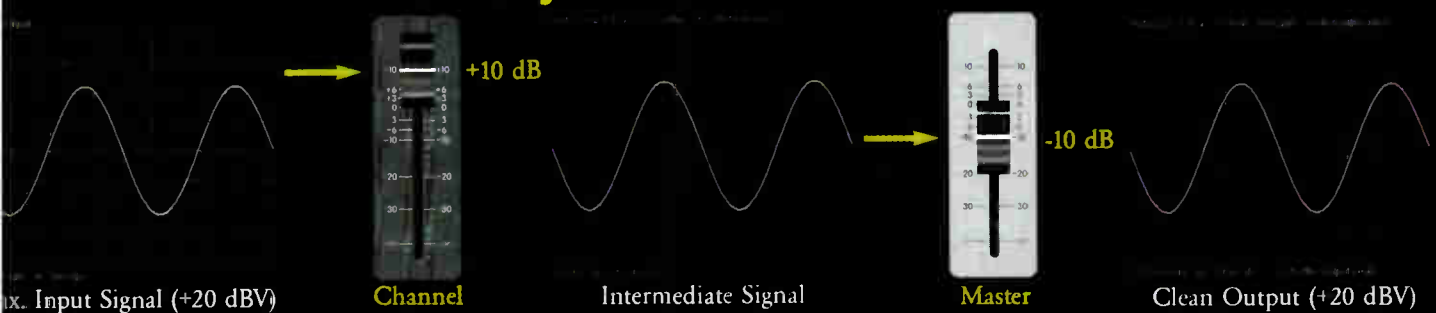
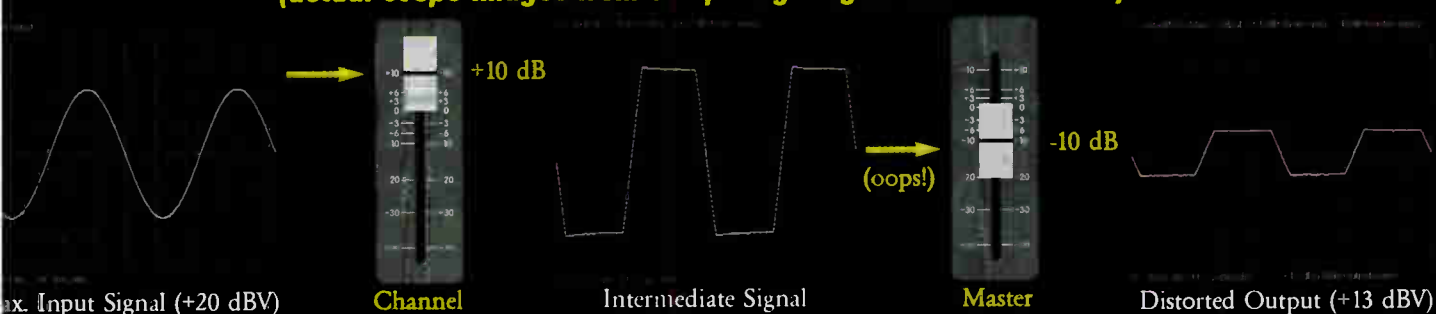


The other guys

(actual scope images from competing "high headroom" mixer)



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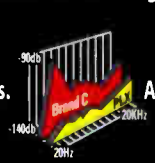

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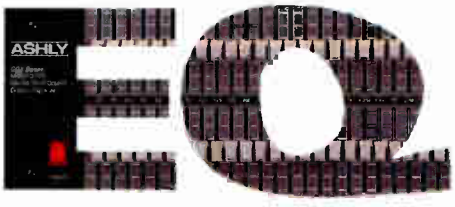

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60-channel PM4000 and leased a PM4000M last month. "Tweeters on an aux send" is now an option on all Rat Systems after testing it on Rage Against the Machine, and it works on the same principal as running subs off an aux. "After testing several digital system processors we found the XTA DP200's offer excellent control," Rat continues. "We offer systems both with and without digital signal processors." Other purchases include Klark Teknik DN 3600 programmable EQ, DN 6000 RTA and a DN 780 reverb. "We're building a few more 40x20 ultralong-throw hornpacks for the top row," he continues. "Also, a new Rat P.A. is in the early stages of design." Horns for the upcoming Rat Cube System were tested this spring on Pearl Jam dates. The system will be smaller and lighter than the current Rat five-way systems.

Pro Media (El Sobrante, Calif.) has acquired **UltraSound** (San Rafael, Calif.), but UltraSound will continue to serve its touring clients while Pro Media sticks to its corporate clients and installation work. The companies will be run as two separate divisions sharing resources, and Pro Media will move to the Marin side of the San Francisco Bay. UltraSound is set to tour this summer with Dave Matthews, Rat Dog and the new Garcia-less Dead, called the Other Ones, later this month. Other UltraSound projects include Don Pearson's work on a MIDI-controlled interface for use with for JBL's Smaart analyzer software that will sell for about $800.

Smoother Smythe of **Delicate Productions** (Camarillo, Calif.; www.delicate.com) reports that Steve Gilbird has been with them for the past year working on special events. "Touring has been a poor return on the investment," Smythe comments. "Corporate and trade shows appreciate our expertise and technology and are happy to pay what it's worth." Delicate has submitted tour bids but had nothing locked in at press time. "Lighting and video are doing well, but audio is a little slow out of the gate," says Smythe.

Pierre D'Astugues of **Electrotec Productions** (Westlake Village, Calif.) says that he's "cautiously optimistic" about the market for touring sound. "I think that there will be a number of significant tours using V-DOSC speakers this year," D'Astugues comments. "We've just sent a rig out with Radiohead." Metallica also tried using the V-DOSC system in Australia, and Electrotec were able to coordinate itineraries so that Van Halen could use the V-DOSC system down under when Metallica was finished. Another V-DOSC user, Bob Dylan, appeared earlier in the year on the West Coast with Van Morrison and Joni Mitchell; Dylan then went to Europe for two months. Perennial Electrotec accounts Rod Stewart and Lenny Kravitz are likely to be out this summer, and D'Astugues noted the Unity reggae festival and the House of Blues Smoking Grooves package as examples of acts packaged for the summer circuit of sheds and indoor arenas.

"There's more advance inquiry than there was last year," D'Astugues continues. "I think that pricing generally is realistic, it's a competitive market, there's a lot of equipment out there." Though the trend in past years has been toward a shorter summer season, he sees this season stretching a little longer, with some tours holding off until later in the summer. Other than V-DOSC, he doesn't see technology dominating the market this year but cites the Shure PSM600 system as the most significant recent product for offering in-ear monitoring to a wider audience. Electrotec continues to buy Midas consoles and will have them on many of their tours this summer. Finally, D'Astugues noted that Will Sharpe has joined Electrotec's

marketing force in the U.S.

Asked about new technology, Robin Magruder of Showco (Dallas, Texas) mentions the new underhung enclosure for the Prism system. Showco has also upgraded to Crown 3600VZ amps, cutting the number of sound system amp racks in half. The George Strait Country Music Festival is already in stadiums, and Showco's summer tours include outings with Alan Jackson, Vince Gill, James Taylor, the Ozzfest, Eric Clapton, the Moody Blues, Reba co-headlining with Brooks & Dunn, and Janet Jackson (when she comes back from Europe). Magruder mentions that a number of package tours are still in the works but not confirmed at press time. "It's competitive, but it seems like a flat year in general," he comments. "It's been pretty average up until now, but there's a lot that will gell at the last minute." As far as the length of the season, he finds that a lot of tours finish around Labor Day, while others are waiting to start around then. Showco uses a wide variety of consoles in response to the broad needs of various engineers. "The trend in consoles is going further toward automation, but it's not all the way there yet," he comments. "That is the development that everyone will be looking for ultimately." As with other interviewees, the phrase "waiting for the PM5000" was mentioned. Also mentioned was the Shure PSM in-ear monitor system. "One of the most interesting trends that we've noticed is the proliferation of so-called miracle speaker systems that claim to cover an entire arena and fit on the dance floor of a truck," notes Magruder.

Owen Orzack has joined **Eighth Day Sound** (Cleveland, Ohio) as Director of Touring Services. He now deals with sales, equipment and staffing. He reports that EDS is enjoying its busiest year yet, due in part to a new installation and corporate services divisions. New equipment purchases include new Midas XL-4 consoles, TC Electronic effects and Summit processing, plus D&B speakers from Germany. EDS tours this summer will include Boyz II Men, Paula Cole and "Lord of the Dance." "We have lots of irons in the fire, and it's going to be another busy summer," Orzack comments. "We've already sold out several times this year, and right now we're tapped."

Dave Shadoan of **Sound Image** (San Rafael, Calif.) reports that SI is booked to go out this summer with Jimmy Buffett, Clint Black, Prince, The Mavericks, Mary Chapin Carpenter, Harry Belafonte and Brooks & Dunn. "I'm working on bids for a few new clients, but there's another company that keeps giving their gear away, so I don't know yet," Shadoan comments. "I'm having a hard time gettin' a ride, so I'll have to wait till they sell out." He says last year gave new meaning to the expression "buying a tour" and points out the biggest problem is that the low return offered on many tours doesn't pay for maintenance, "prep" and new equipment. "I'd be better off taking my experience in this business and working for a manufacturer who makes entire systems and operate them like Indy race cars as nothing more than an advertisement for the installations and consumer markets," he notes.

"We're an industry in total disarray right now, and if this continues we're going to be in trouble," Shadoan continues. "People who put table cloths on at convention centers are better organized, and guys renting foldup chairs are getting a better return on their investment." The answer may be some kind of an organization that gets together to discuss the trends in the business. I offered to buy the first round of drinks at the TEC Awards.

"We have prices that are half of what they were ten years ago for inventory that has doubled in cost," Shadoan continues. "There's a lot of customers, but there's too many places to shop." He points out that it's better to have only half of your systems out working for real money than to send them all out for short money, because you have the wear and management of twice as many systems, with less margin to cover overhead. "Once upon a time, we all started doing this for the love of the music, and I'm not sure we haven't become all the things we hated 20 years ago." ■

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

—FROM PAGE 181, TOM JONES

fill the seats at any given tour stop.

Keeping production together on the road for Tom Jones is a job reserved for tour manager Sandy Battaglia. Currently in his 15th year with the show, in the beginning Battaglia served as production manager, FOH and monitor engineer. "I guess you could say I was the backline guy, too," he recalls. "The lighting director at the time set up the drums, but I took care of the wiring and every-

thing else with help from the truck driver. I mixed both monitors and the house from a desk out front, so if something went wrong, I'd have to run up onstage and fix it, then hurry back."

Ultimately, the show's needs surpassed even Battaglia's notable stamina, and the budget was expanded to increase the production values and allow for the addition of full-time FOH and monitor engineers.

These days, the tour schedule is finessed to permit smooth transitions between different venues. On many nights, the crew will rely on house stacks and racks, only bringing in mics, consoles, the monitor rig and other components needed to maintain consistency. Other times—during a string of one-nighters where the house P.A. may be unreliable—the schedule will be drawn to include most every aspect of production.

It was Sandy Battaglia's long-standing association with Eighth Day Sound's Tom Arko that brought the Cleveland-based sound company into the Tom Jones circle. EDS hit the road this year, carrying its own Turbosound Flashlight boxes powered by BSS EPC-760 and EPC-780 amps. Most of the rest of the gear is courtesy of Battaglia's own Las Vegas-based Gig Productions.

FOH engineer Tom Woodcock has sensitive, discerning ears, plus the sheer willpower to sit through a two-hour *Mix* interview without a cigarette. He takes his place each night behind a Yamaha PM3000 console. "I'm mixing three generations of songs—almost four decades of music," he points out. "So I have to be prepared for that, as well as the widely varying venues we find ourselves in. As far as levels are concerned, I adhere to a philosophy that you can kick people's butts without hurting their ears. I look at it this way too: Music, to a large degree, is about sex—consciously and unconsciously. It taps one of the strongest, most basic emotions we have. If I don't involve the crowd by making them feel the groove and the beat, the lyrics and meaning will go unnoticed. That's what live entertainment is really all about—making that kind of connection."

For Woodcock, linking up with the crowd without inflicting painful volumes on them is largely a matter of proper system tuning and placement of the drums, which he keeps out front, out of the way of anything else in the mix, as opposed to over the top. He also notes that in his situation, where there is a strong lead vocal, three backing vocals, horns, keys and guitars, strict

attention must be given to how midrange things are stacked.

"All of my signals are in the same register," he adds, "and that's right where the vocals are between 300 Hz to 3 kHz. I don't have different places all over the room where I can place that kind of information, so stacking is critical. When all is said and done, we are really more stereophonic mono than stereo. Stereo is a great image for separating things in a recording to make you feel like you're sitting on the stage, but if you buy a ticket to a show, chances are next to never that you'll be sitting on the stage. My mix strives to provide the best possible sound to every seat in the house."

Crossover functions within the Eighth Day-supplied Flashlight system are directed by BSS Omnidrive units, while EQ is left to BSS FCS-960 dual-mode graphics. Woodcock travels relatively lean when it comes to processing. He uses a Summit TLA-100A tube limiter to keep tabs on Jones' tremendous vocal capacity (it runs at a continuous 4 to 7 dB down throughout each show), and four more channels of compression and limiting are used, via a Klark-Teknik DN504 unit. One of these K-T channels is reserved as a spare for Jones; the other three are used on bass, on backing vocals as a group and on the horns as another group. With the exception of these backing vocal and horn groups, everything else in the house is mixed with VCAs.

Eight channels of Drawmer DS201B gates are used on drums, while a pair of Yamaha SPX990s lend special effects to lead vocals, and doubling to backing vocals. Lexicon LXP-1 and LXP-5 processing is available for other lead and backing vocal processing, all summed through a small Yamaha 8-channel line mixer that comes in as one return to optimize real estate savings. Woodcock's controlling factor in this equation is a highly-prized Lexicon MRC MIDI controller, which he uses as a global map of programs for four different set lists.

Jones' monitor mixing is handled by Ed Ehrbar. From behind a Yamaha PM4000 console, he shepherds a flock of 12 Crown MA-2400 amps, each of which has a PIP card housing compression and crossover settings. Proprietary wedges from Eighth Day Sound, loaded with a single JBL 2226 15-inch transducer at the bottom and a JBL 2450 at the top, are used for all of the bandmembers, except Jones, who prefers in-ear

units. He relies on a Futuresonics system, but the tour also carries a Garwood Radio Station system as a backup. As of this writing, Jones plans to test a Shure UHF PSM600 Personal Stereo Monitor System when time permits.

Ehrbar creates eight distinct mixes for the band and a single stereo one for Jones' in-ear system. Four sends are used for effects; Jones is mixed post-fader with VCAs.

Jones is known for enjoying a natural, live-sounding mix with ample gain. He receives in-ear crowd ambience from Shure SM98As, which are usually suspended discreetly from an available grid or catwalk, as well as from an assortment of SM81s placed at the sides of the stage on stands.

"He likes drums," Ehrbar says, "something that will kick him in the ass and get him moving. So I build him a rockin' kind of mix with full bass, and guitars and keyboards for pitch. I also provide a bit more backing vocals and horns than would be considered the norm—he especially likes to hear the horns on top of the rest of the band."

Five more BSS FCS-960 stereo graphics bring monitor EQ to the entire stage. And, similar to the approach taken in the house, a Summit 200 dual-channel tube compressor/limiter ensures that Jones' lead vocals don't exceed natural laws of physics. A separate rack stuffed by Sandy Battaglia's Gig Productions houses processing for Jones' in-ear system, as well as four LX24/Beta S8 wireless systems from Shure.

Ehrbar's effects include a pair of Yamaha SPX90s for horns. A Lexicon LXP-1 provides various shades of reverb for the backing vocals, and an LXP-5 brings a dash of reverb to drums. Reverb for lead vocals is supplied by a Lexicon LXP-15, which, like all other monitor effects used for Jones, is sent to a Yamaha MV802 mixer for blending before being routed to a pair of channels on the PM4000 console.

The drum kit miking configuration begins overhead left and right with a pair of AKG 414s. A Shure SM81 is used on hi-hat, and five SM98A miniature condenser mics are clamped to rack and floor toms. A pair of articulating Beta-56 dynamic units are on snare and piccolo snare, and a Beta 52 on kick drum. Electronic drum elements used for some of Jones' more contemporary covers are all DI.

Mounted at the front of the kick drum, just off the batter, the Beta 52 is positioned by Tom Woodcock to control the attack while still obtaining full, low-end body. "One of the things I like best about that microphone is that every time you move it inside the drum, it gives you a different sound," he relates. "Find ten different positions, and you get ten different sounds."

Spanning across the rest of the backline are three Beta 87s for backing vocals, Sennheiser 421s for trumpet and trombone, and an RE20 for saxophone. Sennheiser 409s are used for guitar left and right. A pair of Beta 58As round out the input list; one is kept for announcements, while the other is available to bassist Shem Schroeck for vocals.

Having tried other wireless systems, including the latest in UHF offerings, Jones remains loyal to the Shure LX. "He really works his microphone, and this one simply sounds the best to him," Ehrbar says. "I'd say it's the combination of the warmth found in the system's analog crystal control and its quick response."

Experiencing Tom Jones live is a lesson in authenticity, as he continues to defy time and genre. He is a triumphant entertainer in whose musical footsteps few can follow. ■

BY BLAIR JACKSON

RECORDING NOTES

PHOTO DANIEL McLEWIN

MORCHEEBA MOVES BEYOND TRIP HOP

by Chris J. Walker

It's been a busy but fun couple of years for Morcheeba, the British trip hop trio currently riding a wave of popularity following the release of their sophomore recording, *Big Calm*. Their first Discover/China Records CD, *Who Can You Trust*, created a buzz with its intelligent musicality, catchy riffs and beats and buoyant vocal textures. Then, last year they turned up as a dominant force on the excellent David Byrne solo album, *Feelings*, and that brought them to the attention of a whole new group of fans. Now they are poised to break through to an even larger audience through their eminently pleasant and listenable *Big Calm* album, which Morcheeba drummer Paul Godfrey says "is a much better record than our first. It's much more confident and has more depth to it. We've basically come out of our shells in all our glory. It's us being truer to ourselves and not following fashion."

In some respects, *Big Calm* is the album Morcheeba wanted to make the first time around. "We wrote the songs two years ago when our first record was released," Godfrey says. "But when we were doing *Who Can You Trust*, the trend then was to do very downbeat, minimalistic things." *Big Calm* is anything but downbeat; it's inarguably an "up" record, probably more reflective of the bandmembers' actual personalities.

Peter Norris, who has been the group's engineer and co-producer since its inception, explains the technical objectives for the recording of *Big Calm*: "We were seeking a mellow, warm sound, and trying to keep the '80s hard vibe away and make the CD deeper and '70s-sounding, too. Before starting the project, we acquired a 2-inch analog [recorder]. That was wonderful and really influenced the sound. I don't mind ADATs, but it's very difficult to pull together a rock drum sound on them. If you use ADATs in the right way and accept them for what they are, then I think they are exceptionally good, especially considering the tiny amount of money they cost. But analog tape is definitely what we love! Just 2-inch Ampex 499. Our final stereo mix is on DAT and we still use the ADATs to move sections around, and that kind of thing. They lock up to run backward and forward quite happily with the 2-inch."

In terms of the actual recording, "This time around

—CONTINUED ON PAGE 202

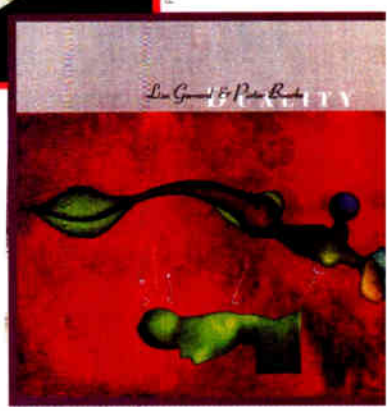
LISA GERRARD AND PIETER BOURKE

SONIC SCULPTING

by Bryan Reesman

PHOTO: MARK ROGERS

There is a strong dichotomy at work in Lisa Gerrard's music. Though the Dead Can Dance singer's albums sound very structured and directed, the studio sessions from which they stem are always quite spontaneous and free-form; only later are the fragmentary passages that flow out of the singer shaped and embellished into finished works. On her second and latest solo 4AD/Warner Bros. record, *Duality*—a collaboration with percussionist Pieter Bourke—those musical shards grew into scrupulously sculpted songs that harken back to medieval music while also possessing an unmistakably modern flavor.



Whereas her solo debut, *The Mirror Pool*, had a more orchestral feel to it (and indeed featured an orchestra on many tracks), *Duality* moves into more rhythmic and ambient terrain, some of it similar in spirit to early Dead Can Dance, the band she co-founded and still fronts. One of the main reasons *Duality* explores new horizons is her musical partner Bourke, a member of

—CONTINUED ON PAGE 206

PSYCHO-ACOUSTICIAN JOSHUA LEEDS

MUSIC AS A HEALING TOOL

by Blair Jackson

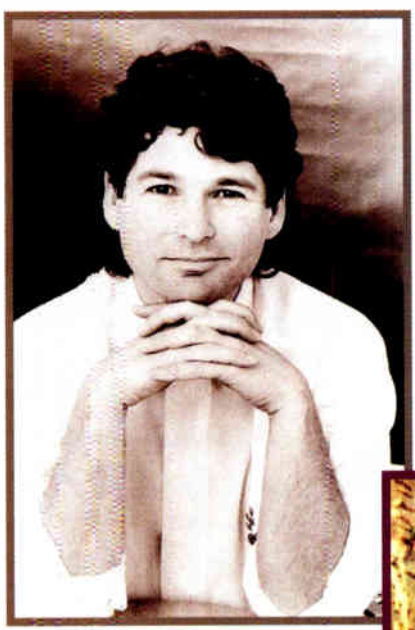
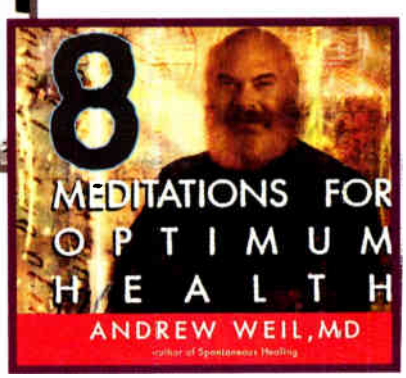


PHOTO: DENISE WATERS

The therapeutic value of music has been well-established ever since Og the caveman first beat two rocks together and it raised a little smile on his furry countenance. Surprisingly, the jump from that to the wild-eyed satisfaction evident on the face of Keith Moon as he bashed his drums millenniums later was not a very big one at all. But it is only in the latter half of the 20th century that Western biologists, musicologists and psychoacousticians have seriously investigated the role that music plays in the well-being of Homo sapiens and tried to understand the science behind music's healthful benefits. (Among many Asian and African peoples, music's healing properties have been intuitively understood and applied for centuries; no science needed there.) And it's only in recent years that folks have begun to make music explicitly designed to promote health and healing, based on the latest scientific research in the field.



One of the most popular exponents of music's healing properties is Dr. Andrew Weil, the benign, white-bearded Harvard Med School graduate who, through his books and his appearances on PBS, has helped establish the field of integrative medicine, which supposedly combines the best of conventional and alternative medicine. Dr. Weil is currently the director of the Program in Integrative Medicine at the University of Arizona and is a respected authority on natural medicine and medical botany. He has made meditation palatable to the masses in ways that few before him have, and he has joined forces with a number of scientists

—CONTINUED ON PAGE 208

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THE RAMONES' "TEENAGE LOBOTOMY"

by Barbara Schultz

Lobotomy! Lobotomy!
Lobotomy! Lobotomy!
DDT did a job on me
Now I am a real sickie
Guess I'll have to break the news
that I got no mind to lose
All the girls are in love with me
I'm a teenage lobotomy!

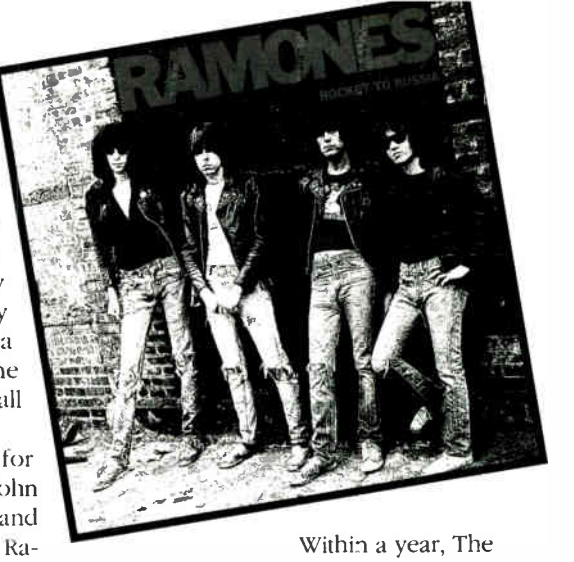

PHOTO: MICHAEL OCHS ARCHIVES/VENICE CA

That's the first verse to "Teenage Lobotomy," a song that epitomizes one of the sickest, funniest, coolest bands ever to come out of New York, The Ramones.

You either love 'em or hate 'em. The Ramones stormed onto the N.Y. club scene at a time when most of the country was listening to laborious mid-tempo "masterpieces" such as Fleetwood Mac's *Rumours* and The Eagles' *Hotel California*. They joined groups as varied as the Patti Smith Group, Blondie and Talking Heads in challenging the going notion that the more time and money you spent on a recording, the better it would be. Ramones songs were fast, cheap and outrageous: Power pop meets Iggy Pop, and the result is unforgettable. The Ramones were one of the first groups to be called "punk," but that's merely because the term, as describing a musical genre, hadn't been coined before Joey, Johnny, Dee Dee and Tommy were well under way.

The four original Ramones met in Forest Hills, N.Y., a comfortable but still urban suburb of Queens. As they entered their 20s, they were still living with their families and were fairly directionless. They weren't necessarily great friends; they hooked up because they were into a lot of the same music (Iggy & The Stooges, New York Dolls), and they all wanted out of Forest Hills.

They didn't have much going for them at the start. Johnny Ramone (John Cummings) had bought a second-hand Mosrite guitar for $50. Dee Dee Ramone's (Douglas Colvin) DanElectro bass cost about the same amount. Joey Ramone (Jeff Hyman) had a drum kit that his dad had bought for him, and none of them really knew how to play. When they started rehearsing, in Performance Studios, a space co-managed by Tommy Ramone (Tommy Erdelyi) and another Forest Hills High schoolmate, Monte Melnick, Joey was the drummer and Dee Dee sang lead. (Dee Dee has said that they never played any covers at first, because they couldn't figure them out, so mainly he and Joey wrote all of their songs.) As they learned their way, they realized where they belonged: Joey as lead singer, Dee Dee sticking with bass and some backing vocals, and Tommy taking over the drums. They chose their band name because Paul McCartney, as a member of the pre-Beatles group the Silver Beatles, had called himself Paul Ramone.

Within a year, The Ramones were part of the N.Y. club scene that they'd been watching as fans. In Legs McNeil and Gillian McCain's oral history of New York Punk, *Please Kill Me*, McNeil remembers an early Ramones gig: "They counted off a song—'One Two, Three, Four!'—and we were hit with this blast of noise; you physically recoiled from the shock of it, like this huge wind, and before I could even get into it, they stopped. Apparently, they were all playing a different song. The Ramones had a mini-fight onstage. They were so thoroughly disgusted with each other that they threw down their guitars and stomped off the stage...Lou Reed was sitting at the table laughing...Then the Ramones came back, counted off again, and played the best 18 minutes of rock 'n' roll that I had ever heard...I really thought I was at the Cavern Club in 1963 and we had just met The Beatles. Only it wasn't a fantasy, it wasn't the Beatles, it was our band—The Ramones."

New York-area gigs gained The Ramones their record deal with Sire, then distributed by ABC. Their first album, *The Ramones*, is rumored to have been recorded in only one day. On the sessions for their second LP, *Ramones Leave Home*, The Ramones met engineer/producer Ed Stasium, who would work on eight more of their albums.

Stasium ended up on the *Ramones Leave Home* sessions at the request of the album's producer, Tony Bongiovi, whom he had met years earlier while working at Venture Sound in New Jersey. Stasium, who had been living in Quebec and working at Studio Morin Heights, came back to New York to be musical consultant on, of all things, a Geraldo Rivera-hosted telethon. He ran

into Bongiovi right around the time Bongiovi, Ed Evans and Bob Clearmountain were starting to get the money and ideas together to build The Power Station Studios. Bongiovi asked Stasium to move back to New York and help design and start the studio. Bongiovi had a number of projects lined up that Stasium could make a living at until the new studio opened.

Stasium didn't actually make it to the very first *Leave Home* sessions. The birth of his daughter, two months premature, kept him in Canada a couple more months than he'd planned, so when he joined the project, Bob Clearmountain had already recorded the first couple of tracks at Sundragon Studios. Before he began working with them, Stasium had never seen or heard The Ramones.

"There was no 'scene' where I was up in the Great White North," Stasium recalls with a laugh. "It's miles away from any scene, let alone CBGBs. The first time I ever heard the band was off of the multitrack of what they'd done previous to my being on the sessions. At first, I kind of took an audio double take. Because at that time in music, in 1976, rock music was really safe, and I put up those Ramones multitracks and said to myself, 'What's this? Goodness!' But after several listenings, the essence of the band embraced me in the most unusual way. It brought me back to basics, to garage bands, high school, unassuming, unpretentious rock 'n' roll; it was just raw, loose, loud and fast." Though Stasium had been offered a co-producer credit on *Leave Home*, the final album actually only cites him as "Engineer Ed Stasiun [sic]." (The misspelling was eventually corrected when Sire's distribution was turned over to Reprise and another version of the LP was released with "Sheena Is a Punk Rocker" on it in place of "Carbona Not Glue"; but that's another story.)

The next record Stasium made with The Ramones was *Rocket to Russia*, the album that contains this month's Classic Track. The songs for *Rocket* were recorded at Media Sound, around the time The Power Station was being completed. At that point, in 1978, Media Sound was one of the most vital facilities in New York. "It wasn't exclusively a rock studio like The Record Plant was, and it wasn't exclusively a jingle house. Everything came through those doors," Stasium says. The main recording room, Studio A was a great-looking room, but aesthetics seem to have taken precedence over sonics in its design. "It had been a church," Stasium says, "and they had kept the original infrastructure, so it had a high, arched ceiling. The control room was thrown at one end, very haphazardly, as a matter of fact. There was no isolation at all, just a plate of glass, and you could hear everything coming through the door, especially with The Ramones."

Stasium says the band always came in totally prepared and ready to record. They performed live, with Joey singing scratch vocals in a booth and Dee Dee's amps tucked into another long, thin iso booth that was at the back of the main room. Tommy, who was also co-producer of this album with Bongiovi, was set up in the middle of the room. Johnny's guitar amps were isolated with rolling baffles and blankets. "We just piled them all into the big room," Stasium says, "put up a couple of room mics, miked up the instruments, and 'One, Two, Three, Four!' Here we go!"

The recording console was the studio's then-new Neve 8068. Stasium says they recorded to an MCI JH24 machine. The mics he used on drums are pretty much the standard choices he makes today: Neumann U87s on overheads, an SM57 on snare, Sennheiser 421s on tom toms, a 421 and an AKG D112 on kick. Johnny's guitar was miked with an SM57, and the bass was captured with an RE20, a U47 and a DI. Joey's scratch vocals were miked with another 57, but his final, overdubbed vocals were recorded with a U87. A fun microphone fact about the sessions: There was also always an SM57 set up just for Dee Dee to count off, "One, Two, Three, Four!" The main monitors in Mediasound A were Big Reds with Mastering Lab crossovers, but Stasium mainly listened on JBL 4310s or Auratones.

By the time the tracking was done for *Rocket to Russia*, The Power Station was almost completed, so Stasium took the band there to mix. "*Rocket to Russia* has the distinction of being the very first record to be mixed in the nearly completed control room at The Power Station," Stasium says. "And 'Teenage Lobotomy' was the first song we mixed there.

"When I say nearly completed," he continues, "I mean the console was there, the 3M tape machine was there, a couple of Studer 2-tracks. But there was construction going on all around us, and the only outboard gear we had in there was, I think, an Alison Research rack with four Kepexes in it, a couple of LA3As, the first Harmonizer—the 910—and that's it. If my memory serves me, they didn't yet have the famous 24 Pul-

tecs in the back of the room, and there were no plates or reverbs whatsoever."

Because there were no electronic reverbs, Stasium used the stairwell on the east side of the building as a live chamber. "I miked it up with a couple of 87s, threw in a pair of 4310s, powered it up with a Crown DC300, and we were raring to go. The only reverb that's on *Rocket to Russia* is that stairwell. The cockroaches and rats must have loved listening to Joey and Dee Dee yelling 'Lobotomy!' On that vocal, you could really hear the stairwell because it's so open and the drums are so dry. The main recording room was actually still being built while we were mixing that record."

The Power Station was eventually completed, of course, and hundreds of great albums were recorded and mixed at the studio before financial difficulties forced Bongiovi to sell the facility, which re-opened under the name Avatar Studios a couple of years ago.

The Ramones continued recording an album almost every year until they finally called it a day in 1995. They never had any huge chart success, probably because their sick sense of humor didn't always appeal to the general public. But their back-to-basics approach to playing, and the sheer fun of their music, played a huge part in defining the punk era. They were a tremendous influence on countless groups, from the Sex Pistols to Social Distortion to Green Day. The Ramones' farewell album, *Adios Amigos*, contains one must-have track: a cover of the Tom Waits/Kathleen Brennan song "I Don't Want to Grow Up."

These days, Joey Ramone still lives in New York. He's working on some solo recordings and managing local bands. Dee Dee Ramone, who had actually quit the band late in their career, is the author of a notorious new autobiography, *Poison Heart*, that dubiously traces the history of The Ramones as well as his many-years'-long heroin addiction. Tommy, who had turned drum duties over to Marky Ramone (former Voidoid Mark Bell) after *Rocket to Russia*, has continued working as a music producer; his projects include The Replacements' first album. Johnny Ramone is retired now and living near L.A. Rumor has it that Johnny recently sold his $50 Mosrite to Eddie Vedder for something like $20,000.

Ed Stasium lives in Southern California now, too, and has continued to be a prolific engineer and producer in the 20-plus years since he met The Ramones. The dozens of bands he's

worked with over the years include The Smithereens, Living Colour, Joan Jett and the Reverend Horton Heat. He's moved on, but he's sorry to see The Ramones go. "I'll miss anxiously awaiting the new Ramones record every year," Stasium says. "Even the records I didn't do I always ran out and bought the minute they came out. I'm a big fan." ■

Oops!

In our April Recording Notes story about the making of the new Louie Bellson record, *The Art of the Chart*, we misidentified one of the photos. Here, above, are producer Gregg Field (Left) and engineer Charlie Paakkari. Sorry for the mixup, guys.

—FROM PAGE 196, MORCHEEBA

I think we placed a much greater emphasis on live instruments, particularly guitars," Norris says. "*Who Can You Trust* to a degree underuses the talents of Ross Godfrey [Paul's brother and the group's guitarist]. So we used more organic instruments really, with a focus on the songs and keeping the arrangements fairly tight. That's really the thrust of the new record, hopefully combined with our fair share of dark and dreamy atmospheric sounds. We tried not to slip into any of the techno genre's drum-and-bass sort of thing."

A number of outside musicians were brought in to fill out the trio's sound (besides the Godfrey brothers, Morcheeba includes the alluring singer Skye Edwards), and both the band and Norris state that this interaction with real musicians, instead of relying on computers, is the key to the album's life and warmth. "We do our fair bit of sitting in front of the computer, and it can drive you a little crazy," Norris says. "You've got to have other people in there, really. It makes the whole thing much more human and organic."

Paul Godfrey comments, "For this record we got an orchestra, a live bass player, a drummer, a deejay, a keyboard player, guest vocalists, a flautist, a rapper, a fiddle player and brass. We used a lot of good people because the more people you get on a record, the more feeling and personality you have on it." Even so, he notes, "The computer is the main brain of the arrangements. We use an Atari ST for MIDI. But how long can you sit in front of a computer on your own without going insane? For me it's about half an hour."

Like most bands, Morcheeba is not comfortable being pigeon-holed as representing a particular style—trip hop—though they don't aggressively dispute the characterization. Actually, both of their records have been quite diverse stylistically, with trip hop being just another element in their strange brew. Still, music critics uncertain about what to make of the group's eclectic first CD quickly lumped them with other English artists such as Tricky, Portishead and the Sneaker Pimps.

"I think trip hop has been a big influence on us," Paul Godfrey says. "The trip hop thing for the band is sort of incidental. It comes from liking hip hop, really. But we're only limited by our imagination as far as style goes. We'll have a go at pretty much anything. So we have that atmospheric trip-hoppy side, a folky side and a slightly rocky side. Versatility and uniqueness are the key."

The working environment where Morcheeba creates and fine-tunes their sound is a home studio dubbed "Cheeba Central." Originally, it was a makeshift demo studio adjacent to the Godfrey brothers' flat. But the growth and success of the band has resulted in an ongoing expansion of the studio, to the point where it can now accommodate a small orchestra. "We have a very fine string arranger, Steve Bentley-Klein, who we worked with on *Who Can You Trust*," Norris beams. "He arranged a couple of quartet pieces then, and we were keen to work with him again. For this CD we did some quartet stuff with him and also things with a 16-piece section."

"We've got a real lovely studio out here," Godfrey adds, "with a big control room, a live room, a shower, a kitchen and all that kind of stuff. It's based on the Beastie Boys' studio. I got the idea from one of their album sleeves, *Check Your Head*."

"Most of the equipment is old gear," Norris says, "and, actually, we're fairly Spartan. We have a Mackie 32•8 and one of their 24-channel expander units.

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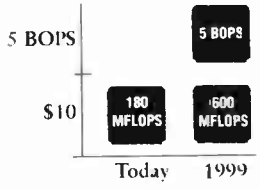

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We have a couple of S950 samplers and an Atari computer. We have a very lovely MTR-90 2-inch deck and a couple of Alesis ADAT machines, and an Amek 9098 equalizer. Dynamic mics are preferred over condenser mics for us, though all of Skye's vocals are done on AKG C-3000 condensers. We also we have a TL Audio valve compressor/limiter that has a mic preamp. That combination seems to work very well with Skye's voice. Our next purchase will probably be a nice half-inch mastering machine."

"The first album was done on two ADATs," Godfrey says. "We also got a brilliant new box called a Distressor. It's just amazing—it creates second and third harmonic distortion, plus it's a compressor with many different settings. So basically, with it you can make things sound like great old records."

From the outset the London residents have worked exclusively out of their own studio, including their extensive involvement with David Byrne's album. The former Talking Heads frontman and guitarist was so profoundly taken by the band's work that he approached them to collaborate with him. The final outcome of the partnership was the co-production of six of the 12 tracks on *Feelings*.

"David wrote the songs, and he sent over a DAT that had about 15 or 16 demos," Norris recalls. "He asked us to pick what we liked. Then he came over for about three or four sets of sessions that lasted four or five days each. So we did three tunes, and then that led to doing another three. In the end, we recorded nine songs and got six of them on the CD. Yeah, he was over here playing guitar and watching us carry on and stuff. It was good. He's a very, very nice person to work with. He's easy-going and he's got an absolute devilish sense of humor, which is perfect around us. It was an experience I wouldn't have missed for the world."

Recording their own *Big Calm* CD took about three months once the framework to the majority of the songs was worked out. Surprisingly, few of their songs originate electronically. Instead, Norris explains, "Things usually start as acoustic guitar demos, literally with Ross playing guitar and Skye singing into a Dictaphone. From there they listen and develop ideas. Paul will have suggestions for beats, and he'll start programming those. Then we might start doing some tracking of guitars. It's very much dependent on the song itself. That's what we're chasing really—we're trying to find the song and follow where it wants to go. It can happen in any number of ways. But usually it starts with acoustic guitars, then goes to beats, then electric guitars and we add keyboards. We might make up some loops of Wurlitzer or Hammond organ. And then it just starts to grow really. You turn everything up loud, and if it sounds like rubbish, wipe it."

Samples and loops are a staple for the band, but with a twist: "We don't use any digital/factory sounds," Godfrey says. "We create all our own sounds by way of synthesis, like with amplified instruments. I'm a bit bored with sampling old records. It got just a bit tired. I play the drums a bit. Ross plays every instrument you can think of. We'll loop ourselves—me drumming, Ross on guitar, bass or something."

"We don't like sound modules or off-the-shelf sounds," Norris concurs. "You end up sounding like car advertisements. Making our own sounds is the only real way to guarantee some uniqueness and character."

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Roles in the process of making and producing *Big Calm* were blurred, as all of the collaborators tend to do a little bit of everything. "We get involved with the recording as much as we individually need to be," Godfrey explains. "We don't tread on each other's toes. I have an engineering background. Our co-producer, Pete, has a similar background. Ross is a musician and Skye's a singer. We all kind of do bits. I do beats and write lyrics. Skye writes melodies and Ross writes the music. Essentially, I oversee the whole project, while Pete is the co-producer and handles the technical side of things."

"They kind of do what they do and I cover the bases for them," Norris adds. "We just to try to let it roll on as freely as it can. I keep in mind arrangements, durations and those kind of things. I don't get involved in the songwriting—that's really a three-piece effort on their part. I do a lot of setups because I'm the one who's not otherwise occupied. I do bits of synthesizer programming and stuff like that, too. The whole object is to try to work as a team, which makes it easy on everyone involved. Actually, if we were going to employ anyone we could use a good cook. Paul is actually an excellent cook, but you can't be at the computer and cooking at the same time." ■

—FROM PAGE 197, LISA GERRARD

ethno-techno group Soma, a touring member of Dead Can Dance, and a previous member of Eden, a Melbourne-based act that was reminiscent of early DCD. Bourke's rhythmic talents are applied to an exotic collection of percussion including the Egyptian tar (a hand-held frame drum), the mazhar (a Middle Eastern tambourine), gongs, orchestral bass drum and shakers. Bourke had worked with Gerrard on *The Mirror Pool* and later toured with her ensemble. On that tour the two began writing some pieces together, percussion jams that were developed solely for the tour and that were never recorded.

Following the 1996 DCD tour, Gerrard took a month-and-a-half off before inviting Bourke to her home studio in Gippsland, Australia, to lay down some percussion tracks for her next record. Originally Bourke thought he would be there for just a short time, do a few short pieces with percussion and voice, then leave and let Gerrard integrate the results into a larger whole.

"We were working on these little

musical interludes, and when we got to the third one, we felt it suggested that it wanted to be a much bigger piece of work outside of the interlude concept," Bourke recalls. "So we thought, 'Well, we'll just explore it and see what happens.' We must have spent about seven or eight weeks expanding this piece, and we ended up with 'Shadow Magnet.' From there, we realized that the potential was there for a lot more than where we started out."

They eventually spent a year working on the album, working at a relaxed pace that both enjoyed. With the exception of a few pieces developed from their initial writing forays, Bourke says, "Everything else started from one fragment and was built up through a process of improvisation and spontaneity in the studio. We were always present there, so no one went away and worked on a vocal part or a drum part. It was all done together. The idea was to capture the idea as soon as it came up, and it was the same for vocal parts or melodic keyboard parts or rhythm parts. Each idea that came up was a direct response to what was already there in the music. It was all about just exploring things, recording things in such a way that Lisa could just explore vocal idea after vocal idea without having to stop. So a real momentum was gathered, and over the course of three hours we'd arrive at something that really unlocked the piece. Then we'd keep that fragment and sort of build it up again."

"Most of the things that we recorded were recorded live, although it sounds quite sculptured," Gerrard adds. "Even the string pieces were performed and sung live." The challenge was to put all these parts into arrangements that, as Bourke explains, "had to be connected in a way that the story unfolded. And we spent just as much time in that area as we did in finding the actual parts. We were pretty flexible in moving parts around and trying various arrangements, until we felt we hit on the one that was really right."

But perhaps the most remarkable aspect to the music is Gerrard's singing. There are definite liturgical and Middle Eastern strains in her vocal style, but no singular overriding influence. Amazingly enough, she has had no formal training. "I've listened to a lot of music over the last 20 years," she explains. "I grew up in an [ethnically diverse] sort of area when I was a kid. A lot of the music that was there was predominately Turkish or Greek, and I think it definitely influenced the way I write music." And though her wordless singing often sounds like a specific language, it is not. "They're languages that I hear when I'm listening to the music," she says.

The studio setup in Gerrard's barn includes a 24-input, 8-bus Mackie desk, two Tascam DA-88s, a Panasonic SV3700 DAT, a Yamaha KX-88 keyboard, a Korg 01W keyboard, TC Electronic M5000 reverb, a Kurzweil K2000, Akai S3200 and S3200XL samplers, Emu Proteus Orchestral Module, Lexicon Jam Man (for loops and delays) and Sony R7 and Roland RSP 550 effects units. For computer work they used an Atari 1040 STE (and Midex Sync Box) with Cubase V3 software, as well as an IBM Notebook laptop with Mackie Ultramix Software.

Still, despite the plethora of available technology, the album was engineered to highlight the organic nature of the songs. "I've got a really simple approach," Bourke says. "There's nothing fancy going on. It's really just levels and EQ. We don't have a big rack of compressors and stuff. With the vocals, we didn't muck around and process them. We were using a nice Microtech Geffel valve microphone and a Neumann U87."

Gerrard likes to monitor her vocals via studio loudspeakers, a practice dis-

couraged by many engineers due to potential bleed and feedback problems. But the duo was intent on capturing good performances, even if they were not technically perfect. "We struck a balance where the initial or main vocal takes were monitored through the speakers," Bourke says. "If the backing rhythm track had bright instruments like Egyptian sagats or shakers, I would lower their volume in the mix to reduce spill onto the vocal take, or take them out of the mix entirely."

Layering parts was an integral part of the recording process, particularly Gerrard's vocals. Some pieces used up to 16 vocal tracks to simulate a haunting choir.

It was all about just exploring things, recording things in such a way that Lisa could just explore vocal idea after vocal idea without having to stop.

—Pieter Bourke

Others were more spare, as the music required. "Sometimes there would be only one vocal track," Gerrard says. "Sometimes all of the channels would be used, like in 'The Unfolding,' where there's a choir piece in the beginning."

On that track, the strings were synthetic and run through Cubase, but when it came to having 16 tracks of vocals, Bourke says they had to "squeeze the samplers, the keyboard and reverb unit into the remaining eight channels." He relished the challenge. "I didn't mind having a limitation like that, because it sort of forces you to make things work with what you have, rather than having a limitless line of channels." Vocals aside, there were also multiple layers of drums, keyboards or other acoustic instruments created on different songs as well.

Each album she's made—solo or with Dead Can Dance—has proven to be an odyssey for Gerrard. Like Bourke, she is a self-taught musician who has mastered her craft through hard work and a particularly strong sense of discipline. She also has a fearless, adventurous streak that compels her take musical chances, to the point of playing instruments she doesn't have any training on. "Sometimes we use instruments that we're using for the first time," she notes. On both her solo records, she has played a variety of instruments, including Turkish saz, the rebec (which Bourke says is akin to a crude violin), and the Yang C'hin. "I play anything that I need to play to make the music," she says. "I might not play it in the traditional way the instrument is meant to be played, or to the standard, but if I can use a part from that instrument, I'll learn to play that one part for the purpose of recording." And that has led to a fascinating musical adventure for her and her listeners. ■

—FROM PAGE 197, JOSHUA LEEDS

and acousticians to create a program involving proven meditation and relaxation techniques, including the use of music, as a way to promote self-healing and good health. Last year he was even on the cover of *Time* magazine, which dubbed him "Mr. Natural." "Can This Guy Make You Healthy?" the cover headline asked.

Dr. Weil's most recent arena of exploration is the compact disc: So far, two discs have come out with his name attached to them. Last year's *Eight Meditations for Optimum Health*, on which Dr. Weil leads the listener through a series of meditations on such topics as "Self-Love," "Conscious Eating," "Beauty" and "The Mystery of Being," found his soothing voice gliding over a bed of pleasing classical strings and the occasional koto or sarod. This spring's mostly musical *Sound Body, Sound Mind* is a "symphony of brainwaves music based on themes from Mozart, Mahler, Brahms and Bach, combined with healing sound frequencies," as it says on the CD package. Both discs were produced by a Bay Area-based musician and psychoacoustician named Joshua Leeds, who has a background in creating music for television and films, but more recently has been involved in a record company called Applied Music and Sound, which is devoted to health- and mind-enhancing music.

"What psychoacoustics does is give us a theoretical framework from which to understand how it is that sound affects us," Leeds says. "There is biology

at work here. The tenth cranial nerve coming out of the back of the medulla oblongata attaches on both sides of the ear drum. From there it's called the 'wandering nerve,' or vagus nerve, and it proceeds to come down through the torso and attach to every organ in the torso—except for the spleen; why, I don't know—ending down at the anus. Now, what's the net effect of that? On a subtle level it means that every sound that vibrates against our eardrum also is vibrating every organ in our body, except the spleen. When you start to think about that, you start to realize that through the process of entrainment, we might be tapping our foot and nodding our head when we listen to music, but internally what's going on is that every time our ear drum vibrates it's affecting every organ in our system."

Leeds and others therefore believe that certain kinds of music containing specific frequencies have been shown to be "good" for the body and mind, and thus possibly have a role in promoting the body's self-healing. We've all heard of the theory that exposure to Mozart makes kids smarter, or at the very least more alert; well, there is supposedly a scientific basis for this, and Leeds' work takes off from that point.

Leeds says that this field of study has its origins in Eastern Europe: "When the Soviet Union realized they weren't going to be able to beat America in the arms race, they decided to produce smarter students. In Bulgaria, of all places, there was this guy, Georgi Lozonov, who was heavily involved in experiments about accelerated learning. The entire field in the West is based on his research. What he found was the use of baroque music accomplished something called 'mind-alert body-relaxed.' If you could accomplish that in the right proportions, if you could get the body to a nice state of relaxation—60 to 70 beats per minute; but not *too* much because you might fall asleep—and at the same time keep the mind alert, it was the optimal state for being able to take in and retain material. He found that baroque music had many of the elements that help to accomplish this. Using the rhythms primarily in the slow sections of the Bach and Vivaldi—the adagios, the andantes—people would naturally slow down and match that rhythm."

Conversely, researchers found that other orchestrations with higher frequencies actually sped up the nervous system. "Higher frequencies excite the nervous system, they charge it." Leeds

says. "It's like good food. It's like ginseng. It's like natural speed on a certain level. The lower-frequency instruments have the effect of discharging the nervous system; almost like a battery running down," Leeds says. "The bass that is cranked way up in rap music is really like a sort of sonic valium. People use music instinctually to self-medicate, and rap absolutely will have that effect.

"Physiologically, what's happening is that only a small percentage of the cilia hair cells—maybe ten to 20 percent—are set up to be able to handle bass frequencies. The truth is our physiological setup was not designed around a Fender bass. So what ends up happening is we get overwhelmed by the low frequencies. Our ear can literally not process it fast enough."

Working with violinist/arranger Richard Lawrence (who also co-produced *Sound Body, Sound Mind*) and a group of top-caliber musicians known collectively as the Archangelos Chamber Ensemble, Leeds has been rearranging and restructuring pieces from the classical repertoire to enhance their therapeutic value. He and Lawrence have done this on the two Weil releases and on discs in Applied Music's Thinking Music Series.

"We're using intention as a major facet of what motivates us," Leeds says, "so we'll take a beautiful piece that Bach has written, but which is way too busy for our purposes, and we'll take off the melody line and slow down the internal voices and maybe make them pizzicato. I might say, 'Let's take that melody line and slow it down and have it played by just one instrument, with lots of spaces in between.' So on the first cut of *8 Meditations*, there would be a line and then, through the good use of Pro Tools, we cut it, had a big, pregnant pause and then we moved on. We make the music suit our purposes."

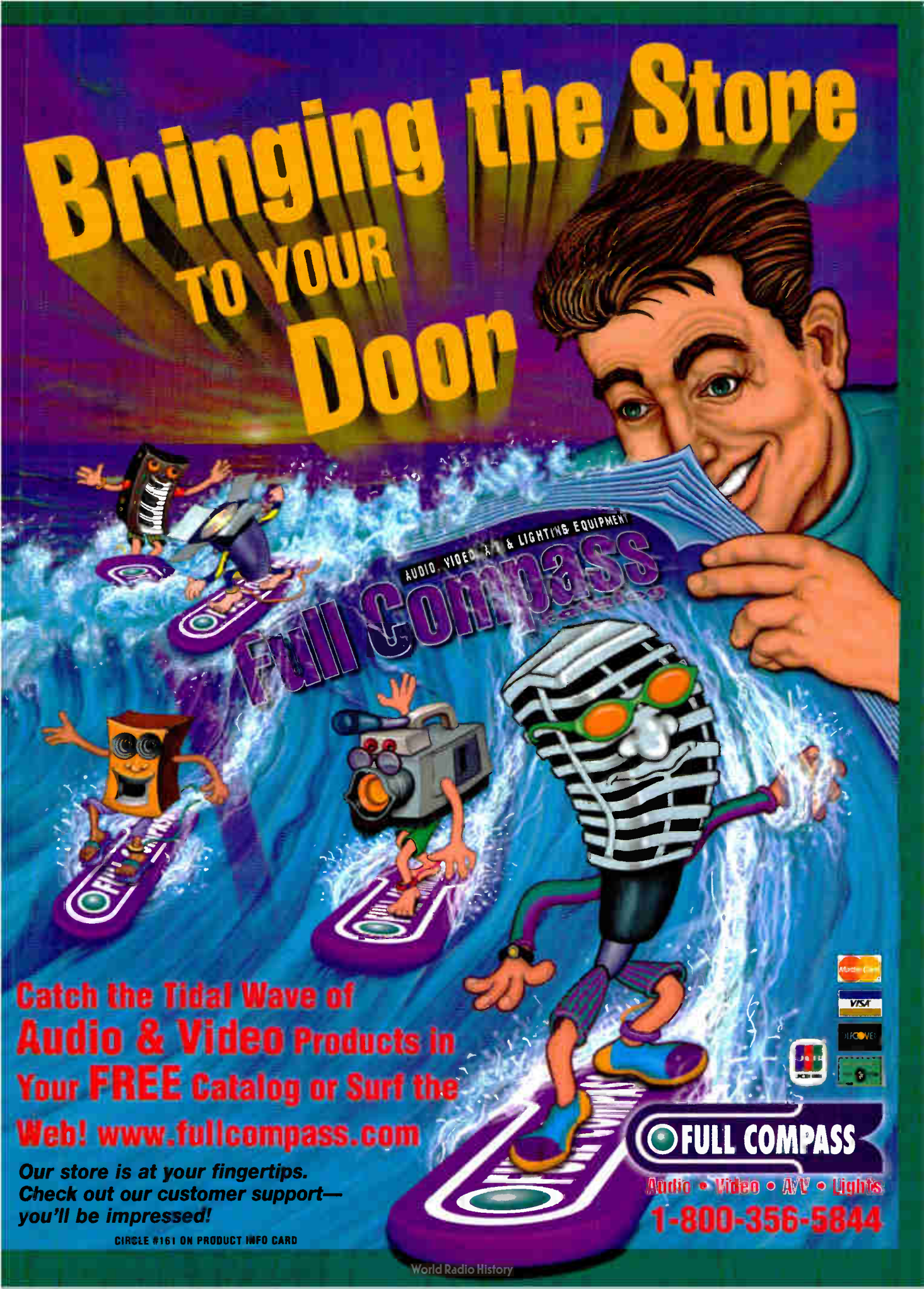
The music for the first Weil CD was recorded live-to-ADAT with no overdubs by engineer Tim Gorman at the Monastery in Napa, Calif. The eight musicians of the Archangelos Ensemble were captured both by close-miking and a pair of stereo overheads. "I like to record in real resonant spaces," Leeds says, "because the natural harmonics of the sound in those kinds of spaces has an impact on how we perceive the sound." Weil's spoken parts were recorded separately in Los Angeles, and then Leeds and Gorman assembled the disc.

The new CD, *Sound Body, Sound Mind*, was cut at Mesa Sound in Sebastapol, Calif., "which is also a live room, though not as much as the Monastery," says Leeds, who engineered the sessions. "Richard and I looked at about a hundred pieces of music before we found these pieces by Mozart, Mahler, Brahms and Bach. We assigned themes to each one of the four brainwave states, so there is literally a beta theme, an alpha theme, a theta theme and a delta theme, and then there's a theme for what we call 'the awakened mind.' We found the most beautiful theme from Mahler's fifth symphony. We did it with a flugelhorn and a jazz bass and some light cymbal work, and we're doing it with a little more of a jazz rubato feel to it. So we're borrowing their notes and then rearranging so it fits into what we're doing.

"Richard and I have essentially written and arranged the score to fit a binaural beat frequency blueprint that was created by Anna Wise," Leeds continues, "a world-renowned expert in brainwaves. It's almost like someone saying, 'Here are the architectural plans, and this is what we're going to do with these beat frequencies, which move in and out every 15 to 30 seconds.' It's almost like a massage of the brain, but at different levels of sound, of amplitude and different levels of frequency."

Classical music purists might be horrified by some of the musical decisions Leeds and Lawrence have made, but their main interest is in whether it "works": whether the Mahler takes you to a special interior place; whether the 25-minute section of lulling Tibetan bowls, tamboura and bamboo flute eases you into a state of deep relaxation just this side of sleep. "What Andrew [Weil] and Anna [Wise] have determined," Leeds says, "is that the theta and delta arenas are the places where the deepest subconscious work can be done. So that presented an interesting challenge to me, because once somebody is at that level of deep meditation or that level of near-sleep, I realized that I needed to create a soundscape that would not in any way distract or pull them out of that deep zone."

In short, this is music with a purpose, which also happens to be haunting and beautifully recorded. "We're not making the claim that this music will heal you," Leeds is careful to note. "What we're saying is this music can help to create a space that is most conducive to your own self-work. We're like a sonic escort. But the good work is being done inside of you." ■



COAST TO

Sylvia Massy at Sound City

L.A. GRAPEVINE

by Maureen Droney

The joint venture between Sound City and producer/engineer Sylvia Massy (Tool, Johnny Cash, Red Hot Chili Peppers, Slayer) continues to expand. Now Studio B not only houses the Neve 8038 owned by Massy and recently fitted with Flying Faders, but it is also home to a large amount of her vintage gear collection. Says Sound City manager Shivaun O'Brien: "It's been working out really well—business has actually doubled in the last three months."

Although on the day we dropped in for a visit, Massy herself was in producing Irish rockers Cyclefly, a lot of the recent upturn in business is due to word getting out to others about the flexibility of Studio B. "It can be hard finding a place to mix if you want to work on older Neves," explains Massy. "There just aren't that many rooms around that have 80 Series boards and are set up for mixing."

Massy, who frequently engineers for producer Rick Rubin, discovered that lack while working on projects with him. "I did my research working with Rick," she laughs. "He really wants to work on one type of console, and there are so few rooms for him. I prefer the same type of setup that he does, and, because my dream room would also have a Fairchild 670 stereo bus compressor and a GML EQ for the master bus, this was my chance to create it. Then, I'm accumulating of lot of gear and I need somewhere to put it. For some time now, I've been collecting rather oddball, hard-to-find things like the API-style Aengus EQs, Moog EQs, a Compex limiter, a dbx 120X subharmonic synthesizer, which is great for mixdown, a Marshall Time Modula-

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NY METRO REPORT

by Dan Daley

New York sign-off: After several years of both covering and living in New York and Nashville, I find myself more and more intimate with products made by Boeing rather than Neve or SSL. Though I continue to live in both cities ("bimetro," I call it) and will still commute monthly between them (the accrued frequent flyer miles will soon be redeemed for ownership of a small Third World country), **I'm turning over month-to-month operation of this space to Gary Eskow.** Gary is a freelance producer, composer and capable writer (check out his Session Spotlight on Al Di Meola on the next page) whom I hope the New York studio community will treat with the same level of respect with which they have long treated me. (Geez, Eskow, are you ever in for a ride!) I'll still be covering the larger issues in New York in feature form, as well as keeping New Yorkers up to date on Nashville's homicide rate and tornado activity. But mostly I'll be pursuing business stories, as I have for the past six years, because that seems to be what it's now all about in an age when the most common and meaningful spec sheet we see is a corporate annual report.

Meanwhile, in conjunction with this month's "Class of '98" feature, here's some information on a couple of the **notable new rooms in the New York area**, opened in the past year. Sixty miles from Midtown (and not far from Philly, either) is new Flemington, N.J., studio **Area 51 Recording.** Owned

—CONTINUED ON PAGE 221

The control room at Area 51

COAST

Trina Shoemaker (L) and Sheryl Crow at Globe

STUDIO SPOTLIGHT

SHERYL CROW AND GLOBE STUDIOS
by Adam Beyda

Late last year, Bob FitzSimons was getting ready to invest in some equipment for his new facility, Globe Studios, when he got the word that Sheryl Crow was coming to town, a Neve 5136 and Studer A827 24-track in tow. She was looking for a space to set up her gear, and producer Mitchell Froom put her in touch with FitzSimons. "We did a complete bubble gum trade," FitzSimons says, "like baseball cards. She had made the investment in the equipment and needed a place to make a record. I was on the verge of buying a vintage Neve. This way, I got a good start up, and I now have more time to look for an ideal console."

FitzSimons, a composer and producer, had originally intended to find a small writing room for himself, but instead ended up signing on a 10,000-square-foot, two-floor space in a 1901-era building on Manhattan's lower West side. He created rooms for film editors and production people on one floor, and, on the other, built writing rooms and a studio. Working from a design by Frank Commentale, FitzSimons floated a 26x22-foot control room to accompany the 45x30-foot tracking room, which has 15-foot ceilings, a 22x17-foot iso booth, and lots of exposed brick and natural light.

FitzSimons envisions Globe (so-named for the beautiful, 4-foot-diameter cement-stucco globe over the building's front door) as a Brill Building sort of situation: "I've got a handful of writing rooms. Simon Kirk [Free, Bad Company] has a room here, as does Dan Zanes from the Del Fuegos and Pat Irwin from the

—CONTINUED ON PAGE 222

SESSION SPOTLIGHT

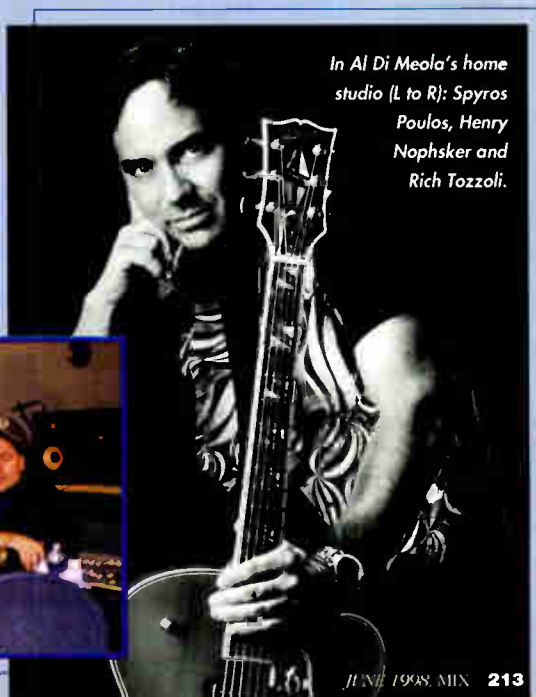
AT HOME WITH AL DI MEOLA
by Gary Eskow

That successful records can be produced out of home studios is no longer news. It's become common for high-end recording artists to develop ideas at leisure in their homes using their own gear and then work pieces to conclusion in top-of-the-line studios. Case in point: the forthcoming (as yet untitled) release by jazz virtuoso Al Di Meola.

The former Return To Forever guitarist has had a studio in his spacious North New Jersey home for several years. Last year, he decided to get serious about his room, and hired keyboardist/arranger Spyros Poulos to design a computer-based MIDI setup for him.

Poulos felt that PCI Macs had not been track-driven thoroughly enough in 1996. Instead, he suggested that Di Meola use a Power Mac 7100/80 computer running Mark of the Unicorn's Digital Performer sequencing/hard disk recording package as his workstation. Much of the current solo project (which will be released on the Telarc International label) was built from loops recorded into Digital Performer and tweaked by Poulos. "Al wanted this album to have a world feel, without being locked specifically into the music of any one culture. We

—CONTINUED ON PAGE 223



In Al Di Meola's home studio (L to R): Spyros Poulos, Henry Nophsker and Rich Tozzoli.

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NASHVILLE SKYLINE

by Dan Daley

It was much rumored but never confirmed. Till now, that is. On a recent visit to the **Todd-AO** audio post-production facility in Los Angeles, I had a chance to ask company president and film sound mixer Chris Jenkins about whether Todd-AO had been considering opening a facility in Nashville. The answer was yes and no: Yes, Todd-AO had considered it and had done some preliminary feasibility studies on the matter; and no, the decision was made to pass.

"There was an exploratory stage about a year or so ago during which we were looking at the business in Nashville," Jenkins says. "We thought maybe with the amount of video business that the city has, there could be something we could do there. But after consideration, we decided that there was not a significant enough amount of film and video post business that would warrant us coming into that market at this time. We were also encamping in Europe at the time and had already opened a small video facility in Atlanta, which has become a post-production hub in the Southeast. There was definitely potential in Nashville, but the real answer is that it was premature to think about any kind of a significant facility there at this point."

Another Studio? Despite the fact that Nashville is in the early stages of what looks to be an extended era of consolidation, there will be a new mix and mastering facility up on the Row, opening perhaps even as you read this. Georgetown Masters owner Denny Purcell and engineer Chuck Ainlay will be the principals in **Georgetown Surround**, a pair of 5.1-capable mix and mastering studios to be built in a space adjacent to Georgetown Masters' long-time Music Row location at an estimated cost of $1.5 million-plus. Design will be by Purcell, Ainlay and Mike Cronin, longtime Tom Hidley studio builder and more recently a designer and builder of rooms in Nashville.

Purcell is quite aware of the problems of the Nashville studio market; the business basis for the new rooms is the pledge of at least 15 projects from cinema surround format company DTS, owned in part by principals of DreamWorks (which recently opened a record label in Nashville). DTS has sponsored at least three 5.1 remixes of major country records in the last year, including records by Vince Gill, The Mavericks and George Strait, all of which were remixed in surround by Ainlay and remastered by Purcell. And DTS has reportedly been paying close to card rates for facilities and personnel, as well as significant licensing fees to the record labels as it ultimately pursues Dolby's lead in brand consciousness in consumer electronics signal processing.

"It's not a matter of, if you build it, will they come," Purcell says. "They're already here. And as a result, we have enough work at a useful rate to pay for what we're building."

The new Georgetown facility will also serve as a showcase facility for DTS (though Purcell stresses that DTS will not be a principal in the facility), as well as being intended to establish a measurable reference standard for DTS surround mixing; Purcell notes that Ainlay has spent as long as two days just setting up control rooms before he starts mixing. "We wanted a place that's comfortable for both of us and gives us what we want in a surround audio environment as well as a repeatable, measurable environment that creates a standard," he explains. Purcell adds that the room is intended primarily for his and Ainlay's use, and that they will continue to bill clients for their respective services individually and the studio separately. However, the facility will be available for outside hire on a select basis.

Few technology decisions had been made by press time, though the pair hoped for a mid-summer opening. Purcell says that whichever console is chosen, he wants the manufacturer to be able to implement networking capability between the facility's rooms. Initially, both rooms will use freestanding Duntech Sovereign monitors, the same type and configuration presently used at Georgetown Masters.

Nashville has a few other dedicated 5.1 rooms either in place or in progress, one of which is the second studio, opened in 1997, at **Seventeen Grand**, where Ainlay did most of The Mavericks' remixes and where co-owner Jake Nicely has been doing an Orleans live record remix. His partner Dave Cline says the new relationship between DTS and Georgetown is not disconcerting, only because he believes the demand for 5.1 mixes will grow significantly in the next year, providing enough work for several studios. However, he believes, those studios that will benefit most are the ones that will have posi-

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SESSIONS & STUDIO NEWS

NORTHEAST

At New York City's Clinton Recording, **Lenny Kravitz** laid down some tracks of his own and produced material for new artist **Cree Summer**, all with engineer **Terry Manning** and assistant **Keith Shortreed**...Chanteuse **Lori Carson** made an album in **Water Music**'s (Hoboken, NJ) big room, recorded by **Joe Ferla** and assistant **Wayne Dorell**. The studio recently added a second 2-inch 24-track Studer A800...**Slick Rick** (that's right) worked on an upcoming project for Def Jam with producer **Clark Kent** and engineer **Kenny Ortiz** in the Turtle Creek Barn at **Bearsville Sound** (Bearsville, NY). New gear at the studio includes a Studer A800 and A827 and SSL 4064 G Plus...Speaking of old school, **Public Enemy** was bringing back the noise, tracking vocals for Def Jam at **M.A.W. Studios** in New York City with engineer **Tony Prendatt** and assistant **Kayo Teramoto**...**Built to Spill** mixed their next one at **The Magic Shop** (New York City) with producer/engineer **Phil Ek**. **Scott Norton** assisted...**Mercedes Hall** mixed for East Bay Productions at **Bear Tracks Recording** in Suffern, NY, with producer **Barry Eastmond**, engineer **Doug Oberkircher** and assistant **Iain Fraser**...**The Boston Brats** tracked for an upcoming release with engineer **Ted Paduck** at **Sound Techniques** (Boston). **Scott Robertson** assisted...**Milo Z** mixed for Schoolcut Records in the Neve room at **EastSide Sound** (New York City) with his co-producer/engineer **Lou Holtzman** and engineer **Fran Cathcart**...At **Red Rock Recording** (Saylorsburg, PA) producer/arranger **Bob Dorough** worked on a multi-songwriter project on Rhino titled *Schoolhouse Rocks the Vote*. **Kent Heckman** recorded and mixed...

SOUTHERN CALIFORNIA

You got to know when to hold 'em: **Kenny Rogers** and **Coolio** recorded a remake of Rogers' classic "The Gambler" for Tommy Boy Records in Studio A at **Paramount Recording** (Hollywood). **Rhett Lawrence** produced, and **Guy Snider** engineered. Also in were Chainsaw Records artists **Sledd**, mixing for their new release, *Dopamine*, with producer/engineer **Norwood C. Barber II**, **Lou Michaels** and Snider assisting...Atlantic Records chart-toppers **Sugar Ray** started work on their next album at Studio 56 in Hollywood, with producer **McG** and engineer **Steve Gallagher**... **Kenny Lattimore** recorded the song "All

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"You can do a whole project here at Sound City," Massy says. "The A room is fantastic for tracking, and B is a tight little tracking room also. Then you can do your overdubs in B and continue on to mix. It makes it easy to work on one song at a time if you want. And in the Sound City complex, there's rehearsal across the way, too."

Asked how she'll survive without her gear when Studio B is booked and she can't get in, Massy laughs and says, "Well, it's been brought home to me recently that it's important to remember that it's not the gear that makes great records, it's the artistry—the performances and the songs. I'll be just fine without all my toys. That's not to say that this won't be my first-choice room to work in—it's great that when I have a creative idea there's a lot of equipment around that can help me realize it." (So, uh, okay, Sylvia—just what *do* you use that portable lathe for?)

Recent projects in B include Smashing Pumpkins with Rick Rubin producing and Massy engineering, T-Bone Burnett producing Gillian Welch with Roger Moutenot engineering, and producers George Drakoulias and Dave Schiffman overdubbing on Kula Shaker for Sony International.

Meanwhile, Sound City's Studio A, with its 40x50-foot, 25-foot-ceilinged tracking room continues to be busy with projects, including the Foo Fighters working with producer/engineer Adam Kasper on a song for the *X Files* movie soundtrack, producer/engineer Jim Scott tracking Hazeldine for Polydor, and producers T-Bone Burnett and Tony Berg tracking Julia Darling with John Paterno engineering.

Record Plant is making June a month-long celebration of its 30-year history, with artists who've been a part of that history flying in from around the country for a gala, invitation only (natch) party on June 17. Of course, over the years RP has been home to most of the world's top engineers and producers, many of whom (such as Jimmy Iovine, Mike Clink, Keith Cohen, Eddie DeLena, Bill Benton, Jim Scott, David Bianco, Tim Boyle, Paul Broucek, Tom Rothrock and Rob Schnaps) got their training there, starting as gofers and working their way up to Platinum. The creative magic is ongoing; recent hits and Grammy winners from RP include Celine Dion and Barbra Streisand's hit duet "Tell Him," Janet Jackson's *Velvet Rope*, Babyface's *The Day* and Whitney Houston's *The Preacher's Wife*, as well

as projects for Mariah Carey, No Doubt, Save Ferris and G3. Should be quite a bash! Wishing you 30 more good ones, Record Plant. ■

Fax L.A. news to Maureen Droney at 818/346-3062 or e-mail msmdk@aol.com.

—FROM PAGE 212, NY METRO REPORT

by musician/producer/engineer Bob Barry, the studio is located on five wooded acres, was designed by Bernie Chlopp of Systems Development Group and includes a 20x22-foot tracking room with 13-foot ceilings and iso booth. The control room is equipped with a 48-input API Legacy Plus with Flying Faders and, for recording, a Studer A800 MkIII 24-track, Pro Tools 4.1, a DA-88 and an ADAT XT. Bryston 4BSTs drive Tannoy System 215 MkII monitors in a bi-amp configuration, complemented by NS-10 near-fields and UREI 809s for playback in the studio. The studio also offers a wide variety of outboard gear and mics. "The vision I had for Area 51," Barry says, "was a world-class studio designed to be home support-friendly. Let's face it, so much recording is being done in people's homes that the day of a whole album being done in an outside facility is nearly gone. This is a place where an artist and producer can accomplish all the things that cannot be done in a home project studio—track a live drum kit, track a grand piano with a Standard MIDI File or just track in general on the sonically wonderful API." Area 51 was opened for booking in December 1997.

Back in town, pro audio rental house **Toy Specialists** added a new audio transfer facility to its W. 54th St. location last year named the TransferMAT. The TransferMAT is capable of a variety of functions, including audio and video transfers, CD preparation, layback, nonlinear editing, surround sound mixing, voice-over, ADR, audio post and restoration. Marcel Schaal of Acoustic Sciences Crop. handled the acoustic design of the room, in conjunction with contractor Chris Harmaty of Technibuilders. The 500-square-foot facility has 15-foot ceilings, and the room houses a pair of 02Rs outfitted with AES/EBU I/O boards. Transfers pass through these, with format conversion being handled by Otari UFC24s and other devices. A large selection of analog and digital recorders, converters and noise reduction gear is available for addressing a full variety of format conversion needs. Monitors include Meyer

The TransferMat at Toy Specialists

PHOTO: HOWARD SIEGEL

HD-1s, Genelec 1031As and ATC SC30s. Chief engineer John Kayne oversees the room and handles its operation, along with shop manager Lou Otero.

The Kinks' Ray Davies was in at the TransferMAT earlier this year, along with engineer Mike Konopka, transferring old analog masters for purposes of archiving and preservation. They chose to transfer the masters directly, with no EQ or processing, to the Genex GX-8000 MO recorder via Pacific Microsonics A/D converters, at an 88.2kHz sampling rate and 24-bit resolution. "The transfers worked well and sound fantastic," says Konopka, "and the staff was terrific." ■

Letterman "Late Show" drummer Anton Fig (R) recently installed a Yamaha 02R in his mid-Manhattan home studio, with the help of studio tech Ed Vendromin.

—FROM PAGE 213, SHERYL CROW

B-52s. Mitchell Froom is gonna move in next month. I set it up so I'd have a nice place for people to record in a cool environment, a place for people just to hang and work on their stuff." The vibe is distinctly funky and musician-oriented. "It doesn't look like a Ramada Inn!" FitzSimons laughs.

The informal facility seemed to suit Crow well. She had wanted the capacity to record whenever she chose and had acquired her gear slowly over the preceding year. In February she had her console installed in the studio and spent the following ten weeks tracking her next project for A&M (tentatively scheduled for a fall release) with engineer Trina Shoemaker and assistant Brant Scott. Globe is just a couple of blocks from her New York home, so the situation allowed her to work in a very relaxed, spontaneous and concentrated fashion. Crow produced herself, which gave her a chance to really learn her way around her equipment. In addition to the console and multitrack, Crow brought in some of her own outboard and compressors, but she also used a lot of FitzSimons' vintage outboard and mics.

By the terms of the deal, Crow's console and other gear will stay at Globe for the next year. She will also have her own writing room at the facility. In the meantime, FitzSimons continues to refine the setup at Globe, which is now open for commercial bookings. ■

—FROM PAGE 213, AL DI MEOLA

took loops and changed them around in DP—pitch shifting, changing tempos. DP is rock-solid, never drifts out of sync and is just an extremely stable environment to work in, especially when paired with MOTU's MIDI Time Piece."

Di Meola acquired a pair of 20-bit Alesis ADATs prior to recording, and the sound they deliver is creamy, with a noticeably airier space than their black-faced predecessors—especially when pumped through the pair of KRK 7000 powered monitors that are the room's A speakers. Di Meola also has a pair of Event 20/20 speakers that function as a B pair.

A Soundcraft Sapphire console sits at the center of Di Meola's studio. Poulos suggested that the guitarist upgrade his outboard gear, which included a pair of Lexicon 200 effects processors, some Demeter 2-channel mic pre's, TC Electronic 1210 and 2290 effects processors and a Panasonic RDAT machine. New additions include an ART Pro VLA, and tube mic pre's, which were supplied by Rich Tozzoli, a producer/engineer who had worked with Di Meola in the past.

Tracking his guitars at home as overdubs to loops that may or may not have made the final cut allowed Di Meola the time to explore ideas and expand them at will. "Al has a wide selection of guitars," Poulos says. "In addition to the Roland guitar synths that he loves to experiment with, we tracked a number of guitars direct into the board, including instruments made by Ovation, Gibson, Conde and Godin." Henry Nophsker, Di Meola's guitar tech, was impressed with the sound of the new ADATs: "They really do have a wide and very warm sound to them, and they capture Al's tone extremely well."

Cuts begun at Di Meola's home space were taken to Right Track Recording Studios in New York, where engineer supremo Frank Filipetti—who recently got a Grammy for his work on the latest James Taylor release—took over. Filipetti transferred seven compositions to a Studer D827 digital 48-track recorder at Right Track, with signal passing through a Neve Capricorn board. One big headache: The crew took SMPTE from

the Studer's control track, assuming that Alesis' A12 sync box would be able to read it and lock up to the silver-face ADATs without any difficulties. Unfortunately, there were many unforeseen sync problems that had not been fully resolved at press time, although Alesis informed me (and Di Meola's people) that the latest software for the A12 should resolve all sync issues.

Overdubs came next, with a cast that included drummers Peter Erskine and Ernie Adams, percussionists Al and Gumbi Ortiz and pianists Rachel Z and Mario Parmisano. Tom Kennedy played bass, and Steve Vai was due to add his considerable chops before mixing started.

Two pieces began at Right Track and moved in reverse order to Di Meola's home studio, where the guitarist added principal melodic lines over the rhythm tracks. "We made slave reels to ADAT of the two live band pieces we recorded at Right Track," Poulos says, "and took them back to New Jersey. Rachel and Mario came out to Al's place for additional programming and sound design work. I then transferred the overdubs back to the 48-track."

Hernan Romer, who has co-produced Di Meola's last three CDs, is sold on the way the current project has been recorded. "I had so much more flexibility as a producer starting this project in Al's studio—it gave me much more concentrated time with the arrangements." Executive producer Wil Beaucher concurs, with a reservation: "Obviously, it's convenient to use the project studio approach, and it has saved us many days at an expensive studio. Sometimes there is down time related to synching up the ADATs to timecode taken from another source, but overall this approach has saved us money." ■

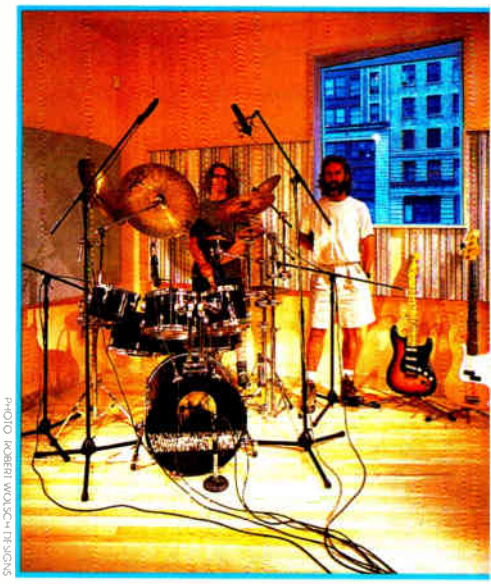

PHOTO: ROBERT WOLSCHLAGER

Co-principals Chris Bowman (L) and Al Houghton are pictured in their Dubway-CHBO Studios in New York City, designed by John Storyk of the Walters-Storyk Design Group. Used for both live music-recording sessions and post-production work, the studio includes a Pro Tools suite and is equipped with a Mackie 32•8, 32 tracks of ADAT, a ½-inch Otari 8-track and NS-10 and Infinity Kappa 6 monitors.

—FROM PAGE 215, NASHVILLE SKYLINE

tioned themselves as having non-format-specific surround mixing expertise, a perception that Cline says will be one of the criteria of major labels as they wake to the potential of surround audio sales. "We're already backlogged for surround audio projects," says Cline. "And the expertise that studios require has to be in surround as concept and more than a single format, because we don't really know what the standard is going to be. Right now, Dolby is the standard for DVD video audio. But I think that this competition that's shaping up is going to be healthy for the whole industry." ■

Send Nashville news to Dan Daley at danwriter@aol.com or fax 615/646-0102.

1998 TEC AWARDS NOMINEES

Listed below are the nominees chosen by the Nominating Panel of the 1998 Technical Excellence & Creativity Awards. A special TEC Awards nominees supplement and voting ballot will appear in the August issue of *Mix*.

The TEC Awards will be held Sunday, September 27, at the Fairmont Hotel in San Francisco. For more information contact Karen Dunn at (925) 939-6149.

OUTSTANDING INSTITUTIONAL ACHIEVEMENT

Acoustics/Facility Design Company
Russ Berger Design Group, Dallas
Pelonis Sound, Santa Barbara
studio bau:ton, Los Angeles
Walters-Storyk Design Group, Highland, NY
Waterland Group, Los Angeles

Sound Reinforcement Company
A-1 Audio, Hollywood
Clair Brothers, Lititz, PA
dB Sound, Des Plaines, IL
Electrotec Productions, Inc., Westlake Village, CA
Joson Sound Industries, North Vancouver, BC

Mastering Facility
A&M Recording & Mastering Studios, Hollywood
Gateway Mastering, Portland, ME
Masterdisk Corporation, NYC
Masterfonics, Nashville
Sterling Sound, Inc., NYC

Audio Post-Production Facility
Howard Schwartz Recording, Inc., NYC
POP, Santa Monica
Skywalker Sound, San Rafael, CA
Sony Pictures Studios, Culver City, CA
Todd-AO Studios, Hollywood

Remote Recording Facility
Effanel Music, NYC
Le Mobile, Vista, CA
Record Plant Remote, Ringwood, NJ
Remote Recording Services, Lahaska, PA
Westwood One Entertainment, Culver City, CA

Recording Studio
Conway Recording Studios, Los Angeles
Ocean Way, Nashville
Right Track Recording, NYC
Sony Music Studios, NYC
The Village Recarder, Los Angeles

OUTSTANDING CREATIVE ACHIEVEMENT

Audio Post-Production Engineer
John Alberts, Sony Music Studios
Ken Hahn, Sync Sound
Chris Jenkins, Todd-AO Studios
Gary Rydstrom, Gary Summers, Chris Boyes, Tom Johnson, Lora Hirschberg, Skywalker Sound
Randy Thom, Tom Johnson, Dennis Sonds, Skywalker Sound

Remote/Broadcast Recording Engineer
Biff Dawes, Westwood One Entertainment
Randy Ezratty, Effonel Music
Ed Greene
John Harris, Effanel Music
David Hewitt, Remote Recording Services

Sound Reinforcement Engineer
Rob Colby
Toby Francis
Dave Kob
Robbie McGrath
Dave Natale

Mastering Engineer
Greg Calbi, Masterdisk Corporation
Bernie Grundman, Bernie Grundman Mastering
Ted Jensen, Sterling Sound
Bob Ludwig, Gateway Mastering
Vlado Mellor, Sony Music Studios

Record Producer
Tony Brown
Kenneth "Babyface" Edmonds
Daniel Lanois
Elliot Scheiner
Don Was

Recording/Mixing Engineer
Ed Cherney
Bob Clearmountain
Frank Filipetti
Mick Guzauski
Elliot Scheiner

OUTSTANDING TECHNICAL ACHIEVEMENT

Ancillary Equipment
Apogee AD-8000 8-Channel Analog to Digital Converter
Audio Precision Portable One Dual Domain
Benchmark ADA 2008 Analog to Digital Converter
DB Technologies AD122-96 Analog to Digital Converter
dcs 904 and 954 96/192kHz Digital Converters
Equi=Tech ETIR Rackmount Balonced Line AC Unit

Amplifier Technology
BGW Millennium 3
Carver PRO PX 1450
Crown CE Series 1000/2000
Hafler P4000
Hot House Model 400
Yamaha P Series

Mic Preamplifier Technology
Amek System 9098
Avalon VT737
Earthworks LAB102
Manley VoxBax
Martech MSS-10
Tube-Tech MEC-1A

Computer Software & Peripherals
Arboretum Metasynth
BIAS Peak 1.63
JBL SMAARTPro
Metric Halo SpectraFoo
Opcode Studio 64XTC
Steinberg Cubase VST 3.5

Microphone Technology
AKG SolidTube
Audio-Technica AT4055
Earthworks Z30X
Micratech Gefell UM900
Neumann TLM103
RØDE NT1

Sound Reinforcement Loudspeaker Technology
Electro-Voice X-Array
JBL Professional Venue Series
Meyer MSL-6
Meyer SB-1 Sound Beam
PAS Dawnfill Series DF 2.2
Renkus-Heinz SR6

Studio Monitor Technology
Dynaudio Acoustics BM15A
JBL Professional LSR 32
KRK Expose E8
Mackie HR824
Meyer HM1S
Tannoy AMS 8A

Musical Instrument Technology
E-mu E Synth
Johnson Millennium
Korg Z1
Line 6 Flextone
Roland VDrums
Yamaha AN1x

Signal Processing Technology (Hardware)
BSS FDS 355 OmniDrive Compact
Crane Song HEDD
GML 9550 Digital Noise Filter
Joe Meek SC2 Compressor
TC Electronic FireworX
Weiss DS1 Digital De-esser

Signal Processing Technology (Software)
Digidesign D-Fi bundle
Dolby Surround Tools
Focusrite d2/d3 bundle
Lexicon Lexiverb
TC Electronic/TCWorks Reverb
Waves Maxx Bass

Recording Devices/Storage Technology
Akai DD8 v1.0
Alesis ADAT XT20
Augan OMX 24
Otari PD-20 MO
Tascam DA-98
Zaxcom Deva

Workstation Technology
CreamWare TDAT16
Digidesign Pro Tools 24
Ensoniq Paris
Mackie H.U.I.
SADiE Octavia
Solid State Logic Altimix

Sound Reinforcement Console Technology
Allen & Heath GL3300
Crest X-Eight Series
Midas XL250
Soundcraft Series 5
Spirit By Soundcraft Manitar

Smoll Format Console Technology
Alesis Studio 32
Allen & Heath MixWizard 16:2
Spirit By Soundcraft LX7
Tascam TM-D8000
Yamaha 02R V2
Yamaha 03D

Large Format Console Technology
AMS Neve VXS
Euphonix CS3000
Solid State Logic Avant
Sony OXF R3
Soundtracs DPC
Studer D950

Hall of Fame
Colin Sanders

Les Paul Award
Neil Young

▪ STUDIO SHOWCASE ▪

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Record Plant Remote has been an industry leader in location recording for over 20 years. We've kept abreast of new developments in audio technology without sacrificing our sonic integrity. Some of our recent clients include MTV, Aerosmith, Elton John, Michael Bolton, Spin Doctors, R.E.M., Live, Meatloaf, Wynton Marsalis, John Mellencamp, Keith Richards, Chuck Berry, Guns N' Roses, Whitney Houston, Pavarotti, INXS, James Taylor, Emmylou Harris, Shawn Colvin, Billy Ray Cyrus, Mary Chapin Carpenter, Trisha Yearwood and Harry Connick Jr. Our reputation speaks for itself!

THE SOUND LAB

The Sound Lab

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e-mail: thesoundlab@compuserve.com

Located ten minutes from the Phoenix airport, Arizona's finest audio facility features a Neve VRP 48-channel console with Flying Faders Automation, Studer A827 2-inch 24-track, Otari 32-track digital DTR900 and 32 tracks of ADAT XT. Our Yamaha concert grand, vintage Neumann and AKG tube mics, Gretsch drum kit, along with the finest in outboard gear provide a selection without compromise. Enjoy working with experienced professionals in a relaxed atmosphere with Arizona's world-class amenities nearby! Package rates available on hotel, car and studio time. Highest quality at the best price.

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Colossal Mastering

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(800) 730-2468
e-mail: cmastering@aol.com

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QUAD
Recording Studios

Quad Recording Studios

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New York, NY 10019
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http://www.quadstudios.com

Quad Recording is excited to announce the opening of its Penthouse studio, beautifully designed as a tracking and mixing room and featuring a 96-input SSL G+ with Ultimation. Opening up a fifth studio is a wonderful way for Quad to celebrate its twentieth anniversary. Studios A and III each have an SSL 9000J console, making Quad the only facility in New York with two of them. Studios B and C each have SSL 4000E consoles with G Series computers and Total Recall.

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Ultimate music corporation

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e-mail: info@U-music.com
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A two-room digital music production facility located near Boston, featuring Otari and Tactile Technology consoles. We offer up to 96 tracks of tape- and disk-based multitrack recorders including Sony 3324, RADAR, ADAT, DA-88 and Pro Tools. All rooms are fitted with world-class outboard gear from Focusrite, Avalon, Manley, API and an extensive collection of new and vintage keyboards. All this set in a relaxed and elegant environment. Call for our brochure or additional information.

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The ClubHouse

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▪ STUDIO SHOWCASE ▪

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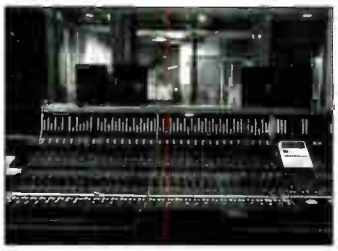
(718) 387-7958; Fax (718) 388-3898
http://www.Influx.com/coyote.html

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.



EastSide Sound

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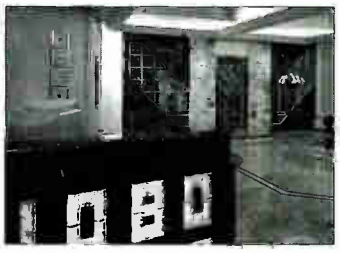
EastSide Sound has been satisfying clients for over a quarter of a century. Our tracking room boasts a vintage Neve with David Manley tube modifications and Flying Faders. Our mixing room houses the Harrison Series Ten B with total automation, from pans and gates, to sends and EQs. Both rooms include Studer and Sony 2 inch tape decks, a wide selection of mics and outboard gear, as well as Pro Tools 32 track, 24-bit systems. Located in Manhattan; private and very comfortable. Call for further information.



Lobo Recording

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48-track analog recording, featuring Studer A800. One of the largest collections of awesome vintage gear anywhere. Mixdown Studer A820 ½-inch 2-track and automated Amek console featuring all Neve modules. Top-quality sound and staff at reasonable rates. Large live room, stone area and iso booths. Great vibe, gear and experience brings your music to its full potential. Showplace Studios—where the past meets the future. Neve, Pultec, RCA, Teletronix, UREI, Neumann, Helios, EMT, Lexicon, Tubetech, Langevin, etc.

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http://www.garden.net/users/troposphere

Conveniently located in northeast N.J., 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+ 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.

MIC PREAMPS

dbx
Blue Series 786 Precision Mic Pre-amp

The dbx Blue Series 786 is a top-quality mic-preamp featuring the dbx i module. It's ultra-pristine signal ch reveals the true characteristics of r microphone.

FEATURES–

Ultra high-drive transformer coupled outputs
20dB pad, phase invert
48V phantom power
• Super-low Z input switch
• dbx Type IV Conversion system digital output option

Focusrite
Green 3 "Voicebox"

The Voicebox provides a signal path of exceptional clarity and smoothness for mic recording, combining an ultr-high quality mic amp, an all new Focusrite EQ section optimized for voice, and full Focurite dynamics. e it as a stand alone unit for direct-to-digital recording, or as an upgrade for the input section of a console.

FEATURES-

ame mic pre section as found on the Green Dual Mic Pre includes +48V phantom power, phase reverse, and a 5Hz high-pass filter. Mute control and a true-VU response LED bargraph are also provided
Q section includes a mid parametric band with frequency and gain control as well as a gentle bell shape to ring out the character of the voice.
ynamics section offers important voice processing functions of compression and de-essing combined with a oise reducing expander
ingle balanced Class A VCA delivers low distortion and a S/N ratio as low as -96dBu

APHEX
107 Tubessence 2 channel Mic Preamp

The 107 delivers outstanding sonic performance. It features Tubessence technology, front panel balanced inputs on both channels and LED metering, all in a single rack space.

FEATURES-

independent channels with front panel XLR inputs
p to 64dB of gain available
0dB pad with red LED indicator, 2 LED input meter
all 48V phantom power with red LED indicator
• Low-cut filter for 80Hz, 12dB/octave
• Polarity inversion switch with LED indicator
• Individual channel remote mute capability
• Switchable +4dB/-10dB output with 1/4" TRS phone jacks

COMPRESSORS

dbx
160S Stereo Compressor

The dbx 160S combines the best features of all the great dbx compressors in a well-built unit where the craftsmanship is as stunning as the engineering is innovative. This is truly a desirable compressor

FEATURES-

27dB dynamic range • Program dependent "Auto", or fully variable attack and release
ard knee/OverEasy switchable.

ALESIS
3630 RMS/Peak 2Ch.Comp/Limiter/Gate

The 3630 is a dual-channel compressor that offers Ratio, Threshold, Attack and Decay controls to handle the toughest signals. It also offers a choice between RMS and Peak compression styles, plus Hard and Soft Knee namic curves for every application from subtle gain control to in-your-face punch. Ideal for use in applications om studio recording and mixing to live sound reinforcement and broadcast.

EFFECTS PROCESSING

lexicon
MPX-1 Multi-Effects Processor

Lexicon's latest addition to their Digital effects family, the MPX-1 features top-quality effects in an easy to use, 1 rack space unit. With 56 Pitch, Chorus, EQ, Modulation, Delay, and world-class reverb effects accessible from the front panel, as well as TRS and XLR balanced I/O and complete MIDI implementation, the MPX-1 creates a new standard for cost and quality in a multi-effects device.

t.c. electronic
ULTIMATE SOUND MACHINES
Wizard M2000 Studio Effects Processor

The M2000 features a "Dual Engine" architecture that permits multiple effects and 6 different routing modes making it a great choice for high-end studio effects processing.

FEATURES–

• 250 factory programs including reverb, pitch delay, chorus, flange, phase, EQ, de-essing, compression, limiting, expansion, gating and stereo enhancement
• 20-bit A/D conversion. AES/EBU and S/PDIF digital I/O.
• "Wizard" help menus, 16-bit dithering tools,
• Tap and MIDI tempo modes.
• Single page parameter editing, 1 rack space.

SONY
DPS-V77 2 Ch. Master Effects Processor

Sony's latest effects processor the DPS-V77 yields excellent sonic quality combined with realtime control, a digital I/O and many more features that will put a smile on the face of any discerning studio engineer.

FEATURES–

• 198 preset &198 user-definable programs.
• Control up to 6 parameters in realtime via MIDI information and an optional foot pedal
• Use the AES/EBU & SPDIF digital I/O to link multiple V-77s together & when working with digital mixers
• 10-key pad input
• Shuttle-ring equipped rotary encoder allows for quick patch changing.
• A noise gate circuit is provided ahead of the input for guitar players and other instrumentalists who want top quality effects without sacrificing tone.

EQUALIZERS

Focusrite
Green 2 Focus EQ

The Green 2 Focus EQ is suitable for a variety of applications combining a Focusrite equaliser section with a multi-source input section. Use it as a high-quality front end for recording applications or patch it into the send/return loop to upgrade a single channel of console eq, either way, it sounds great.

FEATURES-

• XLR & 1/4" inputs are similar to the Dual Mic Pre but have been adapted to cope with a wider range of levels.
• VU metering via a 10-LED bargraph
• EQ section derived from the Red and Blue range processors for superb audio quality.

APHEX
Model 109 Parametric EQ with "TUBESSENCE"

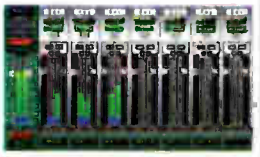
The Aphex 109 is an extremely versatile and high performance parametric vacuum tube EQ with unique features, flexibility and sound. **Great for "warming up" digital signals.**

FEATURES-

• True tube circuitry in the output stage.
• Dual (stereo) 2 band or mono 4 band EQ configuration offers flexibility from general sweetening to critical problem solving.
• Operates in the EQ flat mode yet still passes signal through the Tubessence vacuum tube stage.
• 1/5 octave to 2 octave bandwidth adjustment. • Switchable -10dBV/+4dBu operating level.

MUSIC SOFTWARE

Steinberg CUBASE VST
Virtual Studio Technology



Steinberg's Virtual Studio Technology (VST) turns your PowerPC or Windows based computer into a music production powerhouse featuring digital audio, real-time effects, automation, MIDI and scoring in one single program. Expandable with software Plug-Ins and an audio bus system for use with the latest generation of multi I/O audio cards. Cubase VST delivers.

FEATURES–

- Up to 32 channels of digital audio
- Complete mixer with up to 128 EQs
- 2 full-featured effects racks
- All Realtime, Every action can be automated
- ***CUBASE SCORE*** adds professional score printing and layout functions
- ***CUBASE AUDIO XT*** adds support of Digidesign DAE compatible interfaces such as the ProTools System.

emagic LOGIC AUDIO 3.0
For Mac or Windows

Logic Audio integrates Digital Audio Recording & Editing, MIDI Sequencing, and Professional Scoring into a leading-edge music composition and production system. The new Version 3.0 features extended real-time editing and manipulation options along with numerous detailed solutions for use in professional studio environments.

FEATURES–

- Custom window setups can be assigned to keys for instant recall, up to 90 screensets per song.
- Interactive Editors such as Event, Hyper, Score, Matrix, Arrange and Environment are all linked.
- Realtime DSP effects
- Highest resolution available, 960ppq
- Environment window provides knobs, faders, buttons and other virtual objects that can be defined to send out any type of MIDI data.
- New bus system, Punch on the fly, & Cycle Mode
- Support of Adobe Premiere and Digidesign Audiosuite plug-in formats

Mark of the Unicorn Digital Performer 2.11
MIDI Sequencer for Mac

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.***

FEATURES-

- MIDI Machine Control, Quicktime Video playback.
- Sample rate conversion
- Spectral effects, pitch correction.
- Real-time editing and effects processing.
- Full featured Notation section
- Virtual automated mixing

HARD DISK RECORDING

digidesign ProTools Project™
Digital Audio for Macintosh

With Pro Tools Project you get 8 tracks of digital audio & 64 virtual tracks! The Pro Tools Project system includes an audio card as well as award winning Pro Tools software. You choose either an 888 or an 882 I/O to complete the package. Random access, non-destructive digital editing keeps your precious recorded material in its original form as you process and play with it, allowing you to take chances on tweaking a performance without risk. Project also features MIDI recording and playback as well as Quickpunch™ punch-on-the-fly & a direct upgrade path that lets you move to a full Pro Tools system when you're ready

REQUIRES–

- Qualified NuBus or PCI Macintosh CPU
- Hard Drive, system software 7.1 or greater
- 24MB RAM minimum
- 14" monitor (17" recommended).

888 & 882 I/O Audio Interfaces

The 888 and 882 I/Os each provide 8 channels of high quality A/D, D/A I/O for connection to Pro Tools Project and Session 8 PC systems. Choose the 882 and get an affordable audio interface featuring 1/4" balanced/unbalanced ins and outs in a single rack space. For more high-end applications, the 888 provides features such as XLR balanced analog ins and outs, 8 channels of AES/EBU I/O for direct digital transfers of tracks, high resolution LED metering & individual input/output level trims.

Audiomedia III
Digital Audio Card

Available for both Macintosh and Windows OS systems, Audiomedia III will transform your computer into an powerful multitrack workstation. Compatible with a wide variety of software options from Digidesign and Digidesign development partners, Audiomedia III features 8 tracks of playback, up to 4 tracks of recording, 24-bit DSP processing, multiple sample rate support and easy integration with leading MIDI sequencer programs.

WAVES TDM BUNDLE

If you're already familiar with the Waves TDM bundle, you'd better take another look! This great package is now even fatter with the addition of 5 new processors, at the SAME PRICE! TDM owners can now maximize their power with plug-ins including the famous TrueVerb virtual-space reverb, the Q-10 EQ, C1 Compressor/Gate, S-1 Stereo Imager, PAZ-Psychoacoustic Analyzer, L1-Ultramaximizer as well as MultiRack, WaveConvert and TrackPac Pro applications.

DIGITAL MULTI-TRACK RECORDERS

TASCAM DA-38
Digital Audio Recorder

The DA-38 was designed for musicians. Using the same Hi-8 format as the highly acclaimed DA-88, the DA-38 is an 8 track modular design that sounds great. It features an extremely fast transport, compatibility with Hi-8 tapes recorded on other machines, rugged construction, ergonomic design and sync compatibility with DA-88s

FEATURES–

- Hi-8mm tape format.
- Next generation 18-bit A/D and 20-bit D/A converters with Delta-Sigma oversampling
- Digital track copy for simple assembly composite edits
- Built in Digital patchbay
- Track advance and track delay
- Easy to use interface

ALESIS ADAT XT20
Digital Audio Recorder

The New ADAT-XT20 provides a new standard in audio quality for affordable professional recorders while remaining completely compatible with over 100,000 ADATs in use worldwide. The XT20 uses the latest ultra-high fidelity 20-bit oversampling digital converters for sonic excellence, it could change the world.

FEATURES–

- 10-point autolocate system
- Dynamic Braking software lets the transport quickly wind to locate points while gently treating the tape.
- Remote control
- Servo-balanced 56-pin ELCD connector
- Built-in electronic patchbay
- Copy/paste digital edits between machines or even within a single unit. Track Copy feature makes a digital clone of any track (or group of tracks) and copies it to any other track (or group) on the same recorder.

MIDI HARDWARE

Mark of the Unicorn MIDI Time Piece™ AV
8x8 Mac/PC MIDI Interface

The MTP AV takes the world renowned MTP II and adds synchronization that you really need like video genlock, ADAT sync, wordclock sync, and even Digidesign superclock!

FEATURES–

- 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 high-speed MIDI data transfer.

Digital Time Piece
Digital Interface

Think of it as the digital synchronization hub for your recording studio. The Digital Timepiece provides stable, centralized sync for most analog, digital audio, and video equipment. Lock together ADATs, DA-88's, ProTools, word clock, S/PDIF, video, SMPTE, and MMC computers and devices flawlessly. It ships with "Clockworks" software which gives you access to its many advanced features and remote control of some equipment settings such as record arm.

OPCODE Studio 64XTC
Mac/PC MIDI Interface

The Studio 64XTC takes the assorted, individual pieces of your studio (your computer, MIDI devices, digital and analog multitracks and even pro video decks, and puts them all in sync.

FEATURES–

- 4 In / 4 Out, 64 channel MIDI/SMPTE interface/patchbay with powerful multitrack & video sync features
- ADAT sync with MIDI machine control
- Simultaneous wordclock and Superclock output, 44.1kHz or 48kHz for perfect sync with ADAT, DA-88 and ProTools
- Video and Blackburst in (NTSC and PAL)
- Cross-platform Mac and Windows compatibility

MIDI Translators
MIDI Interfaces

The MIDI Translator II™ and MIDI Translator Pro™ are the next generation portable interfaces. The MIDI Translator Pro™ provides twice the processing power of the MIDI Translator II and both let you switch between MIDI or peripherals with a flip of the THRU-switch - NO CABLE SWAPPING!

TRANSLATOR II FEATURES–

- 1 IN and 3 MIDI OUTs • 16 MIDI channels
- Small size fits anywhere - no power supply required!

TRANSLATOR PRO FEATURES–

- 2 MIDI INs x 6 MIDI OUTs. Supports 32 MIDI channels
- 2 MIDI OUTs accessible on front panel
- Self powered - no power supply required

KEYBOARDS & SOUND MODULES

Roland®

XP60 & XP80 Music Workstations

he XP-80 delivers everything you've ever wanted in a music workstation. An unprecedented collection of carefully integrated features provide instant response, maximum realtime control and incredible user expandability. The 80 features a pro-quality 76-note weighted action keyboard while the NEW XP-60 features the same sound engine 61-note keyboard.

'80 FEATURES–

- l-voice polyphony and 16-part multitimbral capability
- 5 Mbytes of internal waveform memory; 80Mbytes hen full; expanded (16-bit linear format)
- 5-track MRC-pro sequencer with direct from disk ayback. Sequencer holds approx. 60,000 notes
- ew sequencer functions like "non-stop" loop record- g and refined Groove Quantize template
- Enhanced realtime performance capability with advanced Arpeggiator including MIDI sync and guitar strum mode and Realtime Phrase Sequence (RPS) for on-the-fly triggering of patterns
- 40 insert effects in addition to reverb and chorus
- 2 pairs of independent stereo outputs, click output jack with volume knob
- Large backlit LCD display

MC-505 groovebox

he MC-505 groovebox builds upon the success of the MC-30 as a self-contained, retro-styled dance music quencer and sound module with newly upgraded inds and powerful, futuristic features. Among these v features are the revolutionary D-Beam controller l a MegaMix function for intuitive realtime mixing of its and patterns - making the MC-505 a DJ, hip-hop, hno or dance music artist's dream come true. It's nderlust in a box

ATURES–

l-voice polyphony, steeper filters, ADSR envelope for lting sounds, powerful effects
4 onboard dance music patterns developed by cutting ge sound designers worldwide
2 built in sounds, 26 rhythm sets
ree independent, synchronized effects processors owerful onboard Arpeggiator

- SmartMedia slot accepts external 2MB and 4MB SmartMedia cards for unlimited pattern and patch storage and direct pattern playback

ALESIS

QS6, QS7 & QS8 Pro Keyboards

lesis QS synthesizers all provide true 64-voice polyphony, and a huge sound library that is constructed of 16-bit linear samples. With their powerful computer and digital audio interface capability, built-in 4-bus Multi-effects d expressive performance features, there is sure to be a QS synth perfect for you.

ATURES–

- 6-bit 48kHz sample ROM
- 4 voice polyphonic
- 12 preset, 128 user internal program memory
- 00 preset, 100 user mix memory
- S422, RS232 port formats • ADAT interface*
- outputs (2 main, 2 aux)*
- 16MB internal, 16MB expansion memory (32MB total possible)*
- SoundBridge Sample software for importing almost any sample from your Mac or Pc.

QS6 - 61 key synth, **QS7** - 76 key synth
QS8 - 88 weighted keys
*Available on QS7 and QS8 only

KORG

SGproX

New

Stage Piano/Controller

he SGproX features newly-sampled stereo nos recorded with ention to every detail. refully crafted velocity itching provides tonal anges and dynamics it come alive under ur fingers and the 88- te weighted keyboard has been designed as both a stage piano and master controller.

ATURES–

- 8-note weighted action keyboard
- 4-voice polyphony, 24MB ROM
- 64 user-definable programs
- 12 types of stereo digital multi-effects
- Master Controller functions. Backlit LCD display

KURZWEIL

K2500 Series Music Workstations

The K2500 series from Kurzweil utilizes the acclaimed V.A.S.T. technology for top-quality professional sound. Available in Rack mount, 76-key, and 88 weighted key keyboard configurations, these keyboards combine ROM based samples, on-board effects, V.A.S.T. synthesis technology and full sampling capabilities on some units.

FEATURES–

- True 48-voice polyphony
- Fluorescent 64 x 240 backlit display
- Up to 128MB sample memory
- Full MIDI controller capabilities
- 32-track sequencer
- Sampling option available
- Dual SCSI ports
- DMTi Digital Multitrack interface option for data format and sample rate conversion (Interfaces with ADATs or DA-88s)

MicroPiano™ Piano Module

The MicroPiano is a half-rack sound module featuring Grand Piano and other sampled sounds, plus built-in digital effects. Altogether there are 32 available presets, chosen from Kurzweil's highly acclaimed sample library, making the MicroPiano the ideal sound module for any player who demands great sound quality at an unprecedented price.

SAMPLING

E-MU

E-mu Systems, Inc.

E-6400 Emulator Sampling Rack

The e-6400 offers the power of E-mu Systems' renowned Emulator Operating System (EOS) and superb audio quality in a package perfect for the budget-minded professional. The e-6400 comes with stereo sampling, 4MB of RAM and is fully upgradeable to E-mu's top of the line Emulator sampling synthesizers, the E4X, and E4XTurbo.

FEATURES–

- 64 voice polyphony (expandable to 128)
- 4MB sound RAM
- 2 CD-ROM's included (400MB of sounds)
- 8 balanced analog outputs
- Onboard graphic waveform editing
- Load while play
- Stereo phase lock time compression

AKAI

MPC2000 MIDI Production Center

Whether your producing rap or hip-hop, sequencing a rack of MIDI modules, or performing live, the MPC2000 gives you powerful tools to make your music shine. Its the NEW MPC!

FEATURES–

- Large 248 x 60 LCD Graphic display
- 64-track, 100,000 note sequencer with linear drum machine style programming.
- 16-bit, 32-voice stereo sampler
- Standard SCSI interface
- Soft keys, Data/Digit wheels, cursor control and more.
- Keypad for directly entering sample points.
- Note variation slider gives you realtime control of any sound's tuning, attack, decay, or filter frequency.
- Floppy Disk Drive
- Powerful expansion options turn your MPC2000 into an MPC2000 STUDIO, the ultimate MPC!

S-Series Samplers

Starting with 64X oversampling, Akai's S-Series Samplers use 28-bit internal processing to preserve every nuance of your sound and the outputs are 18- and 20-bit to ensure reproduction of your sounds entire dynamic range. These three new samplers add powerful capabilities, ease-of-use, expandability and affordability to set the standard for professional samplers

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NY's Finest Studios Supplement

Subscriber copies only

NY's Finest 3	-	Otari
NY's Finest 17	-	MPGA
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NY's Finest 8-9	-	Sony

—FROM PAGE 20, THE LOST ART OF LIVING

Gear, music and the business became more sophisticated as the decades wore on. Gear became quieter and cleaner, more versatile and more elaborate. Music became more complex and less live, and the business...well, it also became more complex and less live.

Then digital came, and it all started over. Now gear is smart. Anything that can be thought of can be done. Little kids can now time-compress in their bedrooms in real time. A few short years ago, nobody could do it acceptably for any amount of money, in any amount of time.

Don't get me wrong. I have a significant physical studio that I am very happy with. The control room images very well, and I have produced many successful projects within its walls. But it's going away. I am replacing it with...umm...a DAW that I feel very close to. Yeah, that's it.

The past three months have seen the price of monstrous digital horsepower drop through the floor, so *anybody* actively working in the industry can climb onboard now.

The Digital Age not only promises higher-quality audio than ever before, it is actually beginning to deliver! And included in that delivery is more creative potential. In fact, today's DAWs offer so much versatility that every producer, engineer and musician in the game can, with a little creative experimentation, come up with his or her unique signature sound in days instead of years.

We have *arrived*. No excuses. We have The Power. We all stand naked before the masses, offering our mixes to be judged solely on their own merit. You can't be blamin' no steenkin' gear anymore. If your music is great, you deserve the rewards. But if it bites, it's your own damn fault. Now *that's* new! Terrifying, to be sure, but I, for one, *love* it.

Of course, this New Age affords new concepts in abuse as well. It is now possible—nay, predictable—for someone with no musical technical ability at all (can't bloody sing) to bleat into one of the new, more powerful DAWs a few times and quite easily cut, splice, overlay, pitch and time-correct their way to a decent-sounding hit. And why not? It's just another aspect of The Power.

So all this is good. These are the advances that make me smile.

And the archaic garbage that remains? I could go into how the financial aspects of our industry have become even more perverted and unfair, how there is even more deception and cheating, how the wrong guys get the big bucks while the true creators eat two-day-old Taco Bell. I could dwell on how the new generation of gear salesmen don't have a clue about how the stuff works (or *if* it works, for that matter), and worse yet, how so many will lie and deceive just to sell the piece that gets them the factory bonus, with no regard to its suitability to the customer's application. You know me—you know I could go on and on about the Dark Side of our business.

Don't wait until some shockingly big number shows up on the front of your birthday card to see the light (of day outside your control room).

But I won't. That's not really what I want to say this time. This month I want to move a bit closer to the Zen of it. I want to give a bit of advice (albeit unsolicited) to all of you in those isolated control rooms.

As I look back over the hundreds of years leading up to my recent birthday, I remember seeing in many of you what I saw in myself—a drive to succeed that can easily displace other aspects of one's life. Now, I write to you as a fellow member of this industry, so take it as you will. I have seen many of you (hell, I have *worked* with many of you) bury yourself in a project until it's done—and then do it again. And again. I, too, did this for decades, fearing that I might not keep my competitive edge if I slowed down.

Friends watched me steal from my own life to give time to work. Work became my life. Friends outside the industry became distant memories. Music began to be less fun...

But I am better now. I have reclaimed my life. Plant a flower, pet a cat, ride a Harley. Go surfing with a friend. I now take personal time to literally "smell the roses." So what happened to my work? My productivity skyrocketed, the quality of my music and producing has increased dramatically, and I no longer dream of control rooms!

So now, being in a reflective mood, I offer this obvious revelation to you. I *know* you are living the same way that I was. I know it. Someday you, too, will have a birthday that is monumental enough to wake you up to the fact that life and those in it are happily moving along without you (if you don't die first). I am merely attempting to remind you that a real world of human interaction exists right *now*. Don't wait until some shockingly big number shows up on the front of your birthday card to see the light (of day outside your control room).

I have only one question: Why didn't those who have gone before me tell *me* two decades ago?

P.S. Though I trust the premise of this column to be statistically valid, there must be a few of you reading that have already figured this out and acted on it. I am impressed. See you in the real world. ■

SSC is going on vacation for a few weeks now. Surf's up.

—FROM PAGE 28, SYNC-ING SAGA

from my original tracks, which, I was quite surprised to find out, it wasn't.

Another possible explanation would be a frame-rate problem, but the 1% figure also ruled this out. Had my SMPTE generator or my sequencer somehow been set to 30 fps instead of 29.97, or if I had used drop-frame instead of nondrop (or vice versa), the error would have been one-tenth as much, or 0.1%. Of course, this couldn't have been the case, since the whole setup was genlocked to a broadcast video signal, but it was worth considering because I've seen this sort of thing happen all too often to otherwise-competent engineers who get totally befuddled by the fact that their "project studio" SMPTE equipment has a 30-fps option. They use it and screw up their tracks, unaware that, for all intents and purposes, *there ain't no such thing!* So allow me to take this opportunity to propose that manufacturers who put that feature in their hardware (and don't even document why it's there) be hung by their thumbs from the roof of the L.A. Convention Center for the duration of the next NAMM show. Thank you.

Okay, so there had to be something else wrong. Was the timing on my Pro Tools system that far off? Was my Video Time Piece messing up in some horrible way? I went back into my sequencer and re-loaded the audio files, placing them alongside the MIDI tracks. Immediately, I could see that something was not right: The audio tracks looked like they were recorded at a different tempo from the MIDI tracks and were consistently ahead. I had not compared the tracks like this before—I simply assumed that the sequencer would be in sync with itself. How silly of me.

So I devised a test: I sequenced a bunch of clicks, one second apart, recorded them on disk, then played back the recorded audio against the sequence. I tried various combinations of SMPTE and digital sync, first making the Mac the master, then the Pro Tools card the master, then the Video Time Piece—both internally and externally clocked—and finally making another SMPTE generator the master. Not once, with any of the combinations I tried, could I get the MIDI and digital audio to match for more than a minute before they would audibly drift away from each other. Sometimes, in fact, it only took a few seconds. Obviously, the software was screwed up in a big, big way.

I went through the literature, both dead-tree and online, to see if there were any reports of this phenomenon in this sequencer, or in any other MIDI+audio program on any platform. I found some vague references to timing issues in an obscure component of an ancient version of the software's operating system extensions, but they weren't relevant to my situation. So I called customer support. And I sent them e-mail, to which an auto-responder replied: "We'll have an answer for you in one or two working days." And I sent e-mail to the product managers. Two weeks later, I got a response from someone in tech support: "I noticed you are using version ABC of the software and version XYZ of the operating system. There were sync problems that would show themselves in certain situations with these versions. I would recommend downloading new versions of both, which are available on our Web site."

In other words, the software was broken, and it would seriously screw up the timing of any digital audio that you record into it.

Now, I am on this company's mailing lists. They know where I live, they know where I teach, they know where I write. I get their PR, I get their upgrade offers, I get their new-product announcements, I get their online mailings, I get invitations to their catered open-bar parties at trade shows. They spend lots of money on all of these things and on their packaging, their advertising and their Web site. I don't seriously expect them to spend that kind of money on telling people what's *wrong* with their software. But I ask you: How much would it have cost them to send me something, either on paper or online, that said, "There is a serious timing problem with version so-and-so of this software, so if you are creating synchronized audio tracks, please use a different version"?

I would rather have received that, at a moment when I really needed it, than all the coffee mugs, key chains, hats, lapel pins, coconut-beer-battered shrimp and free domestic champagne in the world. ■

Paul D. Lehrman, editorial director of Mix Online (www.mixonline.com), is a composer and educator. He is pretty sure he is operating in real time, but he's not sure about the rest of the world.

—FROM PAGE 66, ACOUSTICS
subwoofer location may be determined by physical trial and error or by computer-aided multidimensional analysis. The obvious place to start is in the corner, since the subwoofer couples efficiently in this location. A potential problem with this location is that all modes will be excited and, if the dimensional ratios are poor, this location will lead to severe low-frequency coloration.

DAMP THE MODES

One method to reduce the magnitude of these effects is to increase the damping factors of all of the modes by using low frequency absorptive materials. Increasing the damping factor reduces the maximum amplitude of the resonance; at the same time, the range of frequencies over which the absorptive material acts is widened. Most studio owners are familiar with acoustical foam or other porous materials that absorb sound by converting sound energy into heat. The efficiency of a porous absorber is highest when the sound is traveling at its highest velocity. This point is reached at ¼ of the wavelength and thus varies with the frequency. At low frequencies like 100 Hz, this distance is about 2.5 feet from the wall. At the wall surface, where the sound wave changes direction on reflection, the particle velocity is zero. Because porous absorbers rely on particle velocity, placing them on a wall or in a corner is pointless.

ELECTRONIC EQUALIZATION

In a small project studio, the listener is typically located in the direct field within the critical distance. (Critical distance is the point at which the direct and reverberant sound are at the same level.) In this case, full-bandwidth electronic equalization to compensate for room problems should be avoided, as it would corrupt the one thing that may

—FROM PAGE 66, SMALL CONTROL ROOMS
frequencies. It is important to note that while many small control rooms have a less than ideal geometry (shape), the proper use of sound absorbing and diffusing materials can often help create an accurate mixing environment.

In addition to treating a room acoustically, it is often useful to adjust the frequency content of the energy introduced into the room at the source by means of EQ. One thing you cannot do, however, is "equalize the room." Changing the setting on an equalizer does not change a room's acoustics. The goal of equalization should be to optimize the coupling of the monitoring system and the acoustical response of the room.

EQUALIZATION

Although many people feel that the use of an equalizer on a monitoring system is a bad thing, the popularity of today's self-powered monitors, which contain extremely complex filtering as part of their crossover design, should remove any doubt that, when properly applied, equalization can be an effective tool.

One reason for the doubt about equalization is the historical use of inappropriate filter types and poor filter selection. When optimizing monitor systems, both time and frequency information are important. Measurement techniques that do not take both of these factors into account can be misleading and may lead to inappropriate filter selection. On the other hand, combination of both time and frequency information will allow the bandwidth of resonances to be seen and equalization can be applied much more effectively.

Once the bandwidth of the resonances in the system is known, the ability to control the Q or bandwidth of the filters used is critical, suggesting that parametric filters are required to truly optimize a "system." The need for parametric filters is one reason that measurement equipment is also required. Though people with less than "golden ears" can often hear and identify a build-up of energy (i.e., a resonance) at a particular frequency, it is extremely rare that someone can accurately identify the bandwidth of a resonance.

Traditionally, attempts at optimization have been done either by ear alone, or by using a single-channel Real-Time Analyzer (RTA). Typically, the system (monitors and room) is fed with pink noise, which should look flat on a one- or one-third-octave display at the input of the system. Any "holes" or "bumps" in the system's output frequency response are displayed on the RTA via a mic at the mix position. An equalizer is used to compensate for these "system-induced" errors. Unfortunately this technique does not provide sufficient information to determine what part of the system is causing the frequency response problems. Is it the speakers or the room?

It is only recently that systems that can properly compare a signal sent out to the monitors with the signal measured at the mix position have become cost-effective. This comparison, in both the time and frequency domain, is called a transfer function. The ability to measure the transfer function of a "system" (the loudspeakers and the room) to see how each part of the system is behaving is extremely powerful, providing a great deal of insight into what is causing the problem and what to fix. The transfer function is also useful in that "real" source material—such as music—can be used as the test signal. Using music as a test signal allows users to hear how changes made to the system immediately affect music that is well-known to the listener.

Another element of particular importance in the small control room environment is equipment selection and the learning curve. One of the most astounding developments in the past few years has been the introduction of really outstanding small-format, semi-near-field, self-powered monitors. However, many engineers continue to use less accurate monitors. The reason for this is that any room and/or monitoring system requires careful listening and some experience to use really well. I expect that as the trend to lower-cost and more accurate monitoring continues, the need to optimize the coupling of the monitors with the acoustics of the room will become an increasingly important step in the design, installation and optimization of small control rooms. ■

Sam Berkow is a New York City-based acoustical consultant. He is the founder of SIA Acoustics and SIA Software Company Inc. and is a partner in the Walters-Storyk Design Group. You can reach him at SIASOFT@aol.com.

be acceptable in the room, namely the frequency response of the direct sound. Prudence dictates that mid/high-frequency equalization or time domain filtering be used judiciously, or by an experienced acoustician.

On the other hand, there may be valid reasons to introduce low-frequency electronic equalization to complete the adjustment of the low-frequency room response. Psychoacoustically, the effect of room modes on the loudspeaker's effective output power is essentially indistinguishable from a real departure of the loudspeaker from a level response. Low-frequency equalization below roughly 300 Hz is justifiable when, for practical reasons, one cannot relocate the listening position or loudspeaker positions to fine-tune the room's low-frequency response. There are limitations to the effectiveness of low-frequency equalization, however. Attenuation of excess peaks is acceptable, but one should avoid trying to compensate for notches, which are usually the result of nulls in the modal response or destructive interference. Any gain introduced to compensate for a notch will reduce the amplifier headroom and increase distortion.

IMAGING TOOLS

Imaging refers to our ability to perceive and accurately locate instruments, voices and effects. Reflections from the room's boundary surfaces cause comb filtering, resulting in frequency response notches and peaks that fool the ear/brain (auditory system), degrading our ability to experience the sonic images accurately. By attenuating the room's first-order reflections over a wide range of frequencies, imaging tools decrease the depth of the comb filtering and improve imaging. Imaging tools can either be absorptive or diffusive, depending on the spatial definition and image size desired. They should be placed on wall and ceiling surfaces in the front of the room. It is not necessary, or advisable, to cover all surfaces in front of the listening position. Strategic placement a few feet on either side of the first-order reflection positions will provide sufficient control without eliminating the room's ambience.

SPATIAL TOOLS

Absorptive or diffusive tools can be used to control interfering reflections. In small rooms, it is often desirable to control interfering reflections from the rear wall by using diffusion instead of absorption. This provides a diffuse ambient sound field, while controlling interfering reflections. When a room's surfaces are relatively close to the listener, a very efficient diffusive surface is needed to scatter sound omnidirectionally over a wide frequency range. Application in project studios is very straightforward. Simply cover about 60% of the rear wall surface with the center of the coverage roughly at ear height. ■

Peter D'Antonio is the founder and president/CEO of RPG Diffusor Systems Inc. He is a fellow of the AES, chairman of the AES Working Group for the Characterization of Acoustical Materials, adjunct professor of acoustics at the Cleveland Institute of Music and a research acoustician.

TEN STEPS TO AN ACCURATE CONTROL ROOM

by Peter D'Antonio

Today project studios are primarily using small, freestanding powered monitors and subwoofers. In addition, the rooms are usually approximately rectangular. Here are ten steps to help create an accurate listening room that will allow you to listen to the music, not the room.

1. Listen to your recordings in a variety of environments so that you understand that the acoustics of the listening room play a vital role in what is heard.

2. If you are building a new room, use good dimensional ratios to provide uniform modal frequency distribution.

3. Design a symmetrical listening environment for good imaging. Place speakers symmetrically and on-axis for best response.

4. Locate subwoofers, loudspeaker woofers and listening position to optimize the acoustical coupling with the room's pressure variations and speaker-boundary interference. Optimize the bass response. Experiment with positioning the woofer above or below the tweeter for optimal coupling with the room.

5. Minimize first-order reflections from the walls, ceiling and floor between the loudspeakers and the listening position using absorptive or diffusive materials. Be conscious of the effect of console reflections.

6. Diffuse rear wall reflections over roughly 60% of the surface area beginning 3 feet off the finished floor.

7. Provide low-frequency absorption on the rear wall to minimize low-frequency cancellation effects.

8. If necessary, damp low-frequency modes by applying low-frequency absorption at maximum pressure locations like dihedral and trihedral corners.

9. Electronically equalize remaining low-frequency modal emphasis. Reconsider equalizing frequency notches in the room response. Consider time domain equalization.

10. Measure the room's time and frequency response at several listening positions using any of the excellent transfer function or stimulus and response approaches. Analyze the results and tweak to taste. ■

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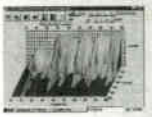

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INSIGHTS

—FROM PAGE 38, VINCENT VAN HAAFF

Malibu. Finally, I got a call about a year ago, saying "I've got this house in Malibu. Can you come over and build me a studio in it?" We have been working on that a good six months. It's no great hurry. Meantime, Don is doing sessions in various studios here in Los Angeles [including Record Plant, Hollywood], and he's very involved with the Walden Project in Boston.

At the same time, Glenn decided to move his studio from Aspen, Colo., back to Los Angeles. I got in touch with Glenn through Elliot Scheiner, who I happened to be chatting with at Conway Recording while Elliot was mixing some live Fleetwood Mac tracks. He very kindly congratulated me on the efficiency of Conway, and how he liked to work there. A couple of weeks later I got a telephone call from Glenn Frey, saying: "I just spoke with my man Elliot; you're on." I had lunch with Glenn, and I immediately got a good sense of what he was about.

What was Glenn looking for? A place to hang out and cut tracks?

Exactly. It is in a very anonymous looking old building in West L.A.; a medium-size room, sort of the size of Studio D at Village Recorder. We're going to use a lot of wood and natural materials—a "lumber look." You can just imagine Glenn in Timberland boots and a plaid shirt, right? Nothing fake about him!

Tell me about the new Bouquet Digital Studios film/video complex in Port Hueneme, Calif.

I was asked to handle the acoustic sound isolation for the facility because the existing plant is right across Pacific Coast Highway from a National Guard airport runway. They only use it for touch and go and maneuvers by fighter jets, but there are these huge C-141 air freighters that will actually fly over maybe 300 to 400 feet up. It became a matter of taking on the entire job, not just doing the layout and acoustics. It is going to be another two years before it's complete.

Another project in New York intrigues me. 99 Attorney Street Studios was formerly a silent movie theater. It's been vacant that long?

Yes. This silent movie theater has been sitting empty for about 40 years, and was being used for Tupperware parties; you name it. A friend of mine, Tom Nastasi, happened upon it and signed a lease. It's still got the original organ from the silent movie theater—Tom's keeping it, of course. It's got a fly tower because, before it was a silent theater, they used it for burlesque shows. So there is actually a stage with a hall down below, and about a 35-foot fly space. We're building the control room where the stage used to be, and then tiered back so that it's looking into the theater, which is going to be the recording space. It's well over 100 feet deep and 50 feet wide, with a 27-foot high ceiling. It's on Attorney Street, on the lower East Side of Manhattan.

Let's look at Burnish Stone Studio, at Setagaya, Tokyo, where you designed three studios over a period of four years in the early '90s. The basement, first and second floor of an apartment building have been outfitted with isolation and interior acoustical treatment.

My first contact was through [producer/engineer] Joe Chiccarelli, who had been working a lot in Japan with various Japanese artists. He introduced me to a man they call Jinyama, a music producer and coordinator of bands in Japan, who in turn introduced me again to various clients. The first one was Burnish Stone Studio; the most recent is One Voice Studio.

Woodstock Studios was also part of

that exposure to Japanese clients. That facility was a challenge because it was more than a just a studio; more an environment. It has a very Japanese form—a certain austerity, with floating tapered beams across the larger common areas. We liked the idea of being able to see from pretty much every space the local volcano peak, which is towering over the location. Oddly enough, on one occasion I had just visited Bearsville Studio, which is close to the town of Woodstock, N.Y. I said to my Japanese client—while standing there on the volcanic slosh and melting snow—that it reminded me of Woodstock. They liked the idea so much that they called the studio Woodstock. Originally, it was called The Karuizawa Project, because if you say Woodstock Studio everyone always thinks that it's in upstate New York. However, in Japan, everyone knows it as Wood-Stock-Ku.

What are the basic rules for building a studio?

For a control room, it's entirely geometry, geometry, geometry! For a studio area, there is a lot more freedom to play around with shapes and materials. For the performance space, lighting and circulation are very important, so that there is never a sense of stuffiness. I tend to get selected as a designer because I like to build a room for orchestral performance, which, in a sense, comes from my initial interest in theatrical design and auditorium spaces.

Control rooms are designed by geometry. If you start from the stereo approach, and admit that there is a left side and a right side, there is a symmetry to the room. You need to maintain that symmetrical sound field between left and right. Then left and right can be assumed, mathematically, to be identical.

There are two other factors in a control room. Is the before-reflection and after-reflection sound field direct or diffuse, and will it be from the front of the room or the rear of the room? So there are essentially three elements [to be considered] every time we design a control room: the left/right symmetry, the front/back balance, and also the left-top and -bottom or right-top and -bottom intersecting areas. If we take a cube and you slice it perfectly in half three times, you end up with eight little cubes. Those eight cubes have to be intersecting and balanced with one another, depending on where you choose the intersection of the slices. That's my job. I see a lot of rooms that get the gist of what is a Van Haaff or Waterland—knockoffs, in appearance—but they don't take care of the geometry and those important relationships.

What about the acoustic design for surround sound and DVD remastering? Maybe spotlight the new 5.1-channel Studio C at A&M Studios?

Five-point-one is more than just a buzz word. There is a fantastic market for archival materials being re-remastered to DVD-Audio, in a way that has more emotional impact. Bob Margouleff has been working a lot with DTS people, and Elliot Scheiner is working on Eagles remixes. DVD is an exciting medium. A&M had the opportunity to put together a specialized, 5.1-channel room with a Euphonix [CS3000] board, which is ideal for them. [A&M's recently remodeled Studio C is intended for multichannel mixing, DVD premastering, mix-to-picture and related sessions.]

It was quite a challenge, given the narrow space we had available. I tried to maintain the sense of it being able to reach everything from the console—a bit like being in a yacht galley—so the engineer doesn't have to walk anywhere. Maybe it's a lazy man's dream!

What advice would you offer to owners of smaller project studios? How can a room or garage be turned into a recording or mixing area?

Don't overdo it with room design and acoustics. Concentrate primarily on making yourself comfortable, and create a good space for your precious equipment. That includes good lighting. It includes a certain amount of sound isolation so as not to bother the neighbors, or for that matter the [domestic partner]. Don't wake up the kids!

There's a very pragmatic approach: Tack up a piece of sound board in the place where you don't like the reflection from a wall. And don't go and buy $500 manufactured pieces of equipment to counteract the reflection. Sound board is available at Home Depot for $5 a sheet. There it is; it's done. If you want bang for the buck, go look around your local hardware store. We really don't need highly paid acoustical engineers to tell us to adhere to precepts that are pretty intuitive.

Symmetry is a good plan. If [the space] is not symmetrical, but comfortable, let the comfort over-ride the dogmas. Don't expect it to get outrageously loud.

Tell me more about this Waterland Frontwall, which is currently in use at Brickhouse Studios and Sublime Studios. Basically, it's a transportable monitor wall built by a firm called Total Fabrications, under the direction of Ian Coles. How did it come about?

Total Fabrications used its expertise in constructing stage trusses to develop a system that could be constructed off-site and assembled in around ten hours at a client's studio. Waterland makes the Frontwall available for sale, or on a per-project basis. Our mechanics unload, Genie lift, guy and bolt the trusses together; it can be removed just as easily. Frontwall ensures that you will have a rigid sound source, and that the first sound reflection will be solid. It must still be placed within the existing reflective fields of the room, since the source vibration needs a volume of air within which to develop. The space itself may also need to be treated acoustically.

It's made of strand-board foam sandwich custom panels that are camlocked to the rigid frame. All the active and reflective acoustic surfaces are positioned in a proven geometric relationship within the room. Outstretched wings are guy-wired to the rafters to provide maximize mobility.

We think that Frontwall is the smart way to go in many situations. Not only does it broaden the owner's choices as regards to leasing or buying the building, it also shortens the time required for construction. It also provides a precise acoustic form that otherwise only specialized construction teams could provide. And, since it can be leased from Waterland, the design broadens the client's budgetary options. We've actually sold three of them during the last two years. It's an intermediate between a recording studio and a live setup. They cost around $60,000; we rent them for around $2,500 per week, which is 20 percent of the cost of actually renting a recording studio. We installed one at Bryant St. Studio, San Francisco, in 1994.

What about studio designers that also offer equipment packages?

I think it's a *complete* conflict of interest to sell equipment and design the environment at the same time. If I have to be a judge of the quality of a project, I want to have as little as possible to do with the guarantees on the equipment. I cannot compromise.

My philosophy is to proceed carefully; I'd rather go slow than hurry and not maintain the quality. My adage has always been: "To hurry takes too much time." If you rush into a project and you're over-enthusiastic, it might fizzle out or bite you in the ass! ■

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

EVENTIDE ULTRAHARMONIZER

GETTING THE MOST FROM YOUR DSP 4000

Eventide's DSP 4000 is best described as the Swiss Army knife of audio mixing/production tools. Although it shares the UltraHarmonizer name, the DSP 4000 does so much more than its popular predecessor, the H3000/H3500. The 4000's factory presets/algorithms allow it to do high-quality pitch shifting as well as digital multiband (5) dynamic leveling, equalization, reverberation and sampling, all in discrete stereo.

The 4000 also allows less faint-of-heart engineers to create their own algorithm/presets to construct a set of custom tools, limited only by the user's creativity or the 4000's unused DSP resources. Here are some practical uses for this flexible processor.

SAMPLE AND FLY

Send some analog (XLR inputs) or digital (AES/EBU inputs) audio into the 4000. Now set up a MIDI sequencer (i.e., MOTU Digital Performer 2.3) running in sync with your multitrack (or DAW). Connect the DSP 4000's MIDI In and Out jacks to the sequencer, and your UltraHarmonizer is ready to do several very cool and useful tricks.

By triggering the DSP 4000 into record on a specific beat—say beat 4 before verse 1 of the song—you can lift up (sample) a correct musical phrase into the sample memory. Then fast forward to the second verse, trigger the 4000 into playback at, say, beat 4 before the second verse and—voila!—the correct phrase will be automatically flown-in, precisely in time with the groove. Best of all, the long sample time allows for very long phrases to be flown in. Note: If you truncate the front of the sample, then the auto fly-in will no longer work, so leave that start time alone!

Trumpets can play flat. Fortunately this doesn't happen every time, but when it does, simply run the track through the DSP 4000, move the pitch up a few cents and...relief! No more pitch problem headaches. However, if the performance requires different amounts of pitch shifting at several times in the song, you merely need to record the real-time parameter changes on a track in your MIDI sequencer. Then route the MIDI sequence data into the 4000 during playback for in-tune pitch correction at different intervals throughout the song!

DON'T FORGET THE REVERB

When it comes to today's preferences for digital ambience emulations, I would say less is more. However, that being said, the smoothness of the DSP 4000's long decay time is rivaled only by the Quantec QRS X.L.C., in my opinion. The 4000's true stereo reverb module is great for lead and backing vocals or equally powerful in simulating missing room tracks on live drum kit recordings. By busing a kit's L/R overhead tracks to the 4000 and selecting a suitable room from the presets, I've improved more than one overly dry drum kit recording.

THE SUPER-DAW

No matter what kind of system you're working on, it always seems that DAWs need more muscle in the DSP department. Patching a stereo digital bus from the DAW to the DSP 4000's digital I/O is most useful in such cases. This instantly provides for tools rivaling most plug-ins, and it frees up the internal DSP power of the DAW for other functions.

THE VOGUE CODE

Vocoders are always a possible tool at mixdown but sometimes a pain to justify renting if you're not sure it's what the tune will call for. This is another nice plus in the DSP 4000: Select the vocoder preset (or make your own) and then patch the vocal track to the right input of the 4000 for control, and then for the audio source, patch a synth pad track from the song into the left input. What do you get? You guessed it, instant vocodage!

TOOLS FOR TRAVEL

When you add up all the possible professional uses within the 4000, such as A/D and D/A conversion, sampling, pitch shifting, ambience emulation, dynamics, mastering, vocoding, guitar effects and sound design, plus a great, continually updated preset library to download from the Web and the ability to make your own custom-designed-to-your-needs algorithms, the 4000 truly is just about the perfect single piece of outboard gear to bring along to the mix. ■

BY ROEY SHAMIR

Roey Shamir (infx@idt.net) is an independent producer/engineer, co-owner of INFX Productions in NYC and guitar player in the hip hop group Af the King.

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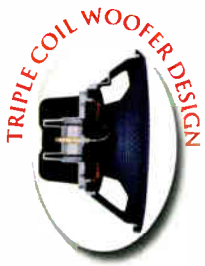

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New multichannel formats are challenging old monitor concepts. While traditional stereo is still prevalent, 4, 5 or more channels are being monitored in modern production environments, daily. The LSR Family applies new technology to meet these requirements. By going beyond traditional design techniques with Linear Spatial Reference performance, JBL has literally redefined how a system is created. The LSR concept helps to dramatically expand the listening area, creating a larger, more accurate mixing space.

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