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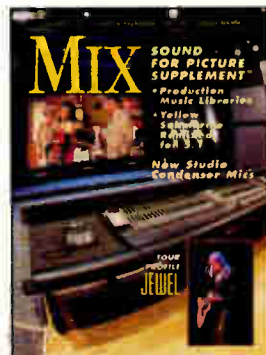


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On the Cover: The revamped Stage A at Disney's Post-Production Studios in Burbank officially opened in mid-June and features an AMS Neve Digital Film Console. For more on Disney, turn to page 10. **Photo:** ©Disney/Lucy Nicholson. Screen photo from *Drop Dead Gorgeous* courtesy New Line Cinema. **Inset Photo:** Steve Jennings.



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FROM THE EDITOR

JACK OF OUR TRADE

A few weeks ago, I was saddened to hear about the passing of John T. (Jack) Mullin, an innovative engineer and one of the true pioneers of the audio industry. An electronics specialist in the Army Signal Corps during World War II, Mullin was assigned to investigate captured German electronics. The advanced products he examined included two-way FM radios that were far superior to the allied Walkie Talkies, and early AEG Magnetophon tape recorders that saw heavy use as a method of creating tape-delayed broadcasts.

After the war, Mullin returned to the States with two Magnetophon K-4 transports and, working with 16mm film sound innovator W.A. Palmer, designed custom record/reproduce electronics for improved performance. When the deck was demoed for a group of Institute of Radio Engineers (now IEEE) members in 1946, the listeners were amazed that tape could sound so lifelike and realistic. Later, the machine was used to produce *Songs by Merv Griffin*, the first commercial entertainment disc mastered on tape.

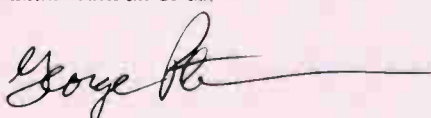
The Mullin-Palmer recorder soon caught the attention of Bing Crosby, who had to perform his live weekly radio show twice for Eastern and Western time zones and was seeking a way to create time-delayed broadcasts. Mullin became the chief engineer for Crosby's *Philco Radio Time*, where he accomplished more than merely using tape as a time-shifting convenience. Mullin's sharp editing skills created a tightly paced radio show that live broadcasts could not match. He then worked with the fledgling Ampex Corp. to build an American version of the Magnetophon, and Crosby invested \$50,000 in the company.

Many of the parameters that Mullin established for his first recorders—such as 1/4-inch tape, 30 ips recording and the NAB equalization curve, eventually became accepted standards. Later, as live television began, Mullin proposed using magnetic tape as a means of recording TV shows for delayed broadcast, and Mullin led the Crosby-funded team that developed the first working VTR prototype in 1950. After Ampex showed the first practical VTR in 1956, Crosby pulled out of electronics, selling his lab to 3M's Mincom Division, and Mullin remained as its chief engineer, continuing to develop audio and instrumentation recorders until he retired in 1975.

Although retired, Mullin was still very active in the audio industry. He focused his efforts on teaching, lecturing, writing and amassing a huge collection of historical audio devices: phonograph and cylinder players, talking pictures, cutting lathes, recorders, radios, microphones, tapes and discs. In 1988, he turned his collection into a spectacular (and quite memorable) AES convention exhibit, which documented the history of audio entertainment technology over the past century. Today, the collection resides at the Pavak Museum of Broadcasting (St. Louis Park, Minn.) and can be seen in the videotape *An Afternoon With Jack Mullin*, which is available through the AES (www.aes.org).

For his many accomplishments, for his dedication to preserving the past while taking emerging technologies to the next step, our industry owes Jack Mullin a debt of gratitude. His spirit lives on in every creative engineer.

Thanks from all of us,



George Petersen



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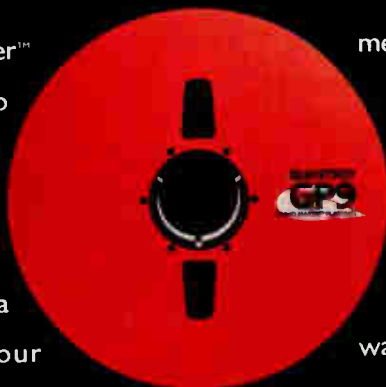
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Walt Disney Studios Post Production Services

Since its opening in 1940, the Disney Sound Department has created and mixed the sound for most of the classic animated and live action features produced by Burbank's Walt Disney Studios. From *Fantasia*, *Snow White*, *Cinderella* and *Mary Poppins* to *The Lion King*, *Aladdin*, *Flubber* and *Good Morning Vietnam*, some of the most memorable moments in movie soundtracks were made on stages housed on the Disney lot. In recent years, the facility has also provided services for other studios and production companies, including work on *Good Will Hunting*, *Pulp Fiction* and *Scream* for Miramax, *Rush Hour* and *Drop Dead Gorgeous* for New Line and *Inherit the Wind* for Showtime.

The sound department comprises a number of separate buildings that contain three dubbing stages, the 425-seat Main Theatre, ADR and Foley stages, editorial, transfer, optical and telecine facilities. Off the lot on Victory Boulevard is another building where Stage 6, built as the company's first all-digital stage, is situated, along with more digital and analog editing suites and a DVD audio mastering department.

Originally a scoring stage, the newly redesigned 65x45-foot Stage A is now the facility's technological flagship, featuring an AMS Logic DFC console, a JBL 5674 three-way monitor system, Dolby SR.D, DTS and SDDS playback capability and multiformat analog/digital recording capability with Tascam MMR-8 and DA-98 digital multitrack recorders. Two digital audio workstation edit bays have also been added; both are visually and electronically connected to the main stage floor.

The centerpiece of Stage A is its re-recording

console. The fully automated DFC has 84 faders, 200 inputs, 48 buses and an eight-way speaker matrix. Surround sound panning and eight-band dialog graphic or fully parametric equalization are available on every channel, as is dynamic control.

Terry Porter, a 13-year veteran of the department who is now creative executive director and lead re-recording mixer in the Main Theater, explains the process involved in the renovation of Stage A: "About three years ago, we decided to build Stage 6 in the Victory building as an all-

digital room, with the idea of both making a working facility and doing research and development for Stage A. A Logic 2 audio console, which is an all-digital board and the precursor to the DFC, was installed, and we did a lot of experimenting with hard drives and other digital formats. The L2 worked out well and led to the commitment to the DFC, and we determined that for us the Tascam hard drives best completed the process of the digital path. We still have analog dubbers and 24-track recorders in Stage A if they're needed, but we have the capability of maintaining 100 percent digital signal path."

"Stage A has long been recognized for its superb acoustical properties," adds Chris Carey, vice president of post-production services. "We've maintained those acoustical conditions but have taken the technology, aesthetics and ergonomics of the facility to a completely new level. Combining creative talent like re-recording mixers Elliot Tyson and Tom Dahl with this innovative new facility offers filmmakers that come to Stage A the perfect blend of art and technology. This is another significant step along the continuing path of advancement in the post-production sound process. Stay tuned for more to come." ■

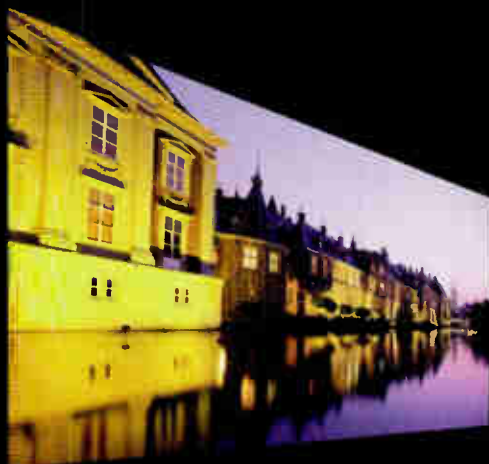
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CURRENT

LIBERTY MEDIA TO BUY INTO TODD-AO, SOUNDELUX

Last month we reported that Todd-AO, the world's largest independent provider of sound services for the entertainment industry, had purchased Sound One Corp., New York's leading sound for picture facility. Well, things have been busy at Todd, as this month we report that Liberty Media Corporation, a division of AT&T, has signed a letter of intent to acquire control of Todd-AO Corporation and Soundelux, one of the world's leading sound editorial companies. A definitive agreement was expected by August 31. The deal is expected to be complete by year's end.

According to the proposed deal, Liberty Media Group will acquire 50% of Todd-AO's outstanding Class A common stock and 100% of its Class B common stock for the issuance of 2.5 million shares of Liberty Class A common stock. Liberty will own roughly 57% of the equity and 82% of the votes of Todd-AO. Similarly, Liberty will acquire approximately 55% of the equity and 92% of the votes of Hollywood-based Soundelux in exchange for the issuance of nearly 1.9 million shares of Liberty Class A common stock.

"Liberty is very excited about leveraging the creative relationships and technological innovations that have been the foundation of Soundelux," says Jeffrey Edell, president and CEO of Soundelux Entertainment Group. "We expect to continue operating the business as we have in the past and look forward to an efficient working relationship with Todd-AO."

Todd-AO, which did *not* buy Soundelux as was widely rumored when the news broke, seems to be one step closer to its goal of globalizing its post-production resources. The company currently maintains facilities in Los Angeles, New York, London and Atlanta.

Soundelux, which recently purchased exhibition company MTS, maintains offices in Hollywood, San Francisco, Orlando and New York.

CHET ATKINS KEYNOTE SPEAKER FOR 107TH AES CONVENTION

The 107th Audio Engineering Society



PHOTO: COURTESY OF SONY MUSIC

Convention comes to the Jacob K. Javits Convention Center in New York City this month (September 24-27). Convention co-chairpersons Kathleen Mackay and Doug Cook, and AES executive director Roger Furness, announced that country music legend and audio pioneer Chet Atkins will present the keynote address. Atkins is a 14-time Grammy winner, nine-time CMA Award winner and has produced and helped develop such legendary artists as the Everly Brothers, Roy Orbison, Waylon Jennings, Willie Nelson and Dolly Parton. While manager of RCA in 1957, Atkins helped design RCA's well-known Studio B.

The theme for the show is "Advancing the Art of Sound—Leading the World of Audio in the 21st Century." Forward-looking workshops will cover topics like "What Format Should I Record On?" "Wireless Technology," "Advanced Networks for Post Produc-

tion Audio" and "Computer & DSP Based Systems Design & Control." Additionally, a set of workshops will focus on audio trends.

Special Events chair Lisa Roy introduces the AES Platinum Artists Series: High-profile producers, engineers and artists will discuss the challenges and opportunities of collaborating within today's technology-intensive studio environment.

Papers chair James Johnston has developed 17 sessions, including "Room Simulation for Multichannel Film & Music," "Optical Microphone's Breakthrough," "Convergence of the PC & the Audio Production Facility (Technology, Trends & Predictions)" and "Understanding the Performance of Multimedia Communications."

Also announced: Sony Corporation chairman of the board, Norio Ohga, will receive an honorary AES membership. The presentation will occur during opening ceremonies.

INDEPENDENT ARTISTS RIGHTS GROUPS PROTEST SDMI

Musicians United (a non-profit organization advocating the rights of online music artists), in association with TIMPANI (Truly Independent Multimedia Artists Network International) and FREE-MUSIC.com launched the Art-to-Heart Open Music Format Initiative to protect the Fair Use rights of consumers and artists to encrypted music.

The group issued a statement that the Secure Digital Music Initiative (SDMI) threatens to deprive con-

—CONTINUED ON PAGE 16

SEATING STILL AVAILABLE FOR TEC AWARDS

A limited number of seats are still available for the 15th Annual Technical Excellence & Creativity Awards, to be held Saturday, September 25, at the Marriott Marquis in New York City. Master of Ceremonies Father Guido Sarducci is back by popular demand and will host the evening's festivities, which include the induction of Tom Dowd into the Hall of Fame and Sting receiving the Les Paul Award.

Several more companies have joined the TEC Awards as sponsors. They include Kurzweil Music Systems (Gold), Shure Bros. (Gold), Warner Music Group (Gold), Neutrik USA (Silver), Tascam (Bronze), Westlake Audio (Bronze) and Ultra Sound/Pro Media (Bronze).

For ticket information, call Karen Dunn at 925/939-6149. ■



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

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



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CIRCLE #008 ON PRODUCT INFO CARD

INDUSTRY NOTES

Philip Hart, president of Harman Pro Group International, announced changes to the structure of the Harman companies in the UK Soundcraft, Spirit, BSS, C Audio, Amek, DAR and Allen & Heath will be formed into a new group with a central management team headed up by Hart. David Karlin, who is currently managing director of BSS and C Audio, will take on additional responsibilities as deputy managing director of the group. Alison Brett, managing director of Soundcraft for the past three years and group managing director with responsibility for Soundcraft, Amek and Allen & Heath since June 1997, decided to take on a new challenge, returning to school to study law...AKG Acoustics (Nashville) tapped Douglas A. Kittle as technical services representative. Kittle came to AKG from Audio Video Environments...SADiE Inc. (Nashville) announced the appointment of Jeff White as Western regional sales manager. White's most recent position was as president of White Noise Marketing. Prior to that he was regional sales manager of AMH Sales Company, both of California...David Watts was tapped as managing director of Dolby Laboratories' European headquarters at London and Wootton Bassett, England. Watts will succeed Gary Holt, who will retire in January 2000. Watts is currently VP of marketing and is based at Dolby's San Francisco headquarters. In addition, Tim Partridge, formerly director of film distribution based at Dolby UK, assumed the role of VP of marketing at the company's San Francisco offices. Also, Graham Edmondson, based in Wootton Bassett, will act as the liaison with European and worldwide film distributors, overseeing all film marketing activities for the UK office...Steve Garth, former VP of sales and marketing, was named CEO of Steinberg North America (L.A.). Garth, a 20-plus-year industry veteran, started out at Rob

Argent's Keyboards in London, went on to work as managing director for the Oxford Synthesizer company and joined Steinberg in 1990. In other news, Craig Lewis was named national sales manager of Steinberg North America. Lewis was formerly Western regional sales rep...Sharon Corbitt was appointed marketing director for Ocean Way Nashville. Corbitt previously served as vice president of PushPull Management...Dr. Andy Hildebrand, founder and chief scientist at Antares Audio Technologies, was selected by the Society of Exploration Geophysicists to receive the society's Enterprise Award for his breakthrough work in the development of the geophysical industry's first stand-alone seismic data interpretation workstation...Simon Sinclair was brought onboard as national sales manager at TC Electronic (Westlake Village, CA). The company now distributes Dynaudio; Carsten Lebeck will be responsible for building the Dynaudio Acoustics business...ASC Companies (Dallas, TX) appointed Daniel Nix as vice president of sales. Nix previously served as regional sales manager at Marketing Concepts...Jim Havlovick joined Berkeley, CA-based Meyer Sound as director of operations. Havlovick previously worked for Crest Audio and JBL Professional...Sequoia Electronics (San Jose, CA) assumed operations of VIT International. The full VIT listing of Ampex parts will be incorporated into the Sequoia inventory...Syntrillium Software (Phoenix, AZ) tapped digital audio consultant, author and teacher David Huber to be a "Traveling Sideshow Evangelist." Huber will tour the U.S. and Canada providing staff training and customer clinics using Cool Edit Pro. Appointments can be made through dmhuber@syntrillium.com...Stephen Whitesell was appointed assistant to the president at SoundTube Entertainment (Park City, UT). ■

—FROM PAGE 12, CURRENT

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The group also alleges that the SDMI may have an adverse effect on the independent music industry, saying that possible high fees required to create SDMI-compliant files may prevent independent music artists from distributing their work in SDMI formats. The group believes that if vendors cease supporting open formats, SDMI will control the system of online music distribution, marginalizing independent artists in the Internet music economy.

Art-to-Heart posted an online petition at www.free-music.com/petition.art2sign.html, urging vendors to support open audio formats. The organization stressed that this initiative does not encumber the ability of SDMI supporters to distribute copy-protected music, but that it protects the rights of those who lawfully distribute music in open formats.

CORRECTION

In the August issue of *Mix*, in the TEC Awards Voter's Guide, incorrect credits were listed for Sony Music Studios in the category of Mastering Facility. The correct credits are Red Hot Chili Peppers *Californication*, Herbie Hancock *Gershwin's World*, Tom Petty *Echo*, C Note *Different Kind of Love*, Celine Dion *These Are Special Times*, Let's Talk *About Love*, Fountains of Wayne *Utopia Parkway*, Jeff Buckley *Sketches Of?*, Miles Davis *Complete Miles*, Gil Evans *Box*, Sessions at West 54th and Harry Connick Jr. *Come By Me*.

The credits listed were mastered by Future Disc Systems (*Practical Magic* soundtrack), Masterdisk (*DMX Flesh of My Flesh*, *Blood of My Blood*), MasterVoice (*Wyclef Jean Presents The Carnival*), Ocean View Digital (*Meet Joe Black* soundtrack), Powers House of Sound (Lauryn Hill *The Miseducation of Lauryn Hill* and Jay-Z *Hard Knock Life*), and Sterling Sound (*Erykah Badu Live*).

Mix apologizes for the oversight.

In "Hot Off the Shelf" (July '99), we inadvertently printed the wrong phone number for Apogee Electronics. The correct number is 310/915-1000. ■



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- Change Meter...
- Quantize...
- Change Velocity...
- Change Duration...
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- Split Notes...
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- Click
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WHY DOES THE RESPONSE OF BECAUSE IT'S



WHERE'S THE EXTRA SUBWOOFER?

Greg Mackie and his team were recently invited to present the Digital 8•Bus to Britain's top engineers and producers in the "A" rooms at two of the world's most famous recording studios. Of course we

used HR824 active monitors.

When the presentations were over, many of the veteran engineers were astonished to learn that they had been listening to 8-inch monitors instead of the studio's Big Speakers. Some even so far as to touch the house monitors' 12 and 15-inch cones while the HR824s were playing. They just couldn't believe the bass output from such a compact box.

TIGHT, RESPONSIVE BASS FLAT DOWN TO 39HZ.

Reviewers and owner's warranty card responses are unanimous: The HR824 has the most accurate bass they've ever heard from an 8-inch monitor.

And the quality is as astonishing as the quantity. Fast low frequency transients like kick drum slaps and electric bass notes have a crisp articulation that makes other monitors sound like mush.

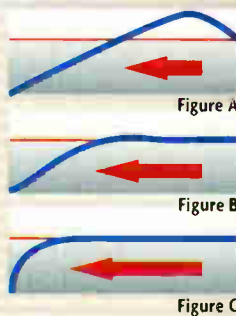
ANOTHER TRANSDUCER INSTEAD OF A PORT.

The more LF transducer cone area a speaker has, the more bass it can produce. But a huge low frequency transducer isn't an option on a compact near field monitor. To augment primary bass output, other monitors resort to using

ducted ports that can convert cone movement into extra low frequency air movement. But for optimal output, a ducted port needs to have the same area as the low frequency transducer. In other words, an 8-inch near

field monitor would need an 8-inch vent. Needless to say, you haven't seen any vents this big on our competitors' near field monitors. When vent size is reduced to maintain compact enclosure size, bass output is compromised. And, forcing a lot of energy out of a couple of small ports can create audible wheezing and whooshing.

Instead, the HR824 adds a large passive transducer with the cone area of another 8-inch woofer. Occupying the entire rear panel of the monitor (see photo below), this ultra-rigid honeycomb laminate piston tightly couples with the 824's active bass transducer. With a combined cone area greater than a single 12-inch woofer, you get exceptionally extended bass without port noise complaint.



Pushing out the curve: redistributing LF energy with synthesized mass.

SYNTHESIZED MASS AND

OTHER STORIES.

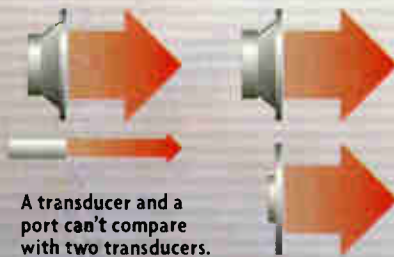
The cool thing about an active speaker system is that you can basically rewrite laws of physics that otherwise limit passive speaker designers.

A low frequency transducer's free air response graph looks like a bell curve—it's most efficient in the mid band (Fig. A above). To flatten the curve (and extend low bass), you have to proportionally reduce higher frequency output. Acoustic designers use all sorts of tricks to do this—and usually end up with response something like Fig. B.

The most effective way to "shape" an LF transducer's output would be to increase its mass (cone weight). But for designers of traditional passive speakers, adding mass hasn't been a practical option since it would dramatically slow down the woofer's transient response.



Rear view: The HR824's electronics conceal an ultra-rigid, honeycomb composite passive transducer.



A transducer and a port can't compare with two transducers.

Last fall we won the pro audio industry's coveted TEC Award for best near field monitor. Modesty prevents us from listing the impressive field of competitors but you'll probably encounter their ads in this magazine.

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HR824 HAVE THE MOST ACCURATE BASS ANY 8-INCH ACTIVE STUDIO MONITOR? REALLY A 12-INCH MONITOR IN DISGUISE.

Because the HR824 is internally powered (active), we could precisely control parameters that normally occur outside of the loudspeaker. Greg and the engineering team were able to create an electronic "symbiotic relationship" between the low frequency transducer's voice coil and its FR Series amplifier voltage output. At mid-band frequencies, the woofer "sees" extra synthetic "electronic mass." This effectively pushes out its lower bass response without compromising its lightning-fast transient response (Fig. C).

MASSIVE POWER THAT WOULD PROBABLY POP A PASSIVE MONITOR.

Punching out crisp bass requires a lotta watts. The FR Series™ high-current bass amplifier module inside the HR824 delivers a solid 150 watts of power with peak output in excess of 250 watts (plus another 100 watts for mid and treble). That's significantly more than any other 8-inch active monitor. Moreover, the HR824's servo coupling and ultra-short signal path put that power to work far more effectively than a passive monitor and a 250-watt stereo amp could.

PART OF A TIGHTLY-INTEGRATED SYSTEM. Our servo bass system is only one contributing factor to the HR824's amazing accuracy.

Internal power amplifiers are "fed" by phase-accurate, low distortion electronic circuitry instead of a crude coil-and-capacitor passive crossover. The HR824's proprietary logarithmic wave guide not only widens treble dispersion but



also smooths the midrange transition between high and low-frequency transducers. At the critical 3500Hz crossover point, the alloy HF transducer's output is acoustically the same diameter as the LF transducer's output, thanks to the wave guide's flaring design (refer to the actual HR824 photo on the other page, not our ad folks' fanciful rendering at left).

Indirectly, the HR824's LF transducer even contributes to high midrange accuracy. In many monitors, woofer cone harmonic vibrations bounce around inside the enclosure and then exit through the thin woofer cone. The result: smeared imaging and muddled details. Instead of a chintzy chunk of fluff, the HR824's enclosure is utterly packed with high-density absorbent foam. Cone vibrations go in, but they don't come back out.

DON'T SKIMP. It's amazing how many studio owners will mortgage the farm for money-is-no-object, esoteric microphones... and then monitor on cheap, passive loudspeakers. If you aren't using ACTIVE near field monitors, you're seriously compromising your creative product.

We urge you to visit your nearest Mackie Designs Dealer and seriously audition **all** of their active monitors with some demanding, bass-rich program material. Judge our claims (and those of our competitors) for yourself. We think you'll agree that the HR824 is truly the best of the best.



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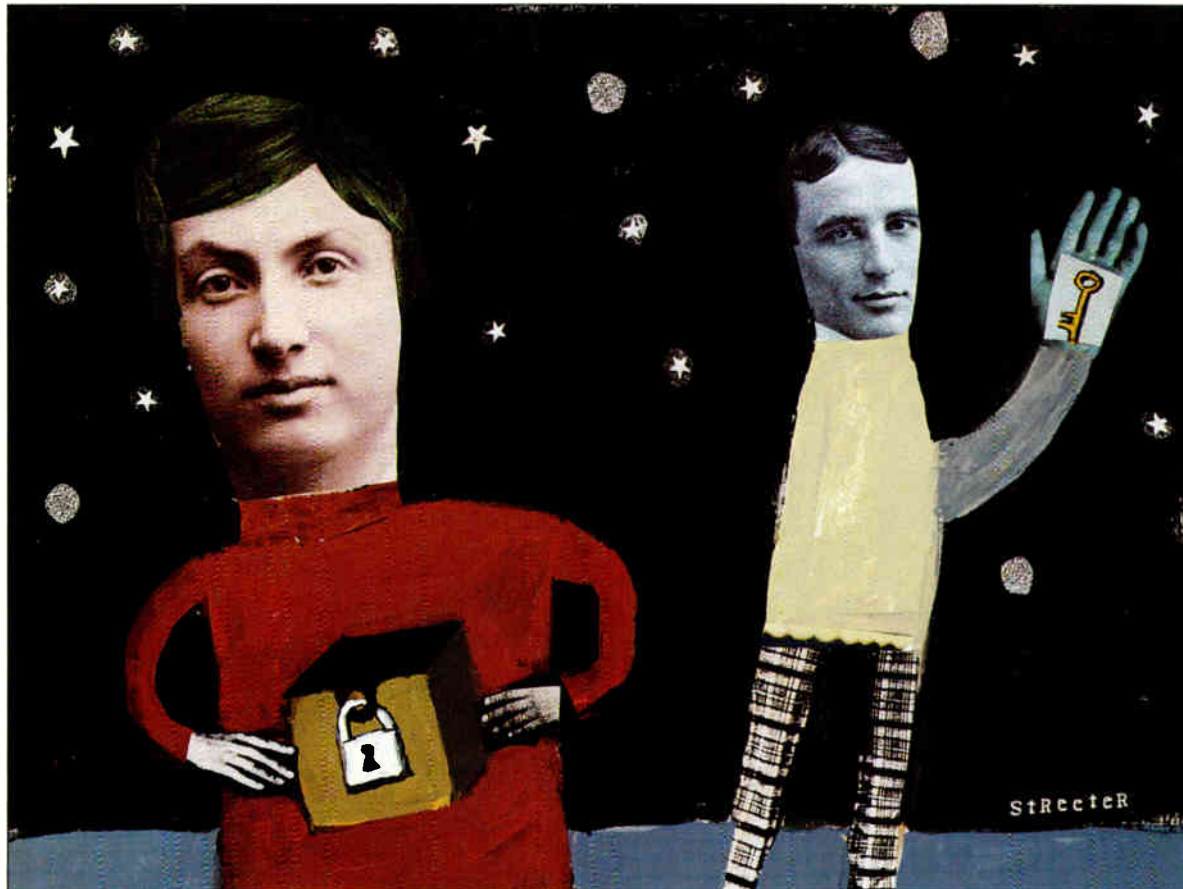


ILLUSTRATION KATHERINE STREEKER

CHAPTER I

If you were walking along and stumbled onto a canvas bag on the road, would you stop? Would you look inside? What if nobody else were around? Would you have a look then?

I always have a tough time with this one, and it happens to me far too often. I feel the need to look, as it's always possible that some cretin has put nine kittens in there and they need saving. Or maybe it's just a bunch o' bucks that some kid runner abandoned in a moment of Real TV street drama. And there is always the bomb possibility.

For me, the biggest problem is the kitten scenario, as more than once I have become enraged by this, found and subsequently reverse-engineered the offending party. I am, for those who might

somehow have missed this, a militant animal rights advocate. And I have learned that violence, directly and immediately dispensed, seems to make certain points better than the socially acceptable alternatives.

So what if this bag is open enough to see in, and you see... cash? What do you do? Leave? Call the cops and wait? Take it to the cops? Or maybe just take it?

Me? I wouldn't keep a bag with \$500 in it. It just isn't right. I wouldn't keep one with \$5,000 either. \$500,000? Well, now that's large enough to warp the fabric of reality, or at least to reshuffle one's values. At half-meg, it's not some guy's cash from selling his 'Vette or even his savings, and it's not a 7-11 knockover. It's part of something

too big and powerful to mess with. So you are faced with a true dilemma—either you are stopped by the morality issue, or you try to get a feel for whether or not you think you can walk away clean. I mean, you can't afford to have the people who lost it come knocking on your door in three weeks and persuading you to return it. After all, even I once said, "I have learned that violence, directly and immediately dispensed, seems to make certain points better than the socially acceptable alternatives."

So, the question really is, what would *you* take if it were presented to you, totally free, without recourse, and, oh yes...illegally?

How many of you have *absolute* moral lines, never crossed? How many answer "absolute moral lines," dismissing the time you bent

BY STEPHEN ST. CROIX

Introducing the 308.

The newest member of the MOTU family.

If you need digital I/O for your computer, MOTU's new 308 delivers more than any other audio interface.

The 308 gives you three banks — 8 channels each — of optical S/PDIF, RCA S/PDIF and AES/EBU digital input and output.

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- 8 channels of RCA S/PDIF digital I/O (24-bit).
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- Word Clock In and Out.
- Adds 24 channels of digital I/O to a core 2408 or 1224 hard disk recording system.
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"The Radial JDI is the platonic ideal of DI's" Recording Magazine, July 1998

"Top Tone, Best Built, Most Innovative" Bass Player Editor's Award, November 1998

"You won't find anything offering better performance" Electronic Musician, November 1998

"The JDI is a winner from every angle" Pro Audio Review, March 1999

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"The Radial JDI is the clear winner" Mix Magazine, July 1998

"These DI's deliver flawless sonic Quality" Audio Media, May 1999



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THE FAST LANE

over to pick up a quarter on the sidewalk? Or a ten? Have any of you kept a bank error in your favor? Maybe you just waited to "see how long it would take them to figure it out," and now that you recall, they sorta never did?

About five years ago my bank decided to give me \$115,000 for no apparent reason. This is totally true, by the way. The bank had just been acquired, and in transferring accounts, they made some sort of error that erroneously credited one of my accounts with 115k. I will now reveal what I did, so that you may know and understand me better. I waited. Not really on purpose, but as the person who does my books runs about a month behind, it was the end result just the same. (See how rationalization works?) When the next month's statement came, the money for nothing

What would you take if it were presented to you, totally free, without recourse, and, oh yes...illegally?

was still there. I called the bank and reported it and was told it was not possible. It appeared the next month as well. I called again and told the story one more time. The representative told me that if their bank was really that bent on giving me the money, why don't I just shut up and let them?

Finally, I made a personal appointment and got the manager to take the money back. I later learned that when this type of mistake is so deep that the local branch can't find it for three months, it probably would not have ever been found, and worse yet, there was a very good possibility that the money was never actually returned to the bank itself, as there was no place to put it, no imbalance shown to correct. So somebody was very happy that I came walking in. Now I wonder if I did the right thing. After all, banks screw us out of millions every year with a cute little-known trick. Every one of your daily compounded interest accounts is rounded down to the nearest penny. Every day. This one trick nets the banks millions of dollars a year—a slush fund to cover mistakes like...

Four years later, the bank accidentally entered a \$50k deposit as a withdrawal and gave me a two-month battle when I tried to correct it.

So the Faceless Super-capitalists are evil, money-grubbing Devils. And We The People are getting used to thinking that anything we can get from them should be gotten. So be it.

But the problem is that this type of thinking is being applied to other business entities, as if they were the same mega-mongers. We tend to think that as long as we are stealing from any faceless source, it's sort of okay.

CHAPTER II

I have never been a supporter of the hyper-paranoid rhetoric that has come from the recording industry in the past—promises of its imminent collapse when audio cassette technology first appeared, and again 200 years later with the arrival of DAT. Remember that one? We were promised that if SCMS weren't immediately implemented and enforced, the second collapse of the entire recording industry would ensue.

As a result, an incredible \$750 Sony consumer DAT recorder, the DTC-75ES, sat unfinished and, of course, unavailable for far too long while this SCMS bull was thought up and forced upon the world in the international courts.

These beautiful little units offered much better transports and dramatically improved A/D converters compared to what we, the recording pros, were forced to use to make copies of our own projects—the infamous Sony PCM-2500a.

Personally, I cheated. I found (as many of you did) that certain Roland gear would accidentally strip the SCMS bits from the data stream. So, I bought four of the little DTC-75ES recorders and linked them optically through the Roland stuff. I ran the Roland gear in bypass, and as it still stripped the stream, I ended up with a great studio DAT setup.

Then CD-R appeared. Same rhetoric. But, as usual, nothing happened!

And what about those promises that home video recording would end the world as we knew it? Well, actually home video recording did end the world as I knew it. It allowed me to go out at night and brag that TV didn't rule my life like it did all those pathetic geeks and then come home and watch all those pathetic geek sci-fi shows in secret.

CHAPTER III

Of course, people are going to make a copy of just about anything they want

The new AKG C12VR is

The industry admits that

phone on the planet.

perhaps the best invest-

music. Each one is a

Still made the old-fash-

in Austria. Technology

and performers have

an engineering anomaly.

it's possibly the best micro-

Wall Street agrees that it's

ment in the business of

handcrafted masterpiece.

ioned way, one-at-a-time,

so unique, that engineers

aptly labeled the C12VR.



ROCKET SCIENCE

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



FUTURE DISC SYSTEMS

THE FAST LANE

for one reason or another—a movie off the air so they can see it later, a second install of Word on their laptops so they can play around while waiting for Godot or whoever, or even copies of commercial CDs.

I have been copying commercial CDs for many, many years myself—simply to avoid asinine filler songs. I buy the CDs, digitally load the songs I like into my DAW, sequence the collection as I see fit and burn two—one for the car and one for home. I will tell you, however, that not once in my life have I ever borrowed any CD and copied a single song. Never. Too much like cannibalism.

But what are kids doing with the new free-standing CD copiers from Philips and others? Exactly what I won't do. And that gets us a bit closer to the point. Today's mentality says it's okay to borrow Photoshop from your buddy and just leave it on your computer when you return his original CD, or to download MP3 copies of current songs, to copy a Playstation game, or to download a cracked copy of a new TDM or VST plug-in from some cool warez site.

After all, you are not actually stealing anything tangible, anything physical, anything that cost the creators actual money.

The entire question of what data theft really is, who it hurts and what it costs us is complicated. *Very* complicated.

Until now, the nature of society and the level of technology have kept us relatively safe. We have generally divided theft into two convenient categories: physical property and our newer, messier invention, data. Physical property theft is simple. It is illegal. Prosecution ranges from ignoring multimillion-dollar stolen aircraft because of political connections, to death for taking one loaf of bread.

But *data* theft? This is being handled very differently. Data theft is a new crime, as data itself is new, at least digital data in the form that masses can use.

Amazingly, data theft in the form of industrial espionage is basically *not* illegal. It is illegal to break and enter to get it, but if you passively read a data stream through an outside wall and have not illegally entered a property physically or electronically, or if some disgruntled employee *gives* you research secrets, they're yours to do with as you please! What a world.

Data theft can itself be broken down into two distinct categories, as well—local and commercial. In local data theft

situations, the criminal is a person who makes a copy of software for a friend or copies a CD and gives a few of the copies away. This is so common that not only is prosecution extremely rare, but in many cases, the laws were simply changed to overlook the crimes entirely.

Commercial data theft is quite complicated to pin down, but new laws and recent legal definitions concerning the receiving of stolen goods have expanded to cover the results. Here are some facts that you may not be aware of, as the laws are pretty new:

- Cracking software is illegal.
- Posting cracked software is illegal.
- Downloading cracked software is illegal.

It doesn't matter that no money changes hands directly; the laws now make the whole thing illegal.

CHAPTER IV

Until very recently, the enforcement question was whether to try to keep kids from copying, or to use resources against the big guys. Well, that *ain't* the question anymore. With the Internet sporting literally thousands of sites that offer free illegally cracked software, the little kids *are* the big guys. Technology has brought theft to the masses.

These assholes are *your* worst enemies, whether you realize it or not. Regardless of whether you are honest and don't use this cracked software, or dishonest and do download and use it, these guys *will* kill you. Either way, you lose.

Here are some observations to consider: Estimates are that about 50% of all software in use today worldwide is stolen! The proliferation of hackers with cute names and their black-pirate sites is fostering a sort of "cool" tolerance and even support from the public. People seem to think these people are sort of "Robin Hoods" of the digital domain, stealing from the rich and giving to the poor. Illegal warez sites are everywhere. Any kid can find them in three minutes the first time, and ten seconds after that. (You don't mind your ten-year-old daughter logging on to get a free copy of Pokemon and being diverted directly to "Cum Shot City," do you?)

And for those of you without kids, there are other wonderful ways you lose. This new public tolerance is not making the legitimate manufacturers too happy. They, in turn, are pressuring Congress, which in turn is forced to modify and even add laws to make it easier to prosecute cases, and to do it

—CONTINUED ON PAGE 227

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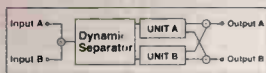
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TWENTY YEARS OF WRITING

AND THEY PUT YOU ON THE DAY SHIFT



ILLUSTRATION: ANDREW SHACHTAT

This month, I mark my 20th anniversary as a professional audio writer. Okay, stop yawning. I know you don't want to read another deadly "my life in audio" column by this (or any other) self-appointed sage about how much things have changed since I got started, or why the industry/the music/the gear/the drugs/life in general was so much better then, or how there were giants in those days and today there are only small fries toiling away on pointless projects in their little basement studios.

Besides being boring, most of those essays are simply not accurate. The gear today is much better, much cheaper and, for the most part, much easier to use. The audio industry is way bigger than it was then, and it is far more interesting,

too. Twenty years ago, it seemed the only worthwhile jobs in the field were related to making music. Today there are dozens of other areas that are just as exciting for the aspiring audio professional. We have thrown open the doors of our little fraternity to a much broader section of the population, and I think that's good.

No, I'm not going to lecture. I'm simply going to tell the story of how I got into this business. It has no moral, and it's not exactly a boyhood-dream-come-true fable. ("Gee, Mom, when I grow up can I be a professional audio writer?" "Be quiet, son, and practice your bassoon.") It's more like a full-length demonstration of John Lennon's aphorism, "Life is what happens to

you when you're busy making other plans." Like many people, I am where I am today not by design, but by a combination of distraction, disappointment, serendipity and accident. But I don't mind it at all—I doubt I would take the same route if I had the choice, but it's nice to be here.

From a very early age, I had three passions: music, mechanical toys and words. I started reading at a ridiculously precocious age, and by the time I was in the third grade had consumed just about everything worthwhile in my school library, including a couple of encyclopedias. Early on, I figured out that if I could read, I could write, too. My first scribbles were short stories usually involving my friends, space rockets and large explosions.

BY PAUL D. LEHRMAN

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INSIDER AUDIO

Not much later, I discovered the power of the press to inform, inflame and enrage. When I was 8, I published a little family newsletter on my father's duplicating machine (circulation: 6, if you counted my sister, who couldn't read yet). By the time I was 13, I had gotten thrown off the staff of my junior high school newspaper for writing an editorial complaining that the student government elections were rigged, and for insubordination to the faculty jerk who supervised us. So I immediately started an "alternative" rag. Its mission was to insult everyone from the principal on down, and it almost got me suspended and nearly got the hapless English teacher we had convinced to sponsor us fired.

In high school, I continued this pattern—writing inflammatory articles for the student newspaper about politics and student rights, as well as music and pop culture—and learned about the realities of being a columnist: the rights (they have to publish you every issue, no matter what you come up with) and the responsibilities (you have to come up with something for every

issue). One article, a satirical piece about student drug use that I wrote under a pseudonym, set off the largest scandal in the town's history, thanks to hundreds of hand-wringing parents and teachers who took the piece completely seriously. In college, I wrote mostly breezy puff pieces about student goings-on and mostly nasty reviews of musical and theatrical events, until I got into a fistfight with the editor in the cafeteria over some obscure issue like censorship vs. editorial judgment.

After college, I found myself working as an engineer at a New York classical radio station, which put out a monthly program guide/magazine. The editor of the magazine, knowing my interest in contemporary music, asked if I would like to contribute reviews of new recordings of 20th-century repertoire. The first review I wrote was of an album on the avant-garde label CRI called *Electronic Pioneers*—works of early composers of electronic music, some of whom I had been studying with just a few years before. When I got an extra \$25 in my paycheck that week, it was one of the few moments of real joy I experienced at a job that was otherwise pretty deadly. I continued to

write for that magazine, even after I was let go from the station—they had finished building a new facility and didn't really need me any more, and besides, I wasn't very good at my job.

I was even on the cover of one issue of the station's magazine. Every month they featured an arty shot of a faceless model playing one orchestral instrument or another. One month they were acutely embarrassed when they found out the model they had hired to "play" the harp had her hands entirely in the wrong place, so they wanted to make sure that mistake wasn't repeated. The month I got fired, they wanted a bassoon on the cover. They knew I played that odd instrument and would know where to put my hands, so they asked me to sit for the cover—even though I had been sacked. It's one of only two times in my life that I've worn a tuxedo, and I must say I looked great, even though you couldn't see my face.

After I left New York and found myself unemployed in Boston, I approached the supplements editor of the *Boston Phoenix*—an alternative weekly known for its excellent arts coverage, incisive political writing and the raciest personal ads in the business—and was



given several assignments to write about consumer audio, or what we called then "high fidelity." It turned into a pretty regular gig, and I continued writing for the *Phoenix* for another half-dozen years, and sporadically even today.

But after about a year with the *Phoenix*, my journalism career took a holiday, when I got what sounded like the ultimate job offer. Since college, I had been trying to land a staff position at a recording studio. I had made some excellent contacts in New York and Boston, but received no bites. Suddenly, I had in my hand a letter from a brand-new, state-of-the-art 24-track MCI-equipped studio. Its owner asked me to come on as chief engineer. He would pay my travel expenses, find and pay for a place to live, and even give me a car. The studio was the first step in a planned corporate empire, which would include a film company, a publishing company and a record label. The only catch was (and I couldn't figure this out until I looked closely at the stamps on the envelope) it was in Trinidad.

It was an offer I couldn't refuse. I turned down a potentially lucrative theater gig (see next month's column), and my brand-new girlfriend and I decided

to seek our fortunes in the Third World.

I had never been outside North America before, and I had little idea what to expect. My new boss (an expatriate American who had married into a prominent local family) painted a rosy picture of the place, as would be expected. Therefore, I was unprepared for things like insane landladies, sporadic water supply, a phone system where the chances of a wrong number were something like 90%, and a work ethic based on two words: "Just Now." That phrase could be interpreted just about any way you wanted: It could mean in a minute, in an hour, maybe later today, in a week if you're lucky, or not during either of our lifetimes.

The studio was in a remote jungle location, in an abandoned World War II U.S. Navy tracking station, which the local government had essentially given to my boss's company in some kind of nepotistic sweetheart deal. It was about three miles from the nearest public highway, and some ten miles from the city where we had our offices. Getting a telephone line to the studio involved stringing many miles of copper wire. We never did get a working phone into the place for more

than a few hours, and I was constantly running into the office in town to make phone calls to book clients, order supplies and arrange for the repairs that were constantly needed in the tropical climate.

There was another reason for our telephone problems. Trinidad, at the time, was said to have the highest standard of living of the independent Caribbean nations, which unfortunately wasn't saying much. Most of the island's economy was centered around oil, which was under the control of American companies (agriculture in what should have been an extraordinarily fertile land had basically been left to go to hell). That meant plenty of pollution and an incredibly unequal distribution of wealth. Lots of really poor people living in wretched conditions.

As in many Central and South American countries, the single biggest event in Trinidadian society, the day that all Trinidadians rich and poor lived for, is Carnival: the celebration of the beginning of Lent, known in the States as Mardi Gras. There are fireworks, concerts, all-night bacchanals, battles of the steel pan bands (for which groups

—CONTINUED ON PAGE 209

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Studio Pro99



Mix Publisher Jeff Turner, left, and StudioPro99 Conference Director Hillel Resner, right, thank Gary Rosen of Sony for sponsoring the Monday evening cocktail reception.

More than 200 audio professionals descended on the Universal City Hilton in mid-June for StudioPro99, *Mix* magazine's second annual technical and business conference. This year's theme, "Emerging Technologies and the Future of Audio Production," proved more than appropriate, as the two most well-attended panels were Audio Production for the Web, moderated by Richard Elen, and Sound Design for Interactive Entertainment, moderated by longtime *Mix* contributor Larry the O.

The two-day event kicked off with a panel on Mix Formats and Conversion Issues, moderated by *Mix* editor George Petersen. Not surprisingly, most on the panel, including Allen Sides and Dave Reitzas, agreed that nothing in the digital domain beats ½-inch analog. At least not yet. *Mix* contributor Bob



Hodas then led the first of his two panels on studio acoustics. The buzz word of the day, with nods to Dr. Peter D'Antonio, was "optimized."

A luncheon forum was held each day, the first moderated by *Mix* L.A. editor Maureen Droney and focusing on how music producers balance creativity, commerce and technology. The second-day lunch was devoted to surround mixing for music, film and DTV, moderated by *Mix* film sound editor Larry Blake.

The festivities kicked off with a discussion of Mix Formats and Conversion Issues, featuring, from left, Allen Sides, owner/engineer at Ocean Way Recording; George Petersen, moderator and *Mix* Editor; engineer/producer Dave Reitzas; mastering engineer Dave Collins of A&M; and mastering engineer Steve Hall of Future Disc.

Other panels included Independent Engineers/Producers—Taking Care of Business, in which moderator Dan Daley hosted a lively discussion that ranged from contracts with new bands to potential pitfalls in dealing with labels; The Hybrid Workspace: Integrating Consoles and Workstations; and day two's closing session, which amounted to a tutorial on New Audio Formats—DVD-Audio and Super Audio CD, with engineers who have worked in 5.1 for DVD and representatives from Sony/Philips on hand.



Sponsors for StudioPro99 included Dolby Laboratories and Genelec, which together hosted a 5.1 demo room that proved exceedingly popular; Quantegy; Alesis; Audio-Technica; Mackie; and Sony, which hosted the evening cocktail reception. Audio tapes were made for each session. For copies, call 800/747-8069.

Plans are under way for StudioPro 2000, to be held next June. Watch these pages for updates. ■

Mix contributor Bob Hodas, second from right, hosted the first of his two panels on Studio and Control Room Acoustics. Pictured, from left, are Mix publisher Jeff Turner, studio designer Vincent Van Haaff, manager of Sound City Studios Shivaun O'Brien, acoustician and president of RPG Diffuser Systems Dr. Peter D'Antonio, designer George Augspurger, designer Chris Pelonis, Hodas and Conference Director Hillel Resner.

PHOTOS: LUCIA DEMAS

The bod boys of StudioPro99, from left: Mix Publisher Jeff Turner; Mix Technologies Editor and Program Chairman Phil De Lancie; Conference Director Hillel Resner; and Mix gadfly Stephen St.Croix.



The second panel on acoustics, *Creating the Surround Monitoring Environment*, was moderated by Mix contributor Bob Hodas, far left. Joining him, from left, were: Hank Sanicola, co-owner of O'Henry Sound Studios; independent producer Robert Margouleff; Gory Myerberg, director of technical operations at A&M Recording Studios; Michael Verdick, chief engineer and head of A&R of Unitone Recordings; and facility designer Peter Grueneisen of studio bau.ton.



Dolby and Genelec teamed up to sponsor a 5.1 demo room, available for half-hour sessions throughout StudioPro99. Pictured, from left: Rich Quattrone of Dolby, Frank Sanicola of Genelec, and Nancy Byers-Teague, John Kellogg and Gene Rodzick, all of Dolby.



Mix L.A. Editor Maureen Droney, seated far right, hosted the first of the conference's luncheon forums, sponsored by Quantegy and devoted to Music Producers: *Balancing Creativity, Commerce and Technology*. On the panel were, seated L to R: producer David Kahne, producer Denizl Foster, producer Dave Jerden and Droney. Standing, L to R: producer John Porter, producer Ron Nevison, producer Sylvio Mossy and Steve Smith of Quantegy.



Mix L.A. Editor Maureen Droney (left) and Royaltone Studios manager Jane Scobie surrounded producer John Porter in an LCR configuration.

Business issues proved to be a hot topic, with a panel on *Independent Engineers/Producers: Taking Care of Business* sparking lively debate. On the panel were, L to R: producer Tony Shepperd, engineer John Potoker, engineer/producer Thom Fanunzio, engineer/producer Ali Schmitt, moderator and Mix East Coast Editor Dan Daiey, engineer/producer Joe Chiccarelli and personal manager Thom Trumbo of Moir/Marie Entertainment.



The lunchtime forum on *Surround Mixing for Film, Music and DTV*, hosted by Dolby, included, L to R: Steve Thompson of POP Sound, engineer Ed Cherney, producer Robert Margouleff, engineer/educator John Eargle, engineer Leanne Ungar and Mix Film Sound Editor and moderator Larry Blake.





Mix Film Sound Editor Larry Blake, left, hosted a panel on *The Hybrid Workspace: Integrating Consoles and Workstations*. He was joined by, from left, re-recording mixer John Ross, Soundelux chief engineer Bill Johnston, engineer Brant Biles, engineer Charles Dye and sound designer/mixer Bruce Nazarian.

Mix New Technologies Editor Phil De Lancie, center, hosted the final session on *New Audio Frontiers: DVD-Audio and Super Audio CD*. Joining him, from left, were: Warner Music Group VP Ed Dunwoody, Capital engineer Dana Thompson, AIX Audio Group President Mark Waldrop, audiophile producer Joe Hestley, David Kawakami of Sony Electronics and Conference Director Hilal Resner.



The panel on *Audio Production for the Web*, moderated by longtime audio industry writer Richard Elen, center, proved immensely popular with the audience. From left: encoding.com's Todd Sawicki, Internet pioneer Lauren Weinstein of Vortex Technology, author/musician Ron Simpson and CEO/president of FastBand Andrew Spanswick.

Just to prove that he really exists, Mix columnist Stephen St. Croix, second from left, hosted a salon at the evening cocktail reception.



Longtime Mix contributor Larry the O, far left, moderated one of the more lively panels, *Sound Design for Interactive Entertainment*. Joining him, from left, were: Murray Allen, director of post-production at Electronic Arts; Clint Bajakian, composer and sound designer at LucasArts; Aural Director of Marketing Bob Safir; Tim Larkin, senior sound designer at Yosemite Entertainment; and Scott Gershin, sound designer and president of Soundelux Media Labs.

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*Some Practical Advice
For Recording Mellotrons,
B-3s, Pipe Organs and
Esoteric Synths*

CAPTURING THE

Keyboards

BY RICK CLARK

Keyboards have always provided an endless array of colors and nuance for music projects, adding tone to an underbed or singing solo in an extended bridge. Listen back to Charles Earland and Jimmy Smith funking up jazz on the B-3, or the Moody Blues' Mike Pinder's dense, orchestrated Mellotron atmospherics, or NRBQ's wildman Terry Smith bashing a clavinet into one of the coolest rock 'n' roll instruments, or E Power Biggs' grand pipe organ performances of Bach, or the amazingly subtle and musical application of analog synth on The Beatles' masterpiece Abbey Road.

So, in this applications feature, the focus is on keyboards. (We've also included a sidebar on choosing and maintaining a studio piano. For information about piano recording, refer to the "Recording Piano" feature in November '97 Mix.) In this feature, Tony Visconti, Cookie Marenco, Leanne Ungar and Christopher Greenleaf describe their advice and experiences recording everything from pipe organ and Fender Rhodes to synths and Mellotron. Mix would also like to thank Anne Catalino and Matt Rollings for their input.

ALL
PHOTOS TAKEN
AT OTR STUDIOS
BY MUFFY KIBBEY





TONY VISCONTI

Over the past three decades, Tony Visconti has produced, engineered, mixed and arranged orchestral parts for some of the most innovative artists in pop and rock music, including David Bowie, T-Rex, the Moody Blues, The Move, Iggy Pop, Wings, Sparks, Strawbs, Badfinger, Gentle Giant, The Radiators, Boomtown Rats and many others. Most recently, Visconti was wrapping up production on Arista band Rustic Overtones.

One of the most exotic keyboards to record is the Mellotron, and its first

cousin the Chamberlain. They are not dissimilar in concept—they are both keyboard samplers that play prerecorded analog tapes. [Mr. Chamberlain left the Mellotron organization to start up his own eponymously named keyboard company.]

I started recording Mellotrons as early as 1968, after hearing that haunting flute intro to “Strawberry Fields Forever.” In London, in 1968, you could actually hire that very same Mellotron. The Beatles hired to play that very

same flute sound and also that flamenco guitar run used at the beginning of “Bungalow Bill” [by pressing one key]. One could also request the sound effects library rack of tapes that The Beatles also used for the jet airliner wheels squealing at touchdown at the beginning of “Back in the USSR.” Even before hot string sounds were available on early ARP synthesizers, the Mellotron afforded the average Brit pop band a sleazy opportunity to have a string section on their record, and it

Here is my Mellotron credo:

A good Mellotron is a sampled Mellotron.

A good Mellotron sample is looped.

A good Mellotron loop is Autotuned.

—Tony Visconti

HOW TO SELECT AND MAINTAIN A RECORDING PIANO

BY MICHAEL C. VECCHIONE

Here are some practical suggestions for selecting the right piano and, equally important, finding a competent piano tuner/technician.

FINDING THE RIGHT PIANO

What is the best piano? This is not an easy question to answer, because no two pianos sound exactly alike. In fact, two pianos with consecutive serial numbers from the same manufacturer may sound completely different. When selecting a piano for purchase or rental, always write down the serial number. Some respected concert stage pianos may not necessarily be the best choice for critical recording. A good concert piano may project well, yet lack extreme clarity. Concert hall acoustics may mask extraneous mechanical sounds, which recording microphones will reveal.

The ideal recording piano is a grand; a minimum length of 6 feet is recommended. In general, pianos 6 feet and larger produce powerful bass, with solid mids and highs, and graceful *pianissimos*. Some smaller grands will not exhibit these qualities because of inadequate string length. Also, the soundboard area of a 6-, 7- or 9-foot grand is much larger than that of a 5-foot or baby grand. Generally, the larger grands also offer higher quality in design, materials and workmanship. Try to buy the largest piano that you can possibly afford, even if you have to do a little creative financing. Also, purchase a high-quality

artist's bench with the piano (a leather seat covering is best), and schedule regular bench maintenance.

GET HELP

When shopping for a piano, get help. A registered piano technician or an experienced pianist can “test drive” a piano and should be able to point out any problems, some of which a nonplaying recording engineer may not notice. For example, if a piano does not “sing,” and notes have a short decay, no amount of editing or re-recording will fix it. A piano with an inferior tone may end up an impediment rather than an asset.

Also, keep in mind that, if you are paying a consultant's fee, his or her opinion should not be influenced by any potential sales commission. Free advice may only be worth what you pay for it.

PREPARING THE PIANO

Any new piano needs to be prepared before delivery. Prep work should include a thorough tuning (balancing of pitch, temperament, octaves and unisons), action regulation (geometrical adjustment of all moving parts to achieve the optimal touch), hammer tone regulation (manipulation of hammer felt to modify the instrument's timbre) and voicing (ensuring that the hammers address each string with optimum consistency).

If prep work is not done, or is done poorly, it could cause some unpleasant surprises during a session. Final tone regulation and voicing should always be done in the room where the piano will be recorded. You may want to have your own piano technician do this work.

FINDING A PIANO TUNER/TECHNICIAN

A skilled and reliable piano tuner/technician is essential.

—CONTINUED ON PAGE 42

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wasn't synthesized; it was the real deal, real strings.

It isn't so strange to learn that the Mellotron was intended to be a home keyboard, an alternate to an electric organ. The infernal mechanism that played a 7-second piece of tape at the touch of a key was not meant for heavy studio or road use. I have witnessed many times a Mellotron tape rack spewing its contents all over the control room floor. It was a gifted roadie who knew how to wind the tapes back onto their rack.

There are special ways to record a Mellotron. The Moody Blues were one of the first groups to get a reasonable quality sound from this instrument. Justin Hayward confirmed to me that Mike Pinder used to smooth out the erratic wobble of the tapes and the limited 7-second playback by recording the same parts triple-tracked and playing slightly ahead and behind the beat so that the wobbles would smooth out a little by subsequent overdubs. In my early use of the Mellotron I did this too, with session players like Rick Wakeman and others.

The only way to record a Mellotron was from its direct output, to get cleaner access to those tapes. It had built-in speakers, but they made the sound even more intolerably low-fi. The tapes were divided into three discrete tracks, so you had a violin, a cello and a flute available on one tape rack. It was soon discovered that you could have a violin and flute sound simultaneously by jamming the tape playback head between settings. This is a physical procedure, not electronic switching. One can only assume that tape head azimuth was never a strong point of Mellotrons.

In recent years, the Mellotron has had a renaissance, and many of these old beasts have been resurrected from scrap heaps. In the late '60s it was apparent that the tapes were not getting any younger or fresher with constant use. I've heard that nowadays there are enthusiastic Mellotron users who've found the original master tapes and are

making copies for current use. This may be all well and good, but then there are the tape heads themselves, which are rutted almost beyond use on some units. In the '80s I realized that there will come a point when the last Mellotron or Chamberlain will fall sideways into the dust, so I decided to record and sample as many Mellotrons as I came across.

I first did this when recording with the Moody Blues in recent years. I produced the albums *The Other Side of Life* [featuring the single "Your Wildest Dreams"], *Sur La Mer* [featuring the single "I Know You're Out There Somewhere"] and *Keys of the Kingdom* (seven tracks). The Moodies were reluctant to use their old Mellotron, kept in storage for over a decade, because of its inherent unreliability. I coaxed their road manager to dust it off and fire it up, and I found the most exquisite string sample. Justin told me that they commissioned the string sounds themselves because they didn't like the original batch that came with a Mellotron. I had my assistant engineer run a DAT as I played and identified each note of the chromatic scale. I then sampled only the best notes based on clarity and the least amount of "wow" and "flutter." Then I spanned them along the keyboard as Akai S1000 samples—a good, clear G# would also have to substitute for a wobbly G and A. The results sounded better than any Mellotron on the planet.

We used the results on tracks of *Keys of the Kingdom*, and of course I retained the samples for my personal sample library. The Moodies are using my sampled string patch on their live dates to this day. What is even more special about my samples is that I looped the notes very carefully so that I am not limited to the 7-second length restriction.

I was also fortunate to have a friend in Los Angeles who has an excellent Mellotron in his possession—Jan Paulshus, a salesman for Roland. He kindly allowed me to stick his instrument's output into my portable DAT recorder, and I played every note of every tape he possessed. Let's face it, these Mellotron tapes will never improve with age. They can't loop either. My philosophy is this: A good Mellotron is a sampled Mellotron. As for the wobble of the tapes, wow and flutter, I intend to start resampling from my DAT originals and run these samples through my Pro Tools rig to even out some of the more vicious wobbles with my

—FROM PAGE 40, SELECTING A PIANO

Ask for recommendations from the local symphony hall or conservatory of music. Another option is to call the Piano Technicians Guild Inc. at 816/753-7747 or e-mail to ptg@ptg.org; this not-for-profit, nationwide professional organization has a membership of more than 3,500 piano tuner/technicians, mostly located in the U.S. and Canada. The PTG's nationwide directory will list a Registered Piano Technician (R.P.T.) in your area.

Tuning for recording takes a long time—allow enough quiet time for a thorough job. I like to spend a minimum of one-and-a-half hours on a recording piano, and I find that only after the fourth tuning does a piano begin to reach its full potential. Although efficiency and accuracy are attributes of any good technician, a job done in haste could ruin a session. If your tuner does a "fine" tuning in less time than it takes to review a 45-minute DAT, get another tuner.

Tuning is as individual as a signature, so although it is useful to have a short list of tuners available, I'd recommend against using two tuners for the same project. If the piano is the featured instrument for critical classical or jazz recordings, it may be worth having a technician on duty during the sessions. The investment will provide peace of mind for both engineer and artist.

HUMIDITY CONTROL

One piece of equipment I highly recommend is a piano humidity control system. Your piano technician can professionally install one of these. Studios can lack the proper humidity, and replacing a cracked soundboard caused by a dry environment could cost big bucks. And never let clients place drinks on the piano. A one-dollar cup of coffee, accidentally spilled onto the action, could cost several thousand dollars in repairs. Protect your investment. ■

Michael C. Vecchione is an R.P.T. and recording engineer in Baltimore, Md., and specializes in recording piano preparation.

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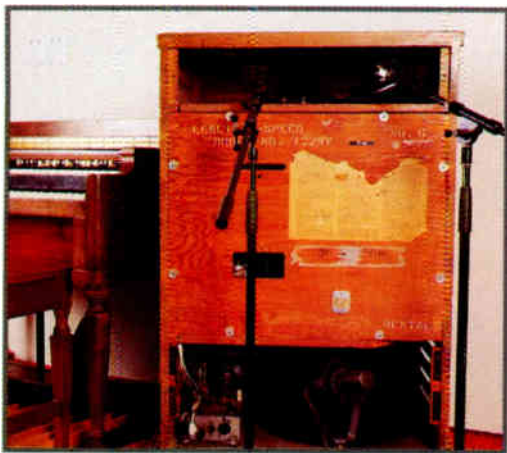
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Hammond Leslie cabinets offer lots of miking fun. Here, two AKG C-414s capture the swirling upper horn, while the bass rotor is miked in mono.

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Here is my Mellotron credo:

A good Mellotron is a sampled Mellotron.

A good Mellotron sample is looped.

A good Mellotron loop is Autotuned.

An obvious bonus to having a looped, optimum keyboard scaled Mellotron patch is that it is MIDI-addressable—you can pitch-bend, play dynamically, use a sustain pedal and add chorus effects, etc. These enviable features are lacking in the standard, vintage Mellotron. The original, first-generation Mellotron players clamored for these features.

As for keyboards, an electronic keyboard is a musical instrument, not just a playback machine. An engineer thinks nothing of reaching for outboard equipment, compressors, equalizers, effects boxes, etc., when recording guitars, drums or vocals. With modern synths, sound designers give you their versions of onboard effects added to their patches, and, in most cases, they are not what you would want. I try to take the effects off by accessing them in the synth's menu and then process the dry patch according to what the song demands. For lead sounds, a fat tube compressor really toughens it up. The best way is to actually play the synth through a hot guitar amp, mike it and maybe blend it with the direct signal. A brass patch can benefit from being made punchier by putting a gate across the output and a compressor after the gate.

I'm currently finishing an album for a group called Rustic Overtones, on Arista Records. Their keyboard player, Spencer Albee, uses vintage keyboards almost exclusively—a beat-up Hammond B-3, a Clavinet and a Wurlitzer electric piano. For a crunchier sound on

the Clav and Wurlie, we put them through a SansAmp, the Swiss Army knife of guitar amp simulators. Sometimes the Clav actually sounded like a shredder guitar. Of course, there is nothing like a dedicated guitar pedal to help spice up a keyboard, which is something we did on many tracks.

COOKIE MARENCO

Cookie Marenco is an independent engineer and producer working mostly in the San Francisco Bay Area. She has worked with Max Roach, Charlie Haden, Mary Chapin Carpenter, Praxis (with Brain and Buckethead), Ladysmith Black Mambazo and Tony Furtado. Matt Rollings, Phil Aaberg, Liz Story, Rodney Franklin, Billy Childs, Carla Bley, Dirk Powell and Kevin Kern are among the keyboardists she has recorded.

I used to be a keyboard player in a past life and still have about a dozen instruments around. There's been a renaissance in the last few years of the older, classic instruments like the Fender Rhodes and Hammond B-3 organ. I still haven't found a synthesizer that can duplicate their sound, let alone the feel and touch. Many synths can come close, or at least close enough to save

Leslie spinning at an odd speed—or not at all—and without a person who really uses those elements of the B-3, you'd never know there was a problem. But even a busted B-3 sounds better than any synth, as long as it makes a sound.

For miking a B-3, I like to use three tracks whenever possible. A stereo pair on the spinning horns of the Leslie and one mic on the bottom. I've used three Neumann 87s a lot of times, or two AKG C-12s as the pair and a Sennheiser 421 on the bottom. For Matt Rollings (on Jenna Mammina's record) I used two 414s and an RE20. I placed the mics about six to eight inches from the horns on opposite sides to make the most of the Leslie spin. Matt is a master with the Leslie toggle switch and the volume pedal, which certainly makes my job easier.

The B-3 can be tricky if the headphones aren't just right, because the player will make adjustments with the volume pedal, like it or not. It's one of the more difficult instruments to get just right in the 'phones. It will affect level to tape, how the other players are hearing and change the sound of the miking. It can ruin a whole session when it's not right. Even more difficult is when the B-3 player is using the bass pedals and functioning as the bass player. It takes real mastery of the instru-

**Few people know that touch
can really affect the sound of the B-3.
If you pull out all the stops and slowly push
a key up and down, you can hear it go up
the overtone series.
—Cookie Marenco**

your back when schlepping it around is an issue. In fact, my Rhodes was packed up and hidden in storage for ten years until Myron Dove [bassist, Santana, Robben Ford] came in one day, found all the pieces and put it together. I was shocked at how good it sounded.

There are two things that make my job of recording easier on keyboard. One is a great player who understands the nuances of these instruments, like the B-3, and the second is having an instrument in good shape. No easy feat. The B-3 can have problems like the percussion switch not working or the

ment to not make a murky mess of the performance. Compression to the 'phones can help.

On RARE occasions, I've been talked into doing a B-3 overdub, and this headphone issue had plagued me so much that I've taken to setting a pair of Genelecs up on the instrument and not using 'phones. Fortunately, with the Leslie, you can set it up to avoid bleed, but a lot of times, I'll record regardless of the bleed. No 'phones just makes for a better performance if your recording allows it.

A special aspect that few people know is that touch can really affect the

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sound of the B-3. If you pull out all the stops and slowly push a key up and down, you can hear it go up the overtone series. A master musician will have the control to hit a key halfway or less to get a certain effect.

Another thing about B-3 is that there's a volume pot on the Leslie, by the tubes, that can adjust the volume output. That's the "grit" dial. It's like turning a 50-watt Marshall up to 10 for a natural distortion. I don't try to hide room noise of the Leslie spinning. You can disguise it a bit by making sure the volume is loud enough coming out of the Leslie. It can be REALLY noisy depending on the player, but with all the problems, there's nothing like that sound. You can amuse your friends and annoy your neighbors with that thing. I've done both.

LEANNE UNGAR

Leanne Ungar is an L.A.-based independent engineer and producer whose credits include Laurie Anderson, Carlene Carter, Leonard Cohen, Holly Cole, Janis Ian, Ray Charles, Temptations, Willie Nelson, Billy Joel, Elton John, Luther Vandross, Natalie Cole, Peter Gabriel and the Paul Winter Consort.

When I started working in the studio in New York City in 1973, the Fender Rhodes was at the height of its popularity. It's still my favorite keyboard. It was standard equipment in every studio, along with a grand piano and a B-3.

When keyboardist and producer John Lissauer [Leonard Cohen's *New Skin for the Old Ceremony*] would come in to record, he would call S.I.R. and rent a certain Rhodes by the serial number. He liked the distortion and harmonics of the low end on that particular keyboard—something not easily replaced by a sample!

If I were using Rhodes on a basic track, I would take it direct and fit the speakers with a dummy plug. But when possible, I prefer miking the amp. It's a more aggressive sound. To bring out the attack and clean up the midrange, I generally cut at 400 Hz and boost 1.5

kHz on an API EQ.

There is no "art" to recording sampling keyboards, but some sound better than others. I always liked the sound of the Synclavier. It had a richer, more lush sound. A sample is only as good as the sampler.

I was working with Laurie Anderson when she first got hers around 1983. Working on "Kokoku" [from the album *Mister Heartbreak*], we were waiting one day for Phoebe Snow to come sing backing vocals. We were listening to her record to get in the mood. She called at the last minute to say she had a cold and wanted to postpone. We took the beautiful a capella vocal stack from "Two Fisted Love"—recorded by Glen Berger, to give credit where credit is due—into the Synclavier and tuned it down considerably, until the key was right. Phoebe was thrilled that she didn't have to travel with a cold, and she got credit and was paid as if she sang.

When it comes to recording a B-3, I like to use a kick drum mic for the low end, like an RE20, D-112 or 421, especially if I'm lucky enough to work with a great rhythm organ player like Jim Cox. Those mics can give low stabs a good punch. I'll usually use one or two large-diaphragm condensers on the high end, like 414s.

One warning, though: Don't give in to the temptation to mike the open back of the Leslie cabinet. The wind from the rotors can pop the mic capsules. Place the mics at the vents on either side—or just one vent works fine, too. If you are fresh out of expensive microphones, no problem. The drawbars on the organ are so expressive and so precise you should be able to compensate and achieve any sound with the player's help.

CHRISTOPHER GREENLEAF

Christopher Greenleaf has engineered many recordings featuring harpsichord, pipe organ, piano, classical ensemble, as well as orchestras. Some of Greenleaf's most recent work can be heard on the Titanic label release Bach, The English Suites for Harpsichord, featuring harpsichordist Peter Watchorn. Besides engineering, Greenleaf has been published in High Fidelity, Stereo Review, Audio and a number of other audiophile consumer magazines

Bach once said that "the room is the most important Stop on the organ." Pipe organ in a bad room is kind of beside the point. The 16- and

32-foot deep bass don't come together unless the room is pretty nice. What you can get out of a pipe organ in a good room, with a really good pair of mics, sort of defies belief, in the extent to which two speakers can produce what we have now come to market as "surround sound." A properly made recording like this will accept surround sound processing.

The Chapel at Holy Cross College in Worcester, Mass., is my favorite. The organ in that room embodies all of the unbelievable sounds that these instruments were capable of.

For pipe organ, I would typically use two close omnis two-and-a-half meters apart and maybe ten meters from the organ. If you are aware of the length of certain frequencies in the air, certain things start to become apparent. For example, if I set my omnis up for about two-and-a-half meters apart, that happens to correspond with a wavelength in the air that is just beyond or avoids certain frequencies in pedal bass. So if you have widely spaced omnis—even for a modest organ—something that will produce bass will produce the rather out-of-phase bass that, to the ears, spells "weight." And this is without processing or EQ. To the ear, this says, "This is power. This is weighty or authoritative bass."

There are other problems that arise with spaced omnis that all the single-point omni people are very right to shriek and yell about. So I occasionally

When a harpsichord or piano is extremely close-miked, the instrument hasn't had a chance to interact with the air, with the lid, and develop its true power.
—Christopher Greenleaf

use a single-point mic in the middle with the stereo and simply blend the two.

There are three pairs of mics I like to use, depending on the situation. They are either the Earthworks QTC-1, the Neumann KM130 or the Schoeps MK2, which is about the least-colored mic that you can get, after the Earthworks QTC-1.

I recently recorded Elaine Funaro, who is a wonderful harpsichordist, and I used the Earthworks QTC-1 mics and API preamps and a Troisi A/D converter. The resulting recording sounded amazing.

I think the QTC-1 is one of the major achievements in miking. It is so unbelievably neutral that I don't hear a lot of the effects I normally think of as "audio." I merely hear good or bad miking, and that is what I want to hear. Because they are so transparent, they help you achieve some things that you wouldn't be able to hear your way through to asking for with some other mics. Anything recorded with a microphone like that has a different dynamic signature, and that means it has more "life" and "air."

I was recording two harpsichords built a year apart after the same plan by the same maker. I ended up using different mics at different distances from the instruments and each other to achieve a comparable sound. For one harpsichord, I used a KM130 farther away and farther apart, and for one I used the KM131 closer and closer together. It was a close enough sound that going from track 7 to track 8 with different instruments was not apparent. That was achieved by listening, not by a rule or formula.

When a harpsichord or piano is extremely close-miked, the instrument hasn't had a chance to interact with the air, with the lid, and develop its true power. All you have is this white-hot attack, which may be very sexy, jazzy and exciting, but you don't get the bass or the subtlety of the instrument, and you rarely get beauty.

With harpsichord, or any long-keyed instrument, almost all of the interesting sound comes off the interaction of the lid and the soundboard. So if you are miking too closely, you might as well take the lid off. But if you're trying to be very true to the way they sound, then the lid is part of the sound—and I'm saying this in the "Classical" sense. ■

Rick Clark is a freelance producer and writer based in Nashville.

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Fostex (www.fostex.com) brings digital technology to new levels of affordability with its new VM 200/VR 800 digital recording and mixing system, which can be used together or separately. Priced at \$1,499, the VM 200 is a 20-input/8-bus digital mixer built around 32-bit RISC processing, with moving-fader automation and a host of DSP functions. The board emulates traditional consoles by offering instant access (rather than searching through recall operations) to commonly used functions. The companion VR 800 (\$749) is an 8-track disk-based recorder, storing to a variety of internal and external media. The VR 800 offers nondestructive editing features, graphic envelope display, plus autoscrambling, varipitch, MIDI and word sync, and more.

Based on Staccato Systems' extraordinarily powerful Synth-Builder technology, but in an affordable—about \$2,200—package, Korg's (www.korg.com) Oasis is a PCI card that integrates synthesis, 100 effects algorithms and 12 inputs and outputs (analog stereo, S/PDIF and ADAT Lightpipe). With its 24-bit processing and open architecture, Oasis offers stunning realism in its approach to modeling of analog and FM synths, and re-creations of instruments ranging from tonewheel organs to brass, woodwinds and percussion. Shipping in November, Oasis' first release is for Macintosh; a Windows version is in the works.

Audio-Technica (www.audio-technica.com) introduced the AT 4047/SV large-diaphragm condenser mic, designed to re-create classic vintage condenser sound and featuring a transformer-coupled output, dual gold-plated and aged large diaphragms, a low self-noise of 9 dB SPL and a dynamic range of 140 dB. The mic has a switchable 80Hz highpass filter and 10dB pad. Retail is \$695. We got to hear the mics firsthand at Ocean Way, where Vince Gill and Rodney Crowell put them through the paces.

In other mic news, Alesis (www.alesis.com) added three new condenser models to its expanding GT Electronics line: The AM 40 is a front-address tube condenser with gold-evaporated diaphragm and removable cardioid capsule, which is interchangeable with optional hypercardioid and omni capsules. At \$749, the AM40 is said to be the least expensive tube mic on the market. Also introduced was the AM30 (\$499), a mid-sized condenser designed for instruments and vocals. The AM30 is also cardioid, and is interchangeable with optional capsules. Finally, the AM11 (\$399) is a

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- John Perry Barlow (Futurist, Greatful Dead Lyricist)
- Siddiq Bello (editor MP3 Impact)
- Jack Blades (artist - Night Ranger, Damn Yankees)
- Jeff Brandstetter (IP/Music Attorney)
- Nicholas Butterworth (President/CEO, SonicNet/ATN)
- Ted Cohen (Producer, Consulting Adults/Webnoize)
- Kevin Conroy (S.V.P. of WW Mkt. BMG Entertainment)
- Thomas Dolby Robertson (CEO Beatnik, recording artist)
- Mike Farrace (V. P. Worldwide Mkt. Tower Records)
- Scott Fedewa (CEO, Musicosm Rex)
- Les Garland (President, Sputnik 7; co-founder MTV)
- Marc Geiger (Principal, Artist Direct/UBL)
- Gary Gersh (Principal, GAS; former President/CEO, Capitol Records)
- Dave Goldberg (President, Launch)
- Mike Greene (CEO, NARAS)
- Jim Griffin (Founder, OneHouse)
- Bernie Grundman (Bernie Grundman Mastering)
- Thomas Hale (Chief Alchemist, Wired Planet)
- Liz Heller (former Exec. V.P., Capitol Records)
- Joe Jennings (V.P. of Mkt., InterTrust)
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- Gerry Kearby (CEO, Liquid Audio)
- Andrew Keen (Publisher, AudioCafe.com)
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Alesis AM30 and AM40

large-diaphragm condenser with a 1-inch diaphragm on a brass capsule, with pad and 75Hz roll-off switch. NAMM also marked the first trade show appearance of Alesis' new MasterLink 9600 24-bit/96kHz recorder, profiled in the July *Mix*.

Opcode (www.opcode.com) announced Version 4.5 of Vision DSP and Studio Vision Pro. The upgrade adds ReWire compatibility, VST plug-in automation and mix console automation. In addition, both Vision DSP and Studio Vision Pro 4.5 include a free copy of Bias Peak SE software, and the Galaxy Patch Librarian. And in case you hadn't heard, Opcode is offering a Web download of Vision DSP (with a PDF manual and no tech support) for \$59.

Living up to its name, the Guitammer ButtKicker (www.guitammer.com) is a floor-mounted, LF transducer that uses piston technology to provide true subsonic reproduction in the 5Hz to 200Hz range. By moving mass (flooring or subflooring) rather than air, the \$599 ButtKicker provides the *perception* of extremely loud SPL bass without being heard outside discos, studios or other thrill-ride environments.

Metric Halo's (www.channelstrip.com) ChannelStrip Pro Tools plug-in emulates the audio processing section of a digital console in a TDM interface. Features include input gain/trim, polarity invert, expander gate, compressor, 6-band fully parametric 48-bit EQ, six selectable filter types per band, plus high resolution metering; parameters are all automatable. The plug-in can support six channels per MIX DSP chip (either six mono or three stereo, in any combination), so each additional MIX farm card provides enough DSP for 36 channels of processing.

HHB (www.hhb.co.uk) now distrib-

utes the U.K.'s Ashdown Engineering line of bass and acoustic guitar amps. Ashdown products are known for their classic retro styling in addition to innovative approaches to amplification—and best of all, these are serious tools that sound as good as they look.

Kustom (www.kustom.com) is back! Not only did the company show a full line of way-cool retro blue, red and gray sparkle, padded tuck-and-roll upholstered amps—basic black is also available—but Kustom is now distributing PowerWerks AC conditioners and the Dawn line of portable PA systems combining a subwoofer with dual stand-mounted MF/HF satellite speakers.

Speaking of reissues, NAMM marked the return (after a 12-year absence) of De Armond's Ashbory Bass (www.dearmondguitars.com). Priced at \$499 including gig bag, it weighs only two pounds and has a compact 18-inch fretless scale with silkscreened "frets"—but what makes this bass even more unique is its signature silicone rubber strings, reminiscent of surgical tubing. George Petersen, who checked it out at the show, was overheard saying: "It's fast, fun, an absolute joy to play



Ashbory Bass

and really sounds like an upright bass!"

Pro Audio Products, manufacturers of the Isopatch patch panel, showed SmartPatch, a programmable patchbay that provides instantaneous push-button signal routing, using electronic switches rather than patch leads. In addition, SmartPatch can save/recall up to 128 patches of various connection configurations and can be remotely controlled via MIDI. Distributed by Advanced Sonic Concepts (www.advancedsonicconcepts.com), SmartPatch retails at \$850.

Heavy metal? Armoured Cable (distributed by Samson, www.samson-tech.com) is a line of super-rugged instrument and mic cables, with a stainless steel outer covering like that found on payphone cords. The cables feature Neutrik connectors and are available in a variety of lengths. Somebody should have thought of this a long time ago!

Winter NAMM make its final appearance in Los Angeles, Feb. 3-6, 2000, before moving back to Anaheim in 2001. See you there! ■

SPOTLIGHT

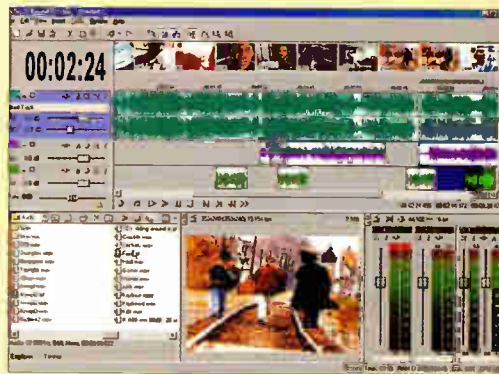
SONIC FOUNDRY VEGAS PRO

One of NAMM's biggest hits was Sonic Foundry's Vegas Pro (\$699) non-linear multitrack recording/editing system for Windows-based PCs.

Vegas Pro marks Sonic Foundry's expansion into development of Internet authoring tools and media editing, says Sonic Foundry CEO Rimas Buinevicius: "Vegas Pro effectively builds upon the proven technology of our existing products to provide a significantly more efficient production environment for audio/media professionals, and it is also fully capable of meeting the production needs of Internet content creators and broadcast media professionals worldwide."

Based around a multi-threaded architecture for achieving real-time performance (including editing and effects), Vegas Pro is 24-bit/96kHz-capable, accommodates unlimited tracks and includes DirectX plug-in support for expandability. Additionally, Vegas Pro offers the ability to mix file properties, bit depths and sampling

rates. Also standard is support of MP3 files and the creation of streaming media content, including the ability to incorporate timeline metadata for both Windows Media Technologies 4.0 and RealNetworks RealSystem G2 file formats.



And, it has an intuitive interface, similar to those found in other Sonic Foundry applications.

Although Vegas Pro made its official premiere at Summer NAMM, Sonic Foundry released a sneak-preview beta version on its Web site in June, and thousands of copies were downloaded by the time the official version was announced. For more information, check out www.sonicfoundry.com. ■

Picks up what other mics leave behind.

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The VSM I offers the warmth and smoothness you expect from a large diaphragm tube condenser. But what makes it different is its enhanced sensitivity—to capture and articulate voices, instruments and rooms with their distinctive character intact.

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Audio-Technica AT4060



Dirk Brauner VM1



Seydynamik MCE 90

B.L.U.E. Audio Strawberry

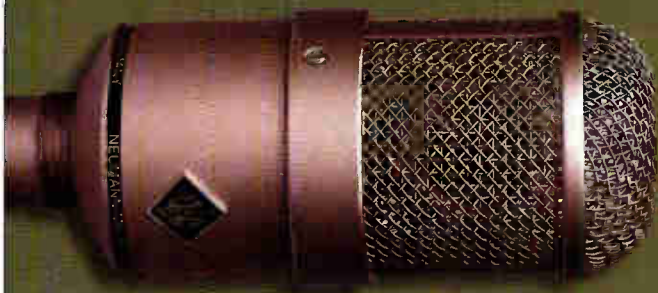


Living

Nearly 50 new large-diaphragm condenser mics have been released during the past 18 months. One microphone can re-create any polar pattern or mic angle, another has seven interchangeable capsule heads, and a few can even be remotely controlled. All offer features, value and goodies worth checking out.

It seems the tube mic storm predicted in last year's *Mix* ("The New Tube Microphones," August '98) has arrived, though the balance between transistorized and tube still leans toward solid-state. If you look back to eight months before that issue, to the '98 winter NAMM show, 21 tube and 27 solid-state large-diaphragm (1-inch or larger) condenser mics have been released. Described here is the latest crop of tube and solid-state offerings. Please note that companies that are not currently making large-diaphragm condensers (such as Countryman, Crown, Earthworks, Sennheiser and Schoeps) are not included. Neither are those that specialize in ribbon mics (such as Royer, Coles and Audio Engineering Associates). Nevertheless, there are still cabinets of new mics to look over.

by Randy Alberts



Neumann M147



CAD Vx2

Large

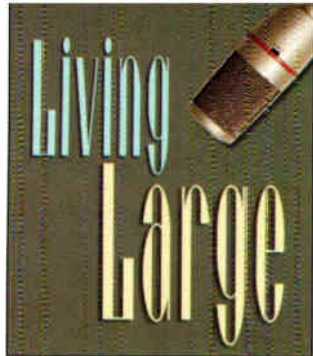
**NEW LARGE-DIAPHRAGM
CONDENSER MICS**



AKG C4000



DPA 3341



AKG released the C4000B (\$848), an electret dual large-diaphragm transducer mic with selectable omni, cardioid and hypercardioid polar patterns, and bass-cut filter switches. The solid-state C4000B uses a transistorized impedance converter/preamp and includes a spider shock-mount, and an integrated wind and pop screen.

The first family of FET and tube mics developed for Alesis' new GT Electronics division includes the AM51 (\$549), AM52 (\$699), AM61 (\$999) and AM62 (\$1,299). Nifty hard-shell cases and hard-mounts are standard equipment for each, and the tube AM61 and AM62 add an external power supply, shock-mount and 6-pin cable. The AM52 offers cardioid, omni and figure-8 pattern selection. The AM51 is fixed cardioid, and both 50 Series condensers are Class A



Alesis AM11

FET mics with gold-evaporated mylar diaphragms and switchable -10dB pad and 80Hz low-frequency roll-off. The 60 Series mics use military-spec Groove Tubes vacuum tubes and are electronically identical save for the AM62's ability to switch between omni, cardioid, figure-8 and supercardioid polar patterns.

Alesis recently expanded its GT Electronics line with the AM11, a large-diaphragm condenser model based on Class-A FET electronics. The AM11 fea-

tures a 6-micron gold-evaporated 1-inch diaphragm, -10dB pad and bass rolloff switch. The mic retails at \$399 and ships this fall.

Audio-Technica released the tube-based AT4060 (\$1,695), a dual large-diaphragm condenser mic. The fixed-cardioid 4060 offers an impressive 150dB maximum input SPL (1 kHz @ 1% THD) and includes an external power supply, 32-foot cable, protective mic case, shock-mount and switchable 120V/230V power for globe-hopping recordists.

Audio-Technica unveiled the AT4047/SV at summer NAMM. Designed to simulate the characteristic sound of vintage FET microphones, the AT4047/SV is a single-pattern (cardioid) design with a large-diameter, gold-sputtered diaphragm condenser capsule, priced at an affordable \$695.

Arriving on the large-diaphragm condenser mic scene the past year was Audio DeutchKraft/ADK. The Oregon-based company released four affordable cardioid pressure-gradient mics, each with 1-inch gold-sputtered diaphragms, discrete FET electronics, PC board upgrade kit options, a shock-mount and a flight case. The base

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model A51 is \$495, the A51s (\$595) adds low-frequency roll-off and -10dB pad controls, and it is available in shiny Limited Edition Silver for \$625. The A51sd (\$770) adds switchable polar patterns.



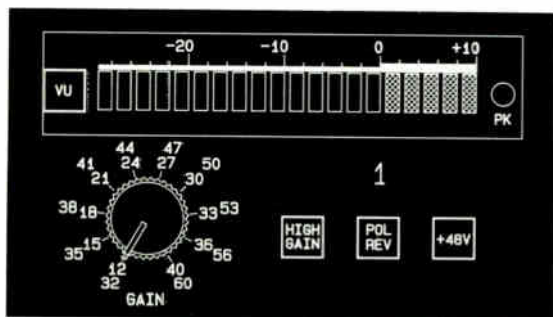
Audio DeutchKraft/ADK A51s

Audix introduced its CX101 (\$499) and CX111 (\$599) large-capsule condenser mics last year. Both are cardioid and come with a shock-mount stand adapter and aluminum carrying case. Both also feature a 1-inch gold-vapor diaphragm and black satin finish. The CX111 is the same mic equipped with a



Audix CX111

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(Actual size)

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- All push-buttons are LED backlit, dimly when off, brightly when on. Channels and options can be added later. Much more. 15-day trial period. Experience **excellence!**



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10dB pad and low-frequency roll-off switch.

B.L.U.E. Audio, a.k.a. Baltic Latvian Universal Electronics, released two new mics and a crate full of hand-built capsules for the company's Bottle mic (released in 1997). The Blueberry (\$1,295) and appropriately named Mouse (\$2,295) are fixed-cardioid Class-A discrete condenser mics that sport 22 to 22k Hz frequency response; a custom wooden case; and optional pop filter, shock-mount and high-definition mic cable. Bottle owners now have seven pattern capsules to choose from, ranging from single back-plate cardioid to perspex sphere pressure omnidirectional. All capsules retail for \$950, except for the \$1,500 perspex omni.

Benson Audio Labs' LDC2000 (\$399) is an externally polarized large-diaphragm cardioid condenser mic with internal shock isolation suspension system, built-in 80Hz low-cut switch and a gold-plated 3-pin XLR connector. The LCD2000's gold-plated diaphragms are aged for added uniformity, and a stand-mounted shock isolation system works in tandem with the internal one to negate hand, boom and stage bumps.

New from Beyerdynamic is the MCE 90 large-diaphragm electret condenser mic, operating at 12 to 48VDC phantom power and featuring high SPL handling, a transformerless design, linear frequency response and low self-noise.

CIRCLE #029 ON PRODUCT INFO CARD

Priced at \$649, the MCE 90 has a switchable attenuation pad and low-cut filter.

BPM Studiotechnik's CR-95 (\$1,099), TB95 (\$1,699), CR10 (\$549) and CR-73II (\$899) are four hand-crafted German condenser mics that were only available in the States by special order until Peninsula Marketing & Import (www.pmiaudio.com) began exclusive distribution eight months ago. The CR-95 is a dual-gold-diaphragm, transformerless mic with selectable cardioid, omni and true figure-8 patterns, along with bass and pad cuts. The TB95 is a double-triode tube mic with the same polar patterns and cut switches. The CR-73II is a



BMP Studiotechnik TB95

new dual-diaphragm mic with pad/bass-cut switches and selectable omni and cardioid polar patterns, and the CR10 is an affordable cardioid-only mic with the same 1-inch gold-micron diaphragm and accessories as the rest of the BPM line.

The Vx2 Dual Valve Condenser Microphone from CAD is a true dual tube design with separate tube head amp and tube output circuits, three pickup patterns (cardioid, figure-8 and omni) and a large 1.25-inch-diameter capsule with 3-micron-thick, gold-sputtered diaphragms. Other features include dual nickel-core humbucking output transformers, 8/16dB noncapacitive pads, 80Hz highpass filter and optional detachable capsule/screen assemblies offering alternate frequency responses and sounds. An onboard 24-bit A/D converter option (with sampling rates up to 96 kHz) is also optional. The Vx2 is priced at \$2,249, including ZM-2 shock-mount.

CAD's VSM1 single-tube, true condenser microphone is designed to provide the character of CAD's top-of-the-line Vx2 mic, but in a lower price, sin-

gle-pattern cardioid version. The VSM1 combines valve and Equitek servo condenser technology with large-diameter (1.10-inch), 3-micron-thick, gold-sputtered diaphragms. Other features include low-noise performance (15 dBA) and maximum SPL handling of 149 dB (<0.5% THD) with the -16dB pad switched in. Retail is \$1,299, including power supply.

The CAD E350 Servo Condenser Multi Pattern Microphone offers a choice of cardioid, figure-8 or omni polar response, and features a -20dB noncapacitive pad, 80Hz bass roll-off filter and ZM-1G shock-mount. Its internal NiMH battery supported power supply allows remote operation even when 48VDC phantom power is unavailable. Retail is \$899.

The first two products in CAD's new end-address series of microphones, the ME F3 (\$799) and ME V4 (\$1,099) are designed for broadcast, live performance and recording applications. Both of these cardioid mics use an Optema Series capsule with 1.10-inch, gold-sputtered diaphragm. The solid-state ME F3 is based around CAD's "Equitek" servoed head amplifier; the tube ME V4 integrates the same capsule and Equitek servo condenser technologies found in the ME F3, combined with CAD's Vx2 valve technology, offering rich harmonic overtones associated with classic tube mics.

Building on the success of its AL-1 system, Curtis Technology is now offering the AL-2, a stereo tube system comprising two individual large-diaphragm (22mm capsule) mics with an elongated cardioid pattern that's designed to provide maximum isolation in live or studio applications. The rackmount power supply connects to the mics via Mogami cable; the entire matched-pair system is priced at \$2,995.

The hand-built Dirk Brauner VM1 Tube (\$3,495) features continuously variable pattern controls on the power supply, 20 to 24k Hz response and a sophisticated 360° phase-shiftless wind-screen. The Valvet (\$2,695) uses the same capsule and sounds just like a VM1 but replaces point-to-point internal wiring with a circuit board and opts for a transformer instead of the VM1's custom twin core design. The VMS1 Stereo (\$7,495) is a stereo version of the VM1 with rotatable matched capsule sets and a custom case that houses both mic and power unit.

TGI North America now distributes DPA Microphones, the mics formerly known as Brüel & Kjær. Realigned last

The world's finest
microphones are now
on your desktop

Series 4000 Microphones

The world's finest range of standard microphones is now just seconds away at our new and comprehensive website. When quality and versatility are the key issues, DPA Microphones' Series 4000 provide the perfect solution for the discerning audio engineer. Incorporating legendary capsule technology from Brüel & Kjær, the unrivalled build quality of the Series 4000 is matched only by its superb acoustic performance, delivering characteristically clean and uncoloured sound. From Cardioid microphones, for the purest separated sound and Omnis for ultimate versatility - to individually selected A-B Stereo Kits, the Series 4000 from DPA Microphones is the preferred choice of audio professionals world-wide for both live and recorded performances.

Renowned sound designer Frank Serafine has introduced a pair of DPA 4011's to his facility located in Venice, California. The diverse situations Serafine Studios are involved in, demands a great deal from the microphones they choose. From Music, ADR and Foley to 5.1 surround mixing the mics need to deliver. Frank explains the reasons for adding DPA to his equipment list. "The 4011's capture subtleties and nuances in sound creation that I haven't experienced with any other microphones. This transparency allows for great flexibility, particularly in foley and dialogue applications. The clarity is frightening and the results are astounding. The 4011's were extremely useful in recording sounds for my new foley library. The depth and realism created was paramount to the end results."

Frank Serafine



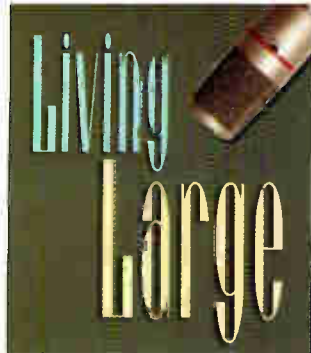
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CIRCLE #030 ON PRODUCT INFO CARD



year as DPA, the company has released its Type 3541 Vocalist and Instrument

(\$6,000) microphone kit, a slender, large-diaphragm, omnidirectional mic with interchangeable capsules and preamps based on B&K's popular Type 4040 Hybrid mic system. A wide range of add-on options include two types of preamp modules, a mic capsule with an A-weighted self-noise level of only 7 dB, and others previously available for the Series 4000 B&Ks.

Lawson sells its mics factory-direct with a no-risk, ten-day money-back trial

period. Included are the new L47MP (\$1,995) and L47C (\$1,695). The MP is a vacuum-tube, multipattern condenser that can be selected to virtually any polar pattern, and everything in between, and is available loaded with 12AY7 or EF86 tubes, a Jensen transformer, internal shock-mounted, gold-deposited capsule, -12dB pad switch, and gold or satin nickel finish. The L47C is a large-diaphragm, fixed-cardioid tube mic that sports the same internal shock-

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Lawson LA7MP

mounting, transformer and pad, but offers either 6072 or 6267 vacuum tubes.

Marshall Electronics offers the MXL2001 (\$199), an economical studio condenser mic with a 1-inch, gold-sputtered diaphragm in a solid machined-brass enclosure. The MXL 2003 (\$399) is a new mic with a slightly larger diaphragm, extended low-frequency response, three-position low-cut 0dB/-10dB pad switch, and a shock-mount.

Microtech Gefell is another German mic group that has released new products the past 18 months. The M930 and M940 (\$795 each) are tuned to provide a slight presence boost from 7 to 11 kHz and feature internally suspended capsule and electronics to reduce mechanical and external noise. The M930 offers up a fixed cardioid polar pattern, the M940 is a supercardioid version, and each is available in nickel matte or dark bronze housing finishes.



Milab DM-1001

Sweden's Milab has joined the digital mic movement started by Beyerdynamic three years ago. The Milab DM-1001 is a studio condenser with integral 24-bit/48kHz converters, each fed from its dual large, rectangular di-

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aphragms. A rackmount controller provides AES and S/PDIF digital outputs and manual selection of polar patterns. The controller also has an interface to an external PC for computer-based DSP control (and storage) of digital filtering and customized, user-defined polar patterns, created using direct control of the capsule's front and back signals via DSP.

New from Neumann is the M147 Tube (\$1,995), the next in the company's long line of vacuum tube condenser mics. Sporting a fixed cardioid pattern, pressure gradient transducer and transformerless output, this mic's K47 dual diaphragm capsule is the same found in the legendary U47 and M49 microphones, and the 147's circuitry is the same that is used in Neumann's top-of-the-line M149 tube mic.

Pearl, a Swedish company that has been making microphones since World War II (distributed domestically by Independent Audio), released its CC22 (\$1,028) cardioid condenser model within the past year-and-a-half. A rectangular dual membrane capsule is used to enhance low-frequency response, and the 22's transformerless preamp circuit promises quiet operation.

The RØDE family of large-diaphragm condenser mics are distributed by Event Electronics. The tubular RØDE NTV (\$1,199) is the latest addi-



RØDE NTV

tion to the lineup and features a capsule-suspended diaphragm sans center wire for improved low-frequency response, twin triode tube, custom Jensen output transformer and 1.15-inch gold-sputtered diaphragm. Also served up are gold-plated jacks and connectors, a power supply, 30-foot multicore copper cable, birdcage shock-mount and aluminum flight case.

Shure has graced microphone buyers' guides for decades, and the company's KSM32/SL (\$1,029) and KSM32/



Shure KSM32/SL

CG (\$959) make this year no exception. Both are side-address, transformerless cardioid mics with low-mass Mylar diaphragms, bass roll-off, and -15dB pad switches and internal shock-mount systems. The SL comes in a champagne finish and velveteen pouch, and sports both swivel and shock-mount connectors. The CG is the same mic wrapped in charcoal gray and a padded zipper carry bag.

Soundelux has been extremely busy since January 1998, releasing five new tube microphones. The U95s (\$3,599) and U95 (\$1,995) both offer variable omni, cardioid, figure-8 patterns and six intermediate pattern steps between them. Also included are power supplies and shock-mounts, and each comes in a crafted wood box. The new U97 (\$599) is a transformerless FET mic with the same pattern selections and box, the U195 FET (\$995) is a cardioid FET, and the PTM (\$1,199) is a cardioid tube mic with switchable 115/220V operation, shielded AC cable, mic clip and the same lacquered wood box.

SoundField released three adjustable multicapsule condenser microphones that look as much at home in a studio as in a Jules Verne novel. The SPS 422 (\$3,995) is a four-way mic system co-developed with Britain's National Re-

search Development Corporation to explore recording applications. It consists of a four-capsule array (front left/right and rear left/right) connected to a single-rackspace controller. The rack controls all mic settings and allows engineers to re-create anything from a focused mono cardioid to full four-way stereo spread from the control room. According to SoundField, the MK 5 (\$7,995) is the only truly coincident stereo microphone in the world. It employs a rack unit to steer and move the microphone capsules electronically to

achieve polar pattern and angles, and to provide control over azimuth, elevation and dominance. Azimuth controls mic rotation and placement 360°; elevation changes vertical capsule positioning up or down 45°; and dominance models the mic closer or farther from the source. Virtually any mic configuration and any polar pattern are duplicatable with the MK 5.

Stedman's C15 (\$599) large-diaphragm cardioid condenser mic uses a beefed-up and buffered output circuit to ensure better output regardless of preamp and/or mixer available. A gold-sputtered Mylar diaphragm is used, and



Stedman C15

the optional metal Proscreen pop filters are patented designs that are washable and direct wind from "pops" downward away from mics. ■

Randy Alberts is an S.F.-based writer, musician and former staffer with Mix, Electronic Musician, Keyboard, EQ and Radio & Records. He still doubts green tea's ability to replace espresso.

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FALL 1999

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For "Yellow
Submarine"**



**"Judging Amy"
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**Production
Music Libraries—
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COMPLETE SOUND

SOUND FOR PICTURE

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It turned into a package deal straight out of Hollywood: On Monday, July 26, Andre Perreault joined Complete Sound, along with the Miles O' Fun editorial team and a brand new, two-operator SSL Avant console, shown here on the Sound for Picture cover.

"Complete Sound has enjoyed great success in sitcoms, television specials and DVD Mastering," recalls Perreault. "With a desire to get into longform, they approached me, and when I saw the facility and met the staff, it was clear that, together, we could build a great future. The missing ingredient was editorial—when I suggested they speak to Miles O' Fun, it really wasn't a surprise to find out they were already in talks. In the space of one month we will be fully established in longform, with a room busy with three shows."

So much has happened since *Mix* last visited Complete Sound in November 1997, when the facility purchased three SSL Axioms for its expansion into DTV. Building on that initial thrust, for the past few months the company has been fast-tracking a move into longform theatrical and television work. Twelve new editorial bays, linked by Ethernet, have been built in preparation for the Miles O' Fun alliance. An OC-24 fiber-optic network has been installed, linking the audio facility with the DVD Center (video sync, sub-network for sound FX and AES audio running on dedicated fiber pairs). Additionally, Complete Sound provides 270MB D1 video/audio transmission.

Mix 3, where Perreault will mix with Ken Burton, is THX-certified for 5.1 with an Electro-Voice TS-992LX system for LCR, with 96 channels of playback off of Fairlight DaD units and recording to MFX3 workstations. Complete Sound's Mix 2 has been outfitted for Dolby Digital EX, and Mix 1 has a high-center JBL on the screen and Genelecs for the overheads to do IMAX/Iwerks projects.

The Avant purchase was specified by Perreault to make the room suitable for the new work. "The Avant is extremely fast, extremely reliable and right on target for the market," Perreault says. "The schedules are getting very tight, so you want equipment that is extremely reliable and versatile. The only way to compete is to have a room that can turn on a dime and be extremely productive and very efficient, with a good crew and no down time.

"Corporations are busy acquiring right now, but the trend is to forget the staff," he continues. "The crews are on the street, and everybody is wondering what's going on. Your closest relationship to your clients is your staff, and that's one thing Complete has very high on their priority list: their staff. If you take care of your staff, they will take care of your clients."

Jeff Minnich, director of engineering, has overseen the massive upgrade ("Sure beats working for a living," he laughs), with assistance from Shane Ross, manager of nonlinear systems/networking, and Ken Miller, the new GM at Complete Sound, handling corporate responsibilities. Headed by co-presidents Dave Weathers and Dave Hankins, Miles O' Fun is run by Doug Kent, vice president, and Anthony Mazzei, VP/GM Miles O' Fun Hollywood.

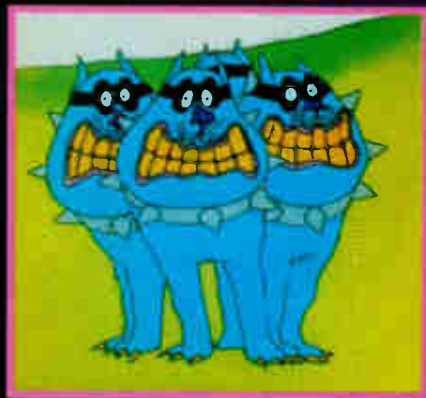
Although Complete Sound originally built the facility in anticipation of multichannel HDTV work, the past two years have found staff mixers, Tamara Johnson Bolm and Bruce Buehlman, working more on sitcoms such as *Dharma & Greg*, *The Nanny*, *Moesha* and *Boy Meets World* or DVD titles including *Titanic*, the *Alien* box set, *The Longest Day* and *The King and I*. ■

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IT WAS 31 YEARS AGO TODAY

by Tom Kenny and Chris Michie



ALL YELLOW SUBMARINE PHOTOS COURTESY OF MGM HOME ENTERTAINMENT, INC.

It had to happen. Some day, some way, somebody was going to **remix The Beatles for 5.1**. As it turns out, all it took was a lot of perseverance and a little push from Hollywood, for a film called **Yellow Submarine**.

THE BEATLES

REMIXED IN 5.1 FOR

YELLOW SUBMARINE



No doubt, there will be purists who scream, "Sacrilege!" And debates will rage about the simple-yet-detailed beauty of the original mono mixes. But The Beatles were experimental, and had 5.1 been around in 1968, it is likely that the lads would have been driving the surround handwagon.

Now, with the blessing of the three remaining Beatles, moviegoers will have a chance to hear "When I'm Sixty-Four," "Sgt. Pepper," "Eleanor Rigby" and "Nowhere Man" in stunning wrap-around sound. The film will be shown in art houses in nine U.S. cities during the week of September 6, followed by the DVD and home video debut on September 14.

The project began, innocently enough, in the fall of 1995 in a Los Angeles video store, where Bruce Markoe, VP of feature post-production at MGM/UA, went looking for the film to show his 5-year-old daughter. Markoe took home a 1987 laserdisc but found that not only was the picture quality poor but the sound—originally mixed in mono but now billed as "videophonic stereo" (with the songs direct from the album mixes)—needed major im-



it." So he pulled back, figured out the process he wanted to follow and called Neil Aspinall, the head of Apple.

"I explained how I wanted to take the songs and remix them from scratch to 5.1," Markoe recalls. "I said that I didn't want to just take the 2-track album mixes and spread them, because I thought that would be a compromise of the sound. In movie theaters, people are used to 5.1 digital sound, and 2-track mixes would just sound wrong. [Neil] got back to me and he agreed to let us do this, with the understanding that these 5.1 mixes were specifically for the [theater] format. I think that was key. Obviously, The Beatles would have to approve, and if they didn't like what they heard, the whole project would be killed. It was the first step, and it was baby steps."

ORIGINAL ELEMENTS

Yellow Submarine was shot in the 1.66:1 aspect ratio, the UK and European standard, and will be letterboxed that way for DVD (theaters will project it at 1.85:1, cropping a little of the top and bottom). Two versions were made back in 1968, with the UK version including the song "Hey Bulldog" and a few extra minutes of animation that U.S. audiences

never saw. For the renovation, the UK version was used, and Markoe went on a search for the best available print. (Note for hard-core fans: The final reel is from the U.S. version, as the last reel of the UK print was a mono composite, meaning that effects and dialog could not be separated.)

The original negative, he found, was in "horrendous condition. It was all beat up, and the color was bad. Lots of dirt and scratches." So Pacific Ocean Post (at the time owned by Alan Kozlowski, a friend of Paul and George) did a full digital restoration of the first 40 minutes of the movie. For the last three reels, Markoe located an interpositive element that was in "excellent, excellent condition. It even had the 'Hey Bulldog' sequence on it," he adds. "My big concern was color, because the movie is very vivid. We did the color timing at Deluxe, and it took awhile, but we were able to bring the colors back."

A transfer of the original film mix was sent in late 1997 to Ted Hall at POP Sound, Santa Monica. Provided with the original mono DME (dialog, music, effects), Hall started working on the dialog and effects. Markoe, in the meantime, flew to London for the first week of song remixing.

"I foolishly thought we could remix all the songs in a week," he recalls. "I had no idea about the complexity of how these songs were produced originally. The engineers at Abbey Road, and Peter Cobbin in particular, were very aware that we were treading on sacred ground and that we had to be very true to the integrity of the original songs. Beatles fans would be completely upset if these songs wound up



provement. Markoe's daughter, however, "loved it." Markoe then began exploring the idea of restoring this neglected modern animation masterpiece.

Markoe went back to the office and started his research in anticipation of a full theatrical re-release. Finding that the rights had been tied up in a legal dispute since 1988, he called John Calley, then president of United Artists. Calley, in turn, prodded the legal department to settle the suit, which took a year. Meanwhile, Markoe looked into the status of the original elements, knowing that he wanted to remix digitally for the 5.1 format. His first call to Abbey Road was met with some skepticism, along the lines of, "That's never been done; they're not going to allow



Re-recording engineer Ted Hall at Pacific Ocean Post's Logic 2, circa 1997.

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sounding different. At the same time, we needed to enhance them and take advantage of the 5.1 format. Abbey Road set up this incredible marriage of the old technology that The Beatles used when they recorded and mixed these songs, combined with our state-of-the-art 24-bit digital machines."

ON TO ABBEY ROAD

The 5.1 mix project was started at Abbey Road in October 1997, with project coordinator and Beatles authority Alan Rouse acting as liaison between Apple Corp., EMI and Abbey Road. Rouse has an encyclopedic knowledge of the Beatles' archives and provided the necessary masters. As mixing engineer Peter Cobbin explains, most of The Beatles' recordings after the first two albums were made on 4-track, usually the Abbey Road 1-inch format Studer J37s, though some of the tapes he saw had been recorded on 1/2-inch 4-track at independent studios such as Olympic Sound Studios. [For session details, see Mark Lewisohn's *The Beatles: Recording Sessions*, Harmony Books, New York.]

"Between '64 and, I would say, halfway through '65, most of the



things they did were on 4-track alone," Cobbin explains. "Then they became a bit more adventurous and wanted to go beyond 4-track. They would fill up one 4-track and then do a 'reduction' down to one track of another 4-track, then fill up the other three tracks [on the second 4-track]. If they still had other ideas, they would do another generation down to another 4-track. For the really adventurous songs, there could be up to three or four generations of 4-track tapes."

Though few would argue with the results, these progressive "reductions" inevitably reduced the options for subsequent stereo mixing. Cobbin cites "Eleanor Rigby" as an example: "The strings octet was the first thing recorded," he says, noting that the original 4-track tape features two instruments per

track (two violins, two violas, two cellos, two violas, two cellos). This recording was then bounced down to one track of a second machine, to which Paul McCartney added two vocal tracks. "So even though they had the elements for a stereo mix, from that day on, the strings have only been heard in mono," says Cobbin. "Today, we can sync up the [component tracks], thus enabling us to use first-generation material. And it gives us options for placement and panning—for 5.1 that's a very significant advantage."

SOMETHING OLD, SOMETHING NEW

The signal chain at Abbey Road combined equipment and technologies spanning the past 30 years. From analog 4-track tapes, the archival recordings were converted to digital for manipulation and restoration in a Sonic Solutions workstation, then stored on a Sony 3348HR digital multitrack for playback at the mix.

The premix assembly process was laborious. First, the selected masters, predominantly 1-inch 4-track tapes, were transferred from the playback machine, a Studer A80 Mk1, onto a Sonic

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SOUND FOR PICTURE 8 MIX SEPTEMBER 1999

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Moon, Whitney Houston's Studio and Sarm, but this is something else. And I think it might be contagious.

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Solutions workstation via Prism AD124 converters. Cobbin was agreeably surprised by the quality of the original tapes, all of which are now more than 30 years old. All of the Abbey Road sessions in the late '60s were recorded on EMI tape, a house brand that the company manufactured for its worldwide studio operations.

"When you look at the tape, it's still in immaculate condition," says Cobbin. "Not the slightest sign of shedding, and it's got an incredible full sound to it." Once on the workstation, the tracks were "NoNoised" and then transferred back onto a Sony 3348HR. "I'm not a firm believer in just denoising everything, because sometimes it does



and then-prototype B&W Nautilus monitors.

For the 5.1 mix, Cobbin routed outputs from the SSL to three 2-channel Prism AD124 A/D converters. "I knew that the mixes had to go to Los Angeles," recalls Cobbin. "I rang around and found that Tascam seemed to be the most ac-

VINTAGE ECHOES

For reverbs, Cobbin was able to make use of the famed Studio 2's echo chamber. "Abbey Road has three chambers, or they did in the '60s," says Cobbin. "One is now used to hold four vintage EMT plates, and the other is being used for storage, but we've still got Studio 2's chamber which is basically the one that they used the most." Featuring a selection of clay sewer pipes scattered around the room, the chamber is miked with Neumann tube KM56s. "It's a unique sound, a very short reverb but it's the sound on a lot of the recordings and mixes that they did," Cobbin notes.

Another vintage touch that Cobbin

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change the sound quality," notes Cobbin, who made sure that both the original and denoised tracks were copied back to the 3348 so as to have the option to use either when mixing.

Composite tracks were split into their components inside the Sonic Solutions system. "There could be five or six different elements on one track," recalls Cobbin. "There might be some sound effects, a backing vocal, a guitar solo, all on one track. I would actually split that off and create a separate track for each of those components. And suddenly, with some songs, I ended up with a fairly full 48-track. And, of course, that meant that when I came to mix, I could treat them differently, in terms of sound processing or EQ or surround placement. So that was one technique I used quite a bit, even for some of the simpler 4-track tapes."

MIXING FOR 5.1

Cobbin actually mixed the songs twice, once in 5.1 for theaters and DVD, and again in stereo for the "songtrack" CD (a soundtrack album containing all of the songs heard on the film soundtrack). Both mixes were done in Abbey Road's Studio 3 control room, which is equipped with a 72-input SSL 8000G console. Twenty-four-bit signals were monitored through Genesis converters



Bruce Markoe, left, in Studio 3 at Abbey Road, with engineer Peter Cobbin, who remixed the tracks for 5.1.

ceptable format." Though the Tascam DA-88 is normally a 16-bit machine, Prism's MR2024 interface allows the extra bits to be stored on the last two tracks, which enabled true 20-bit recording. The final 5.1 mixes were to 20-bit DA-88 for delivery to Ted Hall at POP.

"It's a fairly radical thing to go back to the masters and actually remix them," says Cobbin. "Keeping to the spirit of the songs meant being fairly detailed and accurate in re-creating the original effects. We are lucky enough to have a lot of the old equipment still here [at Abbey Road]. And there's a wealth of knowledge of what happened—there are people still here today who were involved in the tail end of the Beatles' recording career."

replicated was the mild distortion that can be heard on many of The Beatles' vocals. "Often they recorded through Fairchild limiters, and the preamps would just gently overload; that became the sound," explains Cobbin. "I don't think they were necessarily trying to hide or hold that back, it was just part of the sound of the day. It almost sounds desirable, particularly the tube-related distortion."

In addition to vintage Fairchild 660 limiters and Pultec equalizers, which were often used on Beatles sessions in the '60s, Cobbin also made use of Abbey Road's inventory of EMI equalizers and compressors. "They were part of the TG series that EMI made and they evolved through the '70s, but they offer a kind of characteristic that is different to modern EQs," he notes. "The other main thing, of course, was tape machines, which they used for tape delays and echoes and predelay to the plates, and ADT. Abbey Road could put all that stuff back together."

As Beatles aficionados are aware, several songs were pitch-shifted during recording or remix sessions, resulting in final mixes that run faster or slower than the multitrack masters. To ensure that his remixes were at the correct speed, whether for the songtrack or 5.1, Cobbin first created a reference by

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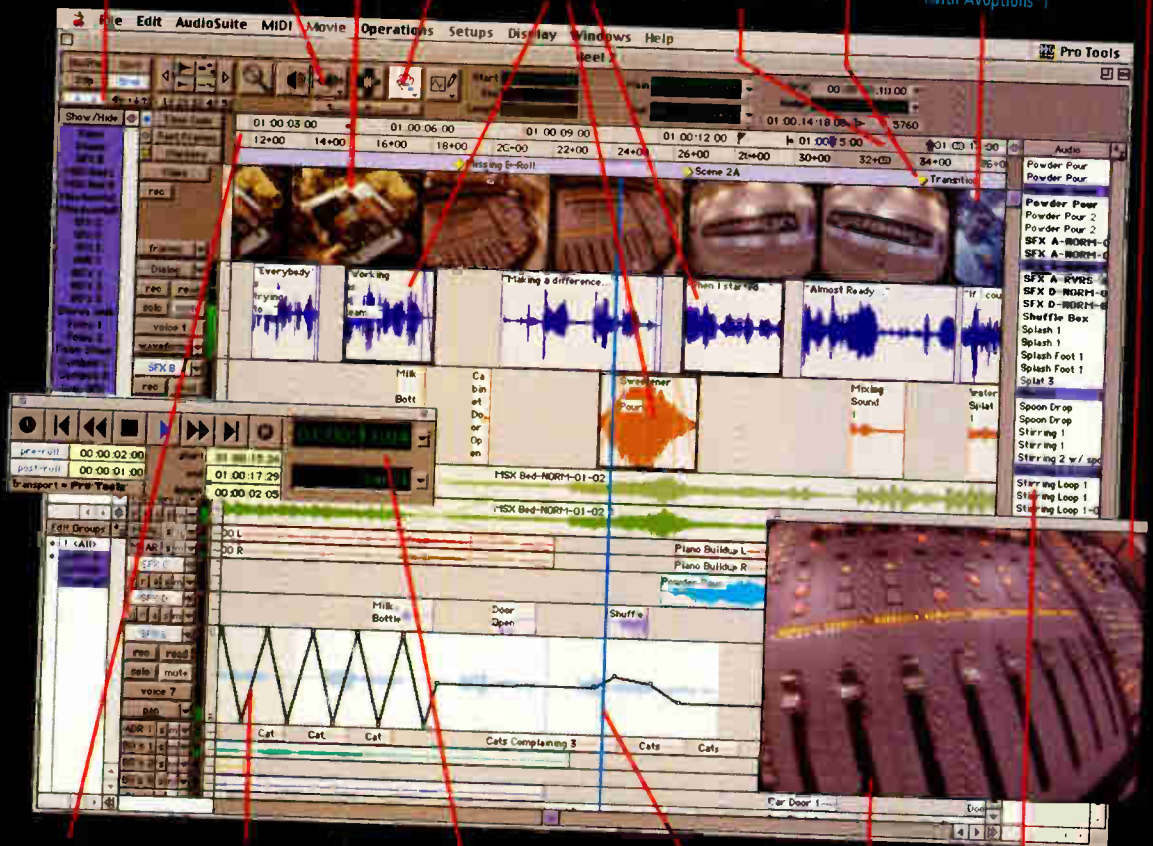
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World Radio History

transferring the original 1/4-inch master to digital. "That ensured that we had the final definitive version at the correct speed," he says. "Once we got the right speed, we've got an old Q-Lock system which event-fires any machine, so with timecode we could trigger the machine to start at any point in time. We would then, if necessary, adjust the speed of the machine to match the master. The Studer has a varispeed card with a very fine adjustment control, so we could match them up. I found that the best way to do that is to listen to what you're laying up and the final version as a sync reference. If you



listen to one on one side, and one on the other side the image should be perfectly in the center."

NEW PERSPECTIVES

At the time, Cobbin had never before

mixed for 5.1. "I think it was still fairly new at that stage," he says. "Needless to say, some songs lent themselves to a more involving experience. The title song, 'Yellow Submarine,' has lots of weird and wonderful effects and waves and bells, so I could naturally be more adventurous. But given that we're talking about an important catalog item, I didn't want it to be gimmicky in any way.

"If something on the original stereo mix was coming out of the center, out of the phantom center or mono, and I wanted to replicate that, I found that the best way to go about it was to put it into the center speakers, and also put it in the left and right at a lower proportion," he says. "If I wanted something to the right, I might put 20 percent in the left, 40 percent in the center and 100 percent in the right speaker. That would give a strong feeling that something was panned right, without losing intelligibility if you happen to be sitting to the left of the screen."

In general, Cobbin created a surround mix that offered a strong reinforcement from the front and used the surround speakers to create a sense of space. Often, he directed effects returns to the rear speakers. "It's amazing the perspective that you can achieve," he comments.

RE-RECORDING AT POP SOUND

While the Abbey Road team was working out the songs, re-recording mixer Ted Hall worked up an effects library by pulling elements from the mono DME. Hall's experience with surround formats dates back to the early '90s and ranges from remastering *The Blues Brothers* to recent work on Tom Petty's live performance broadcast over satellite, and he has worked on music DVD projects including Alanis Morissette's *Jagged Little Pill Live* and Eric Clapton *Unplugged*. He was given the mandate by Markoe to "be aggressive. We want to give everybody's home theater systems a big workout here. If it moves on the screen, move it."

Hall shies away from putting too much information in the subs or the surrounds, and he's adamant that renovation projects must maintain the integrity of the original mix. After attending a screening of the original mono print at MGM, his first thought was that he liked the character of the movie, "the whole feeling from this cruddy little soundtrack. But the idea," he says, "was to make this an E-ticket ride."

Hall first conformed the DME into

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World Radio History

his 24-bit AudioFile workstation, edited it, then passed the tracks to Norm McLeod, who cleaned up the dialog and effects in his Sonic Solutions NoNoise system. After getting the tracks back, Hall began pulling out individual effects and amassing his *Yellow Submarine* library, dividing it between hard effects and backgrounds.

"It was convenient for me that, back then, all their editing was pretty much linear," Hall explains. "There weren't many crossfades between sounds, so there would be a hit, then a kick, then an explosion, and they'd be pretty much separated. I could extract each of those sounds and label them, say, 'Blue Meanie Bonk.' Pretty soon I had a library of 200 or 300 effects that we used throughout the movie."

Hall proceeded to build ambiances and stronger effects, "opening them up," as he calls it, for 5.1. He would double tracks, apply radical EQ from the AMS Logic 2, drop explosions down an octave and layer them, and spatialize sounds in the time domain. Often, he would pull effects from one part of the movie and apply them to another. "The original film is pretty thin," says Hall. "Whether because of time constraints, budget constraints or purely by design, many obvious effects are missing. Sometimes footsteps, for example, disappear when there's a perspective cut.

"And sometimes the Meanies would



be shooting arrows and you would see maybe 50 shots from these cannons," Hall says. "but you would only hear two or three. So, of course, I put them all in there. Not only that, I would double them so they could fly over your head. The nice thing about doing it nonlinear is that on the AudioFile I have 24 tracks, so I can dedicate channels, say, to the flying glove sample and put it on its own joystick and do pans while all the other elements stay where they're supposed to."

Though the big Pepperland battle opener and some of the other busy shots might gather the most notice, the subtleties in the Sea of Silence back-



grounds and other scenes also benefited from the 5.1 spread, where Hall's own stereo-izing techniques and phase manipulation created enhanced spatiality.

PANNING IN THE HALLWAYS

The trickiest scene turned out to be the Hall of Doors scene, in which Ringo sets about gatering the lads for the trip back to Pepperland. A lot of left-right action goes on in the hallway, leading to a complicated effects mix. "At that point, they actually did have overlaps on the sound," Hall explains. "Of all points in the movie, that was one where they definitely spent time cutting the sound design together. I tried to take each of those moments and put them on a different track with their own panner. But sometimes the sound would include the sound of the next incoming object. When the pans are happening fast, you don't notice it as much, but if you were to isolate one sound, like a snail going right to left, you would notice that as it got to the left, you would hear, say, a bike effect in the right channel. So I would cut the beginning of that bike onto another track so I could accentuate the motion and hide the fact that I couldn't get in and cut them hard without the crossfades."

The dialog track on the 1987 home video is nearly unintelligible, and there are hard bumps when it cuts in. Hall fixed as many edits as possible and smoothed out the track, but in a few places it remains hissy, he says. He again applied EQ from the Logic 2 to take away some of the harshness, focusing on the 2k to 4k range, where it had been heavily boosted on the optical track.

MUSIC TRACKS

When the music tracks arrived in March 1998 from Abbey Road, Hall and his assistant, Shane T. Keller, put them up and "got goosebumps, totally mesmerized. You hear 'Eleanor Rigby' with a string quartet wrapped around you and just go, 'Oooohhh.'" But the music was not in sync with picture, and Hall began a bar-by-bar, song-by-song varispeed session, using a Hewlett-Packard function generator to vary the wordclock input.

"I would varispeed the DA-88s against the original print and just phase it in by ear," Hall recalls. "As soon as you start hearing that Jimi Hendrix sound of phasing, you're really close to sync. Then I would digitally sample rate convert back to a stable 44.1 clock. People say you shouldn't varispeed the Beatles recordings—they're sacrosanct. Well, that's what they did on the original film."

The George Martin underscore came in from two sources: a mono track that Hall spread out (about 65% of the underscore) and a 5.1 spread of a stereo version that Martin re-recorded a few months after the film came out for the soundtrack album. "There were slightly different arrangements and sometimes radically different tempos. So it was lots of edits, lots of varispeeding, time compression and time expansion," Hall says. "Trying to get the themes to line up and the key changes to be correct. I think I got it pretty close."

In April 1998, Hall and Peter Cobbin brought the 5.1 stems on Sony 3348HR tapes to Disney Stage A to make the print master, so they could hear it in a 250-seat theater. Noted Hollywood re-recording mixer Mike Minkler sat with them and offered advice—a few minor tweaks, some more for the rears. Cobbin boosted some low end. The theatrical version was print-mastered in the DTS format, where, incidentally, the only other conversion outside the original A-to-D took place. The DVD was a straight 24-bit D-to-D into the Dolby AC3 processor.

"The film is an amazing visual treat, in terms of being different and crazy and wild and a whole new world," Markoe concludes. "To me, a renovation is when you take something that's a classic piece of work—whether it's art or architecture or film or whatever—and you actually improve it while being very true to the integrity of the original piece. We set up playback of the songs for Neil Aspinall and Geoff Emerick because we figured if these guys didn't like what they were hearing, we needed to either change what we were doing or the whole thing would be killed. A week or two later, the three Beatles came in, and I'm told they were very happy with what they heard. Everybody who heard it was blown away." ■

Tom Kenny is the managing editor of Mix. Chris Michie is a Mix technical editor and tape-op'ed for Geoff Emerick during the 1971 stereo remix of "Baby You're a Rich Man" at AIR Studios, London.

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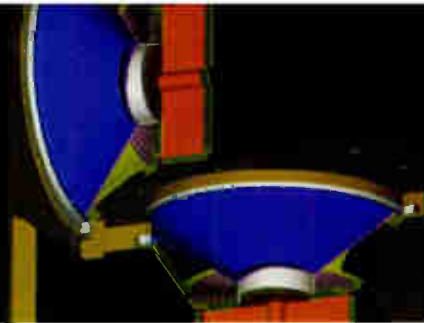


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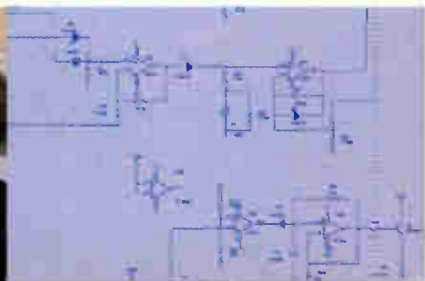
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Dane Davis and

BY MAUREEN DRONEY

With the out-of-the-box success of *The Matrix*, and its provocative soundtrack, it's a given that sound designer Dane Davis and his company, Danetracks Inc., will no longer be any kind of industry secret.

The edgy, effects-laden fea-

JACKED INTO THE MATRIX AND WIRED FOR THE NEXT GENERATION

ture—directed by the Wachowski brothers (whose directorial debut was the stylish *Bound*, also with sound design by Davis)—is a dazzling combination of traditional science fiction and new technology, and it provided Danetracks with budgetary and creative challenges that don't come around very often.



PHOTO: JIM ROLAND

DANETRACKS



From dripping computer code, alternative realities and machine monsters to kung fu, helicopters and even the sounds of silence, design for *The Matrix* ranged from classic to surreal.

Situated in West L.A., the Danetracks facility was formed in 1986 as a place for Davis to design elements for other sound editors. Davis, a supervising sound editor, re-recording mixer and sound designer with such smart movies as *Drugstore Cowboy*, *Boogie Nights*, *Don Juan DeMarco*, *Romeo Is Bleeding*, *Your Friends and Neighbors* and *GO* to his credit, began manipulating tape machines in high school. Recording pingpong games from the table leg's perspective, taping backwards, turning reels by hand and running delay loops through the garage, he created soundtracks for his own Super 8 films. At the California Institute of the Arts film school, Davis honed his skills and learned studio engineering, tracking and mixing for his own



Sound Designer
Dane Davis

films as well as other student projects. During a few post-grad years as a starving writer, he continued to create sound scores for short animated films and built up a client list of documentary, experimental and narrative feature filmmakers.

While not the biggest sound design house in town, Danetracks is extremely prolific. Part of what enables the staff to get so much done is their sophisticated communication system, which is unrivaled by much larger production houses.

"We did *The Matrix* with a very small crew considering how involved it was," Davis explains. "About 12 people much of the time. It helps that we're very heavily wired—all the Pro Tools, the Macs and the PCs are on the same Ethernet. We've been doing the wiring for this kind of thing in-house for the last ten years, pretty successfully, and then just recently we had a professional company come in and rewire everything from scratch."

Danetracks uses a new server called Winframe on editorial databases, allowing onsite or offsite Macs or PCs to log into it. "That's been terrific, because any of our Pro

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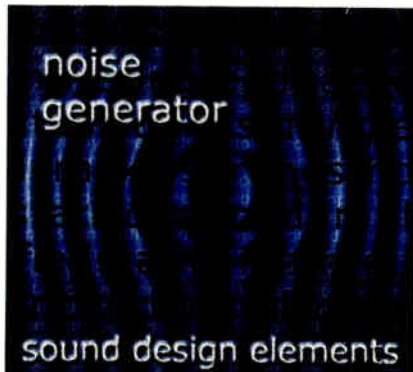
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Tools stations can log into it directly and have it in the background. The servers all feed through the same wires, so there are some nice cross-pollination possibilities," Davis says. "Like on the stage [Warner Bros. Burbank's Dubbing Stage 6, newly renovated and fitted with a Neve DFC console], with my little G3 Powerbook I can log into anything [at Danetracks] or onto any of our Pro Tools stations on other dubbing stages. I can get onto any drive or database and grab the audio files I need, or I can go directly into the library, find a sound, assign it to a spot and print it up for the transfer department. They put it on one of the servers, and I siphon it onto my stage drives. The system paid off hugely on this movie, saving a lot of freeway drive time."

The Danetracks library now has more than 90,000 sound effects. Managing all that information is key. "It's tricky, and we use a variety of databases," Davis says. "Primarily we use the Leonardo Professional Librarian system. We've been evolving with the writer of it, Louis Benniof, forever—in fact, he made a bunch of big changes for us just before we started *The Matrix*. We're able to track what every editor has cut, which is very important to me, because on most movies, I'll literally pull all the sound effects and make very specific cutting sheets for the editors. But on this movie, I had Julia Evershade helping me with that, which was terrific. Julia's a powerhouse; she knows my library really well, and I know hers."

The highly wired aspects of Danetracks have permitted Davis to centralize a project yet allow people to work independently. "For example, we discovered early on with Pro Tools that by having cloned drives, copies of the actual audio that people are working with, the edit sessions can float independently," Davis explains. "We can have three editors using the same audio in three different places and they can interchange their sessions. One person can be working on reel 3 effects and can log on and get the reel 2 effects edit session from another editor. It gives us a huge amount of freedom in terms of scheduling people and resources."

One of Davis' best editors moved to Austin, Texas, in the mid-'90s and now receives reels via FedEx, then posts the sessions back to the server over phone lines. "Since then, we have a bunch of editors working on their own satellite systems," Davis says.

Upstairs at Danetracks is Davis' sound design studio, fitted with a Sap-

phyre console (now primarily a monitoring matrix), a Westlake surround speaker system, and a full complement of outboard EQ and effects. It's a full-service room; depending on the project, he can do sound design for specific scenes or dub a whole film.

"I try to find character and logic for all the sounds that the audience experiences," he relates. "I'm always looking for some justification or explanation of what the characters are hearing and



PHOTO: MAUREEN DROWNEY

L-R on the dubbing stage at Warner Bros. for *The Matrix*: Dane Davis, sound designer; John Reitz, dialog mixer; Dave Campbell, music mixer; and Greg Rudloff, effects mixer.

why the audience is hearing it. It's usually pretty subtle, but it's really important to me to be correct about this—the logic of sound effects.

"Some directors will spot very specifically," he continues. "This person's house is close to that kind of factory, and it clanks and clinks. That person lives next to the refinery, and it goes boom, boom, boom all day long until 5 o'clock when the whistle blows and it stops.' That's integrated into the story, and it becomes part of the environs those characters interact within. There can be a lot of nondirect human noises that become the character of a place. I have to run it by the test: 'Are these sounds going to help propagate the story?'"

"There actually have been times where I've stood up and said, 'This would be a whole lot better without those sound effects!' There are a lot of people who'll fight for the effects to be as loud as possible at all times at any cost, and a lot of times those are the people who get all the attention because the audience is constantly aware of it. If your sound effects integrate seamlessly with the music, sometimes nobody notices them," Davis explains. "I've had that happen to me hundreds of times, where I was being careful with the dubbing mixers to integrate the effects so that you didn't notice when the score cues, or even source cues, were starting and stopping."

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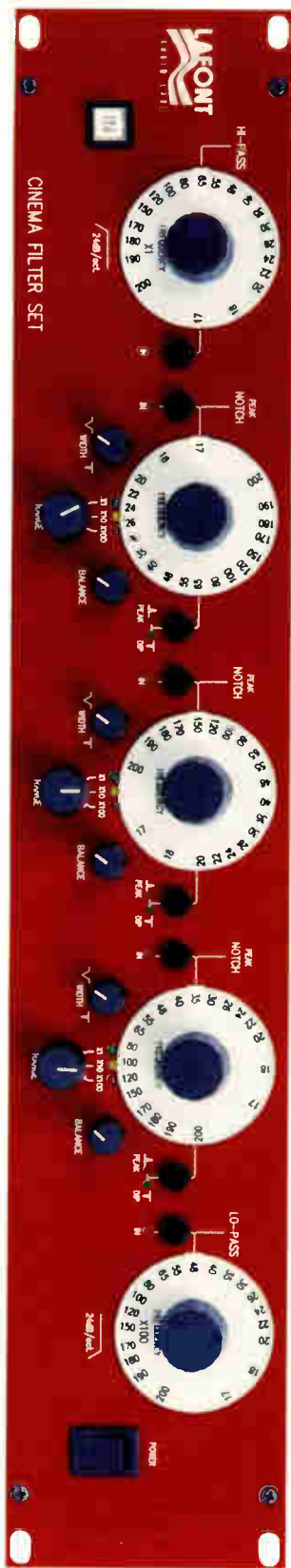
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A good example of that blend is the slow motion "gun ballet" scene in the government building lobby scene in *The Matrix*.

"We had to find a way to make the pulse of the source song come through," Davis says. "It had been cut extremely carefully to fit the scene by Zig Gron, the source music editor, working with score editor Laurie Eschler. I had to dance around that music, and in some places it meant not hearing the guns—they're just part of the fabric of it. We'd let that particular downbeat come in, let that particular bass guitar riff establish itself, and then the guns would come back in. A lot of times it's not literal at all. We tried to play the characters' mental perspective of all the sound events in the scene. In this case, it's as if the song was pumping the characters up to their actions."

The Matrix was a long time coming; Davis and the Wachowskis had talked about the film for three years before production began. It turned out to be a good thing that they had all those early conversations, because once the actual shooting began in Australia, there was little time for Davis to interact with the directors.

"It was a massive undertaking," Davis laughs. "The directors had 500 people on the crew there, and all these visual effects people—they were busy all the time. It's not like I could call them up and chat. We had very concise e-mail messages and certain key phone calls, then they had to just trust me and I had to trust my own instinct and understanding of their filmmaking. I'd create sequences of things, either with or without picture, that I would wire back to them as audio files. They'd load them in their Avid the next day, and I'd get some feedback. But even then it's not like they had opportunities to just put my work up; it was just that the next time they worked on that scene it would have some of my stuff in it, and it either worked great, or it worked okay or it completely sucked, which luckily rarely happened."

It helped that the film was storyboarded in exacting detail, a habit of the Wachowskis probably stemming from their comic book writing background. "They were masterpieces of storyboard, with all the angle changes and zooms," Davis recalls. "We went through the entire storyboards a year or so before they started shooting, and that was instrumental because we never got much of a chance again."

It also helped that Don Davis, music

composer for *The Matrix*, had also scored *Bound*. "He's not actually my brother." Dane Davis laughs. "But we pretend he is. We discussed each scene as we evolved the score and sound design. So we both knew each other's relative dynamics, density and important moments of needed clarity. I think all those conversations show in the fused and flowing quality of the total soundtrack."

"Working on this movie was a field day," Dane Davis concludes. "Really intense and complex. Zach Staenberg [editor on *The Matrix* and *Bound*] and I were talking before they started shooting it, and he said, 'The goal here is to make a \$70 million handcrafted movie, like *Bound* was a \$4 million handcrafted movie.' On *Bound*, every aspect was carefully sculpted and very few compromises were made. I think in the end that's really what was also achieved on *The Matrix*."

After *The Matrix* was finished Davis went back to work on a project he'd begun long before, an independent film produced and directed by Matt Palmieri, featuring Harry Dean Stanton and Emilio Estevez, titled *Sand*. The soundtrack for *Sand* was unique in that it was posted completely in Pro Tools in Dolby Stereo using three six-voice systems slaved together by AES. All pre-mixes were kept virtual with all source tracks readily available for changes if needed. Davis also did all equalization in Pro Tools, taking full advantage of the automation.

"Working this way allows me to be mixing in the present tense locked to picture, with the client listening, and at the same time to be mixing up ahead, or fixing something that just went by without stopping," he says. "So, sometimes I'm literally mixing in the past, present and future simultaneously!"

At the same time he was finishing *Sand*, Davis was starting on the Joel Silver-produced *House on Haunted Hill*, set for a Halloween release. "Making scary noises is always the most fun," he laughs. "We're trying to bypass a lot of the usual stuff, though—the life of the house is mechanical, human and monstrous at the same time, which lends itself to a huge range of sounds."

With both another "massive" movie, and another indie "little gem" in the works, Davis won't find himself pigeonholed any time soon. His projects continue across the board in style, with the only continuing theme his constant forays into new technologies that will help him get the job done. ■

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SUPPLY KEEPS PACE WITH EVER-GROWING DEMAND

More and More Music Libraries

By David John Farinella

There's something very "What came first, the chicken or the egg?" about the world of music libraries. Is it the world of pop music that drives music library releases? How about movie scores? And what about that catchy advertising music? Is the answer a combination of all of them or none of the above?

Regardless of the cause, composers have all been suffering as well as benefiting from a rapidly expanding market and higher expectations for their libraries' quality. With the Internet, hundreds of additional television programs on dozens of new broadcast and cable channels, and even more corporations looking for industrial videos, the need for music libraries has never been greater. Surprisingly, says Mitch Coodley of New York-based Metro Music Productions Inc., supply is actually meeting demand. "If anything, the trend in production is to use more production music, rather than custom, simply because of the cost," he re-

ports. "So, in a way, we have more opportunities than ever, but we have more competition. It means that we have to do a better job of marketing than we used to because we have to compete with more vendors and products out there."

Composers also have had to adjust to the fact that buyers are much more savvy about the difference between "real" and "canned" music. For some houses, Coodley points out, that's a positive. "That works in our favor, because at one point getting anything that sounded decent was a novelty, and now there's a lot of good music out there," he says. "So what separates really exciting music from usable is that spark of originality and the amount of fresh organic quality that it has."

Of course, with more demand and supply, questions abound regarding modes of delivery. Though many companies now offer the ability to audition music tracks online (companies like Megatrax have made samples of their whole 8,000-track collection



available), many are not yet willing to give up customer contact altogether. "We want to have a human just for a minute to say, 'We know you're you, you know we're us, let us send you something,'" says Charly Conquest of Fresh Music.

Other companies believe that their customers would rather have something physical on hand, rather than having to search Internet sites during a time crunch. In fact, Steven Corn of Megatrax believes online downloading is still years away. "Even though people are downloading band songs in MP3 files, I think it's still a little while away from the production world to be able to beat

sound clips of every cut in the 65-disc library.

Aircraft Music Library
www.aircraftmusiclibrary.com
800/343-2514

As one of the granddaddies in the music library business, Aircraft is finding that more and more clients are looking for authentic instrumentation. With that in mind, Aircraft will be adding a pair of such libraries to its 100-plus disc collection. The company has plans to enable downloadable music in the near future; in the meantime, clients can audition tracks via RealAudio.

CSS Music
www.cssmusic.com
800/468-6874

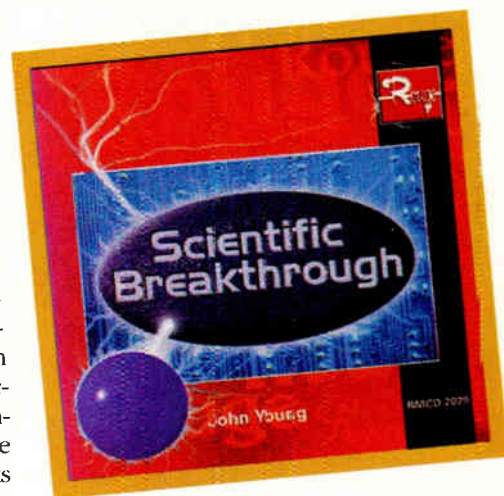
CSS Music offers more than 200 discs in a wide variety of musical styles. This year, the company has released 27 new titles, including Big Screen and Super Themes. Music can be downloaded on a pay-per-cut basis with the company's DAWN (digital audio worldwide network) application.

De Wolfe Music Library
www.dewolfemusic.com
800/221-6713;
(in NY: 212/382-0220)

The De Wolfe composers have turned their attention to a new 20-disc collection called Millennium Series, which details the 20th century with both archival and newly recorded music. In addition to the Rouge, Hudson and USA libraries, De Wolfe is now distributing a classical 80-disc series by the name of Classical Masterpieces. The De Wolfe Web site has no audio capabilities at this point, but the company is planning to have demo services by early winter.

The Dionysus Record Empire
www.indieweb.com/dionysus/index.html;
818/848-2698

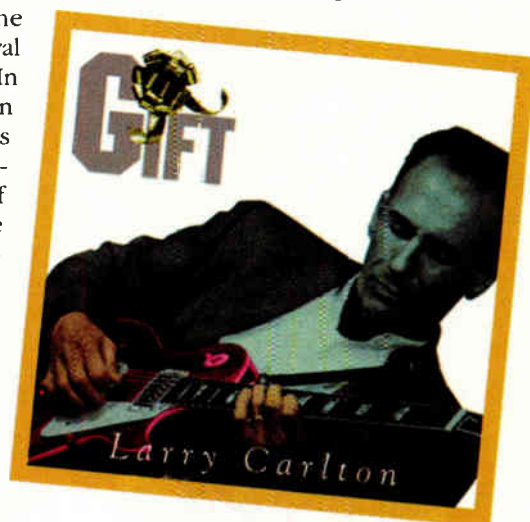
In addition to more traditional music library tracks, this collection features a wide range of off-kilter material, from surf to



rockabilly, lounge to garage. Fall releases include updates from the Quiet Kings (pop), The Kabalas (Klezmer instrumentals) and Al Garcia & the Rhythm Kings (surf). Music can be auditioned at the company's Web site.

East-West
www.soundsonline.com
800/833-8339

Rather than concentrating on conventional production music libraries, East-West has developed a series of discs that provide the foundation for music tracks. Coming this fall, East-West will release a two-disc set of drum tracks from former Journey stickman Steve Smith. The company's Web site is enabled for listening to samples.



Firstcom Music
www.firstcom.com
800/858-8880

In addition to updating all of its existing libraries, Firstcom will be re-

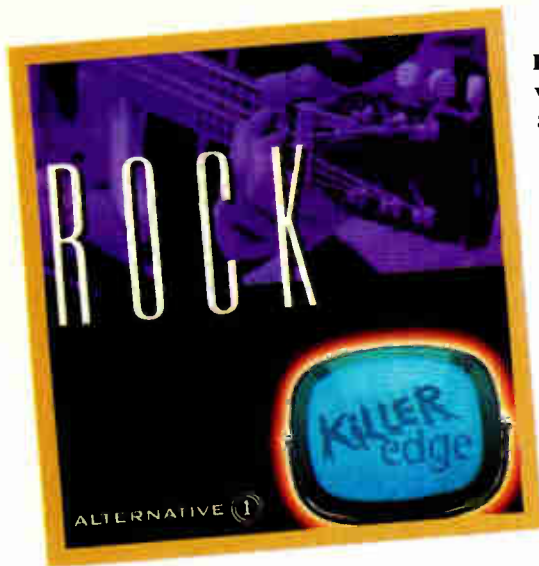


the speed of sticking a CD in your player and hitting go," he says. "A lot of times they need that immediacy, that physicality. I think it's a couple years away until it's ubiquitous."

The following is a selection of current offerings from the world of production music libraries. Hundreds of companies exist out there—many of them custom—and we do not pretend to include them all here. Do your own search, visit the sites, call the companies and there's sure to be something out there for your next production.

615 Music
www.615music.com
888/615-TRAX

The end of the year is a busy time at 615 Music. The company will be adding discs called Contemporary Light, Hollywood Blockbusters, Smooth Country, Volume 2, and Olympic Fanfare. With Liquid Audio, visitors can listen to 30-second



Fresh Music
www.freshmusic.com
800/545-0688

Catching the Top 40 wave, the newest addition to the Fresh Music Library is a disc that blends Ricky Martin and Big Bad Voodoo Daddy. Fall releases from Fresh will be a "slick" disc, described as car advertising music, and a swing disc. The company will also offer a disc of long underscores. Though music can be auditioned, buyers cannot yet download sounds from the site.

The Hollywood Edge
www.hollywoodedge.com

800/292-3755
 Fall releases from The Hollywood Edge production music library will include a new Drama category, Light Action 4, Country Western 3, Action 2, and Industry/Retail 2 and 3. There are sound bites of each song available at the Web site using RealAudio.

Impact Music Library
www.studioland.com;
800/779-6434

The Impact Music Library, which is

ideal for corporate industrials, has been designed as a supplement to larger libraries. This fall the Business & Industry package will get an additional disc, and there are plans for an up-tempo contemporary disc. Impact is cautiously approaching the world of e-commerce, but auditions can be conducted via Quicktime.

JRT Music, LLC
212/253-8908

Things are changing a bit at JRT these days, and it's more than the move to 648 Broadway, Suite 911, New York. Along with the popular Jingle Mania 25-CD package, electronic and kitsch offerings, JRT will offer custom scoring out of its studios in France. Fall releases include a newly acquired classical library, and an 11-disc set that will include a range of styles including easy listening, big band, ambient, lounge and disco.

Killer Tracks
www.killertracks.com
800/877-0078

Visitors to the Killer Tracks Web site can now audition files, and the company has plans to offer downloadable

leasing the Hollywood Music Library, an update of Hollywood Film Music. The Firstcom library is now up to 20 discs, with heavy concentration on underscores, sports and orchestral tracks. By using Shockwave Audio, visitors to www.firstcom.com can hear samples and download music with a password supplied by the company. Firstcom also signed a joint venture with Beatnik, Thomas Dolby's company, to provide cyber-music on the Internet.

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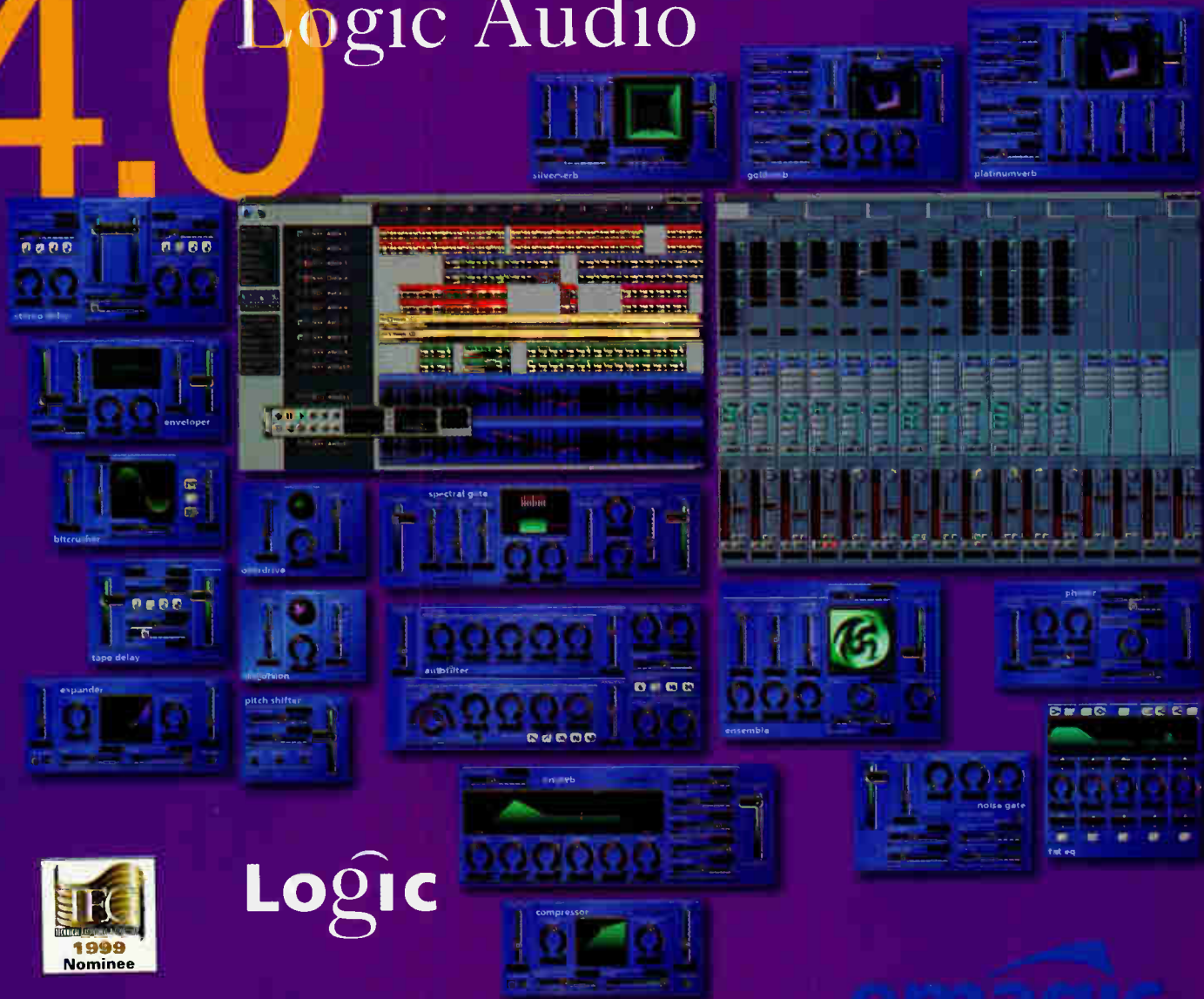
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Manhattan Production Music

www.mppmusic.com

800/227-1954; 212/333-5766

Manhattan Production Music's libraries—Apple Trax, MPM and BRg—are dedicated to the Top 40 trends in pop music. Earlier this year, swing and dramatic music were in demand, as were piano boogie and an assortment of jazz compositions. This fall's major releases will be a cinematic recording done with a 25-piece orchestra and a hard drama disc aimed toward promo spots. The Web site offers contact information only.

Megatrax

www.megatrax.com

888/MEGA555

Because the bulk of Megatrax's clients are promotion producers, fall is a busy time of year. So, the company will be updating its collection with another round of discs in the realm of lounge music, animation styles, sound design and corporate audio/visual. Also being released is World Beat, Volume 2, and a new collection of classical discs recently

acquired from a German record company. Megatrax has made its entire library available for searching and downloading, with Music Source supplying the searching software and Liquid Audio for downloads. (See sidebar.)

Metro Music Productions Inc.

www.metromusicinc.com

800/697-7392

Metro Music will be moving a bit beyond the world of contemporary music, as new releases featuring classical piano, Latin dance and pop vocal hits are made available. There will also be a big band disc that features a large cast of New York jazz players with nary a sampler to be found. As of yet, clients can only audition music at the company's Web site, though they are looking into e-commerce opportunities.

Gene Michael Productions

www.genemichaelproductions.com

800/955-0619

Because Gene Michael Productions aims at a wide variety of applications, the library features a wide variety of styles. New genres slated for this fall include Celtic folk, smooth jazz and heavy

industrial. Samples can be auditioned at the Web site.

Music Bakery

www.musicbakery.com

972/414-0313

Music Bakery has released 21 thematic discs in a bevy of styles. The company releases something new, be it jazz, rock or country, every other month. The library, which is recorded with all real instruments, will be updated this fall with a disc featuring "large" orchestral cuts. Visitors to the Web site can sample everything in the library that's been released since 1993. For those who would like to download individual cuts of Music Bakery music for broadcast, visit www.eyewire.com.

Network Music

www.networkmusic.com

800/854-2075

Visitors to Network's Web site have been able to preview upcoming fall releases 201 (small combo jazz), 202 (contemporary pop), 203 (slow tempo) and 204 (slow tempo). Other tracks are available for sampling, though the company mentions there has not been

MEGATRAX, MEGA STUDIOS

After building a reputation for having one of the finest production music libraries in the business, the owners of L.A.-based Megatrax decided to upgrade two of their studios, add another and make plans for two more rooms. According to Eddie King, senior mix engineer at Megatrax, the idea was to perfect the acoustics in each of the rooms while upgrading the equipment.

Fortunately, the acoustics in Studio A, which is primarily a live tracking room, didn't have to be adjusted. The room's equipment list, however, got a major overhaul. Otari RADAR 24-bit digital multitracks are now the recorders of choice. Db 24-bit A/D converters, a pair of Avalon VT37 mic pre's, an Avalon AD1224 compressor/limiter and a re-chipped Soundcraft console round out the room. The RADAR has been an important addition in King's eyes. "We love it. It works great, particularly for the type of work we do. We can jump back and forth with things and edit them on the spot very quickly."

Studio B, an editing/mastering room, got new KRK Expose 8 powered monitors and a Tascam DA45HR recorder.

Studio C, the new room, was designed from the ground up by King. He took care with the acoustics and equipment choices so that it worked well as a small mixing and MIDI room. Included in the room's equipment

roster is a Mackie D8B digital mixer and a Tascam DA45HR recorder.

The upgrades in Studios A and B, as well as the completion of Studio C, enable Megatrax to work more efficiently. "The acoustic tracks that are not MIDI we'll record in Studio A and then either mix in Studio A or Studio C," King explains. "That boosts our productivity."

— David John Farinella



L-R: Ron Mendelsohn, co-owner/composer; John Dwyer, seated, co-owner/composer; and Eddie King, recording engineer.

much demand for download. Other upcoming releases now in pre-production include a contemporary R&B disc, an electronica/techno disc and an up-tempo "feel good" album.

Non-Stop Music Library
www.nonstopmusic.com
 800/554-6462

Each year Non-Stop releases 12 to 15 new discs. This fall, those will include two new swing discs, a new Film and Stage disc, and a comedy disc. The company also distributes London's Extreme Library and the Dead Good Library. Song previews and downloads are available on the Web site.

OGM Production Music
www.ogmmusic.com
 800/421-4163

Over the past 30 years OGM Production Music has seen a number of changes in the library business. The company is looking forward to releasing a seventh collection, which will feature Media Music from vintage television shows. Even with distribution in 50 countries, OGM is finding the Web business intriguing. Currently, music can be auditioned at the site, and files can be e-mailed to clients.

Omnimusic
www.omnimusic.com
 800/828-6664

Coming up this fall, Omnimusic will be releasing its second volume to the very popular World.com. There are also plans for a swing/jazz disc, which will be recorded with live musicians. The company's demo can be auditioned at its Web site, and specific tracks can be streamed via Liquid Audio (you'll need a password).

Production Garden Music
www.productiongarden.com
 800/247-5317

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Music Street Library, Manchester Music Library, Tune Ranch Library, Series 100 & 200 and Manchester Special Edition/Broadcast. Fall updates will include Air Assault II and III, and there are plans for an international theme disc. Tracks can be auditioned at the company's Web site.

Promusic Inc.

www.promusic-inc.com

800/322-7879; 888/600-8988 in CA

Promusic is one of the largest distributors of music libraries in the world, with more than 2,000 discs available in a bevy of styles. This fall the company will be introducing up to 60 new releases in a variety of genres, including classical, dance and electronica. One of the latest additions is a library from the new English label Atlantic Seven. The collection of eight discs ranges from rock to dance to dramatic to vocals. Promusic's Web site features sample listening capability for most of their libraries, and some will be available for download using Liquid Audio within the year. The company recently opened a new office in Studio City, Calif.

Radical Entertainment

www.radicalentertainment.com

212/302-0555

Radical Entertainment is planning five new releases for the fall. In addition to two unnamed discs (one of light/lyrical smooth jazz and another of light drama/atmospheric), the additions include: It's a Jungle, Brother, cutting edge dance/techno music; Night Visions, electronica/trance/hip hop collection; and The Uptown Horns, swing/rock 'n' roll/blues collection from the band of the same name. Radical is also releasing Laughtunes, the official music tracks from the *Laurel and Hardy* series. Currently visitors to the company's Web site can preview 30 hours of music and also download files in an MPEG format.

River City Sound Productions

www.rivercitysound.com

800/755-8729

River City has two collections, The Broadcast Series and The Specialty Series. This fall, The Specialty Series, which also includes titles like Weddings, Nature and Sports, will be updated with a Suspense disc. That disc will include a full song length, as well as versions in :60 and :30 lengths. Suspense will be followed by Horror this winter. All of the discs can be sampled at the company's Web site.

Sonic Science

www.sonicscience.com

800/26-SONIC

The ten-disc Sonic Science Production Music Library is not scheduled for any major updates this fall, however the company will be distributing a new collection by the name of Contempo Music. While the company has no immediate plans to jump into the e-commerce business, there are samples at the Web site.

Sound Ideas

www.sound-ideas.com

800/387-3030

Sound Ideas, perhaps best known for its effects discs, also has six unique collections in its production music library, The Mix Broadcast Music Library. This fall the company will be releasing The Classic Comedy Music Series, which is 160 tracks of vintage cartoon and comedy music on two discs. The series will include a wide variety of styles, with music from silent films, epics, cartoons and light comedies. The company's Web site is strictly informational.

Sweetsongs Productions

www.sweetsongs.com

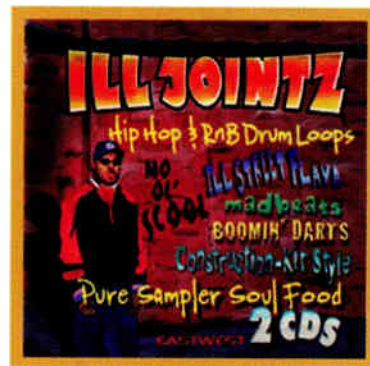
304/428-7779

The Production Library was just updated with five new discs, aimed at audio/video productions or radio/TV spots. Each track comes in a three- to four-minute version and a 30-second cut, and there are six to eight cuts per disc. Those tracks can be auditioned at the company's Web site.

TRF Production Music Libraries

800/899-MUSIC

TRF is constantly updating its Bosworth, Cobra, Dennis, Musictrack, PowerSound, Pyramid, Stock, Supraphon (classical library) and PAN (international ethnic music) libraries throughout the year. This fall TRF will be releasing seven new discs in the Pyramid library, six new discs in the Bosworth library, five new releases in the Musictrack li-



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brary, 15 new offerings in the PAN library and four new discs in the Power-Sound library.

Valentino

www.tvmusic.com

800/223-6278

With the impending turn of the century, Valentino is releasing a collection of 20-plus discs titled 2000 Millennium Library. The collection will include contemporary, blues, techno and jazz. At this point visitors to tvmusic.com can listen to one cut of music per disc.

Video Helper

www.videohelper.com

212/633-7009

Video Helper prides itself in providing music libraries that the rest of the world hasn't even thought of yet. Take the summer release of Swack! as an example. The disc is an all percussion offering that includes sounds of things being hit with a hammer in a New York City playground, car sounds from Central Park Causeway Tunnel, garbage can sounds and gates being slammed. This fall Video Helper will be returning to the dance/techno world with the release of Beat Buffet 2. The first Beat Buffet featured the sounds of Adam Dorn; this disc includes electronica artist Mocean Worker. Music can be auditioned, though not purchased, online.

Who Did That Music?

www.whodidthatmusic.com

800/400-6767

Growing up from a small company, Who Did That Music? has just released its fifth music library. This fall the company will be releasing Ignite, Volume 2; Revolución; and an orchestral disc that has been two years in the making. Other libraries like Gravity and Mind Benders will also be receiving updates throughout the year. The site can be searched, and tracks can be sampled via RealAudio.

Yessian Music

www.yessianmusic.com

888/937-7426 (YES-SIAN)

Yessian Music's The Great Escape Music Library is a total buyout package with no royalties or licensing fees. Ten musical categories, from action to classical to atmospheric to hip hop, are spread over three discs. Although there are no firm plans for a fall update, the company has been preparing for another three-disc release before the end of the year. There are downloadable samples of the music at the Web site. ■

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CIRCLE #056 ON PRODUCT INFO CARD

SOUND FOR FILM

AN OPEN LETTER TO
PRODUCTION
MIXERS

PART 2

by Larry Blake

In this month's column, the second of two parts, I'll turn my attention from the philosophical issues dealt with last month to some of the more practical and technical matters that can make a difference on the set and in post-production.

DEALING WITH PICTURE
DEPARTMENTS

Earlier this year, in a thread in the rec.arts.movies.pro

They do what is most expedient for them and their bosses, and, as a result, we both get screwed.

This shouldn't dissuade us from using OMF, wherein final-quality audio is loaded into the Avid (i.e., not via videotape) and these files (with their edits made in the Avid sequence) are passed on to us in post sound editorial. However, we need to realize that two tracks are the exact point of diminishing returns on production recordings: It's enough to keep things split up, but not too much to wade through. Also, the "solution" of having a separate "dailies" mix plus additional three-seven tracks split across—and containing the same material—is just not practical in the editing rooms (picture and sound). Please refer to last month's

video cameras. Stay tuned.) Of course, in any event, ask the picture department what they will be using. And if you can't get a straight answer out of anyone, and have to unilaterally decide for the production, non-drop is always the best choice.

I'm often asked what we in post prefer—time-of-day or record-run timecode (when the timecode generator stops and starts with the recorder). While it is true that record run is easier to handle when loading in production tapes according to a "CMX"-style EDL, this is no longer a big issue. Since OMF audio counts by samples, and not timecode, production timecode is not much of a factor in sound editorial. (Having timecode slates does make editing multiple-camera setups much easier for the picture department.) The bottom line, from my point of view, is that it is a far sight easier for you to use time-of-day code, since you can jam the generators in timecode slates (and cameras), thus freeing you from the hassle of running cables or using RF to feed code. You have enough problems these days without having to fret over timecode.

You also need to ask the picture department and the post sound team what sampling rate you should use for your digital recordings. Don't assume a rate or take the assistant picture editor's word for it. If final-quality audio will be loaded into the non-linear edit system, the real authority is the supervising sound editor, who has to integrate the dialog along with ADR, Foley, cut sound effects and music at the dub stage.

The answer is not as cut and dried as it may seem—44.1 or 48—because there are crucial variations within those settings, as you may already be aware. If you are recording for a digital video-

—CONTINUED ON PAGE SFP 36



ILLUSTRATION: TIM GLEASON

production.sound newsgroup, I was first made aware of the problems that production mixers have with the picture department making decisions about what gets loaded into their nonlinear edit systems. I see now that part of the problem (in regard to loading final-quality audio into the Avid) is the assistant picture editors who don't do the work (you) or those who eventually have to be responsible for the work (sound editors and mixers).

column for some basic do's and don'ts of multitrack field recording.

TIMECODE AND
SAMPLING RATES

Just for the record, as of this writing, you should never use 24-frame timecode for standard film production work. Always use 30-frame timecode, and if it's a theatrical feature film, non-drop. (This might change in the near future with the advent of 24-frame high-definition

FACILITY SPOTLIGHT

NOW HEAR THIS IN YOUR EAR MAKES A STATEMENT WITH NEW FACILITY

by Mark R. Smith

Many people would say Carlos Chafin is one of the more affable people in the audio business. But don't take his easygoing nature to mean that the president of In Your Ear Music in Richmond, Va., doesn't know when to slap the blinders on and move full steam ahead.

For instance, he decided long ago that there was one way to approach his career-long dream of building a new facility for the eight-year-old company: the right way. Period.

That meant, first of all, that the technical capabilities would need to rival those of any facility in the country. It



Carlos Chafin at the piano in Studio E/Composition Room I

also meant that the building's layout would be tailored to the facility's needs, and not simply plunked down in an office or industrial space due to favorable lease rates or location. Chafin wanted the ambience of the building and surrounding neighborhood to

evoke images of the simpler colonial times that attract tourists to Virginia's capital city in droves. It needed to be a place where people would like to be...and be inspired.

"It also meant realizing that it would take longer to find everything we wanted," Chafin stated, with a weary

smile. But, finally, after years of searching for the right spot, he and his staff finally found it in 1997, in a nearly 140-year-old residential structure in the city's historic Shockoe Bottom district. So, at 1813 E. Broad St. sits Chafin's dream, as well as his reality.

—CONTINUED ON PAGE SEP 34

COMPOSER SPOTLIGHT

PARODI/FAIR COMPOSING TRAILER TRACKS

by Maureen Droney

Maybe it's a feng shui thing, but "harmony" is the word that comes to mind when entering the Pacific Palisades home studio of Starr Parodi and Jeff Eden Fair. Although it's part of L.A., the Palisades has always seemed to be some sort of an anachronism, serenely removed from the rest of L.A. Its weather is different, more Northern California-like with lots of fog and cool ocean breezes. Its vibe is different, too; the area often feels like a small town that just happens to be perched on hills overlooking the Pacific a few miles south of Malibu. Many successful artistic and musi-

cal types have carved out live/work spaces there, much as Parodi/Fair established Sonic Doppler-Gray Dog Studios.

Parodi and Fair write and produce together, and they have become known for their work in sound for picture, especially in the niche area of trailers. In the past year they've composed an update of the classic TV theme for *Wild Wild West's* trailer, and mini-scores accompanying the trailers for *Entrapment*, *The Mod Squad* and *The Thomas Crown Affair*. Their trailer credits also include *Braveheart*, *Deep Impact*, *Goldeneye* and *Tomorrow Never Dies*. As busy as the trailer world keeps them, Parodi/Fair have also branched out to scoring for episodic television (Lifetime's series *Maggie*) and feature films (*The Eighteenth Angel*, *Screenland Drive*), and they composed the musical background for the



Starr Parodi and Jeff Eden Fair at home

United Artists logo.

Back in 1985, Parodi was playing keyboards in saxophonist George Howard's band while Fair was helping out with sound design for Howard's album. "At the

time, I was also doing some [music] writing for the TV show *Fame*," recalls Parodi. "Jeff and I collaborated on some pieces that they used, and that's how it started. We

—CONTINUED ON PAGE SEP 30

—FROM PAGE SFP 33, IN YOUR EAR

With the \$4.1 million, almost 20,000-square-foot facility now open and run by a 16-member staff, IYE (www.lobe.com) is moving forward. Chafin hopes not only to reinforce his facility's presence in the spot market, but to make greater inroads toward scoring and rock 'n' roll.

GETTING TECHNICAL

Calling the facility "one of our prouder achievements," Peter Grueneisen, principal with Los Angeles-based architectural firm studio hau:ton, marvels at the tenacity Chafin and IYE's staff—most notably director of operations Terry Stroud and chief engineer Joe Sheets—showed during the design stage.

"We went through a long process of optimizing the layout and making sure everything is in the right place," Grueneisen says. "The interesting thing here is that they made no compromises. They went to great lengths to ensure the proper heights for the studio ceilings, for example. That type of thing is very important."

The Broad Street location has twice the square footage of its former home but the same number of studios (three). It's the layout and what the rooms offer that have changed.

For starters, the sound isolation system consists of double-cinderblock walls, backed by up to 12 layers of sheetrock to reduce the rumble of passing trucks or sirens from emergency vehicles on Broad Street, which is a main thoroughfare. And the studios have been designed to be multifunctional.

Studios A and B are almost identical, aside from the space in B being a bit smaller. Each features a Euphonix CS-2000 console with ES-108 dynamics on all channels, New England Digital Post-Pro workstations and 32 tracks of Tascam DA-88/38 recording capability. In addition, Studio A is one of the first Dolby Digital control rooms in the country to feature a 5.1 Genelec monitoring system.

The old Studio C was relegated to radio spots because it was small, but it now features a 400-square-foot control room, 350-square-foot studio and is centered around a Pro Tools|24 MIX Plus system with Pro Control. Chafin said the room "can now handle many projects like the other rooms, plus CD mastering and Internet file preparation, as well as music recording and multiformat mixing."

The entire facility is wired so that, for



The large, live Studio A, where IYE hopes to attract more music projects

example, an engineer in Control Room A can tie into all three studios and their three lounges, the sound lock and a small studio attached to composition rooms D and E. The grand piano is in Composition E and can be recorded from any control room, or rolled into Studio A.

David Brooks, self-described "chief wirehead," has been in cahoots with Chafin for almost twice the company's eight-year existence. "We built total flexibility into this place," Brooks observes, "because studios could be sitting unused, since the control room uses a lot of ISDN digital patch for when the talent is in L.A. and the spot is being produced here with the ad people."

They can also patch video, he adds. "Any of the rooms can run a ¾-inch video deck. We have two Doremi Labs V1 hard drive-based video recorder/players that can be accessed from any of the rooms."

Wire runs cover the shortest possible distance under the floors through one of 72 troughs. "The wiring we use costs about \$60 a foot," Brooks explains. "Four-, six- and eight-inch PVC pipes connect the troughs, which means making changes is very easy. That way, wires don't go up a wall and through a ceiling, so we save money and it sounds better, too." The facility is using some fiber now in its dub room and will likely incorporate more in the future.

ON THE SPOTS

That versatility is what Chafin hopes will help result in new doors opening to IYE. Presently, about 60% of the company's business is spots. Of that spot work, 60% comes from outside Richmond; Dallas, Minneapolis and At-

lanta have proven to be particularly fruitful markets due to working relationships that have developed over the years.

Some of the more recent high-profile, long-term campaigns include projects for Red Roof Inns, featuring comedian Martin Mull, and scoring for a Timberland shoe promotional campaign for Richmond's huge Martin Agency.

A campaign for Colonial Williamsburg for another Richmond agency, Just Partners, just wrapped. It includes four spots airing nationally that juxtapose modern day and colonial times. While video post-production on those spots was taking place at Encore Video and FilmCore, both in Santa Monica, Calif., Chafin wrote the music and created the files to the West Coast via ISDN lines (IYE uses 3-D2 Network, as well as DG Systems). "The client at FilmCore was able to collaborate by approving the design, making changes and giving me direction," Chafin says. The client returned to Richmond for the final mix in Dolby Surround, then laid back to their Digital Beta master.

On this occasion, the music featured a combination of live players and electronic beds. "There was a delicate connection to the past in the case of the Williamsburg spots, so I mainly used real players, which we do about half the time," Chafin explains. "I tend to go for the sound. I very rarely use samples to circumvent the budget—maybe occasionally, with a string section, but that's about it."

IYE's rates range from \$100 an hour at night for demo sessions to \$300 an hour for multiformat mix to picture.

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ONWARD AND UPWARD

While IYE works with out-of-town post houses daily, Chafin stressed that he also wants to strengthen the company's national presence in the production community. That's part of the reason for the acute attention to detail while building the new digs.

So it was a boon when veteran actor and producer Tim Reid opened New Millennium Studios on the outskirts of nearby Petersburg in mid-1997. That presence has already led to a plum scoring project for an episodic TV program for Showtime called *Linc's*. It was successful and has been picked up by Viacom.

Of late, New Millennium has opened a second studio in Petersburg and is eyeing an insert stage near IYE and Henninger Richmond, as the three firms are considering a partnership to promote production in the city. Chafin would also like to push headlong into music production and see acts take advantage of what IYE now has to offer. ■

Mark R. Smith is a freelance writer and music trivia addict based in Crofton, Md. He can be reached at MSmith1277@aol.com.

—FROM PAGE SFP 32, SOUND FOR FILM

tape finish, and sound work will be handled digitally throughout post-production, then you should be recording in the field at 48.048 kHz (assuming, of course, that you are shooting film running at 24 fps which will be transferred to NTSC videotape, and thus bring the sample rate 0.1% down to 48.000 kHz).

On the other hand, if you're recording for a feature film, which will be cut on an Avid, then you should be rolling at 48.000 kHz on the set. This will drop down to 47.952 kHz at NTSC speed. (The Lightworks system, on the other hand, conforms to digital videotape rates.)

RECORDING ON AN ANALOG NAGRA

If you are using a Nagra, just prior to the first day of shooting, please create a "Rosetta stone" tone roll with a complete set that will enable the transfer department to properly align the studio deck. I am always amazed when production mixers will hesitate at providing such a tape: "This isn't music, it's dialog." Ouch!

I'm aware that there are many out

there in the world of production who sing the praises of the Nagra master equalization curve, but I remain unconvinced. While it's true that there will be a slight improvement in the signal-to-noise ratio, these tapes can only be played back either on a Kudelski machine (portable IV-S or a studio T-Audio) or with an aftermarket adapter. Nagra master does nothing for headroom (in fact it reduces it on the high end) or for low- or mid-frequency noise.

If you *really* want to turbocharge your analog field recordings, I would suggest using Dolby SR, connecting to the Nagra via units manufactured by Bryston. Headroom and tape noise worries simply disappear, and you will be producing the very highest-quality track possible. Ask around to the handful of production mixers who have used and swear by SR. I mention this because most of the people who badmouth SR or any form of noise reduction on a Nagra have never used it. (Funny how that is.) I have been on the receiving end of such tapes five times, with 100% positive results.

There's no question that SR places certain stringent demands on produc-

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tion mixers. You need to find the juice to power four channels of SR, two for encoding and two for decoding off tape. It's considerably less mobile, especially in regard to jumping in and out of insert cars. You have to be real careful about the alignment of your machine, because SR, like all noise reduction schemes, can produce undesirable anomalies if the reproduced EQ curve of the transfer deck is very different from that of the recorder. You must give the transfer department the Rosetta stone alignment tape, and you must record SR noise at the head of each tape.

And, yes, it is a little bit of a hassle for transfer and post-production folks, but so what? It's like using a finer-grained negative stock in the camera—the smoothness of the whole track will be noticeably increased. If your supervising sound editor does not get on his or her knees and thank you for wanting to go to the trouble for raising the quality of the sound of the film, he or she is a loser in my book.

DIGITAL RECORDINGS

This is a digital age, and many of you understandably have a digital bent. If you are using a standard DAT, look into getting an outboard A/D converter such as the Apogee AD-1000, which can also provide a soft limit feature to allow you to cram as much information as possible into the 16-bit linear PCM.

If you want to turbocharge your digital recordings beyond the 16-bit DAT standard, go for it! The sound of units like the Nagra D and the Deva are on par with SR-encoded ¼-inch, with the addition of two more channels. As you might have guessed, these devices, too, come with caveats. The primary one: You frequently have to restrain yourself from using more than two tracks.

Should you use either SR-encoded analog or Deva/Nagra D, it would be very helpful for the dialog editors if you also record a standard DAT as backup. These tapes are a big help when searching through non-printed takes looking for lines to cheat and fill to grab. It's a good idea to set up the reference levels on your DAT machine to match the levels of either the A/D transfer of your Nagra tape or the reference level of your workstation. Expressed more clearly, you should instruct the transfer people to make your -8 modulometer/0 VU tone match the -20 dBfs level on the workstation. If your backup DAT was also recorded at a -20 reference, a

sound editor can load in digitally at the workstation and know that levels will match.

While it is helpful to have timecode on these DAT tapes, it's not absolutely necessary. (And if you've gone to the expense of outfitting your cart with any of the hot-rodded devices—SR, Nagra D or Deva—the addition of a timecode DAT just for backup would not be a welcome sight in terms of your check-book.) And while only timecode DAT decks give one precise control over sample rate, thus enabling a digital load-in to be dead in sync, we can work around this, too.

SOUND LOGS

One part of the production sound process that is rarely mentioned is the importance of good sound logs. There are some basic points that are often overlooked, like putting down what microphones you used, and on what track. I mean, you're not giving away secrets if you note that you use a Schoeps with an MK-21 capsule in the bathroom.

My selfish reason for wanting this information is to help train my ears as to what I'm hearing, for better or worse. If a radio mic sounds good, I want to know what mic was used. And if there's HMI ballast or head whine, Panavision PanaTape flutter, or even the familiar Schoeps I-can't-deal-with-humidity squeal, I want to relate what I'm hearing to production recording practice. Noting all this on the logs is really appreciated.

Also, please make sure to note where good fill is, as in an unexpectedly long pause at the beginning or end of a take. Any supervising sound editor worth their workstation will compile a master list of such notes, along with wild tracks, stereo tracks and general effects recordings.

It doesn't do you or the film any good if you make great logs and the post sound crew doesn't read them. I've heard it suggested that the production mixer send the logs in first and then give a quiz to people in post before sending in the tapes. This is a great idea because it really pains me that those of you in the field have been burned so many times.

You might consider rethinking the layout of your production logs. A few years ago, my production sound recording colleague Paul Ledford and I designed a log that splits the tape by camera setups, and not simply the grid of lines found on most sound forms. I



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think this design is both production mixer- and sound editor-friendly because it draws your eye to logical groups and eliminates repetitive writing. If you would like a copy of this, just e-mail me and I will send a copy back to you as an attached file. (And if you e-mail now, I will also throw in a copy of my Rosetta stone check list, recording a reference alignment ¼-inch tape.)

As I have noted, the rec.arts.movies.production.sound newsgroup is a superb resource for those of us who care about sound for film and television. Beginning September 1, when this

issue hits newsstands and mailboxes, I will continue the thread titled "Production and Post-Production Cooperation" that was started in August in conjunction with Part 1. Let's keep this dialog going!

Contact me at P.O. Box 24609, New Orleans, LA 70184, or fax 504/488-5139, or e-mail swelltone@aol.com. ■

Larry Blake is a sound editor and re-recording mixer who lives in New Orleans for reasons too numerous to mention, although one of them would have to be the heated muffalettas at the Napoleon House.

—FROM PAGE SFP 33, PARODI/FAIR

found that we worked really well together." The couple is now married.

Although Parodi, who was born in Hollywood and educated at UCLA and at the Dick Grove School of Music, went on to play and tour with other artists, writing remained one of her main goals. The opportunity in 1988 to play with the *Arsenio Hall Show* posse helped get her on track.

"I was playing with a lot of different people," she says, "and wondering how I could reconcile wanting to write with wanting to play. It always seemed that in order to write, you had to stay in town, but the people I was playing with were always going out on the road. Then Arsenio's show came along and that was the perfect marriage. I got to stay in town and play with a really great band and a lot of my favorite artists, and also have the chance to write and get connected."

At that time, Fair, who hails from Seattle and plays bass guitar, brass, woodwinds and guitar, was busy with record production, commercials and working as head of R&D at Hybrid Arts, one of the first companies designing professional music software. In an only-in-L.A. scenario, the two were introduced to the world of movie trailers by a neighbor. "He was a copywriter working on voice-overs for the trailer for *Straight Out of Brooklyn*," explains Fair. "We'd given him a demo tape of music we'd done together, and he took it in to where he worked. The next day we got a call to come and meet."

The trailer production process is, not surprisingly, a compressed version of movie scheduling. Logistics and time frames vary for each project, with, according to Fair, the average time around a week-and-a-half. Parodi/Fair, of course, prefer to come aboard as early as possible because, as Fair says, "That's when a project can really gain its own identity."

"Thematically, trailers may jump through four or five different styles in a two-minute, 17-second space of time," Parodi adds. "It's a big challenge to make the soundtrack cohesive. You're trying to tell a two-hour story in less than three minutes, so you're trying to convey all the different emotions and also make people want to go out and see the picture. You have to make it seem like it's all one piece of music, or at least that it logically moves from piece to piece."

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ness. Directors often get tied to a piece of music based on the temp score, making the actual composer's work more difficult. "It's not uncommon for some music to be attached to the project when we get it," says Fair, "but usually we try to take it in a more original direction. That's another reason it's great to get to come in early; then you know that the editor will be cutting the picture to your music, as opposed to cutting the picture to some other music that might inspire them. If they cut the picture to other music, you may be locked into a tempo—you'll have to take that into consideration. You may have to resort to some tricks then, like making that tempo work in another time signature."

Generally, the couple doesn't see a film in its entirety before beginning work. "Sometimes we see artists' renderings," says Parodi, "or we might get a script. For *Wild Wild West*, we first saw conceptual art six months before we did the project. We did some demos on synth and sent them off, and that was that for a long time. Then we got a call about three days before they needed to take it to picture! Some deadlines had popped up and it was a rush for everybody. So it was lots of coffee and no sleep!"

Pre-recording of drums, bass, synth and percussion were done at Sonic Doppler, with sounds laid to DA-88 and 24-track. Then it was off to the Todd-AO soundstage, where Parodi conducted a 70-piece orchestra.

The eternal conflict between sound effects and music is just as prevalent in trailers as in feature films. "I think the best trailers," says Fair, "are the ones that allow whatever is creating the emotion that's necessary at any given moment to play through, whether it be sound effects or music."

"Since everybody has heard explosions," adds Parodi, "sometimes sound designers or the producer will go for having the music drive the scene. But it's always a give-and-take situation, and it's really important to be aware of all the sound design that's going on. Quite often we work with the picture editor, so we know their ideas and what their hopes are for the marriage of music and sound effects. That helps us to know where we can step out musically and where we have to pull back."

Parodi/Fair's final mixes are delivered on DA-88 in sync with picture, generally comprising a stereo mix and separate stems for whatever may need to be in surround speakers or the subwoofer. "Usually, it will be on eight tracks, occasionally two DA-88s running in sync,"

says Fair. "It's not really delivered in LCRS, but we definitely give them the elements to place them in surround as

they desire."

A main feature of Sonic Doppler's recording space is its circa 1928 7-foot Steinway piano, Parodi's main composing instrument, although she maintains a large arsenal of other keyboards, including a Prophet-5, Korg T1 and Korg Trinity. "People always ask me why I don't get rid of all these keyboards and just have one," she laughs. "It's because they all help to bring to life different ideas."

Depending on a project's time frame and budget, recording is to a 24-track Otari MX80, DA-88 or Pro Tools. "If we're doing stacks of instruments, we

I think the best trailers are the ones that allow whatever is creating the emotion that's necessary at any given moment to play through, whether it be sound effects or music.

—Jeff Eden Fair

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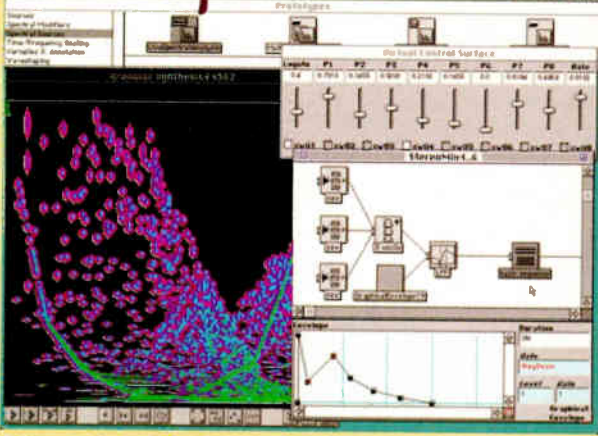
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go digital to avoid tape noise," says Fair. "But most of the time we still prefer the sound of the analog, even though its faster and more convenient in the hard drive world."

Both Parodi and Fair are musical/technical hybrids—they obviously love sound for its own sake and put a lot of thought into capturing and creating it. The bright, spacious and wood-floored living room that houses the Steinway gets used for lots of other live instrument recording, with FC tube trap baffling applied as needed. Lots of experimentation with mic placement has taken place, and the couple have an extensive mic collection. Sankens and C41s are generally used on the piano, with the Swiss-made Sonosax mic preamp. "We compared the Sonosax to Neve, Demeter, API and V72s," says Fair. "It won the shoot-out."

Neumann KM54s sometimes get used on the piano, as does an interesting unnamed Chinese U67 knockoff. "Allen Sides actually told me about it," offers Fair. "It has a 6072 tube in it, and they used to do modifications of it at Ocean Way. We often use it on cello and woodwinds,

Monitors are Tannoys, Auratones and Clements ("amazing and inexpensive") with JBL 4311s for "Fun!" according to Parodi, "for when we want to turn it up loud for a guitar player without being afraid that we'll blow our speakers!"

The CAD Maxcon console that was in house at the time of our interview was being replaced with a Soundcraft TS24, which both find to be "punchy and warm." Favorite compressors at Sonic Doppler are an SSL stereo, LA2As and that new (visually unimpressive) secret weapon, the RNC (Really Nice Compressor), as well as the Waves Ultra L1 plug-in.

Cubase is the team's main composing tool, used with the MOTU 2408 audio interface. "We actually use that more than Pro Tools," says Fair. "It's getting to the point that you can do most of the Pro Tools functions inside Cubase, as well as the sequencing."

Currently, Parodi and Fair are working on music for the Destination Films logo and the trailer for *Bats*. And although Parodi sees a possible solo musical album in her future, the two are hooked on composing music for picture. "There's just something about the marriage of the two," says Parodi. "The sum of the parts is bigger than music or picture alone, and that's exciting to us." ■

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TECHNOLOGY SPOTLIGHT

DIGIDESIGN PRO TOOLS 5.0

DIGITAL AUDIO WORKSTATION UPGRADE

In recent years, most of the big news and developments in Digidesign's Pro Tools system have centered around hardware. First there was the move into a 24-bit system, followed by the transition from the NuBus architecture to PCI-based audio cards. That, in turn, opened the doorway for the development of the cross-platform, PC/Power Mac-compatible Pro Tools | 24 MIX system that was unveiled at AES San Francisco a year ago and was reviewed in the July 1999 issue of *Mix*.

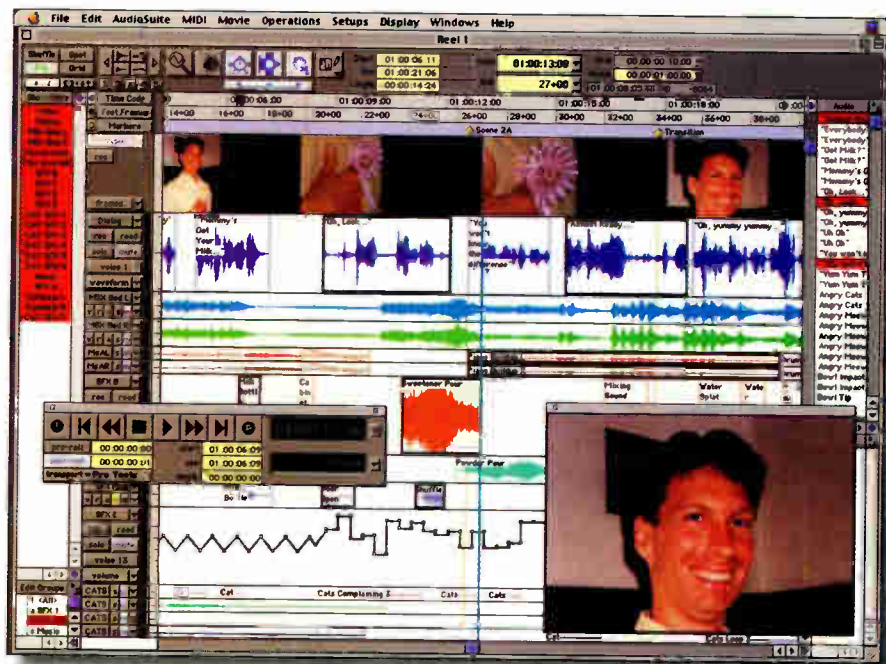
This time, Digidesign has focused on software and hardware.

Pro Tools V. 5.0 adds new features, while, on the hardware side, Digidesign enters the host-based DAW market with a bundled, reduced-feature version of Pro Tools V. 5.0 software called Pro Tools LE. LE runs with an all-new entry-level project system called the Digi 001 (as well as the venerable Audiomeia III card).

Under development for the past 18 months, Pro Tools V. 5.0 marks a major upgrade for Digidesign TDM systems, supplying powerful post/advanced editing features, an integrated MIDI sequencer and two plug-and-play Avid video-compatible hardware options (simply known as Digidesign AVoption and AVoption XL). Finally, the host-based Pro Tools LE version of 5.0 adds CPU-based mixing and real-time AudioSuite plug-ins to Digidesign's entry-level hardware offerings.

TAKING POST AND GENERAL EDITING TO THE NEXT LEVEL

According to Digidesign's Paul Melnychuck, "Pro Tools V. 5.0 raises the bar for audio post-production, and delivers on the promise of synergy between the Avid and Digidesign product lines." This answers the oft-



Pro Tools 5.0 incorporates Avid AudioVision functionality, and integrates a MIDI sequencer, video hardware options and more.

raised criticism that users have voiced about the lack of cohesion between the industry's leading audio and picture-editing workstations, despite Avid's acquisition of Digidesign in 1995.

However, there is no doubt that Pro Tools 5.0 brings a heap of synergy to Avid/Digi users. The AV options add Avid video import/capture/playback (all resolutions) to Pro Tools and provide the "missing link" when visuals are cut on an Avid Media/Film Composer, with audio post handled on Pro Tools.

Among its post-specific enhancements are single keystroke access to most editing functions, stationary playhead, dual selection "source/destination"-style editing, grabber selection of discontinuous elements, and Fit-to-Marks and Snap-to-Region start/end/sync point commands. Pro Tools' MachineControl option is improved, providing fast serial control of 9-pin decks. And there's a redesigned stand-alone OMF transfer tool application called DigiTranslator, which includes OMF import and export.

Many of the new advanced editing features will appeal to any user, music or post. These include Visual Markers, Scrub and TC/E Trim modes, Fill Paste (with automatic looping), Region Replace for individual or global

BY GEORGE PETERSEN

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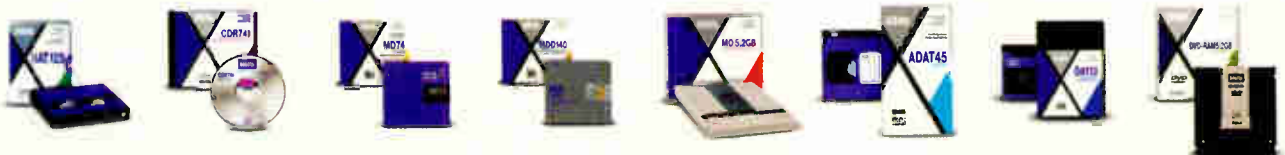
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TECHNOLOGY SPOTLIGHT

sound replacement, Grid to Regions/Markers for "magnetically" aligning edited elements, and improved auto- and batch-fade functions.

ENTER THE DIGISEQUENCER

The most intriguing part of Pro Tools V. 5.0 is its integrated MIDI sequencer. Here, the intent is not to create the ultimate sequencer, but instead to provide what users need most often in a typical production setting. "Our customers have been asking for this," says Digidesign's director of product strategy, Dave Lebolt. "They said they wanted the same power and ease of use that they get with audio editing, mixing and processing, along with straightforward built-in MIDI sequencing. But this is just the start—it doesn't have everything and we'll keep adding to it over time. And you still get to choose among the best digital audio sequencers on the market running on our hardware and DAE."

Some of V. 5.0's sequencing features include true, sample-accurate view of MIDI and audio tracks in a single edit window, standard MIDI edit functions (quantize, transpose, repeat, split, merge, change velocity/duration, graphic controller editing, etc.) and multiple timebase and conductor rulers. Also standard are grid-based editing, arranging via regions and edit groups, and MIDI volume/mute control via external controllers.

For those users whose MIDI sequencer absolutely must provide more in-depth sequencing amenities—such as notation editing, step recording, event list editing or MIDI plug-ins—Pro Tools V. 5.0 still interfaces with any number of top sequencing programs from third-party suppliers.

HOW, WHEN, WHY?

Pro Tools V. 5.0 begins shipping at the end of this month and works on Pro Tools I24, Pro Tools I24 MIX and Pro Tools III PCI systems. Pro Tools V. 5.0 LE will be bundled with the new Digi 001 and Audiomedia III Toolbox systems. Pro Tools I24 product family users who bought PT V. 4.3.1 on or after NAB '99 will receive a free 5.0 upgrade, and an inexpensive V. 5.0 upgrade offer will be mailed to other registered users.

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dubber replacement. It delivers full mag emulation, sample accurate punch-in across all tracks and full audio networking. And with DAR's revolutionary SAM (Scalable Audio Multitrack) software you can control and edit up to 1024 tracks as if they were one machine—all on a single screen!

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DIGITAL AUDIO RESEARCH



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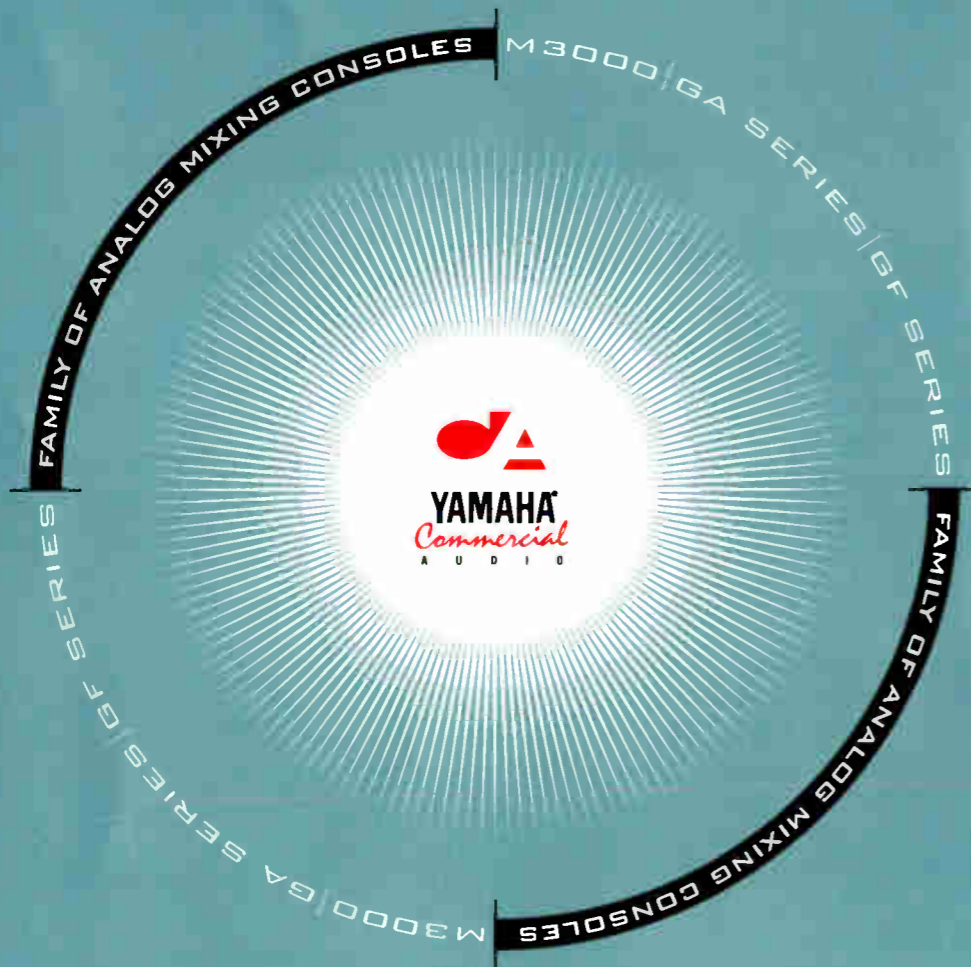
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M3000

With the flexibility to serve as a house or monitor mixer, the M3000 is well suited to a variety of large events. It is perfectly at home in fixed installations, large houses of worship, theaters, theme parks, concerts and industrial gigs.

- Available in 24 or 40 mono input channel versions, both with an additional 4 stereo channels.
- Mono inputs with XLR-type microphone/line connectors.
- Phantom power individually switchable on all mono inputs.
- Stereo channels have both "A" inputs XLR and "B" inputs (1/4" jacks).
- Group/Aux Diversity System for a wide range of signal-routing requirements allows the console to be used as FOH or monitor mixer... or both!
- Midi Mute Groups with 8 hard assign switches and 128 Scene memories with MIDI-control capability.
- Input channels can be individually assigned to any of 8 VCA groups.
- 20 x 8 submix matrix provides eight independent mixes of the signals on the 16 mix busses, the stereo buss, and matrix sub inputs.
- Outstanding RF noise rejection eliminates unwanted interference and assures a clean clear signal.
- Insert send/return patch points are included on all mono channels, stereo channels, as well as mix, aux and stereo busses.
- All mono channels feature switchable high-pass filters, sweepable from 20Hz to 400Hz.
- Mono channels have a flexible 4-band equalizer, with sweepable frequencies in all 4 bands and switchable bandwidth for the HI MID and LO MID bands.
- Fixed-frequency 4-band equalization with switchable HI MID and LO MID bandwidth on stereo channels.
- EQ bypass switches are provided on all channels.
- Dual (redundant) power supplies may be used with no switching unit required.

GA CONSOLES

With their Group/Aux diversity, Yamaha GA consoles are quite nimble; they can easily handle virtually anything a dinner theater, concert hall, church, theme park or local rock band would demand of them.

- Available in 20 or 28 mono input channel versions.
- Both consoles have 2 stereo input channels in addition to mono inputs.
- Mono inputs have both XLR-type microphone connectors and balanced/unbalanced TRS phone jacks.
- Phantom power switchable in groups of 4 for all mono inputs.
- Twelve Mix Busses: ten mix/aux busses plus (dual) stereo busses.
- GA Diversity feature allows the console to be used as a FOH or monitor mixer.
- Two matrix sub-mixes from the M1 through M4 mix busses and the stereo buss.
- Four stereo aux returns with independent level controls.
- Record Out/Tape In feature.
- Comprehensive monitoring via control-room monitor and headphone outputs with independent level controls.
- Peak-reading level meters provide accurate visual monitoring of the signal appearing at the ten mix busses, the stereo buss, and the PFL and AFL busses.

GF CONSOLES

Small in stature but still bearing the trademark Yamaha audio and design superiority, the NEW GF consoles are for small but important venues like night clubs, schools and commercial installations.

- Available in 12, 16 or 24 input channel versions.
- Mono input channels feature both XLR and TRS type connectors.
- Phantom power and insert jacks available on all mono inputs.
- Stereo Inputs are switchable between "A" input phone jacks and "B" input RCA type pin jacks.
- Three band EQ with sweepable midrange on mono inputs plus HPF.
- 6 Aux Sends' aux 1 and 2 are fixed "pre" and auxes 3/4 and 5/6 are "pre" or "post" selectable.
- Input channels assignable to any or all of the four busses and/or stereo outputs.
- Two stereo aux returns with independent return level control feeding the 4 groups, aux 1-4 and stereo busses.

PREVIEW

BBE SOUND UPGRADES SONIC MAXIMIZERS ▼

BBE Sound (Huntington Beach, CA) offers the 882 (\$599) and 482 (\$349) Sonic Maximizers, 2-channel rack-mount devices that increase apparent warmth and detail, while running cooler than the 862 and 462 models they replace. The 882, aimed at pro users, features balanced XLR I/Os.

Circle 327 on Product Info Card



built-in, toroidal power supply, high-resolution gain switching (36 gain steps with 1.5 dB

makes a 12-foot jointed wall offering 48 square feet of absorptive surface, ideal for controlling leakage in recording applications.

Price, with the acoustic foam: \$385.

Circle 330 on Product Info Card

features two channels of HDCC A/D and D/A conversion. It converts 192/176.4kHz signals to 96/88.2 kHz and 48/44.1 kHz, converts 44.1/48kHz signals to 88.2/96 kHz and 176.4/192 kHz, converts 24-bit signals to 20 bits or 16 bits, converts 16-bit HDCC signals to 20 bits or 24 bits, and adjusts gain over a -25 to +6dB range. Multiple units can run from a single clock for surround sound HDCC applications. Featuring distortion products below -120 dBfs, the Model Two is priced at \$14,900 for commercial studios.

Circle 331 on Product Info Card



JL COOPER MCS-BRIDGE

The MCS-Bridge™ from JL-Cooper Electronics (El Segundo, CA) expands the physical controls and display capabilities of the company's MCS-3000 Series Media Command Stations, including the MCS-3800 eight-fader control surface. The MCS-Bridge, which resembles a meter bridge, features eight dual-axis joysticks, eight alpha numeric displays and 16 rotary encoders. Five-color displays indicate channel status, text labels or graphic control, and metering functions. Price: \$999.

Circle 328 on Product Info Card

MILLENNIA 4/8-CHANNEL MIC PRE

Millennia Media's (Placerville, CA) HV-3D 4/8-channel preamps offer mic amp circuits identical to those in its popular HV-3 2-channel unit. The two-rack-space HV-3D features a

per step) and illuminated switches. Additional features include Mogami Neglex OFC audio wiring and components from Vishay, Wima, Beyschlag, Roederstein, IIT and Grayhill. Options include powering for 130-volt B&K (DPA) mics. The 4-channel version is field-upgradeable to eight channels and remote preamp control; A/D conversion options are in development. The 4-channel HV-3D is \$2,995; \$3,995 for the 8-channel version.

Circle 329 on Product Info Card

CLEARSONIC SOUND BAFFLE ►

ClearSonic Manufacturing's (Hudson, OH) W4-6 SORBER is a portable sound baffle designed for drums and percussion instruments. Made from six hardboard panels measuring four feet tall by two feet wide, each faced with ClearSonic F3-6 Acoustic Foam, the SORBER

PACIFIC MICROSONICS HDCC PROCESSOR ▲

Pacific Microsonics (Union City, CA) offers the Model Two HDCC® Processor for tracking, mixing and mastering via the HDCC (High Definition Compatible Digital) process for DVI, DVD-Audio and CD delivery formats. The Model Two



DAVID DARLING

OLD MEETS NEW MEETS HIPSTER COOL



It's not surprising that producer David Darling has the kind of cozy, comfortable project studio where musicians immediately feel at home—after all, he has spent most of his life as a player and singer. His well-organized and neat-as-a-pin control room is chock-full of gear that's a combination of the tried and true (Akai samplers, Alesis ADATs, and API and Manley preamps) and the super cool (Gulbranson pump organ, Korg BX-3, Jaymar toy piano, and "the hippest item in the house," a Gulbranson Selecta-Rythm "cha-cha box."). You can tell right off this is a place to attract the Muse, thanks to Darling's unique brand of humor, the swimming pool, the barbecue and a couple of friendly dogs. There's not an uptight vibe to be found.

The studio, dubbed "The S**thouse," has seen a lot of action lately, with Darling having just completed albums for Meredith Brooks and Americomo/BMG's 1958 featuring Nikki Sixx ("kind of a polarity span, like really hard, industrial Roxy Music"). On the day we stopped in, he was in the middle of several more projects, including new artist Bebe's debut for Interscope and Capitol's singer/songwriter Paul Trudeau.

Darling started out as a guitar player, then spent much of the '80s as a junior producer at Giorgio Moroder's busy production house, where he learned the ropes from producers such as Richie Zito, Keith Forsey and Harold Faltermeyer. In '92 he started his own band, Box-

ing Gandhis, for whom he wrote, sang, played guitar...and produced.

Darling's work space—set in a guest house and equipped with kitchen, bathroom and skylight—retains the garage style of his previous studios, with perhaps more concern regarding isolation and soundproofing, especially because he wanted the ability to record both drums and loud guitars. The issues were addressed by raising and floating the control room floor and constructing two iso booths on a separate floating floor.

"The main booth is just big enough," he says. "Guitar amps sound good, and I can cram in guys with small drum kits. I've actually gotten some crunchy hip hop drum tracks in there that I've ended up keeping."

Darling's basic recording setup includes a Mackie 32•8 desk and three ADAT XT 20-bit recorders. The board is for monitoring only; all recording is through a selection of outboard preamps, including API 312s used mostly for guitar and drums, a Manley 50DB that gets heavy use on vocals, and three of Darling's more esoteric favorites: a Bellari, a TLA and a Viking "tape machine" preamp. "The Viking's one of my favorites," he laughs. "It's got a repro card from an old '50s 4-track tape machine put into a mic pre form. But the Bellari [renamed the "Greasebox"] probably gets more use than anything; it's actually in line all the time. It's all-tube, and you can really overdrive it. It might be ill-advised on a vocal because it's super dark and very distorted, but I blow all my samples and most of my synthesizers through it because it really fattens things up."

Compressors include the necessary Distressor ("can't live without two," he says), a Manley ("basically an LA2A, but quiet and not as dark"), and an Aphex 661 Expresor ("horribly underrated").

Besides the vintage keyboards, Darling owns the more modern Nord Lead, a Virus and a Juno 106, a batch of classic guitars and amps, a LinnDrum, an Akai MPC60, S900 and S2000, and the "pretty winning" Roland 303 groovebox. "Like the Gulbranson, it's got character—tons of it," he says. His speakers are Alesis Monitor 1s, though he puts up NS10s for reference. The speaker setup is customized with RSL (Rogers Sound Labs) Max's that have been gutted except for the bass speakers. "They're like my subs, just a couple of 15-inch speakers."

Obviously into character rather than cookie-cutter when it comes to sound, Darling has spent time seeking out unique gear, a fact reflected by his mic collection. "I'm partial to ribbon mics," he explains, "so I've got Coles 4038s that I use for some female vocals. I also have a Shure 333 ribbon I use a lot, and a couple of Reslo ribbon mics. I don't know where the Reslos come from—I bought mine from a friend who found them in the contents of a storage space he'd bought sight-unseen at an auction.

"I've also got a tube 47 that I use a lot on female vocals and an 87 that I use for most of the male vocals. Then there are my all-purpose mics—RODE NT-2s, a knock-off of a U97 that costs about 600 bucks and just smokes a 414. They're particularly bright. You can't use them on females, but for acoustic guitars and male vocals they're just great."

Darling strikes a balance between fun and work that is proving successful. "I take the end product seriously," he states. "But I tend to think making records should be enjoyable. I've been through that 'rip my guts out to make my record' trip. Then the record came out, was a hit for about five minutes, and I realized that I'd spent a whole year of my life on it and should have been enjoying myself. So now that's what I try to do." ■

BY MAUREN DRONEY

PREVIEW

QUANTEGY ENHANCED DASH TAPE ▼

Quantegy (Opelika, AL) now offers an enhanced version of its 467 Digital Open Reel DASH Audio format tape. The new formulation offers extremely low error



rate specs and is the most mechanically stable DASH format tape media Quantegy has ever produced.

Quantegy 467 is available in 1/4-inch, 1/2-inch and 1-inch widths.

Circle 332 on Product Info Card

BENCHMARK MEDIA 8-CHANNEL A/D CONVERTER

Benchmark Media Systems (Syracuse, NY) is shipping the AD2408-96 8-channel 24-bit 96kHz A/D converter, a single-rackspace unit offering sample rate conversion at 44.1, 48, 88.2 and 96kHz rates, plus varispeed. Features include four re-dithering types, 16/20/24-bit word lengths, eight 9-segment LED meters (coarse and fine scale-switchable) and a dual-port option for simultaneous output of both 24-bit and 20- or 16-bit data. Various motherboards provide a choice of digital interface connectors; all analog connectors are

balanced XLR. Price: \$4,495.

Circle 333 on Product Info Card

STELLAVOX CONVERTER ▼

Stellavox (distributed by Digital Audio Trading, Geneva, Switzerland) offers the 24-bit 96kHz ST2 Time-Linear D/A converter. Featuring two coaxial S/PDIF inputs and one balanced AES/EBU input, the ST2 is available in RCA or balanced



XLR output versions.

Circle 334 on Product Info Card

PRECISION LABS MUSICIAN'S EARPLUGS

Precision Laboratories (Altamonte Springs, FL) offers the ER Musician's Earplugs, which are designed to provide balanced attenuation for accurate listening at high



SPLs. Available with 9 dB, 15 dB or 25 dB of attenuation, the ER Musician's Earplugs include special filters to ensure equal attenuation at all frequencies. Precision Labs also offers the Hearing Alarm Indicator, which accurately measures background noise levels and illuminates green, yellow and red lights to indicate surrounding noise levels.

Circle 335 on Product Info Card

PRO TOOLS SUPPORT ▲ FOR SONY DADR-5000

The Sony (Park Ridge, NJ) Advanced Digital Systems Group has signed a licensing agreement with Digidesign to permit plug-and-play compatibility of Pro Tools audio files for Sony's 16-track DADR-5000

16/20/24-bit digital audio disc recorders. Designed to operate stand-alone or as part of a network, the 4-rackspace DADR-5000 also features reverse play, LTC/VITC chase lock at all frame rates, and biphase, video sync, word clock and Sony 9-pin sync.

TASCAM CD PLAYER ▼

Tascam's (Montebello, CA) CD-150 CD player is a two-rackspace design with a 1-bit, 8x oversampling digital filter and a $\pm 6\%$ variable pitch control. Additional features include Auto Cue, Programmable Playback and a four-way repeat function. Price: \$299, with full-function wireless remote.

Circle 336 on Product Info Card



PREVIEW

**DISCMATIC MULTIDRIVE CD DUPLICATOR ▲**

Discmatic's (Commack, NY) ONYX CD duplicator is capable of duplicating 24 full CDs per hour. The unit offers on-the-fly CD-to-CD copying as well as batch

copying, and it supports all major CD formats.

Equipped with four 8x drives, the ONYX holds up to 100 blank discs and features a proprietary auto-loading mechanism that avoids contact with both data and label areas of the discs. Frequently copied

files and images also may be stored on the unit's 4GB internal hard drive, eliminating the need to load and copy them from a master CD. An audio compilation feature allows selected tracks to be assembled and stored on the hard disk as a single CD image. A basic configuration is \$5,995.

Circle 337 on Product Info Card

JUICE GOOSE WALL WART ELIMINATOR ▼

The Twelve Paq™ Multivoltage Power Center from Juice Goose (Houston, TX) is a rackmountable power strip designed specifically

for low-voltage devices powered by "wall warts." Offering six Microport™ outlets, each capable of delivering any of the common low voltages (9 and 18 VAC, and 9 and 12 VDC with positive and negative tip polarities), the Twelve Paq eliminates wall warts entirely; users order Twelve Paq cables (\$8 each) for each voltage required and connect any Microport directly to the low-voltage unit. The Twelve Paq also includes six regular 120 VAC outlets. Price: \$199.

Circle 338 on Product Info Card

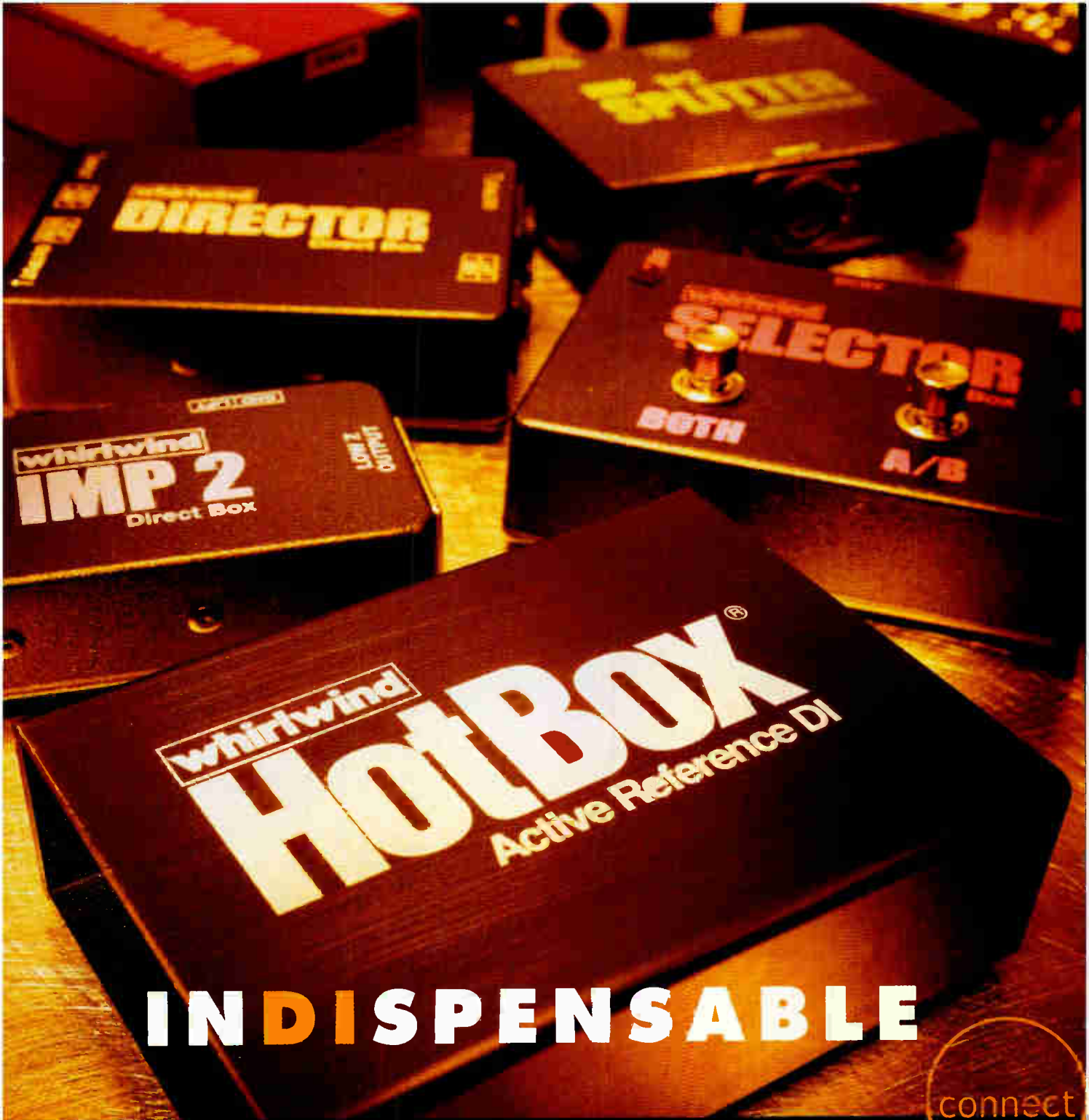
**HOT OFF THE SHELF**

A new DVD shows George Massenburg explaining the GML 8900 Dynamic Range Controller, aka The Limiter. The DVD was produced by GML distributor AID and the new software firm Massenburg DesignWorks. For info, call 323/845-1155... BSS Audio has completed the Soundbench PC Control software upgrade; Version 3 enables users to integrate and control all BSS Omnidrive and Varicurve products in a single software package. Call 615/360-0277... Performance Publications has released its 1999 Performance Concert Production Guide, the 12th edition of the touring industry reference work. The 240-page, \$75 guide includes 21 separate sections, listing manufacturers, service providers and rental

companies. Call 817/338-9444... Spirit By Soundcraft has released Version 1.1 for the Digital 328 console. The software, which includes channel linking, MIDI controller fader assignment and stereo groups, may be downloaded from www.spiritbysoundcraft.com... Maxell now offers a complete family of digital media for pro recording, including MID-PRO, DAT, DTRS and ADAT formats. Call 800/634-9366, or visit www.maxellpromedia.com... Middle Atlantic Products' Multi-Desk System 2 of customizable, modular studio furniture includes a rectangular desk, two corner workstations and a siderack, all available with overbridges. All components ship flat for easy screwdriver assembly. Call 973/839-1011... Upgraded Version 3.1a software for New Fron-

tier's DSP 2010-EX analyzer offers enhancements to the Logarithmic Sweep and Energy/Time modes and adds a manual trigger function. Call 215/862-9344 or visit www.frontierelec.com... For a new brochure on Physical Optics Corporation's digital fiber-optic communication product line, call 800/214-0222 or visit www.poc.com... TRF Production Music Libraries launched the 21-CD Cobra Production Music Library, offering original themes ranging from symphony orchestras to small ensembles in categories such as Sports/Action, Urban, Travel, Nostalgia, News, Children, etc. Call 800/899-MUSIC... Parts Express has a 260-page catalog of electronic parts and accessories for audio applications. For your copy, call 800/338-0531 or visit

www.partsexpress.com... New titles from Prompt Publications include *Electronic Circuit Guidebook, Vol. 6: Electronic Oscillators* by Joseph J. Carr (336 pages, \$34.95) and *ES&T Audio Troubleshooting and Repair* by ES&T Magazine (272 pages, \$24.95). Call 800/428-7267... Belden Wire & Cable debuts Brilliance CMR-rated 1408R and CM-rated 1509C Series Audio Snake cables, available in pair sizes ranging from four- to 32-pair. Call 800/BELDEN-4 or visit www.belden.com... Hannay AV Series cable reels feature welded channels allowing multiple reels to be stacked for storage and transportation. A side-mounted connector panel accommodates XLR and/or BNC connectors. Call 800/GOREELS, or visit www.hannay.com. ■



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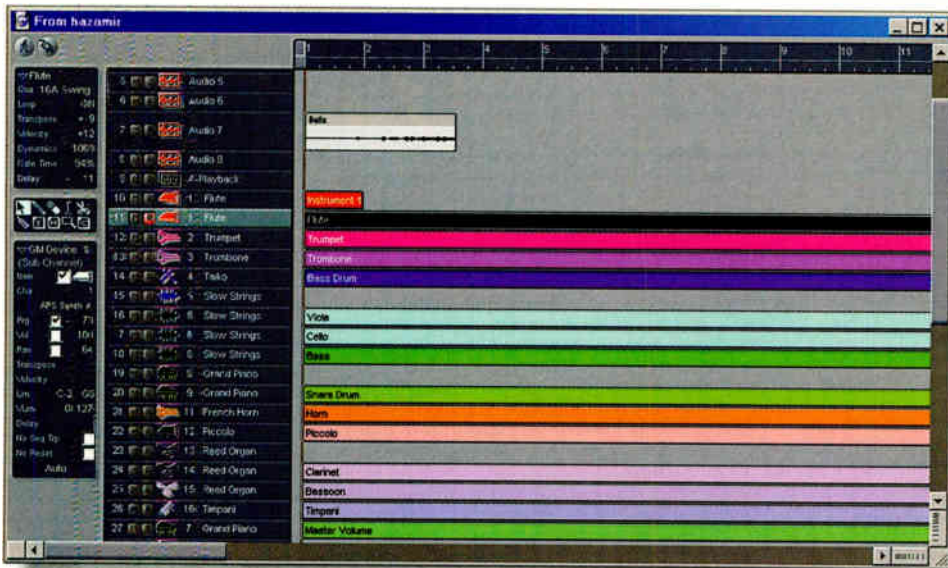
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ARBORETUM WINAMP PLUG-IN

Arboretum's (www.arboretum.com) Realizer, a free plug-in for the Winamp MP3 player, uses Arboretum's DSP technology to address the audio problems created by combining MP3 compression with a listening environment of low-quality speakers, such as those found alongside most computers. The plug-in employs proprietary Bass Maximizer, Harmonic Exciter and stereo enhancement algorithms found in the company's Hyperprism products to enhance and synthesize low-end and high-end information, as well as enhance the stereo image. All processing is user-configurable and is done in real time; a variety of presets are also included. Realizer technology is also available for OEM licensing; it runs on Pentium, PowerPC and 56000 Series processors.

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YAMAHA DSP FACTORY AUDIO INTERFACE ▼

The AX88, designed by AdB International Corporation in cooperation with Yamaha (www.yamaha.com), is an 8-in, 8-out rackmount audio interface for the DSP Factory. The unit offers 24-bit resolution and eight balanced

EMAGIC SHIPPING LOGIC AUDIO 4.0 ▲

Emagic (www.emagic.de) is shipping Logic Audio 4.0 for Mac and Windows 98. Emagic's Abstract Layer Development means that the same levels of power and functionality are offered on both operating platforms—Logic Audio for Windows has been completely rewritten for the 4.0 release. The upgrade supports 24-bit/96kHz recording, includes 34 proprietary plug-ins and debuts a new, streamlined graphical interface featuring multiple-language support and an enhanced menu structure. Plug-ins include: Fat EQ, Compressor, Expander, Noise Gate, Enveloper, Overdrive and Distortion, BitCrusher, AutoFilter, Spectral Gate, Tape Delay, Stereo Delay, Modulation Delay, Phaser, Ensemble Pitch Shift, and PlatinumVerb, GoldVerb, SilverVerb or EnVerb, depending on the level of Logic Audio. An upgrade

from Logic Audio Platinum 3.5 is \$199; from Logic Audio Gold, \$149.

Circle 339 on Product Info Card

TRACKTRACKER SOFTWARE

TrackTracker from Ruidosoft (www.ruidosoft.com) is a cross-platform software package for engineers, producers and recording musicians. It was designed to compile, organize and link all the technical and artistic elements involved in music production. The interface is structured around views for all songs and their tracks, and there is a customizable view for all the parameters or variables used in each stage. It includes areas for notating locators and cue points, production and engineering notes,

musician credits, lyrics and other production aspects. The Song List frame includes information such as name, artist, status and notes; users can import the audio of the entire song or a preview. The Track List frame displays current song tracks and includes such information as track number, track name, take number, date, performer, destination, start/end time and track status; again, users can record or import actual tracks. A customizable Process frame stores parameter values for signal processors, mic setup information, console adjustments and more, and a Details window stores technical data, lyrics, production and more.



¼-inch inputs and outputs (with a pair of front panel inputs for easy connection). Operation is +4dB/-10dB switchable, and the included AX88-IF16W interface card allows two AX88s to be connected to a single DS2416 audio card. The AX88 may be located up to 25 feet away from the computer hosting the DSP Factory, allowing the host system to be kept in a machine room. Price: \$999.99.

Circle 342 on Product Info Card

SPECTRAL DESIGNS SURROUNDCUBE

Spectral Designs (www.spectral-designs.com), maker of the AudioCube Mastering Workstation, introduces the SurroundCube

up to eight audio channels to any speaker and for positioning speakers within a 360° field. Many new linkable, real-time processing modules increase surround functionality: Surround PAN positions mono sources in the surround field, Loudness Maximizer-8 processes up to eight channels equally. Matrix Encoder/Decoder provides Dolby Pro Logic encoding/decoding, and Surround•It converts a stereo signal so it can be spread or narrowed and positioned in a 5.1 or 7.1 surround format.

Circle 343 on Product Info Card

MPX 100 EDITOR/LIBRARIAN ▼

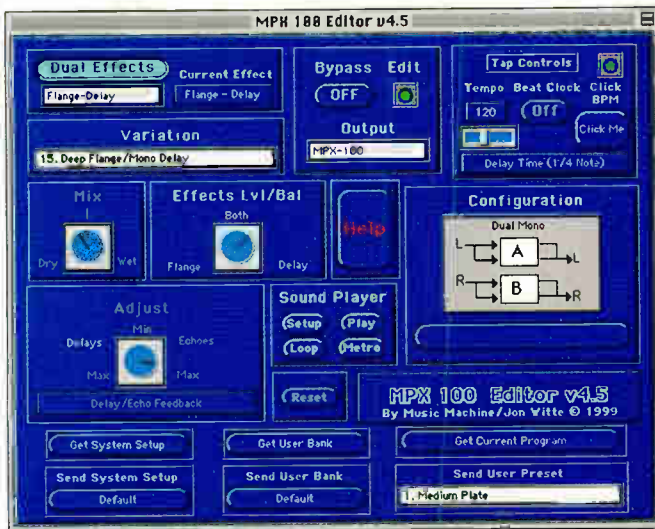
The Music Machine Studio ([names, etc.\) to the user interface. The editor also sends \(via MIDI\) user presets, full user bank bulk dumps and system mode setup bulk dumps from the MPX 100 to the hard drive, as an editable User Preset File. Other software functions include tap editing and a Sound Editor that plays sounds through the Mac's built-in outputs and includes a variety of built-in sounds for auditioning. The MPX 100 Editor requires Opcode OMS V. 1.2.3 or later.](http://www2.cybernex.net/jon-</p>
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UPGRADES AND UPDATES

M Audio, Midiman's new digital audio division, unveils the Super DAC 2496 A/D converter, featuring 24-bit/96kHz resolution: AES/EBU, S/PDIF optical and coaxial digital inputs, and balanced XLR and unbalanced ¼-inch analog outs. Visit www.midiman.net... Opcode (www.opcode.com) is shipping the MIDIport 32 USB MIDI interface for Macintosh and Windows 98... Cubase VST Version 3.7 from Steinberg (www.us.steinberg.net) includes VST 2.0 and allows MIDI control of plug-ins and software synths accessed as plug-ins—including Neon Synth, an analog synth with 5-voice polyphony. Also new from Steinberg: ReCycle 1.7 for Mac and PC, a redesigned 32-bit application... QSound Labs releases a 2.2 version of its Qsys/TDM positional 3D audio enhancer and

QX/TDM soundfield expander Pro Tools plug-ins: visit www.qsound.com... Cognicity is shipping AudioKey Lite 1.0, an entry-level version of its audio watermarking software. Visit www.cognicity.com... New from Ricoh is the Mediamaster MP7060 CD-R/RW drive featuring 6x recording speed, 4x CD-RW rewriting speed and a 24x reader. Internal and external versions are available. Visit www.ricoh-usa.com... The Prodif Plus PCI card from SEK'D (www.sekd.com) features ADAT optical, analog ¼-inch TRS and RCA (for S/PDIF or unbalanced AES/EBU) I/Os. In other SEK'D news, Version 5.2 of Samplitude Studio adds MIDI recording, editing and automation. The user upgrade is \$99... Free to registered users, Tascam Version 3.2 software for the MMR-8 and MMP-16 recorder/player systems. This update adds playback support for 16- and 24-bit audio projects from Sonic Solutions' Sonic Studio. Download from www.tascam.com... Terran Interactive (www.terran.com), a producer of desktop media compression tools, has added the Fraunhofer MP3 to Media Cleaner 4.0. In addition, Terran offers a \$99 version of the MP3 encoder for use with other QuickTime applications... Power Technologies' DSP•FX Version 6.1 adds Winamp support. Visit www.dspfx.com... Musicam's AAC audio encoding algorithm supports compression ratios of 30:1 for more efficient storage and transmission. Visit www.musicamusa.com. ■



workstation for multichannel editing/mastering. SurroundCube's SoundMaster real-time engine enables processing of eight channels simultaneously in real time, ideal for 5.1, 7.1 and other surround projects. Features include a Speaker Arrangement window for assigning

witte) offers MPX 100, a Mac-based librarian/editor for Lexicon's MPX 100 effects processor. In addition to allowing remote selection and editing of MPX 100 presets from the Mac, the software adds information from the user's guide (such as variation settings, their

TANNOY PS 110-B

POWERED STUDIO SUBWOOFER

Whether you're looking for more bottom end for dance, rock or rap—or need the “.1” subwoofer source for 5.1 surround sound playback—chances are compact near-field speakers are going to come up shy in the bass department. But don't go blaming your monitors: Small enclosures and the 5- to 8-inch woofers used in most two-way speaker systems are simply not capable of delivering the air currents required for deep, punchy bass.

Priced at \$499, the PS 110-B from Tannoy is an integrated powered subwoofer designed to work either as an adjunct to a stereo playback system or to provide LFE (the Low Frequency Effects sub channel) in a surround system. The PS 110-B combines a long-throw, 10-inch woofer in a 17½x16½x11½-inch, front-ported enclosure, with a 110-watt MOSFET amplifier and crossover built into the back of the cabinet. The case is finished in black vinyl, and four hefty rubber feet help prevent the box from coupling with the floor.

The rear panel offers balanced XLR inputs that connect to the control room outputs of your mixer and two XLR outputs for passing a signal to a pair of powered speakers or to the power amp driving your near-fields. The crossover point is adjustable from 40 to 150 Hz, or it can be bypassed entirely, thereby feeding a full-range signal to both monitors and subwoofer. Other controls include a subwoofer level pot for setting the overall subwoofer/monitor balance, an LF boost knob that raises the extreme low 31 to 63Hz band by an overall +4dB linear shelf, and switches for ground lift and phase reverse. The power supply is internal (with removable AC cord), and all XLRs are wired pin 2 hot.

Between the phase reverse, all-pass/lowpass modes, crossover frequency, LF boost and sub level

pot, the PS 110-B can be tweaked out to work in most any acoustical space. Although LF energy is generally nondirectional, finding the exact spot to locate any sub in a small listening room can be tricky, and the degree of flexibility offered by the PS 110-B's controls really helps the fine-tuning process. The system is capable of maximum SPLs of 110 dB, but to prevent overexcursion or damage from pushing the woofer too hard, an onboard limiter kicks in. The limiter is inaudible, except in extreme conditions.

LISTENING TESTS

I began my listening tests using a pair of JBL LSR 28Ps bi-amped near-fields, with the drive signals routed through the subwoofer's highpass outputs. One thing was immediately clear: Even with the sub level knob turned up to 11, the PS 110-B couldn't keep up with the much hotter output of the JBLs. Trying the same arrangement with a pair of Meyer HD-1s had the same results: lots of HF/MF, not enough bass. Obviously the PS 110-B is designed to work with lower-output monitors. Anyone who needs a better matched subwoofer for the above-named monitors, Tannoy 800 Actives, or any other high SPL monitors should check out the Tannoy PS 115-B (\$1,299), a 15-inch woofer brute that really gives users a reason to try out its sub level trim control.

Driving a pair of Tannoy Reveals (via a QSC amp) through the subwoofer's highpass outputs was just right—in fact I had to back the sub level pot back somewhat to achieve a smooth balance. Just to prove this wasn't simply a matter



of “this only works with Tannoys,” I tried the same setup with a pair of vintage TOA 265ME monitors. After I adjusted the crossover frequency up slightly to about 130 Hz, the blend between woof-end and top-end was spot on. Bumping up to 5.1 playback with five 265MEs driven by a Bryston 9B, the PS 110-B held up fine, with a smooth, natural, unexaggerated bass response.

In situations such as this, the PS 110-B really excels, adding just the right amount of bass extension to a smaller system without sounding phony or hyped. If you're looking for an air-slamming, knock-you-over subwoofer that can keep up with the “four 15-inch woofers in the trunk” street machines that cruise down my block, the PS 110-B may not be the ticket (although two PS 115-Bs may do the trick). But if you're upgrading to 5.1 or if your near-fields need that extra oomph, then the PS 110-B is worth checking out.

Tannoy/TGI North America, 300 Gage Avenue No.1, Kitchener, Ontario, Canada N2M2C8; 519/745-1158; fax 519/745-2364; www.tannoy.com. ■

BY GEORGE PETERSEN



Trouble mounting?

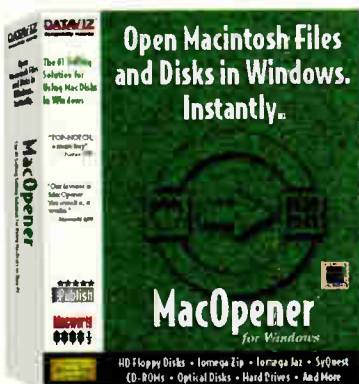
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CREAMWARE SCOPE

SCALABLE OBJECT PROCESSING ENVIRONMENT

CreamWare's innovative SCOPE system is difficult to categorize. The name itself is impressive, standing for SCALABLE Object Processing Environment. SCOPE is a powerful combination of interactive software modules running custom-developed algorithms on one or more plug-in PCI-compatible cards loaded with Analog Devices SHARC processors. What stands out, however, is the exceptional amount of thought that went into developing the programming environment so that non-techies can easily design their own application-specific "digital production studio in silicon."

The most obvious applications for SCOPE are in music recording, post, live sound and theatrical design, but it also has great potential in testing and measurement applications, as well as for R&D. SCOPE also serves as an OEM platform for developing operation-specific audio solutions. (For applications that don't require SCOPE's processing power, OEM customers can choose CreamWare's smaller Pulsar hardware platform, which offers 20 I/Os and four SHARC chips.)

SCOPE's hardware complement offers lots of raw processing power: Each DSP board has 15 Analog Devices SHARC chips, which are among the fastest floating-point engines available. Total power per board is nearly 2.7 Gflops. Five totally independent S/TDM buses provide for interconnection between multiple boards and various I/O expansion modules. The end result is more DSP capabilities within SCOPE than most of us would ever need in a PC-compatible package, even in a single-board implementation.

In terms of operating software, users can run out-of-the-box routines, or build their own, using a simple-to-master set of utilities. In addition, library modules can be manipulated and rearranged within the virtual work-

space to create the system's audio functions.

SCOPE also includes a spectrum of powerful, smaller audio modules that can be connected with "virtual" cables to form complex audio DSP applications. The library offers more than 300 modules for mixing, effects and synthesis, as well as to control parameters from the GUI, via MIDI or via other software programs.



SCOPE combines interactive software building blocks with the power of 15 SHARC processors in a modular audio processing environment.

For audio recording and post applications, SCOPE provides mixing, special effects, synthesis and sampling with extensive routing and blending capabilities that integrate many studio components. By adding an external hard-disk recording system (SCOPE currently communicates directly with E-magic and similar systems, and it will soon directly address Pro Tools), a

truly integrated "virtual studio" can be created to control all recording and production functions. SCOPE's functionality is open-ended; users can add additional DSP and I/O boards to an extent that exceeds any reasonable amount of DSP power they will ever need for audio.

The concept behind SCOPE is relatively simple to explain: Within the programming "environment," or drag-and-drop circuit-development program, various devices representing virtual hardware units can be interconnected with a graphical interface providing easy access to individual device settings and control parameters. An extensive library of audio modules developed by CreamWare can help shorten the design process, since users do not need to spend time on each algorithm's surrounding infrastructure. Designers can also build individual libraries of DSP modules for the SCOPE environment.

SCOPE's initial V. 1.2 release focuses on virtual analog synthesis, with a library that contains a number of synthesizer "models," as well as a highly polyphonic sample

BY MEL LAMBERT

WHAT'S ALL THIS ABOUT HAFLER?



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TECHNOLOGY SPOTLIGHT

player that reads Akai S1000 format libraries (with all filter and envelope settings). A full-featured sampler with editing features is planned for fall '99.

"Within SCOPE," Hund says, "a successful simulation equals a finished product that performs like hardware. The system also provides an OEM platform for developing custom hardware



Modules incorporate a variety of parameter settings.

for a small customer base."

In addition to its audio design capabilities, SCOPE's GUI design package includes a library of faders, rotary pots, buttons and other elements. Users can develop an operational surface within in a matter of minutes by developing attractive surfaces for software control functions, using the tools provided by CreamWare. Via simple drag-and-drop functions, these icons can be moved onto the control surface and connected to audio modules, along with their specified range settings. Color, gradients, transparency, textures and text properties are also provided.

In addition to application-specific functionality, SCOPE enables rapid development of all kinds of audio processing. Within a research and engineering environment, for example, SCOPE can be used to develop and prototype algorithms in a modular way, working on a real-time platform. "You can quickly design solutions on SCOPE," Hund says, "and have them tested and reviewed in the field without spending [anything] on custom hardware."

CONFIGURATION OPTIONS AND EFFECTS PROCESSING

The standard SCOPE software contains all tools required for the development of signal processing systems with specific GUIs; an extended version enables users to take advantage of the system's scripting level, to develop custom work

flows, custom menus and custom interfaces. All elements are controlled through a Java-like scripting language that should be fast and easy to learn for anyone familiar with C++ or Java programming.

SCOPE includes EQ, plus algorithms for dynamics processing (compressor, limiter and gate) and a selection of delay effects such as reverb, chorus, phasing and flanging. In addition, CreamWare is working closely with a variety of third-party developers, including Quantec, Prosoniq, Sonic Timeworks and Aphex.

In terms of mixing, SCOPE's initial release includes a 32-channel mixer with 16 program and eight auxiliary buses—additional mixers can be added via software to extend these capabilities. All internal buses are 32-bit, with floating-point processing and eventual support for 96kHz sample rates.

For enhanced system test and performance measurement, SCOPE can be configured to perform a variety of customized procedures. Multiple digital I/Os are available for setting up interfaces, while custom test and sweep signals can be generated via presets. The supplied library contains both finished applications and component modules. The 32-channel spectrum analyzer application module, for example, contains 8-band analysis modules that can connect to VU-meter type displays within custom applications. (SCOPE can also be interfaced directly with Windows-based software.)

The current software release offers 32-channel spectrum analysis; FFT (Fast Fourier Transform) analysis with its real-time scope display; THD+N (up to 30 test frequencies between 20 and 20k Hz) plus frequency-response measurement; level monitoring; and signal generation (high-precision sine wave, frequency sweeps, white noise, pink noise, etc.).

SCOPE's basic configuration consists of a software package, DSP processor board, 24 I/O board with two MIDI ports, and a sync card with word clock and a 9-pin ADAT-format I/O control port. The main board features five independent S/TDM expansion buses for interconnecting multiple cards and can operate at master sampling rates of 32, 44.1, 48, 96, 192 or 384 kHz; slave boards will varispeed between 30 and 400 kHz. The I/O board mounts on the

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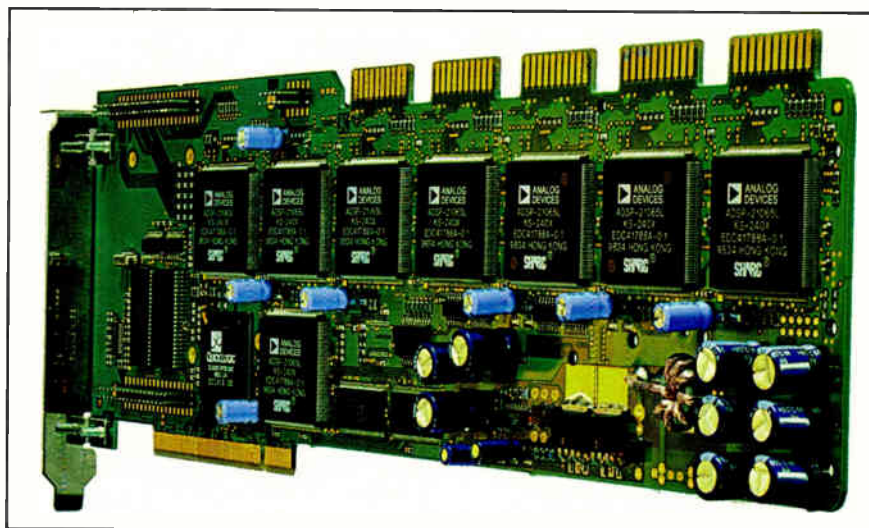
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main board to provide three ADAT-format optical ports. Master/slave clock rates are 44.1 kHz \pm 200% and 48 kHz \pm 100/-300% (ADAT-compatible). CreamWare's Pulsar and Pulsar Plus boards can also be added to provide additional DSP and I/O ports (two ADAT-format, plus S/PDIF or AES/EBU digital, plus analog and MIDI). External A/D and D/A conversion can be done via third-party ADAT-compatible units. (CreamWare's A16 converts ADAT-format data into 16 analog I/Os, with word clock sync.)

The current system software package is Windows 95/98-compatible (Win2000, Mac OS, Linux and BeOS should be supported in a planned fall '99 release) and includes a Virtual Studio Environment, an Audio Development Environment, a Graphic User Interface design package, plus a library of ready-to-use devices and development modules (including SCOPE ADAT, Pulsar ADAT, Pulsar AES/EBU and Pulsar analog I/O modules; Windows MM Audio, Windows MM MIDI, ASIO, Direct Sound and Windows MM Audio Host MIDI drivers; integration with var-



SHARC chips provide nearly 2.7 Gflops of power per board.

ious third-party sound cards, synthesizers and sample-players; special effects; and test/measurement elements).

Minimum system configuration is a Pentium-II 266, with 128 MB of RAM, and a single PCI slot (multiboard configurations may require a larger PSU). Recommended: Pentium-II 400, 256 MB of RAM, with a 16/32 MB graphics card. Systems begin at \$7,998

CreamWare U.S. Inc., 8555 Cronklin

St., Unit 2, Farmingdale, NY 11735; 604/435-0540; fax 604/435-9937; www.creamware.com.

Mel Lambert founded Media&Marketing more than a dozen years ago to provide communications and consulting services for pro audio firms and facilities. Most recently, he served as international marketing director at Otari Corporation.

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AUDIOCONTROL INDUSTRIAL MP-200

MEASUREMENT PREAMPLIFIER



Thanks to the portability and power of laptop computers, many live sound engineers are now able to carry their own acoustical analysis tools wherever they go. For example, I recently picked up a Pentium 133 sub-notebook in an online auction and, for a \$400 investment, now have a useful dedicated platform for both e-mail and SIA Software's SMAART Pro™ FFT measurement software. In "no soundcheck" festival situations, I can set up the system in only a couple of minutes and, using only the break music between acts as a source, can quickly knock the system equalizer into shape before the band goes on. As quickly as I can start the application, plug in the mic, run a cable for the reference signal and set the delay time offset, I've got a picture of frequency response.

However, the mic preamps found in most notebook computers are not high enough in quality to use with analysis software. The MP-200 (\$349 list) from AudioControl Industrial is a portable 2-channel

measurement preamp that offers a neat and economical solution for laptop users. About the size of a paperback book, the MP-200 runs on a 9-volt battery. I've been able to use the same 9-volt alkaline battery for a week or more, but I typically use the system only for short sessions at soundcheck and the beginning of the show. Given the vagaries of live sound, I find that after ten minutes of making adjustments, there's often little more that FFT analysis can tell you about the rig, at least until the weather changes or the audience comes in. But for longer analysis sessions, the MP-200 can also be powered by an external 9-volt "wall wart."

The small electret condenser measurement mic supplied with the MP-200 (the same one AudioControl supplies with its 3050 RTA) is about the size of an XLR barrel adapter. Each of the MP-200's two mic inputs has a five-position gain switch with 10dB steps. Channel one is for the first mic input, which

is normally the measurement mic. The second channel can be switched between the line input, pink noise or either of the two mic inputs. (Using the reference mic on the second mic input can be helpful for checking the response of another mic plugged into the first input.) The line level input has a continuously variable gain control, as does the pink noise source. Pink noise is on a switching ¼-inch jack so that it won't run the battery down when it's not plugged in, and that comes in handy when there's no other source of pink noise.

The single line-level input, useful for bringing in the reference signal from a mixing board, CD player or other signal source, is on a pair of summed RCA jacks. I carry a ¼-inch-to-RCA cable and an XLR adapter; using these, I can get a reference signal out of just about any desk. The MP-200's two output channels are available on a pair of RCA jacks and on a stereo mini-jack, easing quick connection to a laptop. (Laptops typically offer only stereo mini-jack I/Os.)

The small measurement mic supplied with the MP-200 is not completely flat, a result of low-voltage phantom power. But some FFT software, such as Sound Technology's SpectraLab, can accommodate mic correction files; an adjustment at the extreme ends of the spectrum at 30 and 10k Hz is suggested. Bear in mind that the extreme ends of the spectrum are not always very important in live sound situations. In any case, the benefits of being able to get an FFT measurement quickly far outweigh this minor flaw.

AudioControl Industrial, 22410 70th Ave. W., Mountlake Terrace, WA 98043; 425/775-8461; fax 425/778-3166; www.audiocontrol.com. ■

Mark Frink is Mix's sound reinforcement editor.

BY MARK FRINK

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WESTLAKE AUDIO Lc3w12

THREE-WAY PASSIVE MONITORS



The Lc3w12 three-way passive monitors are the latest and largest additions to Westlake Audio's Lc Series, which includes four smaller monitors and a sub-woofer. Each Lc3w12 has a 12-inch woofer, a 6-inch midrange and a 1-inch dome tweeter, mounted in a front-ported bass-reflex enclosure. Product literature states that the Lc3w12s may be used as "large near-fields," but that they are clearly better suited for use as midfields, or as main monitors in a mid-sized control room, preferably in a soffit-mount installation.

Since *Mix* was not eager to cover the costs of soffit mounting the Lc3w12s in my home studio, I could not evaluate them in that environment. However, I did try using them as both near-fields and mid-fields in a variety of setups, ranging from three feet apart with the tweeters on the inside, to six feet apart with the tweeters on the outside. I even tried standing them on end and arranging them in a traditional equilateral triangle configuration (affectionately dubbed the "Manhattan Skyscraper Arrangement"), but at 15x25x15½ inches (HxWxD), and weighing 108 pounds each, the Lc3w12s are ill-suited for meter bridge mounting on small consoles!

In the end I wound up placing them a little over four feet apart, angled in at 30°, with the tweeters on the inside. This arrangement worked quite well while listening from five or six feet away, but the low frequencies were still a bit

flabby. Moving the monitors a few more feet away from the front wall solved the problem. With the monitors in this position there was a fairly wide sweet spot, but the best results were obtained by sitting precisely in the center. Also, as I generally monitor very close using small near-fields, room coloration is minimal. Listening to the

Lc3w12s in the midfield arrangement described above, the room, which is not professionally treated, was definitely a factor to be considered.

The Lc3w12s can be powered by a single amp, bi-amped or bi-wired via dual sets of five-way binding posts. During my evaluation they were bi-wired to an Australian Monitor ProPHILE K7 power amplifier using Westlake Audio BWI 0410 premium speaker cables. I tried them with and without the Super Duper Speaker Muffs—beveled foam borders that attach to the front rim, designed to enhance the stereo image and the apparent bass response—and opted to leave the muffs on, with the beveled edges facing out. All

Lab Analysis: Westlake Audio Lc3w12 Monitors

by John Schaffer and Rob Baum

PHYSICAL CHARACTERISTICS

The Westlake Audio Lc3w12 is a passive three-way studio monitor with a 12-inch woofer, and the cabinet is constructed from ¾-inch-thick MDF, yet the system weighs 108 pounds! Where is all the extra weight coming from? Looking inside this speaker, we were amazed at the amount of work and detail spent on its physical construction. This is by far the most sturdy and well-damped enclosure we have ever reviewed.

The Westlake Audio Lc3w12's enclosure is a black painted, bass reflex design. Separate sub-enclosures for the midrange and tweeter are adjacent to a chunk of MDF that includes the port. No cardboard or plastic port tubes here, rather a solid piece of wood with a 2.3-inch-diameter port carved out of it. In order to minimize port turbulence, the port is flared, not only on the baffle but also inside the cabinet. The chunk of wood that comprises the port is flared at the inside edge of the inlet and is radiused on the edge of the inlet. There are virtually no discontinuities (no sharp corners) in the air's path from the rear of the woofer to the outside.

The rest of the cabinet construction is equally impressive. The enclosure is internally braced and then completely coated with a damping compound similar to latex caulk. Then, two separate layers of fiberglass insulation are layered on top of the camping compound, denser layer first. A testament to this speaker's construction is that its

—CONTINUED ON PAGE 132

BY BARRY CLEVELAND

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FIELD TEST

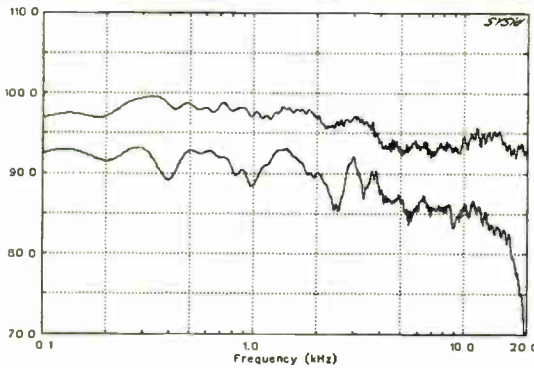
signals were routed through a Yamaha 03D digital mixer.

LISTENING TESTS

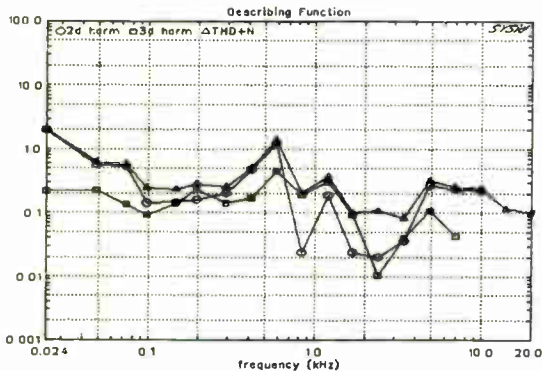
Once I had determined the optimal lis-

tening position for my room, I found that I really enjoyed listening to the Lc3w12s, and that I was able to do so for long periods of time, even at relatively high volume levels. I listened to an assortment of CDs ranging from solo acoustic guitars and country blues to full

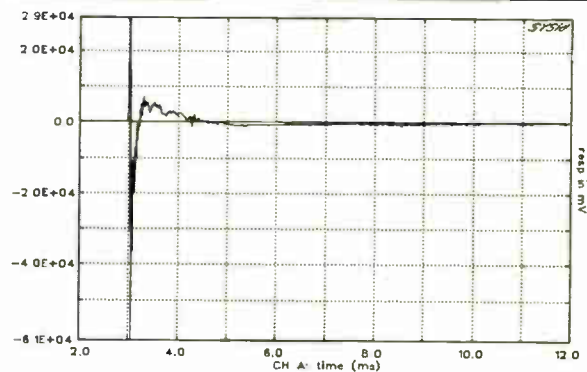
orchestras and jazz big bands, and from Afro-pop and trip-hop to alt rock and heavy metal. For my most intently focused listening I chose three CDs that present specific audio challenges: Joe Zawinul's *My People*, The Beatles' *Past Masters Volume Two* and *American*



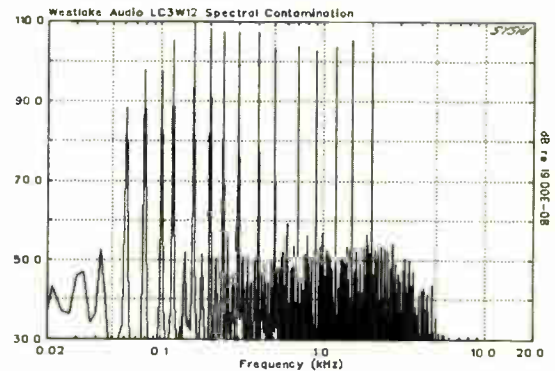
Frequency response on-axis and 30° off-axis. On-axis response is shelved, while the off-axis response (offset -5dB here) has a very smooth roll-off.



Distortion vs. frequency: Distortion is less than 0.5% beyond 100 Hz, except for a single data point. Key: THD+N = Δ trace, 2nd harmonic = \circ trace, and the 3rd harmonic = \square trace.



Impulse response reveals solid enclosure construction and three drivers that are very well-aligned.



Spectral contamination test compares a series of input tones (tall spikes) to speaker output. The resulting nonlinear distortion products show very low self-noise (50 to 60 dB).

—FROM PAGE 130, LAB ANALYSIS: WESTLAKE Lc3w12

weight collapsed a 6-foot speaker test stand. The cabinet crashed to the concrete yet sustained only minor cosmetic damage to an outer corner (sorry about that, Westlake!).

The 12-inch stamped steel frame woofer has a paper cone, a $\frac{3}{8}$ -inch-wide, $\frac{1}{2}$ -roll surround and a 2-inch diameter voice coil. The conventional motor structure includes a double-stacked 1.68-inch-thick ceramic magnet that's $\frac{4}{8}$ -inches in diameter. The frame and motor structure are also generously coated with the same damping compound used inside the enclosure. Inputs from the crossover are soldered onto the polarized woofer terminals.

The 6 $\frac{1}{2}$ -inch midrange driver is mounted onto a $\frac{3}{4}$ -inch-tall, tapered stand-off, which helps phase-align the midrange with the woofer and the tweeter. The midrange unit has a formed polypropylene cone with an inverted $\frac{1}{2}$ -roll rubber surround and $\frac{1}{2}$ -inch-diameter voice coil with an aluminum bobbin. This midrange driver does not use a dust cap. A bullet-shaped phasing plug is mounted directly on top of the pole piece. The frame is cast aluminum, and the motor structure includes a .80-inch-thick, 5 $\frac{1}{8}$ -inch-diameter ceramic magnet. Once again, the frame

and motor structure are coated with damping compound, and input wires are soldered directly to the speaker terminals.

The 1-inch, soft, treated cloth dome tweeter is semi-horn-loaded by a 4-inch-diameter plastic face plate. Underneath the dome and on top of the pole piece, there is a piece of wool felt that helps eliminate any cavity resonances. An underhung, ferrofluid-cooled, voice coil wound on an aluminum bobbin is part of an unshielded, conventional motor structure that utilizes a 2.83x.60-inch-thick ceramic magnet. And again, input leads from the crossover are soldered directly onto male tabs.

The inputs to the enclosure are two pairs of five-way binding posts: the bottom pair go through a lowpass filter to the woofer, and the top pair lead to the midrange and tweeter via filtering. All of the inductors are air core, and the high-quality capacitors are Solen. The crossover components appear to be sorted, then hand-soldered point to point and mounted onto a piece of Masonite. For even further damping, the components are coated with RTV silicone.

—CONTINUED ON PAGE 134

COOL FRONT. SERIOUS BACK.



HHB CDR850 CD RECORDER

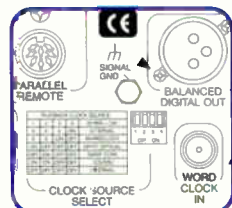
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FIELD TEST

Works for Balinese Gamelon Orchestra.

The Lc3w12s handled all of this music with ease. Segovia's delicate tonal colorations were as easily discernible as Robert Johnson's barely audible slide artifacts, and the tape noises that grace both recordings. The full-on unison orchestral blasts of Stravinsky's *The Rite of Spring* slammed all three speakers—and their respective crossovers—simultaneously, but instruments in all frequencies remained clearly distinguishable. Subtle brushwork on cymbals and snares came across beautifully, and the finger noises accompanying solo upright bass were so real it seemed the bassist was actually playing in the room just a few feet away.

As for the three ringer CDs, *My People* is a densely layered world music extravaganza that juxtaposes fat synthesizers and basses with complex percussion arrangements and lush vocal treatments. On inferior monitors the sounds tend to mush together and become indistinct, but on the Lc3w12s the (substantial) lows were tight and solid, the mids punchy and the high-mids and highs clear and extremely well-defined. Many of the songs on The Beatles' *Past Masters Volume Two* were mixed with

one group of instruments (say, drums, guitar and backing vocals) panned completely to the right, and another (say, bass, second guitar and lead vocals) panned to the left. Listening to any music on a single monitor can be very revealing, and in this case—thanks to Sir George—very educational as well. Instruments and vocals were presented in stark relief, and echo chamber and flanging effects, chair squeaks, string noise and even talking were also apparent. Finally, the extraordinarily rich and complex waveforms generated by the gamelons on *American Works for Balinese Gamelon Orchestra* throw lots of sonic curveballs, and the Lc3w12s handled them easily. Rather than revealing faults in the monitors, the monitors revealed numerous faults in the recording; faults that seemed negligible or had passed unnoticed on previous listens.

Next, I listened to some mixes I'd done on very large main monitors at a commercial facility. Taking into account probable variances in room acoustics, the Lc3w12s very closely approximated the sound I remember hearing in the control room, including the bottom end. (Despite Westlake Audio's conservative frequency response figures of 40 to 18k Hz, the Lc3w12s deliver a huge low-end

—FROM PAGE 132, LAB ANALYSIS: WESTLAKE Lc3w12

ACOUSTICAL CHARACTERISTICS

The frequency response of this studio monitor is composed of two fairly flat portions, but the whole response is not really maximally flat, and we therefore cannot classify this system as a true reference monitor. Rather, this speaker system allows the recording engineer to listen to music as it would be heard on real-world consumer speakers. The frequency response is best described as plateau'd or shelved. From 100 to 3.5k Hz, the window that contains the frequency response is ± 2 dB. (The rippling in the graph below 250 Hz is an artifact of the measurements, not a falling low-frequency response of the speaker system.) After 3.5 kHz, the response drops 3 dB and remains fairly flat (± 1.5 dB) out to 20 kHz. The off-axis response has a very nice roll-off to it. Up to 2 kHz, it remains flat then rolls off at a constant slope out to 18 kHz, dropping 9 dB across the region.

The impulse response is very well-behaved. Due to the efforts to phase-align the three drivers, the initial peak is well-defined. The decay is near perfect, void of any standing waves or box modes, which is a result of the extensive attention to enclosure construction. There is only one minor toggle in the time response—1.3 ms after the initial pulse (nominally 4.3 ms on the graph).

The distortion figures for the LC3w12 are exceptionally low. Starting at 35 Hz, the THD is below 1%, except for a single data point at 600 Hz. Above 80 Hz, THD is below 0.5%, with most of the response maintaining a .02% figure or less.

The nonharmonic distortion elements of this speaker are also very low, especially the bass frequencies, an advantage of using a relatively large woofer. The input tones are 50 to 60 dB above the noise floor, except for some data points above 500 Hz

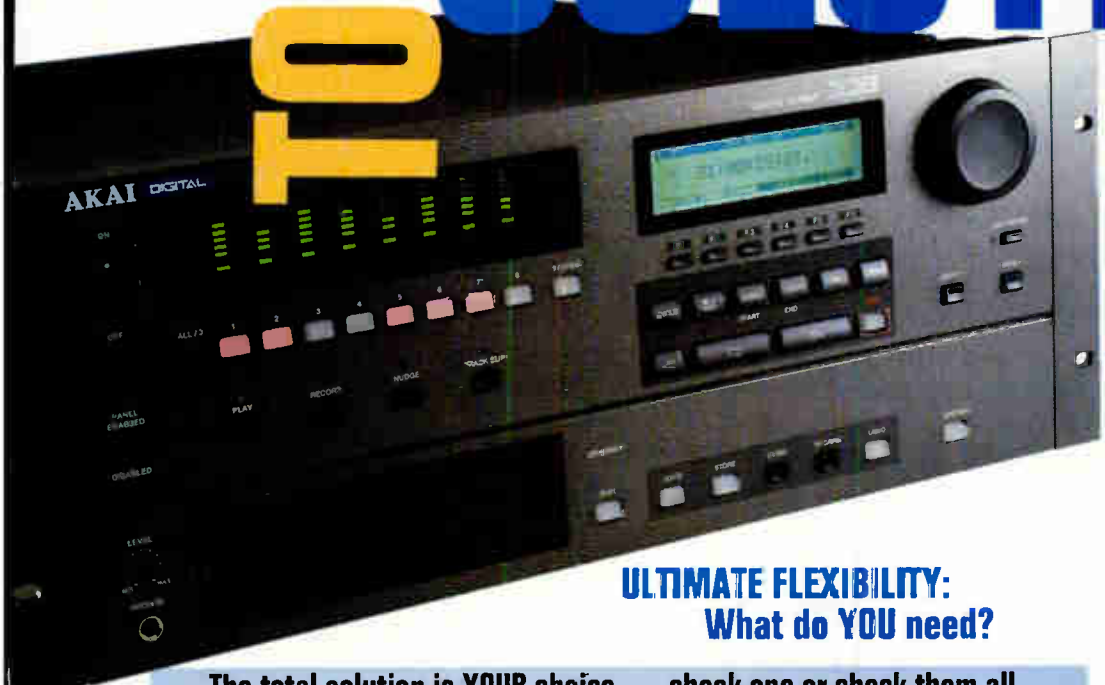
John Schaffer and Rob Baum are engineers associated with Menlo Scientific, an independent test facility in Berkeley, Calif. For information on testing methodology, visit www.mixonline.com.

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- ADAT

Operating Level: (you don't have to decide now, it is software selectable)

- 12dB
- 16dB
- 18dB
- 20dB
- 22dB (if you insist)

Resolution:

(all selections are linear PCM; no data compression)

- 16-bit
- 24-bit
- 20-bit
- 20-packed (Diet)

Sample rate:

- 32kHz
- 44.1kHz
- 48kHz
- 88.2kHz
- 96kHz
- 0.1% Pull-up
- 0.1% Pull-down

Maintain constant sample rate even playing off-speed/varispeed:

- Yes, please!
- No, thank you (I won't ever use a digital mixer)

Synchronization:

- LTC (SMPTE)
- RS422 (Sony 9-pin)
- Biphase
- MTC

Play audio in sync:

- Forward (near instant lock)
- Reverse
- Slo-mo
- High speed

Frame rate:

- 23.98 (24 -0.1%)
- 24
- 25
- 24 -4%
- 25 +4.17%
- 29.97 nd
- 30 nd
- 29.97 drop
- 30 drop

"GearBox" (convert one type of sync/frame rate into another):

- Yes, please!
- No, thank you. (I work alone)

Display:

- Time Code
- Feet/Frames/Perfs
- Large graphic LCD
- SSDCM (Small Scrolling Display with Cryptic Menus) (Sony, not available on the DD8 - check other products!)

Track arming/Transport Control:

- Front Panel
- RS422 (Sony 9pin)
- RC15 Remote (User assignable keys and Jog/Shuttlewheel)
- GPIO (User definable parallel controls & tallies)
- Akai DL1500 Remote (multi-machine editor)
- Custom (Ethernet)
- MMC

Disk/File format:

- Akai DDF
- WaveFrame™ Tascam™ MMR
- Fairlight™ MFX3+/DaD
- PC-DOS (.Wav/BWF, DeVA)
- Macintosh (AIFF/SD-2, OMF™, ProTools™)
- AES-31/AAF/ . . (future)

SCSI Media:

- MO
- SCSI Tape Backup
- Removable Hard-Disk
- RAID Array
- Ready for new media (Castlewood, Terastor . . .)

Editing:

- Track Slip
- Event Nudge

With DL1500 Remote Controller:

- VTR Control
- VGA Display with Waveforms
- Sound Libraries
- Trim and Crossfade (real-time)
- Conform changes
- EDL Import/ Auto-conform/Export

Applications:

- Dubbing/Mixing/Re-recording
- Trailers
- Dailies
- ADR
- Foley
- Telecine
- Screening
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- Live Events
- Other



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CIRCLE #083 ON PRODUCT INFO CARD

FIELD TEST

wallop.) Hearing those low frequencies again, particularly in my modest home studio, was genuinely breath-taking. Imaging was also excellent, with instruments and effects appearing exactly where I expected them to be.

ADAT mixes done in my home studio on a Yamaha 03D also sounded quite good. *In Another Year* by Carl Weingarten is a cinematic sound collage employing lots of tricky panning and cross-fades, which translated beautifully to the Lc3w12s. Similarly, the improvised pieces on Cloud Chamber's *Dark Matter* feature an unusual array of instruments and sonic textures, mixed using lots of automated console moves, including dynamic effects and EQ automation. The most complex stereo imaging, subtle auto-panning effects and ridiculously long reverb tails were reproduced with exquisite clarity, while even the slightest distortion and phase problems became painfully obvious. Finally, I remixed some of the same pieces using the Lc3w12s with results that compared quite favorably to the originals on all counts.

CONCLUSION

At \$3,399 a pair, the Westlake Audio Lc3w12s are not exactly inexpensive, particularly compared to the current crop of contenders in the near-field and powered near-field market. Whether they are right for you will depend largely on what sort of room you plan to use them in, and how far you are willing to go to optimize your listening environment. Since the Lc3w12s function best as mid-fields or main monitors, the acoustic properties of your room will affect the accuracy of your mixes more significantly than when monitoring close in on near-fields. On the other hand, if you are prepared to optimize your monitoring space to take full advantage of the Lc3w12s' extended sonic spectrum, you will find that they represent an exceptional value, delivering performance comparable to monitors costing much more.

Westlake Audio Manufacturing Group; 2696 Lavery Court, Unit 18; Newbury Park, CA 91320; 805/499-3686; fax 805/498-2571; www.westlakeaudio.com. ■

Barry Cleveland is the editor of the Mix Master Directory and the Recording Industry Sourcebook when he is not playing guitar and having fun in his project studio.

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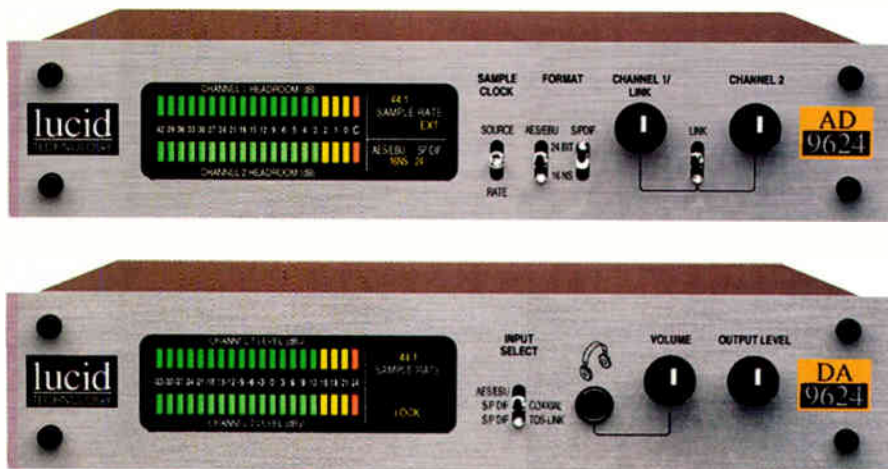


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CIRCLE #085 ON PRODUCT INFO CARD

H A Harman International Company

SNAPSHOT PRODUCT REVIEWS



LUCID AD9624 AND DA9624 24-bit A/D and D/A Converters

High-resolution 24-bit/96kHz converters seem to fall into two categories: pricey high-end devices and low-cost units intended for the MI market. Lucid has addressed this issue with its AD9624 (\$899) and DA9624 (\$749), two stereo converters that offer pro quality at an affordable price.

Although Lucid isn't exactly a household name in audio circles, over the past few years, the company—the high-tech, digital arm of Symetrix—has been producing no-compromise converter sets for Sonic Solutions workstations on an OEM basis. Now Lucid offers that same technology to end-users, in stereo (AES/EBU and S/PDIF) and multichannel versions (with Alesis ADAT Lightpipe or Sonic Solutions interfacing).

The AD9624 A/D and the DA9624 D/A offer 24-bit conversion at up to 96kHz sampling rates. Housed in half-rack enclosures, both units feature 20-segment LED metering with peak-hold, AES/EBU and S/PDIF (optical and coaxial) digital ports and balanced XLR analog interfacing, as well as an extra set of TRS outputs on the D/A converter. A backlit display shows sample rate and status. The A/D converter has a BNC word clock input; the D/A converter automatically locks to

any digital input. Both converters use external power supplies, but at least these use “lump in the line” transformers, rather than wall warts.

The front panels are to the point: Plug in, set what you need and go. One possible source of confusion is a drawing of an ADAT next to the hookup section in the manual, leaving some users to believe that the units' TosLink S/PDIF optical ports support Lightpipe, which they don't. (To connect to ADATs or other Lightpipe peripherals, Lucid makes the multichannel ADA8824-ADAT model.) Both devices support sampling rates of 96/88.2/48/44.1/32 kHz, and for connecting to 16-bit devices, the AD9624 has an onboard noise-shaping function. The A/D can send output to AES/EBU and S/PDIF ports simultaneously.

Features aside, the best part about this converter pair is how they sound. The conversion is first-rate, with attention to detail not only in the digital domain, but also in the analog circuitry. This is a set of well-made tools that will improve the quality of your DAT or CD mastering now, and they're more than ready when you make the jump to 24-bit/96kHz production. Yeah!

BY GEORGE PETERSEN

Lucid Technology: 425/742-1518; www.lucidtechnology.com.

DANISH PRO AUDIO 4006 Low Noise Omni Microphone

I don't know about you, but too often when a company changes its name or comes out with a new model that's “just the same as the old one,” I tend to be suspicious. So last year when Brüel & Kjaer studio microphones became Danish Pro Audio (DPA), I had a few reservations. After all, this wasn't just some drumstick company, but B&K—a revered name that's almost synonymous with precision transducers. I decided to check the DPA 4006 and see if it lived up to the original.

Retailing at \$2,060, the 4006 is the standard 48-volt phantom-powered version of the company's low-noise—15 dB(A)—omni. The mic's fitted storage case comes with a mic clip, windscreens and two interchangeable grids. The standard silver grid is designed to provide linear on-axis response in near-field applications; for diffuse- or far-field recordings, the black protection grid adds an on-axis 6dB boost centered around 15 kHz.

Aside from the DPA logo on the mic body (the capsules themselves still say B&K) and a black rather than mahogany-finish mic box, the main difference in the package is the manual. The DPA 4006 booklet only covers that mic; previously,



B&K issued a combo manual covering all the 4000 Series. Options include a highly effective shock mount, an alternate nose cone that ensures true omni performance—even at the highest frequencies—and a variety of push-on acoustic pressure equalizers that can change the mic's character in seconds.

Miking a variety of sources ranging from piano to piccolo trumpet, and triangle to 12-string, I compared the sound of the DPA and an older B&K 4006, routed through a Millennia Media HV-3 preamp and monitored on Meyer HD-1s. No difference between the two mics was discernible. And, despite a five-year age difference between the models tested, the two were virtually indistinguishable, even in blind listening tests, with both delivering the wide, flat, transparent low-noise performance that always has been a hallmark of the B&K sound. It certainly is not true with all products and companies, but in this case, there may be a different name, but the sound's the same.

DPA Microphones/TGI North America: 519/745-1158; www.dpamicrophones.com.

WHIRLWIND QBOX

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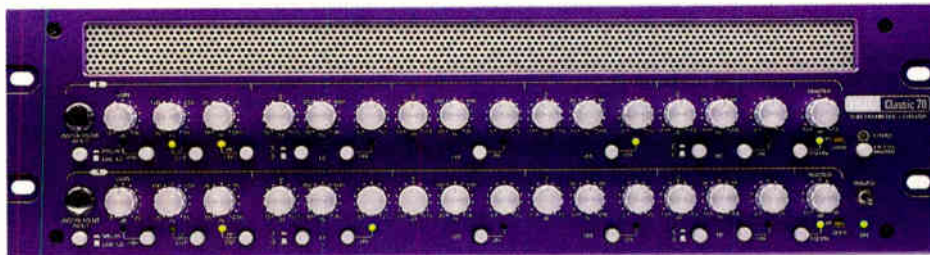
Whether you work in live sound, installations, broadcasting, remote recording or studio work, you probably



spend WAY too much time troubleshooting. Frequently, the reason that something doesn't work can be traced to problems such as broken cables, bad connections, incorrect patches and other operator errors that, despite their simplicity, prove vexing in a hurried production environment. One useful

tool for handling such emergencies is the Whirlwind Qbox®, a combination mic/line tester offering a 440 Hz generator, phantom- or intercom-present LEDs, and an internal speaker/headphone jack that lets you actually hear the source under test.

Qbox is housed in a fuzzbox-sized, composite-molded package with 9VDC battery powering and a belt-clip for easy access. Top panel controls include a three-position (-20/+4/-50dB) output level attenuator, tone/internal mic switch, volume control for the internal 2¼-inch speaker or ¼-inch headphone output, a power on/off LED, and yellow and green LEDs to indicate the presence of phantom or intercom power. The



unit's front face has male/female XLR jacks wired in parallel, so any connector can act as either a mic line input or output; a ¼-inch TRS doubles as either a line input or output to a high-Z, IFB-type mono earpiece. And in-between testing connections, Qbox can also double as an intercom monitor, or two Qboxes hooked to either end of a line can create an inpromptu intercom system.

While Qbox won't help with component-level repair on a multilayer surface-mount PCB, it can quickly tell you which line on a snake is dead, or whether the SM57 that the forklift just rolled over is still alive. Priced at \$189, Whirlwind's Qbox rates as one of those "How did I ever get along without this?" gems that just about any audio pro could use.

Whirlwind: 716/663-8820; www.whirlwindusa.com.

HHB CLASSIC SERIES

Tube Signal Processing

Well-established as a manufacturer of recording media, DAT decks, CD recorders and studio monitors, HHB now offers two lines of tube processors. Its Radius Series is designed for project studios and budget-conscious applications; I was more interested in HHB's Classic Series (built to HHB specs by Britain's Tony Larking Audio), designed for those seeking higher-end perfor-

mance, for mastering and other critical applications.

Classic Series products are stereo (or dual-mono) units; behind their distinctive "HHB purple" front panels, these devices function beyond what their names imply. All of the units include balanced and unbalanced line-level inputs (and outputs), along with front panel, ¼-inch, direct box-style inputs and onboard mic preamps (with phantom power), making them ideal for direct-to-tape tracking from any source. Solid-state power supplies deliver a full 250 volts to the tubes while reducing heat; large perforated metal grilles enable passive cooling.

The series includes the Classic 60

Tube Compressor (\$2,395), the Classic 80 Pentode Tube Mic Preamp (\$1,850) and the Classic 70 Tube Parametric Equalizer (\$2,950). The Classic 60 features switchable 90Hz highpass filters, sidechain inserts, dual-mono/stereo linking, VU monitoring of output level or gain reduction, and continuously variable parameters on all controls, including variable input gain, threshold, attack/release times, compression ratio and gain makeup. The Classic 80 preamp has high/lowpass filters on mic and line inputs, with three cutoff frequencies and illuminated VU meters.

To get a feel for the Classic Series, I checked out the Classic 70, a true parametric, which has full, continuous control of center frequency and "Q," and six tube stages per channel—one in each of the four EQ bands followed by a pair in the output stage. The mic preamps are solid-state followed by tube stages. This hybrid design delivers low-noise performance with a response that's flat from 20 to 40k Hz. Insert points on the rear panel allow the IC preamp stages to be bypassed, for access to a pure tube EQ stage or just the mic preamps without the tube circuitry. A cathode follower stage before the master output allows users to tweak the amount of tube distortion, just as the channel/master volume blend on a guitar amp might be set.

The equalization is flexible, with

AUDITIONS

plenty of overlap in the hands. The full counter-clockwise Q setting is quite wide, and the opposite provides a medium-wide Q, so this EQ is designed for musical, program-style equalization, rather than tight, notch filter-style operation. Tracking bass and synths in the control room, I appreciated the Classic 70's direct inputs. The preamps are mostly uncolored and neutral, although color can easily be added, if desired. A bit of tube warmth seems the perfect complement to digital tracking, and the stereo function (in which the knobs of Channel A control both sides simultaneously) saves time in mastering and other program EQ applications. Offering a combination of whistle-clean audio specs, with preamps, DI functions and smooth, musical EQ, the HHB Classic 70 is definitely on the way to becoming a classic in its own right.

HHB Communications USA: 310/319-1111; www.hhb.co.uk.

THE HOLLYWOOD EDGE

TMH Digital Audio Test Discs

TMH Corporation and Tom Holman (the mastermind behind THX technolo-

gy), working with The Hollywood Edge, offer a comprehensive set of audio test discs designed to help pro and high-end consumer users align sound systems and check the quality of room acoustics.



Disc 1 has setup tests for stereo and surround monitoring for pro studios, project rooms and home theaters. Among these are the usual channel ID, panning, pink noise and background noise tests, but also headroom transients at various frequencies and LCRS/subwoofer reference level setups.

Disc 2 offers a collection of instrument calibration and general audio tests in both analog and digital domains, such as crosstalk checks, frequency response tones, sine/square waves, dither and fade-to-dither tracks and meter calibration routines. Disc 3 focuses on acoustics, with tracks for determining room acoustics, background noise, reverb time, transient bursts and vocal intelligibility. Disc 4 offers electroacoustical tracks for loudspeaker evaluation, such as pink noise and swept sine waves, and transient reproduction tests.

Each CD includes a number of demonstration sound effects. And many of the tones, such as channel IDs, sine and pink noise, are repeated on the various discs, so that if you are only testing one aspect of a system, there's no need for constantly switching discs. The set also comes with a 90-page guide that walks the user through the tests and provides background information. At \$299, the TMH Digital Audio Test Discs set is highly recommended for anyone seriously interested in sound system optimization.

The Hollywood Edge: 213/466-6723; www.hollywoodedge.com. ■

SRM-80 SIGNAL ROUTER/MONITOR

MONITORING, MIXDOWN, AND DUBBING HAVE NEVER BEEN THIS EASY...



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There's even a built-in high-power headphone amp.

SRM-RU Remote



A high resolution 80-LED meter for precise level calibration of all stereo devices, MONO Sum to check for mix problems, a DIM button to reduce listening levels during interruptions, and more. All five pushbutton functions are also available remotely on the optional SRM-RU, which includes a 10-foot cable.

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GEORGE SHEPPARD - CEO

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World Radio History



REMOTE ENGINEERING

VIEWS FROM THE TOP

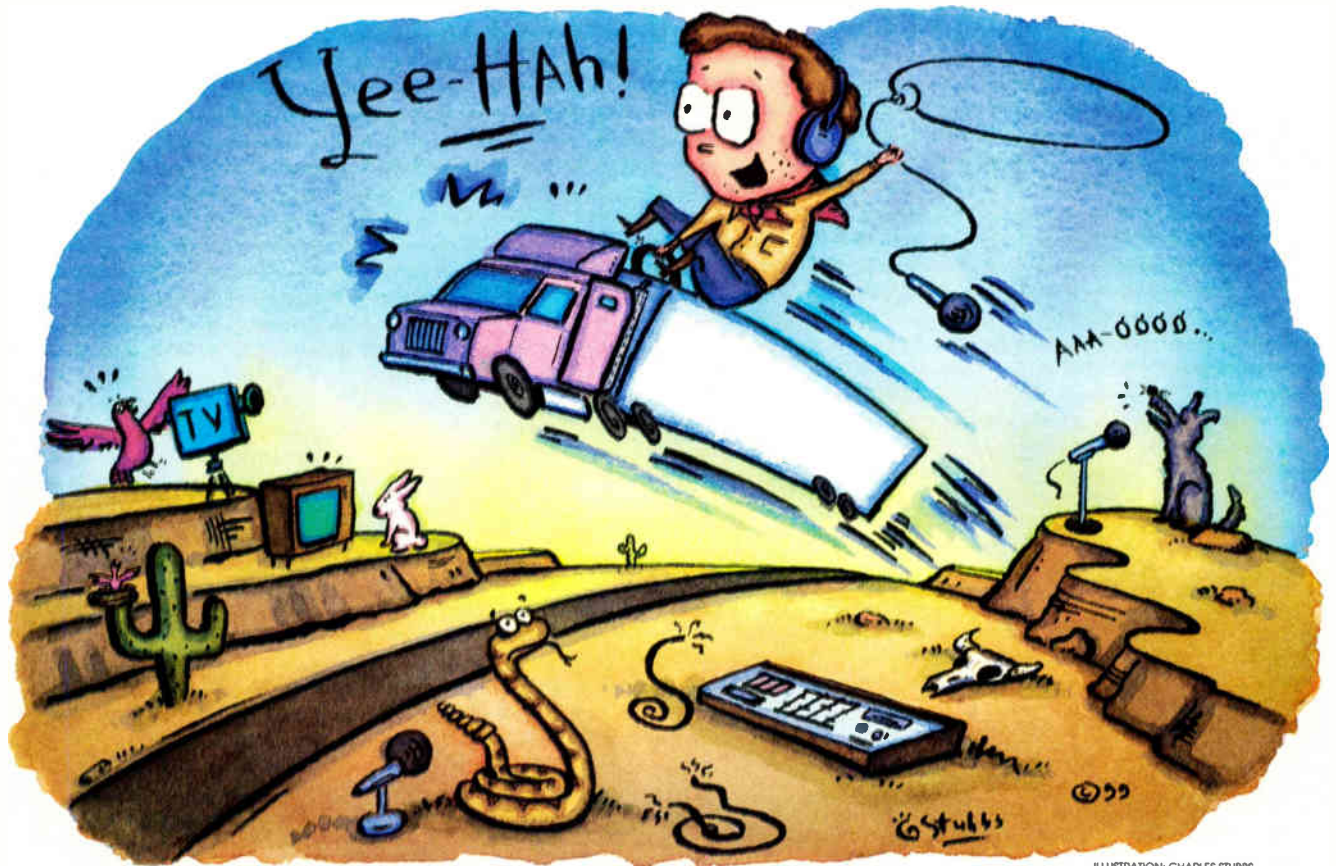


ILLUSTRATION: CHARLES STUBBS

The 1999 slate of nominees for a TEC Award in the category of Remote/Broadcast Recording Engineer includes some familiar names: Guy Charbonneau, Ed Greene, John Harris, David Hewitt and Kooster McAllister have all appeared in *Mix*'s pages before as writers, interviewees and as TEC nominees. (For more on the interviewees/nominees, see the sidebar: "Truck Drivers.") In addition to their renowned creative and technical abilities, these five are remarkably articulate and candid about their work—perfect candidates for a *Mix* forum on the current state of remote recording and broadcast operations. We asked them to take us through the signal chain—from mic inputs to 5.1 mixes—and describe their current methods and equipment choices.

MAKE WAY FOR CAMERAS

Perhaps the most significant recent change in the remote recording world is the ever-increasing importance of sound for television. "Almost everything we do these days has video or film attached to it," notes Remote Recording Services owner David Hewitt, who recalls finding a memo written in the '70s that showed that only 17% of the projects he was working on then had picture content. "It's been creeping up as long as I can remember," says Hewitt. "Now the percentages are reversed."

Kooster McAllister agrees. "I'd say that 80 percent of what I do at this point is with film or videos," says McAllister. Live performance recording for release on record,

once a staple of business for McAllister's Record Plant Remote, has dropped off relative to broadcast-related work. "I hate to say this, but live albums tend to happen [only] when an artist needs to fill up their quotient with a record label," observes McAllister.

Remote recording for broadcast can present special challenges. For example, the number of inputs necessary for a TV awards show is continually expanding. "It used to be on the Grammys we would limit every group to 24 inputs, not including vocals," recalls Ed Greene. "Now there can be 50 or 60 inputs, and they're just as unhappy when some obscure little channel doesn't work as when a main vocal line fails. The truck that I'm in the most has a 72-input main console with a

BY MARK FRINK

—CONTINUED ON PAGE 148

TOUR PROFILE

JEWEL

Capturing The Spirit

Jewel's story is one of perseverance. The press has filled volumes with her rags-to-riches saga; so, many of us know by now that she is a native Alaskan who struck out on her own at a young age with dreams of making it big as a singer. She arrived in the Lower 48 with little more than the clothes on her back, a developing urge to write songs and a captivating voice capable of ranging across almost four octaves. She paid her dues in coffeehouses and small clubs across America, sleeping in her car more than a few times until finally gaining the attention of Atlantic Records.

Throughout 1997, the songstress toured with traditional folkie flair. Framed only by a cocktail drum kit, acoustic bass, and acoustic guitar, her sets showcased her mesmerizing vocals, dynamic range and seemingly tireless strength as a singer. Beginning in February of this year, however, Jewel's career has departed from this Spartan path.

"This time out we rock," says FOH engineer Rob Howick, speaking from the production office at Woodlands Pavilion outside of Houston on July 10. Howick is currently out with Jewel's world tour in support of her latest Atlantic release, *Spirit*. "There are still plenty of folk-inspired moments," says Howick, "but for the first time, Jewel is being backed by a group of seriously talented musicians on electric bass, electric guitar, keys, and drums."

Joining Jewel this time out are Douglas Price Pettibone on electric guitar, Steve George (of mid-'80s Mr. Mister fame) on keys, mentor and co-writer Steve Poltz on acoustic guitar, and the New Orleans duo of Tony Hall on electric bass and Brady Blade on drums.

For sound reinforcement, the act relies upon an Electro-Voice X-Array system. Driven by QSC PowerLight amplifiers, the rig is supplied by Winnipeg-based Sound Art Canada and was assembled by Sound Art's Dave Cousins. Howick's



PHOTOS: STEVE JENNINGS



FOH engineer Rob Howick

FOH console is a Midas Heritage 3000 (48x18x2), and monitor engineer Colm O'Reilly operates a Midas XL250 (52x20). The sound crew also includes chief Mike Brownlee and FOH systems engineer George Addis.

The Spirit tour has carved a long swath across the globe since February. Beginning with more intimate, soft-seated venues down under, the tour moved on to New Zealand, Singapore, Malaysia, Japan, the UK and other European stops. Within the confines of its current U.S. sheds'n'hockey rinks incarnation, the show runs anywhere from 90 to 120 minutes and is divided into three segments: The first features the full band, the second is Jewel's solo section, and the third finds the musicians turning it up in what the star herself describes as "rock/chick mode."

"As the tour has progressed, the musicians have grown comfortable with their roles," Howick says. "When this happened, they brought a lot of additional energy to the act. As a result, Jewel was forced to sing harder to hear herself onstage. That, combined with the wear and tear of constant performing, took a toll on her voice.

"Toward the end of our European dates, she strained her vocal chords. We were forced to cancel some dates. To avoid the prospect of damaging her voice any further, I suggested that some significant steps be taken to create a better onstage environment that would be less fatiguing."

NO MORE HANGOVERS

Howick and O'Reilly set about bringing the stage volumes down. They developed a monitoring setup that eliminated just about every monitor onstage, as well as all guitar and bass cabinets. To replace the wedges and sidefills, the band was outfitted with Shure PSM 600 personal monitor systems, providing each musician with an adjustable in-ear stereo mix via custom dual-driver ear pieces. Jewel herself uses an ear

BY GREGORY A. DETOGNE

—CONTINUED ON PAGE 146



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World Radio History

CIRCLE #088 ON PRODUCT INFO CARD

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TEXT AND PHOTOS BY STEVE JENNINGS

Reunion tours have become popular recently, but one band never really went away—Cheap Trick. A little older and wiser but still having fun playing *Music For Hangovers*, these guys put on a great show. *Mix* got a chance to see them at San Francisco's Warfield Theater.



"We aren't carrying production on the road," says FOH engineer/tour manager Nigel Paul. "Because the band are Shure endorsers, we carry a full mic package from them. And we always get a high-end console, like a Yamaha or Midas."

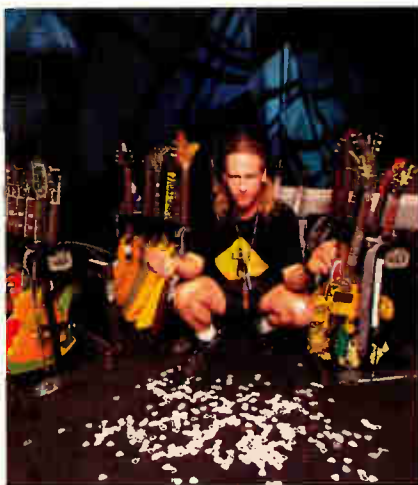
"For my rack system I always make sure I have a TC2290 for delay for vocals and the Eventide Harmonizer, either an H3000 or 4000. As far as effects are concerned, I ask for another high-quality delay and three reverbs, plus eight compressors and eight gates."

"For Robin's vocal, on some of the stronger rock songs I like to get a bit of pitch shift in his vocal. Finding the sweet spot on compression for him also helps him get out in front of the band mix."

Cheap Trick



"For consistency I carry my own rack," Monitor engineer George Blake explains. "I have a Behringer compressor for a little extra protection for the in-ear mixes, and I carry three reverbs, including a Yamaha 990 and the new Yamaha Rev 500, which just came out."



Robin Randolph is guitar and bass tech for Robin Zander and Tom Petersson. Zander plays Gibson and Hamer guitars, a Washburn acoustic and a Rickenbacker six-string. Petersson's main bass guitar is a Chandler, but he also has a 12-string bass that outputs lows, mids and highs from the pick-ups.



Drum tech Brian St. Clair takes care of Bun E. Carlos' kit. Mics include a Shure Beta 91 in the kick drum, Beta 56s for top and bottom snare channels, SM81s on the hi-hat, ride cymbal and overheads, and SM98s on the three toms.



Sven Granert is Rick Nielsen's guitar tech, and watches over Nielsen's custom Hamer guitars. "Rick doesn't use too many effects," explains Granert. "On a couple of songs where there's a chorus, we use the MXR Phase 90 pedal—I'm turning that on and off. Rick will use the Wah pedal, a Crybaby, but that's about it for foot pedals or effects. The Hamers make up a majority of Rick's custom guitar collection, but he also has Gibson flying V's and vintage Les Pauls."



Singer/guitarist Robin Zander is using Shure in-ear monitors with stereo UHF transmitters. "Everyone one else is on wedges, with themselves and a couple of key components in their mix," says monitor engineer Blake.

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LIVE SOUND

—FROM PAGE 143, JEWEL

piece in one ear and a solid plug in the other. X-Array Xw low-profile biamped wedges positioned in front of her allow O'Reilly to bring the mix back to the floor should the singer so desire.

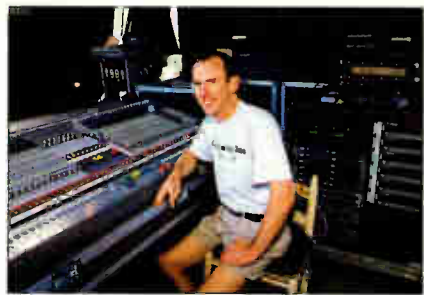
"The band has adapted to in-ear monitoring really well," Howick says. "Now they wake up each morning without a trace of noise hangover, which has them thanking us profusely for switching them over. As intended, our stage volumes are way down as well, removing a lot of the strain on Jewel."

NATURAL SOUND

Borrowing a common studio technique for live performance, Howick made new offstage homes for the guitar and bass cabinets, removing them to isolation chambers on the loading dock or upstage behind the backdrops. Made from large road cases and their covers, each isolation chamber offers about three feet of space inside to "play around with," and Howick places a pair of microphones in each, allowing him to vary each instrument's sound according to the needs of the set list. In the cabinets for Douglas Price Pettibone's and Jewel's electric guitars, Howick has Audio-Technica AT4050 condenser mics mounted up tight against the loudspeaker, with Shure KSM32s set farther back within each enclosure.

Around ten different microphones were tried on Jewel's voice during tour rehearsals. "Now that we're more into a rock-oriented scenario, I wanted something that was predictable and dependable," Howick says. He chose a Shure U2/Beta 58 UHF wireless unit. "In the days of our folk-dominated sound, Jewel used an Audix mic with a Turbosound P.A. That setup worked nicely then, but this time I wanted her vocal to cut right through the mix and cover the whole audience. For this application, [the Shure U2/Beta 58] had the truest, most natural sound."

All other vocal mics, including Jewel's backup, are hard-wired Beta 58As. At the Plexiglas-isolated drum kit, AKG C414 condensers are used on overheads, and a Shure Beta 91 condenser boundary mic is mounted inside the kick drum. A Beta 98A miniature condenser is used on toms and djembe top; a Beyerdynamic M88 is at djembe bottom. Snares are captured topside by a Beta 57A, and at floor level by a unique choice—the articulating Beta 52. A dozen Klark Teknik LBB100 active DIs are used on keys, bass



Monitor engineer Colm O'Reilly

and acoustic guitars.

A pair of programmable Klark Teknik DN3600 dual third-octave equalizers are used on monitors and FOH electronics. Also in the racks are a Drawmer DL251 stereo compressor a Brooke-Siren TCS-804 delay and a KT DN6000 1/2-octave time and frequency analyzer. For system tuning, Howick has found the SIA SMAART Pro system especially useful.

RECIPES FOR EFFECTS

Howick's selection of effects fits with Jewel's newly developed rock edges. His "rock 'n' roll special" for Douglas Price Pettibone's electric guitar solos is a Roland SDE3000 digital delay, which is also used for double-slap on Jewel. A TC Electronic M2000 is split into reverb and chorus modes for acoustic guitars, and a Lexicon PCM 90 is used to create different snare and tom sounds. He uses a Lexicon 480L digital reverb on vocals to enhance spatial qualities, and Aphex 622 frequency-conscious, dual-channel noise gates are applied to the kick drum, snares and toms, as well as the M88 at djembe bottom.

A couple of hot spots in Jewel's vocals warrant the use of a pair of Summit DCL-200 dual-channel valve compressors, which work in conjunction with a pair of Brooke-Siren DPR901-II dual-channel dynamic equalizers on all her mics to keep things from suddenly taking off at the offending frequencies.

"This is Jewel's show, so you're going to hear her voice first and foremost each night," Howick says. "After that, you almost get a studio band now that we've virtually cleaned everything off of the stage and put Plexiglas around the drum kit. It's a very controlled atmosphere, an ideal situation for me. Now I can set up a really nice stereo image that moves around quite a bit during the night with an amazing fluidity. Different energies and personalities emerge freely. The potential to get creative is almost limitless. It will be interesting to see how we continue to evolve from tour to tour." ■

PHOTOS: STEVE JENNINGS

"It's about making music and enjoying it."

"The Digital 8 allows me to be creative. Since getting my D8B, I've marveled at the incredible power it holds. This console can do things you would have had to spend hundreds of thousands of dollars on just a few years ago. The automation is friendly and the console is logically designed so that you can get to work in no time. Most important, the D8B sounds good. The bottom end is deep and all the DSP sure is handy."

Alex Lifeson, Rush

"The D8B combines the best of many worlds. Because it's easy to learn, I can craft a project quickly. Because it's digital, I can store and retrieve projects easily. But most important to me is that it sounds as good or better than any console I've ever used — a statement I don't make lightly. And compared to other digital consoles, the D8B is a joy to use."

Ed Green, 40 years of mixing experience including the Grammys, Oscars and loads of high-pressure, no-mistakes-allowed live TV shows.

"The reason we went for Mackie D8Bs was that we needed a much faster way to mix. We move from song to song, project to project so quickly, we needed a digital board that would work as fast as we do. The flexibility and ease of operation of the D8Bs made them the perfect choice."

Brian Pollack, engineer, Nine Inch Nails

"We bought a Mackie D8B to complement our stupidly huge investment in analog gear. The younger acts we cater to come here wanting access to the world-renowned collection of vintage instruments, amps and effects we have. If you want a first class total-recall console people respect, and money left over to buy lots of weird old stuff, the D8B is the only way to go."

Producer-Engineer Eric Gavriluk runs The Bomb Factory in Burbank, CA where he records everything from solo Spice Girls to San Diego Punk Bands.



"We embraced the Digital 8 believing it will profoundly affect both the studio and record businesses. We're using it for 5.1 surround mixing, and have recommended it to newly signed acts to enable them to deliver us mixes we can polish if need be. Realistically, no other console gives us that option."

Joe Galdo, co-owns South Beach Studios, Miami, with music biz legend Chris Blackwell. Clients include NIN, Sarah McLaughlin, Hole, 3rd Eye Blind, R. Kelly, Julio Iglesias, U2, Baaba Maal, and Ricky Martin.

"The two most important factors that made me switch to the Digital 8 were ease of use and incredible sound quality. I'd rather be creative than go through the tediousness of reading manual after manual. Enter the D8B! We had it up and running in what seemed like minutes after taking it out of the box... without having to read the manual!!! The D8B allows me to make music instead of running around a large format console trying to fix another problem. And I have complete faith that everything I record will sound great and at a quarter of the price of my old analog console. I highly recommend the D8B for everyone from the part timer to the pro. It's about making music and enjoying it."

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World Radio History

—FROM PAGE 142. REMOTE ENGINEERING

B side to every input, plus an additional 96 inputs of submix, and there are times when I've filled just about all of that." However, Greene notes that picture generally comes before sound quality. "Most of what I do is television, so you have to be careful that some microphone isn't sitting in the way of a camera, because it won't be there very long," he says.

MORE AUDIENCE MICS

It's not only the number of onstage mics

that has mushroomed—music mixing for TV generally requires more audience and ambience mics than straight-forward music recording.

"We're mostly involved in the tracking aspects of projects, but now we're recording more tracks and paying more attention to surround formats," explains Hewitt, noting that his clients are now very interested in surround. "On a Natalie Merchant project we used a Soundfield mic—you can record the discrete outputs of the four capsules, and then in post you can run it through the decoder and steer it around. That's especially interesting in a small theater like

the Neil Simon. When you have music with dynamics and a good-sounding hall, it's very valuable. One of my pet peeves is always the mixing of live albums where they gate everything and take every effort to eliminate the leakage and ambience, and they end up sounding like a bad studio recording instead of a good live record."

Hewitt now tries to persuade his clients to dedicate extra tracks to ambience, even if they're recorded onto MDMs. "You're still trying to find a place that sounds good, but it's harder in pop music because there's only so many places you can get to in an arena, and most of them sound bad," he explains. "Generally, we end up back at the FOH mix position, where we'll use a pair of wide omnis. The [traditional arrangement of] closer audience reaction mics across the front of the stage, out on the wings and sometimes even suspended over the first section of seats hasn't changed much. It's still 'the more the merrier' for crowd reaction, because you need a lot of sources to make it sound like an arena."

"What I've done for about a year-and-a-half for taped shows," says Greene, "is [to record] both a front audience and a rear audience, so that all these projects are adaptable—if they have an afterlife—to a 5.1 format." McAllister's approach depends on the number of tracks available: "If I have enough tracks to break the audience down, I try to break it out so you can really get the feeling of depth and the size of room you're working in," he explains.

Harris also records with an eye to mixing for 5.1. Rather than commit to a stereo audience mix, Harris "zones out" the audience and records each zone separately to the multitrack. For the same reasons, Harris favors individual keyboard sources instead of mixer outputs, and he uses multiple guitar mics, even on the same amp, allowing for more freedom to move things around in the mix. Harris is particularly excited about the possibilities of 5.1 mixing for DVD. "You know a Pink Floyd record in 5.1 is going to blow everyone away," he says. "It can go far beyond taking the usual stereo mix and throwing some singers, audience and effects in the rear. You're given so much license with live recording that you can put them up on a big stage and have the response all around."

SNAKES: DIGITAL OR ANALOG?

Opinions on the viability of digital snakes varied. "We've used the [Otari]

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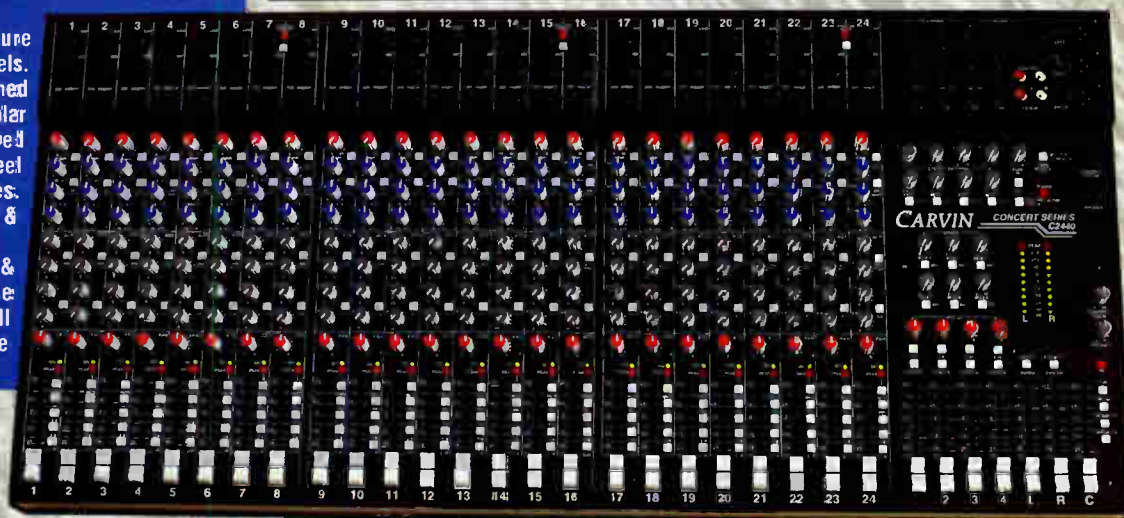
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LIVE SOUND

Lightwinder system with the Stones and, at least in a rock 'n' roll sense, we've found it perfectly serviceable," says Hewitt. "In fact, we did a bunch of Jimmy Buffett events, with the last one opening his Margaritaville restaurant at Universal in Florida. It being one of those huge purpose-built theme parks, we couldn't get the truck anywhere near the venue—we had to drive it down under, in the serviceways—but having been just built, it had all sorts of fiber-optics available. Otari was kind enough to lend us a system, and we plugged into the building plumbing, and it worked perfectly."

John Harris notes that Effanel's remote recording setups have long included D/A conversion at the mic pre's. "Even before the advent of the Capricorn, we were taking a rack of mic pre's and putting them on the stage, which isn't all that innovative, but nobody was doing it," he recalls. "And now we can put the trailer a mile away, and it doesn't make a bit of difference. The converters are everything, but they're standing next to the artist. We did a show last year where we ran the snake over 1,000 feet

of lighting feeder."

"I have been talking to Studer to get their MADI system to combine the mic preamp onstage and to get 24-bit to the truck," says Le Mobile's Guy Charbonneau. "I like the idea of one video cable." McAllister is less enthusiastic. "I've been doing this a long time, and I sort of have a traditional approach," he says. "I think fiber-optic has its advantages and some drawbacks."

Greene also has reservations. "I think the concepts are there, but the execution is yet to be realized," he says. "Even a moderate show is six 27-pair snakes, so you're talking about over 150 lines. We have to be extremely careful. If you lose one mic, not a problem; if you lose a snake, big problem."

WHICH CONSOLE?

As with snakes, there is a range of opinions on the usefulness of digital consoles for remote work. "If you look strictly at sonic quality, the sound of the good old Neve is really hard to beat," says Charbonneau, who admits to a certain bias. "I have to try to separate myself from the recording truck—I have an old Neve that I bought brand-new in 1976," he explains. "In a truck like Le

Mobile, if I am the engineer for multiple bands, I have no problem, because I've lived in that truck for too many years. I could close my eyes—I designed that truck; it's very easy. If I have a guest engineer, it might be more difficult for him than if he's sitting in Randy Ezratty's [Capricorn-equipped] truck, where he could recall his console to many presets. It does not mean he'll have a better sound."

McAllister is also an analog fan. "I'm an old, hard-core, dyed-in-the-wool analog-kind-of-guy, which is why I have an all-discrete API console," he says. "I think analog is still alive and well and will be around for a while longer, but inevitably digital is the way things are going. For example, the show I just did, the Music City Music Awards, was on a Capricorn, which worked fine. I don't think you can stop technology and that's the direction things seem to be moving in, but I don't think it's going at the pace people think."

Harris concedes that a client's preference for analog circuitry is understandable, but defends the digital Capricorn's sonic qualities. Effanel has a stock of 52 Neve modules available, components of the company's portable

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analog "studio-in-a-box" system, which is shipped to locations that are not easily accessible to the truck—Mexico or Italy, for example. These mic pre's may also be used to provide an analog front end for the Capricorn.

"The mic amps in the Capricorn are so amazing-sounding that we rarely substitute with analog preamps," reports Harris. "When we originally went to get a digital console, I did not want it at all. We heard Brand X and Brand Y and Brand Z, and I said, 'Do you hear that?' But the Capricorn is another animal—it's a Neve that has transformed into a computer. It still sounds like a Neve, but

with all the modern conveniences."

Greene is concerned with reliability. "We're all looking for resettable consoles," he says. "The promise of digital consoles and their instant resettable is out there, but they absolutely, positively have to be 100 percent reliable. There are some notable small consoles, like the [Yamaha] 02R, and I've been playing with the Mackie [Digital] 8•Bus, which I would not hesitate to use on a live show. I think the promise of technology is there, but the execution is still being proven." Hewitt echoes Greene's reservations. "I used to be involved in sports car racing," says Hewitt. "I tend to look at technology issues on the remote side

TRUCK DRIVERS

Guy Charbonneau had just mixed two days of mariachi music at the Hollywood Bowl when we spoke. Next he was scheduled to record Sammy Hagar at Universal. Prior to that was a film scoring date at a church in Seattle. "In a live situation, the surround is much easier to deal with than if you are doing a studio record, because it allows you to put the listener in the concert hall much easier than with stereo. A lot of people talk about a compatible mix between stereo and surround, and the need to do a different mix. In a live mix it's very easy to be compatible. On a studio record, it might have to be two different mixes."

When we spoke with Ed Greene, he had just finished the Tony Awards show, one of his favorites, and was on his way to Washington, DC, for a PBS live broadcast of *A Capitol Fourth*. Greene's schedule also included a PBS special with Gloria Estefan and Ricky Martin, another special with Diana Ross, and Barbra Streisand's performance at the MGM in Vegas at the end of the year. "I'm fortunate that I continue to do projects year after year, like People's Choice, the Grammys, and the Oscars," comments Greene.

When we spoke with John Harris he was just finishing a series of *Hard Rock Live* shows for VH-1 with Live, Seal, Melissa Etheridge, Santana and Meatloaf. He was next off to the Special Olympics opening with Stevie Wonder, to be followed by the Eric Clapton and Friends benefit at Madison Square Garden. When I last met Harris he was engineering a Backstreet Boys pay-per-view for Disney on a dark

night at the New Amsterdam theater in Times Square. Last year's live albums included Garth Brooks, Counting Crows and the Divas. He calls himself "the Susan Lucci of the TEC awards," having been nominated many times, but never won. He says, "I think it's cool that industry-at-large, *Mix*-type people pay attention to live recording and who is pushing the boundaries."

Except for the year he had to sit out after winning three TEC awards in a row, David Hewitt has been nominated every year. His credits go back to before *Frampton Comes Alive*, for which he won a Grammy. When we spoke, he had just finished a week on Broadway with Natalie Merchant, who wanted to make a live album before a small, intimate audience. Last summer he worked on the *Seinfeld* live taping. One project he particularly enjoyed was a salute to Miles Davis recorded at the new Birdland club on 48th Street, NYC, for Dave Grusin's new label, N2K.

Mix caught up with Kooster McAllister at the Telluride Bluegrass Festival, which he helped start a quarter-century ago. This year's lineup included Willie Nelson, Mary Chapin Carpenter, Shawn Colvin and Bela Fleck; the 10,000-capacity shows are sold out months in advance. McAllister was just out with Aerosmith, and other recent projects include Janet Jackson for HBO, Tom Petty, Mariah Carey and Barenaked Ladies. He regularly mixes for the Radio Network. Woodstock '99 found him joined by Randy Ezratty's Effanel and David Hewitt's Remote Recording Services trucks in upstate New York, and he's booked to work with Sting on New Year's Eve.

—Mark Frink

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LIVE SOUND

as being more like the endurance races, than sprint races. If you're going to win, you have to finish. If it's going to break, what good is it?"

RECORDING FORMATS

When it comes to recording formats, Harris is enthusiastic about high-bit digital. "We just got [an Otari] RADAR that's real 24-bit and when you hear it the first couple of times, it just knocks you down," he explains. "Sixteen to 20 [bit] was a big leap, but going to 24 is another thing altogether."

Hewitt is not convinced. "We have experimented with the Otari hard disk system," he says. "We think it sounds wonderful, and it's certainly getting there, but it's kind of problematic for us because it requires so much time for backup, which we really don't have on the road. I think it's inevitable that [remote recording] will go in the direction of hard disk recording. I think it will take a few years for the world markets to drive hard disk technology to an affordable, reliable point."

Not that Hewitt is opposed to digital recording—far from it. "The bulk of our work is done with a pair of Studer DA-27s, which we dearly love," he says. But he points out that modular digital multi-tracks have not won wide acceptance as the primary recording medium for remote operations. "I thought we would see more use of MDMs," he says. "About the only thing that we use them for is breakdowns of audience mics, or on a big orchestra date we might do string sections, but at this level we're not seeing a lot else. To tell the truth, it's a relief to me. We've never had problems on our PCM-800s, but we've heard some horror stories. The problem is that people don't treat them with respect. I see them traveling around in cases that aren't properly shock-mounted and getting tossed around like outboard equipment."

Charbonneau is pragmatic, noting that his priority is always the sound. "I don't dislike the idea of 24-bit, but it could be three bits if it sounded good," he says. "I had someone who wanted to record 24-bit and 96 kHz, and I said, 'Just for fun let's run the 2-track with Dolby SR at 15 ips. Why? Because it sounds better.' The thing with formats is that people are just talking numbers, and they don't stop to listen. I don't care—if a rubber band sounds the best, that's the rubber band I'm going to use."

MONITORING FOR 5.1

Though our interviewees have been recording for surround remixes for several years—Greene has been mixing for one surround format or another for about 15 years—they rarely monitor in that format. "The fact of the matter is, when I'm on the air on a live show, I listen 90 percent of the time in mono," says Greene. "You know the stereo and surround is going to be okay if you've set it up correctly, but I'm very concerned for the mono listener, who I feel is the vast majority."

"We have surround monitoring in the truck, but we don't use it very much," notes Hewitt. "On the bigger shows, like the Grammys, Oscars or any of these big TV shows, the surround is an element that is taken care of in the production mix. That usually happens over in the video truck, where it's treated as one of the many elements, so we don't do that final surround mix for many shows. Of course, radio is not broadcasting in surround yet. We are often providing the raw materials for what may eventually become surround—and monitoring them—but it's not a post-production surround mix."

McAllister tells a similar story. "When I mix live shows for television, I generally do not mix listening in surround," says McAllister. "I will monitor it occasionally to see how things are imaging and make sure that we're not having any phase problems. The majority of TV sets are not in surround at this point, so I try to mix for what I feel is going to be the largest listening population."

By contrast, Harris believes that 5.1 is ready for prime time. "Watching the Rolling Stones on your regular TV might not be as good as being there, but if there's huge audio and then HDTV, it's going to make home entertainment as successful as Nintendo," he says. Harris recently installed five self-powered Sendor speakers in the Effanel L7 truck, which opens up to a 14x20-foot room, and recently completed a 5.1 mix for Shania Twain. "I was trying to figure out where I was going with it, what was 'legal,' and I was being conservative," he recalls. "Phil Ramone was sitting there, and he says, 'Well come on, make that stereo guitar the left front and right rear, let's shake it up around here, let's bring her right over my head.' When we got done it was just rocking, and I got a real sense of just how much fun that can be in live performance." ■

Mark Frink is Mix's sound reinforcement editor.



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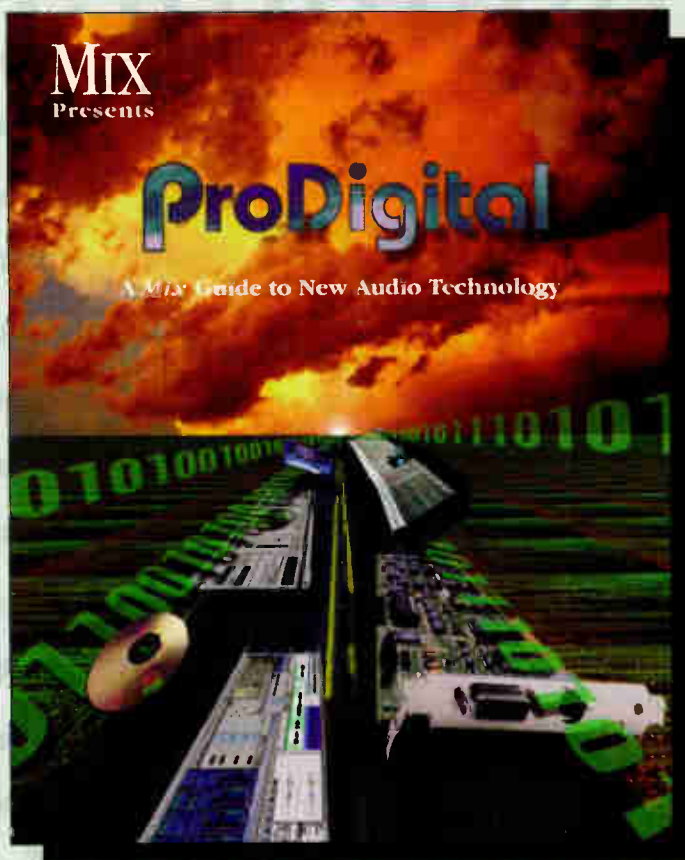
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The latest in the MixWizard Series from Allen & Heath (Sandy, UT), the WZ20S mic/line mixer includes four mic/line input channels and eight stereo line input channels. There are two independently assigned stereo output buses, each with inserts (Mix1 can also be used as a stereo subgroup feeding Mix2) and six aux sends. All inputs offer 4-band EQ (plus sweepable filters on mic/line inputs), and stereo line inputs feature switchable dual inputs (RCA and TRS connections); the WZ20S can accommodate as many as 40 inputs, including an additional pair of stereo returns that may be con-



figured as monitor inputs. Either rackmountable or free-standing, the WZ20S offers two stereo and one mono summed outputs from Mix2, and options include RIAA preamps, aux pre/post and mono/stereo links, plus the Sys-Link expansion system for linking to other A&H consoles.

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NEXO DIGITAL CONTROLLER

The NX241 Digital Controller from Nexo USA (Cotati, CA) is a generic controller for the entire range of current Nexo loudspeakers. Featuring 24-bit digital processing, the menu-driven rackmount device includes the necessary processing for all active and passive speaker systems in the Nexo Alpha, Alpha-E, PS15 and PS10 ranges, including subwoofers and stage moni-

tors. A rotary pot on the front panel scrolls through up to 80 factory presets, and LEDs indicate status.

Price: \$3,675.

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SENNHEISER D1000 DIGITAL ▲ WIRELESS MIC SYSTEM

Sennheiser (Old Lyme, CT) has introduced the D1000 digital wireless mic system, available with handheld, bodypack and instrument transmitters. Operating in the 900MHz ISM frequency band, the D1000 system offers four user-selectable channels and 16-bit A/D and D/A conversion.

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Community Professional Loudspeakers' (Chester, PA) VLF218 subwoofer features dual 18-inch drivers and delivers in excess of 128 dB SPL and a frequency response of 35 to 150 Hz. The 18-inch drivers have heavy-duty cast frames, 4-inch voice coils and 6.8-inch magnets for high output, while ferrofluid cooling and a vented-pole piece dissipate heat. Other features include a steel input panel with two Speakon connectors, 16-gauge perforated steel grille, built-in rear wheel casters and four recessed steel handles. The heavily braced 13-ply Baltic birch enclosure measures 45x22.5x29.8 inches (HxWxD) and weighs 178 lbs. Price: \$2,179.

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LEM/GENERALMUSIC K SERIES SPEAKERS ▼

The LEM division of Generalmusic (Bensenville, IL) debuts the K Series of portable P.A. speakers. Available in self-powered and passive crossover models, the K Series includes the two-way K6 (15-inch woofer) and K3 (12-inch woofer) systems and the KL subwoofer. The K6's 15-inch woofer is rated at 600 watts and includes a 1.5-inch coaxial HF driver. Similarly, the K3's 300-watt 12-inch woofer is coupled to a 1-inch HF driver. Both K6 and K3 have internal passive crossovers and may be bi-amped. The KL features a 600-watt 15-inch woofer and a passive filter that can also act as a mono summing device, allowing it to be used alone with a stereo pair of K6 or K3 units. All three models are trapezoidal in section and are constructed of 12-ply Baltic Birch. Additional features include steel grilles, pole-mount and M8 threaded hardware options and Speakon connectors.

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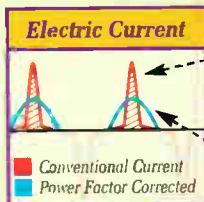
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- "The PL 9.0 is, in my experience, a refreshing new approach to high power amplifier design." *Bascom King, Pro Audio Review*
- "The speakers had a certain life to them that I had not experienced before....transients were tight and clear, and the bass was extremely responsive. I am glad to see where the state of amplifier technology is going." *Tom Young, Sound Engineer*

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INNOVASON SENSORY II

DIGITAL LIVE SOUND MIXING CONSOLE

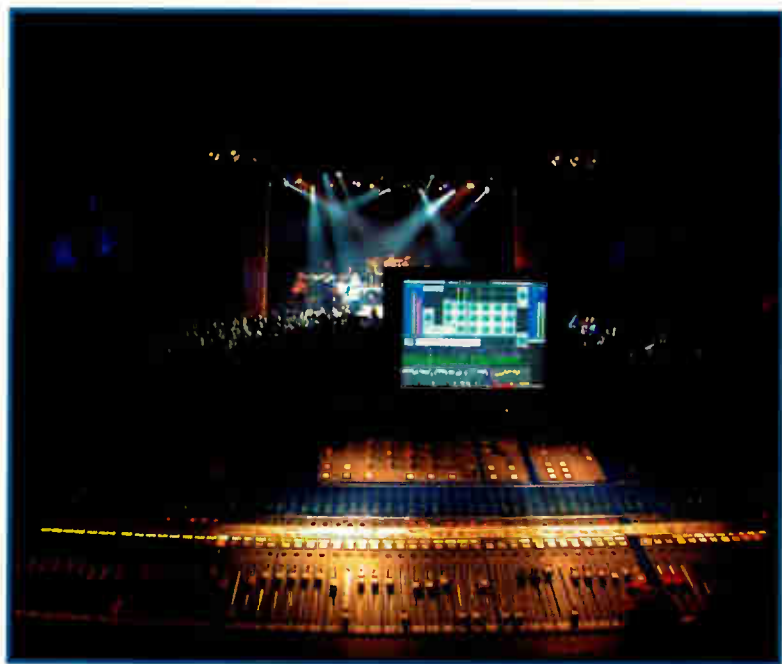
The French are coming. Again. This summer the new Sensory II digital console took its maiden voyage to the New World, touring with Basque flamenco-pop ensemble Gipsy Kings. The console, as well as other sound services, were, for the second year, provided by Alan Hart's Denver Audio.

The Sensory II system (\$77,775 list) consists of a digital control surface, and a seven-rack-space Muxipaire modular digital audio frame and integral computer. The 6-foot-wide control surface weighs only 132 pounds and connects to the Muxipaire frame, which provides all the inputs and outputs normally associated with the back of an analog desk, at the FOH mix position. With the stage-box option (\$17,500 list), the frame at FOH connects to another frame onstage via a single coaxial cable that handles up to 64 channels of digital audio. This setup not only allows the mic pre-amps to be placed near the source, but it also provides digitized audio signal splits for up to two more Sensory II mixers.

Having toured twice with the Gipsy Kings, I was curious to hear comments from their engineer for the past decade, Gilles Quentin, and from Denver Audio system tech Dave Wentling, formerly with the Everly Brothers. Quentin notes that the console is easy to use. "You just need to program your patch in and your patch out, then after you do your soundcheck, you just save your file," he explains. "When you recall [your file], it's the same; you only need to adjust your trim if the singers are a little louder or softer."

Quentin admits that he was hesitant at first because of his previous experience with digital desks and cumbersome menus for accessing parameters. "With the Sensory, you simply select the channel with a button over the fader and you have everything on your screen for the channel all mapped to physical controls. It's really easy."

In addition to the usual features, such as 4-band parametric EQ, each of the 48 input channels has a full-featured gate



The InnovaSON view from the FOH position at a Gipsy Kings concert

and compressor. Because the frames are modular, various configurations are possible. At the top of the console are knobs for EQ, gate, compression and everything else associated with the selected channel, and a graphic representation of their settings appears on the monitor. "You see the knob turning on the screen as you make adjustments," Wentling explains. The EQ section also shows the resulting curve on the monitor. "Another great thing is that you see the exact frequencies on the screen," Wentling continues. "It's not the usual guessing game with the silk-screen and the knob's position as you're spinning to find a frequency."

"With this desk I don't need the big rack for inserts," Quentin comments. "Before, I had to choose where I would put my dynamics, but now if I want a gate or compression on any channel, it's already there; I just turn it on." Quentin and Wentling are using Version 5.8 software, which offers snapshot automation as well as options for semi-dynamic automation, allowing smooth theatrical crossfades and a fully automated version for working in timecode environments. Version 6.0 software will provide software-based gates, compression, delay and eight bands of EQ on all 20 outputs.

Wentling points out that the Sensory II offers a new way of

BY MARK FRINK

Why sound flat...



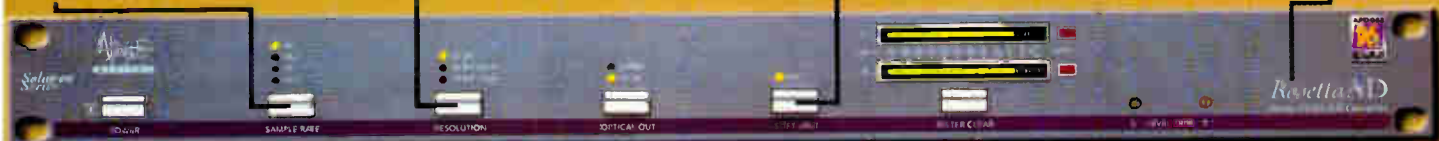
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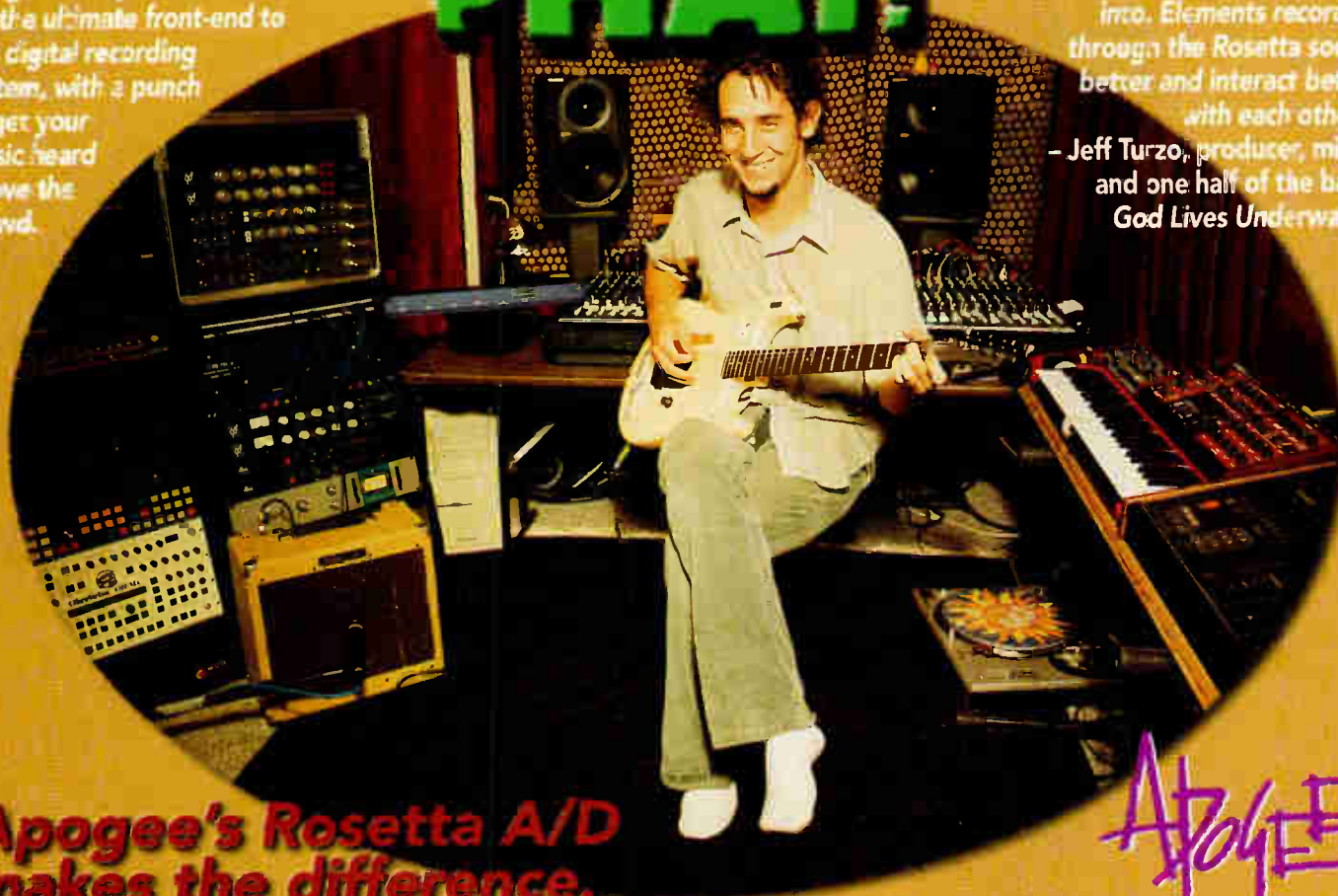
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mixing, "so it takes a little getting used to." The mix is on moving faders that also serve as auxiliary sends. Selecting the aux bus mix by pressing a button over the aux master fader calls up that mix on the input faders. "You'd think that would take too much time while you're mixing a show, but it really doesn't," explains Wentling. "It's actually a little easier than trying to lean over while taking your finger and going down the line; this way you just select the output and watch the faders move to graphically show the auxiliary mix."

Line-level effects are returned at the FOH frame and, as with all the mic inputs, they can be assigned to any channel. The internal soft-patch allows any channel to appear on any fader. As the system is digitally based, it offers functions not available on analog desks. Up to 40 sets of faders and channels can be grouped or linked. Channel settings are copied with a single keystroke, and, after making an EQ change, the engineer can choose to write it to only that scene or to "OverRAM," which writes it to all scenes.


The stage-box option—a second seven-rack-space frame onstage and the

one at the FOH mix position—can be connected with up to 1,500 feet of coax cable. The Sensory II desk is actually a remote control for the DigMix processor in the FOH rack. The software can be run from a laptop, which allows the operator to program the mixer offline. The Muxipaire was originally a 64-channel digital snake product introduced eight years ago. The addition of the DigMix module and the Sensory control surface turned it into a mixing system. Converters are 18-bit for the mic inputs and 16-bit for line inputs, with 40-bit floating point processing and less than 60 microseconds of latency. Several have been installed in broadcast studios and remote trucks in France, but the Gipsy Kings tour is the first live sound application.

However fast a mixer can reset, some aspects of a digital console require a period of adjustment. Each channel has a short name associated with it that appears on a four-digit LED display above the fader. "We still put a piece of board tape down, too, because we're still getting used to it all," Wentling says, "but the sound is there, and it's definitely the shape of things to come."

"I was one of the first to say that I was worried about what it might sound like, but there's no loss here, especially in a live situation" he continues. "With the Gypsies' eight flamenco guitars, tons of vocals and a full band, this mixer seems to clarify things a little bit—maybe that's because there's a gate and compressor available on each channel, or because there's less crosstalk than on an analog board." In the beginning, Quentin was also afraid, but he has found it user-friendly. "I can easily control my mix," he concludes. "Before, the sound was confused, because mixing the Gipsy Kings is difficult—not just bass, drums and keyboards, but there are many acoustic guitars and many vocals. My mix is clearer and instruments are more separate."

At press time, the Gipsy Kings' tour was completing a West Coast leg, with plans to continue on the East Coast in late August with a new EAW KF 750 rig. The next leg wraps with double-dates at the Tropicana, Wolf Trap and the BankBoston Pavilion in September. If you can't catch a show, check out the mixer at the Pro Sound International (InnovaSON's U.S. distributor) booth at AES in New York this month, or contact Pro Sound International, 305 River Rd., Tullytown, PA 19007; 215/949-3200; fax 215/949-8400; www.prosoundint.com.



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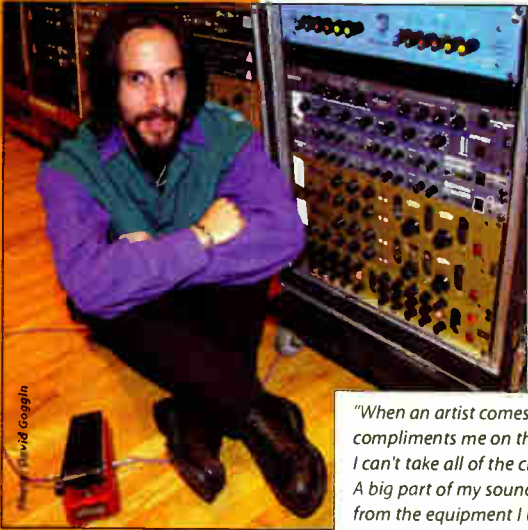
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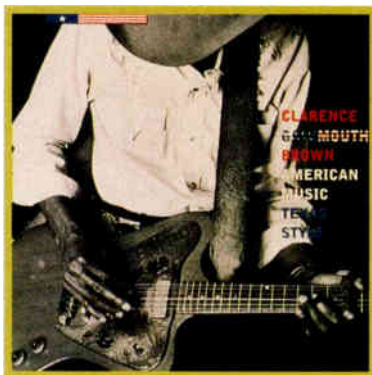
GATEMOUTH BROWN

STILL KEEPIN' IT SIMPLE

By Ben Sandmel

"There's no way in the world that I would spend months and months making a record," says multi-instrumentalist Clarence "Gatemouth" Brown. "When I listen to something I know right away if it needs an adjustment. If it does, I do it. I work quickly, always have. And no producer is going to tell me what to play, either. It's fine if they ask me, but don't tell me. I've been doing this for 51 years.

"People like to put me in a box, and specify me as a blues artist," Brown goes on, "and I don't like that. Yes, I'm known as a blues artist, and I play the blues, but *my* way. I play positive blues, not that down-hearted, negative blues. I play a lot more, besides: Cajun, country, bluegrass, jazz, polkas, calypso,



Caribbean, all of that. And I don't dress like a typical bluesman, either—I wear a cowboy hat and Western clothes. I've been doing that all my life. I was raised in Texas around horses and ranches, and that's what I've



PHOTO: SYDNEY BYRD

always worn. A lot of people don't know their history, but the first cowboys were black."

One minute of conversation with the man known as "Gate" reveals an opinionated edge, a big heart, vast talent and worlds of experience. At age 75, the Grammy-winning guitarist, fiddler and singer is in fine, feisty form and deservedly excited about his new album, *American Music, Texas Style* on Real/Blue Thumb Records. The big band set, recorded in just two days, harkens back to the sound of Brown's vinyl debut in 1947, on Aladdin Records. Those sides were followed in the early '50s by a string of big band records cut for Peacock, a Houston-based blues, soul and gospel outfit that was one of Ameri-

ca's first black-owned and -operated labels. Those recordings—known collectively as "the Peacock sessions," and yielding a hit entitled "Okie Dokie Stomp"—established Brown's reputation as an agile, inventive and rhythmically precise guitarist whose style drew equally on the Texas blues sound of T-Bone Walker and the bluesy big band swing of Count Basie. Over the decades that followed, Brown has worked in many configurations and stylistic settings, but big bands have always been his favorite format. What's more, it was a big band album, *Alright Again*, on Rounder, that won him a Grammy in 1982.

Brown is bluntly unimpressed with many of his fellow musicians, especially blues artists, but he's quick to state that "I admire Count Basie, Duke Ellington and

—CONTINUED ON PAGE 172

STANLEY CLARKE AND LENNY WHITE

RETURN TO FUSION

by Chris J. Walker

Wind back the time machine to 1976 and you'll find the classic jazz/rock fusion recording *Romantic Warrior* by Return to Forever, a group then made up of keyboardist Chick Corea, bassist Stanley Clarke, guitarist Al DiMeola and drummer Lenny White—all highly regarded virtuosos in the jazz world. This final album from the legendary band was a conceptual work, with compositions organized into a fused classical-like suite.



Zoom forward to 1999. The RTF alumni have been through a thousand different phases in and outside of jazz, and what's this? Fusion is back on the musical horizon. The once-popular, much-scorned genre is being resurrected by some of its original innovators in a group called Vertú, which includes Clarke and White. Since RTF's demise, they have remained friends and collabo-



PHOTO: CAROLINE GREYBROCK

L to R: Rachel Z, Karen Briggs, Lenny White, Stanley Clarke and Richie Kotzen

rated intermittently on projects. Most recently, Clarke helped White out on a recent solo funk-oriented contemporary jazz CD, which in-

cluded another old friend, keyboardist/producer George Duke.

In 1998, the duo went on

—CONTINUED ON PAGE 177

BEHIND THE STRINGS WITH BELA FLECK

RECORDING TALES FROM THE ACOUSTIC PLANET, VOL. 2

by Bill VornDick

Back in the spring of 1983, the great banjo player Bela Fleck and I teamed up for the first time to record his album *Deviation*. It featured a new fiddle player in Nashville, Mark O'Connor, Kenny Malone on drums, Jerry Douglas on dobro, Sam Bush on mandolin and other members of New Grass Revival. If you can find a vinyl copy of this album, pick it



up. You will hear the musical emergence of what would become the Flecktone sound. From that first project through the albums Bela produced with Edgar Meyer, Maura O'Connell, Nashville

Bluegrass Band and others, I would be Bela's recording engineer.

Deviation was recorded on an MCI 600 console and an MCI JH-24 analog machine. Things have changed

a lot since those days, and Bela and I have used just about every format to record his albums since then. The new Warner Bros. album, *Tales From the Acoustic Plan-*

—CONTINUED ON PAGE 180

HEART'S "BARRACUDA"

by Blair Jackson

The first time I saw Heart perform, in 1975, they were second or third on the bill at a show headlined by the recently formed Jefferson Starship at the 5,000-seat Winterland Arena (one-time home of the Ice Follies) in San Francisco. Heart was virtually unknown at the time—their debut album, *Dreamboat Annie*, had just been released, and although they were getting some FM airplay with a catchy rocker called "Crazy On You," there wasn't even really a buzz about them yet. After their set at Winterland that night, however, 5,000 people sure as hell knew who they were. Here was a band fronted by two women (very unusual at the time) that rocked as hard as Led Zeppelin—they even closed their set with the Mighty Zep's "Rock and Roll"—but also infused many of their tunes with a lovely folkish delicacy. Singer Ann Wilson showed an enormous range as she led the group through a collection of catchy originals and cover tunes. They earned a heartfelt encore from the crowd that night, and I wasn't at all surprised when their rise to stardom accelerated in the following months.

The daughters of a Marine captain, Ann and Nancy Wilson grew up in Southern California and Taiwan before settling in the suburbs of Seattle. There they each pursued music independently in their late teens and early 20s. Nancy was a folk singer, and Ann was fronting a group called The Army, led by guitarist Roger Fisher and bassist Steve Fossen, which later changed its name to White Heart and finally, in 1974, to Heart. It was in that year, too, that Nancy Wilson joined the band. The following year, in part to allow Roger Fisher's brother Mike, who had been in the band earlier and then worked as their soundman, to avoid the draft, the band relocated to Vancouver, British Columbia.

Around the time Ann and The Army were hooking up, a young producer/engineer named Mike Flicker was moving to Vancouver after several years of studio work in Los Angeles. "They had a lot of talented people up there," he recalls of the very early '70s, "but they really didn't have any recording facilities worth anything. At that point I think there were two 8-track studios and one didn't even have a console; they were



mixing off the playback controls of the multitrack machines there."

After being in Vancouver for a while, Flicker got wind that someone was actually attempting to build a good studio in town. "The guy who was building it basically had a broadcast studio in his mind with the thought that someday it could also be a recording studio, but he was building it properly. It was built halfway into a hillside, and he was going to put some good equipment in there. Unfortunately, in midstream he had some health problems and was forced to retire. So with help from some investors we bought his half and then put together the first 16-track studio in Vancouver. Back then it was called Can Base Studios [short for Canadian Base], which was the name of the investment company. Later it became known as Mushroom Studios."

Flicker equipped the studio with an Ampex MM1000, 2-inch 16-track—"which is what we recorded *Dreamboat Annie* on," he says—and a custom console "we bought in a fire sale from United Artists, when they owned UA and Western Studios. They were putting in new solid-state consoles and we bought one of their old tube boards from United Studio A. That console is the guts of part of the front end of the board that still sits in there after three or four different reincarnations. It was a good console but only had 18 tube preamps." The cinderblock studio room had a 20-foot ceiling, and Flicker notes that "we

were working on LEDE [Live End, Dead-End] principles that were popular at the time. The studio quickly became the hottest recording room in town, and Flicker began to establish himself as a draw to the studio as well.

Flicker first met the Wilson sisters in 1974. "My second engineer, a guy named Rolf Henneman, came into the studio one day and said, 'I just saw this band in a club that just blew me away!' I said, 'Sure, sure, sure,' and went back to doing whatever I was doing. After about ten times of him saying this to me over the next couple of months, he brought me a cassette he'd made on a hand-held cassette recorder, and he played it for me, and he was right. At that point in time they were probably only playing one or two original songs; they mostly played covers. This was also prior to Nancy joining the band. Then Nancy joined, and around then was the first time I ever saw them play live." Flicker was so impressed that he approached the group about working with them.

"In those days in Canada you didn't even necessarily record an album," Flicker says. "You mostly recorded singles, and then if there was some airplay you'd go and try and get a deal in the United States, and *then* you'd go in and do a whole album. And that's what we tried to do with Heart, but nobody was interested. The critique I got all the time was, 'Well, are they this rock band or are they that ballad band? Are they hard rock? Who are they?' They were neither

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fish nor fowl, but that was their whole sound—they were both."

The band's first album, *Dreamboat Annie*, was recorded at Mushroom Studios in 1975. "That record was really less a band album than a collaboration of the two singer/songwriters—Ann and Nancy—and myself as producer and song and music editor. They would present the songs to me because they didn't have a working band worthy of recording really; after I signed them to the label they were changing members every week for a while there. So we would take the songs and rehearse them with whoever the band was and with other studio musicians. At that point, one of my collaborators in production

was Howard Leese, who later joined the band as a guitarist and keyboardist."

Sessions for the album were straightforward and went fairly quickly. Flicker says that conceptually and sonically, the album was influenced by the work of two British recording masters, producer George Martin and engineer Gus Dudgeon. "*Dreamboat Annie* was put together as a conceptual piece, a bit like The Beatles had done with *Sgt. Pepper*; and that was pretty unusual for 1975." Then came the long, slow process of building the band's popularity.

"What ended up happening is that through some investors in Canada, we ended up starting a U.S. record company, Mushroom Records," Flicker recalls.

Cool Spins

The Mix Staff Picks Their Current Favorites

Various Artists: *Bringing It All Back Home*
Vol. 2 (Valley Entertainment)

This is the second in a three-part series meant to illustrate the impact of Irish music on other musical traditions. The se-

with help from Mary Coughlan, a Fiachra Trench-arranged string sextet, Davy Spillane on uilleann pipes and producer Donal Lunny on bodhran. Skip around and find your own favorites.

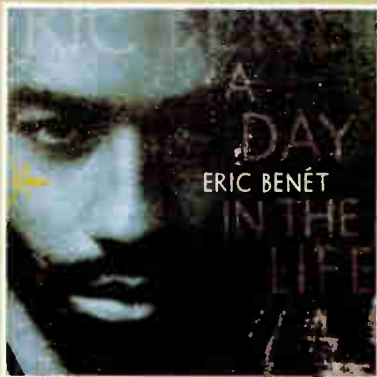
Producer: Donal Lunny. Engineer: Andrew Boland. Recorded on location in Ireland, U.S. and UK, and at Ringsend Road Studios, Dublin. Mastering: Charles Lawson.
—Barbara Schultz

Eric Benet: *A Day in the Life* (Warner Bros.)

Eric Benet's sophomore release is *bad*; and that's good. Benet's *A Day in the Life* blends a variety of musical styles to create a sultry R&B mix. He inserts a little old-school flavor with the '70s remake of "Georgy Porgy" and by adding a little funk with the diva bass player Me'Shell Ndegeocello on "Ghetto Girl." Though the guest appearances by Me'Shell, Faith Evans



ries, consequently, includes recordings by Irish artists, Irish Americans, English folk singers, American country artists and others influenced by Celtic music. It's not a totally original concept, but this CD, like the previous volume, includes some gems that Celtic music lovers will adore. "St. Ann's Reel/The Blackberry Blossom," which teams country/bluegrass great Ricky Skaggs with two other fiddlers—Paddy Glackin (Ireland) and Mark O'Connor (U.S.)—is a feast. Richard Thompson performs his gorgeous ballad, "Waltzing's for Dreamers," with backing vocals by Mary Black and Dolores Keane, and that muck-raker Elvis Costello sings a creepy and comic original called "Mischievous Ghost"



and Tamia contrast nicely with and accent Benet's strong, assured singing, it is Roy Ayers' appearance on "When You Think of Me" that shines brightest—the mixture of his acid jazz vibes and distinctive scatting

—CONTINUED ON PAGE 184

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"But we didn't have the money to nationally market, so wherever the group would gig, we'd get a local distributor to make sure they had some records in the stores. Once we started to get some airplay on 'Crazy On You' and 'Magic Man,' things started to snowball, and then the distributors all wanted the record. But it took about nine months to get national distribution."

It helped, too, that Heart had a kick-ass live show and an incredible work ethic—the band toured almost nonstop during all of 1976. The FM radio success of the two songs Flicker mentioned led to those songs being released as singles, and with that came even greater success. "The only time we had a chance to work on new material is when I flew out on the road and they had a day off," Flicker says. Eventually, though, they found time to cut basic tracks at Mushroom on four songs for their sophomore album, which was going to be called *Magazine*. That's when the problems began.

While the group was making the record, Flicker went back to the investment group that controlled Mushroom Records, to try to renegotiate the group's contract, "because frankly their first record deal was a 'baby band' record deal based on a Canadian-based record contract. And by this time they were much bigger than that and had had a lot of success in the U.S., of course." Flicker wanted to renegotiate terms that were more favorable to the group, and in return sign a deal that would give Mushroom the rights to the next three Heart albums, but to his surprise and chagrin, the investment group turned Flicker down.

"I had a rude surprise," Flicker says. "Basically, what they said was, 'Rather than gamble that the group will continue to be popular, we're going to be short-sighted and keep to the deal we have and we don't care if we get anything extra.' So the next day I resigned. I said, 'I can't even present this to the group.' A little part of the contract that some people had apparently overlooked was that the group had signed to the label based on the fact that I was at the record company. So a couple of days went by, [the investment group] presented their offer to the group but the group said, 'Since Mike's not there, we're leaving; goodbye.'

"The short version of a very long and dirty story is that we ended up in the position of losing the four songs that had been the start of the second album, and we found ourselves having to start

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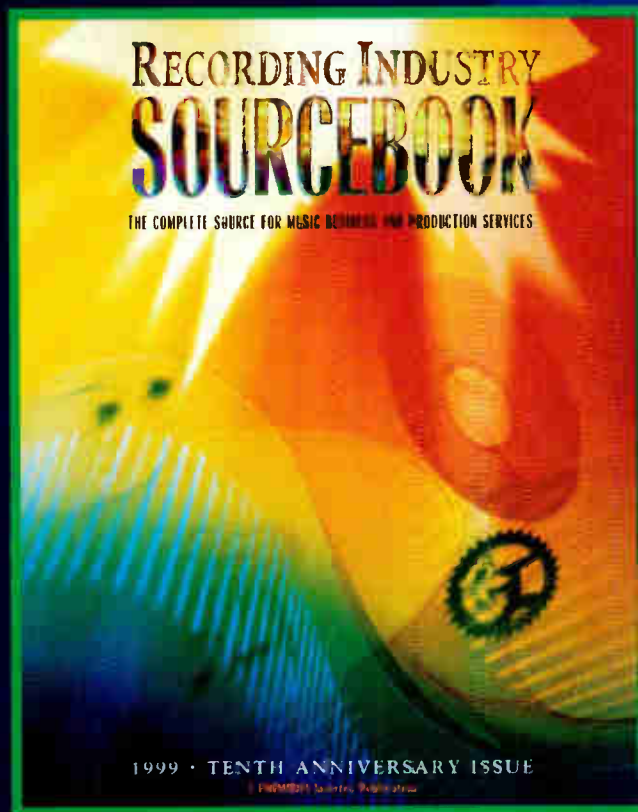
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over again, and that became the birth of the second album, *Little Queen*, which was on Portrait/CBS. And 'Barracuda' was created conceptually out of a lot of this record business bullshit. Barracuda could be anyone from the local promotion man to the president of a record company. That is the barracuda. It was born out of that whole experience."

While Heart was dragged into endless rounds of legal wrangling over the fate of their contract and their recording masters, the band moved south to Seattle's Kaye Smith Studios to try recording anew. Built in 1972, the facility was co-owned by actor/comedian Danny Kaye

and businessman Lester Smith; they also owned several radio stations together and later were the original owners of the Seattle Mariners baseball team.

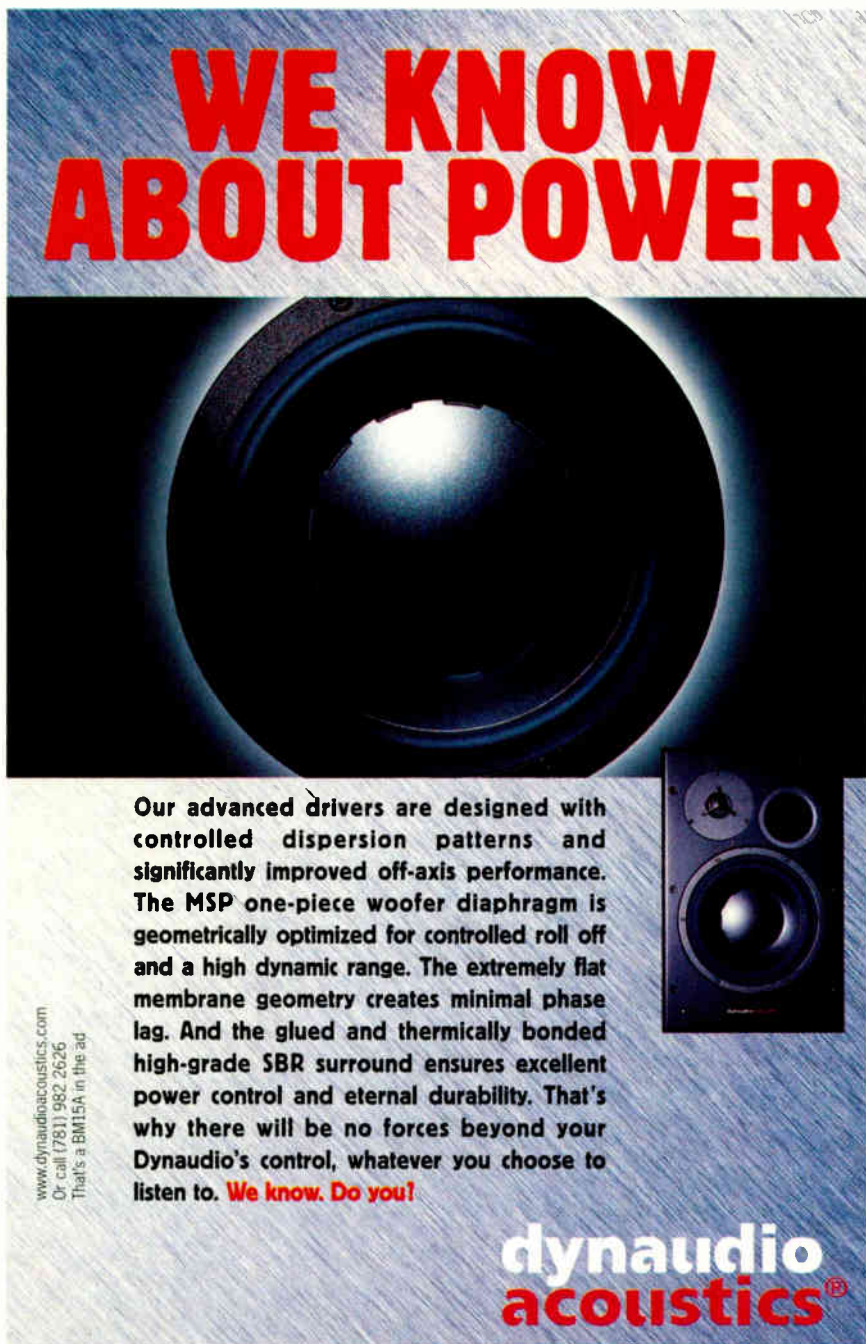
Flicker says the two-room studio was equipped with a pair of great-sounding API consoles, with the 550 equalizers on each channel. "We got them to change out all the old soft switching and put in Jensen transformers, which was a magic combination with the APIs. Also, they had 3M recorders, but I refused to use them," he says. "Part of the deal of getting us to work there was that they would bring in Ampex recorders." They mostly used MM1200 16-tracks

running with an Adams-Smith synchronizer. "The next albums were done on 16 and 24 running dual machines," Flicker notes. "We'd do the basic tracks on 16, overdubs on 24. If you're running it 30 ips and you want some low end, you've got to have some width to the head. That's why the 16 was so great."

Because Heart had been on the road for a year and honed their sound and truly become a band for the first time, recording *Little Queen* was relatively easy. Basics were cut live with the entire band, with Ann Wilson in a separate booth for her scratch vocals, "because some of those scratches became the real thing," Flicker says. "It was a performance by the whole band always," though he adds that guitar solos were always done as overdubs.

"Our work ethic was always to try to capture a feel," Flicker says. "We would never work songs to death. We'd go in the studio, and if it wasn't happening for some reason, we'd go home and try it again the next day. I remember on 'Barracuda,' the group was rehearsing it in a room off their manager's office, and then we went in right after that and cut it. It was one of those songs that was written one day, rehearsed in one day and recorded in one day. It was a very spontaneous, but also a well-thought-out song. In my opinion that song was the turning point where it was clear that Heart was now a *group*, and not just these songwriters and a few musicians." The song's famous opening riff was conceived by guitarist Roger Fisher. "It was a truncation of another riff that he loved, and then he turned it into a song," Flicker notes.

The song was cut in Kaye Smith Studio B: "At that point [Studio B] was a Hidley room and it was *very* dead on one side and *very* live on the other. When we started working there, I began to use a few more digital effects, which were just starting to come out then, to make the room sound a little bigger. I used Eventide Clockworks, as well as some regular EMT plates they had. I also used this really ugly digital delay system to create live room distortion. It was an MXR DDL and I still have them and occasionally use them. It was so cheap and so ugly that once you got beyond about 160 milliseconds there was nothing above 5k. You could actually go out as far as a second, but by the time you got there, there was no frequency response above 2,500. If you stand in a live arena and you get a bounce that's a second later, what's the frequency response? It's



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shit. But that's a little of the sound I was going for—not 'shit,' but... The repeating sound on the vocals of 'Barracuda' is the MXR DDL, and you can't get any lower-fi than that."

Flicker used a Neumann 87 on Ann Wilson's lead vocal. "In fact that was the only mic I ever used on her. And it was a particular 87. When I first started recording her, I tried out every microphone I could find on her. I wouldn't let anyone tell me which mic I was listening to, and I found this one 87 that was perfect. The Neumann guy had brought in like 12 87s I found this one that I loved."

To capture the band's hard rock guitar crunch, Flicker always used two mics: a Beyer M69 on the amp ("because of its great, warm low-midrange") and then, farther away in the room, "a Neumann 67 or 87, depending on the room, or maybe an AKG C-12 or C-21."

Flicker liked to have drummer Michael Derosier in the same room with the other players, but heavily baffled. "I used mostly Neumann condensers for close-miking, except for the snare—I've always been an SM57 fan for the top snare; for the bottom I'd use an 84 or some of the AKG pencil mics of the time. It's been so long since I've miked

drums I can't remember the numbers; they were forerunners of the 451s and 452s." For the kick he used a D112; for floor toms, RE20s.

While the group was working on *Little Queen*, some major improvements were being made in Kaye Smith Studio A, which Flicker says was "so dead it was like recording in a marshmallow; everyone preferred B," and during the final phase of the project Flicker mixed on the API in A while continuing to record overdubs in B.


Meanwhile the legal battle continued to snake its way through the courts. I'll spare you the gory details about what various circuit court judges said about the issues at hand, but the Cliff Notes version is that the band eventually won the right to complete ownership of the basic tracks they'd been working on for the *Magazine* album. (This was after Mushroom tried to put out an album based on those songs and some live performance tapes they controlled; about 50,000 copies were distributed before a judge blocked it.) *Little Queen* was completed at Kaye Smith and became a huge hit, reaching Number 9 on the album charts, while "Barracuda" swam up to Number 11 on the singles chart. The title track and "Kick It Out" also charted from that album. Flicker continued working with the group for four more albums (*Magazine*, *Dog and Butterfly*, *Bebe Le Strange* and *Live*), and Heart's string of successes went well into the '80s.

Kaye Smith eventually became Bad Animals Studios, and Heart had their own room there for many years. Today, the Wilson sisters still tour together periodically, and many of their songs are staples on "classic rock" radio. Mike Flicker is currently head of Mike Flicker Music Services, an L.A.-based company that specializes in music editorial and music supervision for films and television. ■

—FROM PAGE 162, GATEMOUTH BROWN

Louis Jordan. I like horn music, and I play my guitar like a horn, the way that I phrase. You got to breathe and leave some open space."

Brown performs with a big band whenever possible, but due to logistics and economics, you're more apt to catch him live with his tight, veteran road band: drummer David Peters, bassist Harold Floyd, keyboardist Joe Krown and alto saxophonist Eric Demmer. This



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foursome also served as the core players on *American Music: Texas Style*.

The album was recorded in January '99 at Ultrasonic Studios, one of New Orleans' busiest and most sophisticated facilities. Studio time is always in demand there, and on this session the scheduling was even tighter because of the specially assembled horn section—a first-call aggregation with many other individual commitments. Players of note included Grammy-winning trumpeter Nicholas Payton, alto saxophonist Wes Anderson and tenor man Tony Dagradi. Two days were dedicated to rehearsing the charts, written by the renowned New Orleans arranger Wardell Quezergue, and two more were committed to getting it all on tape.

This meant that the setup had to be quick, too. "About five-and-a-half hours, from positioning mics to setting all the levels," recalls veteran engineer David Farrell, who has spent the past decade at Studio in the Country, in Bogalusa, La. "We cut almost everything live except the horn solos, because all of those guys were playing parts in the section. The bass, drums, keyboards, guitar, fiddle and vocals were separated from the horns. Everything had to be miked individually. Each horn had its own mic and its own track. For the reeds—one bari sax, two tenors, and two altos—I mostly used AKG 414s, and maybe one Neumann U87. All three trumpets played through U87s, and the four 'bone players went through either U87s or Audio-Technica 4050s, which are great trombone mics. Each horn player stood about 12 to 18 inches back from his mic. "For room ambience on the horns," Farrell continues, "I set up two B&K 4006s, and a Neumann SM-69, which is a stereo mic that's like two U87s stacked together. The 4006s were about six feet apart, in the center of the horn section, and about seven feet above it. The Neumanns were right in front of the reeds, since they don't project as much as the brass.

"I had two B&K 4012s on the piano. Joe [Krown] also played a Hammond B-3. I put two Neumann KM84s up top, plus an Electro-Voice RE20 on the Leslie cabinet, to get that 'scoop' sound that makes it so distinctive. David Peters' drums were recorded on seven tracks: an Electro-Voice ND-868 on the kick, a Shure SM57 on the snare, Sennheiser 421s on the rack and floor tom-toms, a Beyer 201 on the hi-hat, and two AKG 414s as overheads.

"Then there was Gate," Farrell says.

11:59:56 PM
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"He played his Gibson Firebird guitar on most of the songs, and his Washburn on a few. He used his MusicMan amp, mostly, and also a new one that he had custom-made here in New Orleans. Either way, I ran two mics on the amp—a Shure SM57 and an AKG C-12A—that's a tube mic that is a predecessor of the 414. I also recorded the guitar direct, as a safety, in case one of the amps distorted or something, but we never had to use it. His fiddle has a pickup that goes into his amp; besides the SM57 and the C-12A, I added a Neumann U87 as an overhead to record it acoustically. Gate's vocals went through a U87, too. The only person who went direct was Harold Floyd, the bass player.

"I have a lot of outboard microphone preamps that I like to use," Farrell continues, "including a Neve 1073 and various items by API, Focusrite and Millennia. There are lots of good EQs on our board, too, which is a Sony JH-600 with 52-channel input and 24-channel output. Since we had so many tracks, I recorded 23 of them on analog, on a Studer 827, using Ampex 456 tape at 15 ips, with Dolby SR. The 24th track was dedicated to SMPTE so that I could sync in a Tascam DA-88 with its

own synchronizer card to record the other tracks—it came to around 30 tracks in all."

Final overdubs and mixing for *American Music, Texas Style* took place at Studio in the Country, some 90 miles northeast of New Orleans. Sharing the helm were Jay Newland—who has worked on Brown's recent albums for Verve, along with numerous other blues and jazz-related projects—and Gene Foster, an engineer and guiding presence at the studio since the '70s.

"Gate's guitar sound isn't really bright," Newland explains. "He doesn't want it to get that way, and he'll certainly let you know if he's not happy about something. So we have to make it stand out without pouring on too much high end. Other than that, the idea is to keep it simple and make it sound live. I don't have to worry about lots of effects, like you might have to with a contemporary rock record. I used some reverb for ambience and a Manley stereo compressor, and some Tube-Tech stuff. My job was easier because I knew that David would give me good tracks. We worked on a Neve V2 board, 48-track, automated, and mixed to half-inch, 2-track analog, using Ampex 456 on a

Studer A80. I mastered the album, too, at BMG in New York, and for that I transferred it on to a Sony 1630."

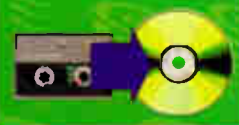
Producer Jim Bateman, who manages Brown, also subscribes to the "keep it simple and sounding live" theory. "I've been with Gate for 23 years, on eight albums," Bateman says. "The measuring stick for his records has always been the Peacock material, but I think this new one is the best ever because back then he was still learning. With this album, I think he'll come to be regarded on a par with Basie or Ellington.

"When I produce I don't try to change the artist," Bateman continues. "I just want to pull the best out of them. I always consider the artist to be the co-producer."

As Gatemouth says, his goals are straightforward: "If you're going to play music, do it right. Use dynamics. Don't everybody be out there trying to be the front man. Play together, don't try to overshadow nobody. I used to be a drummer, and I look for timing. Don't rush, don't drag, don't run over yourself, keep it simple. Whatever you play is what you should record, and your album should sound the same as you do when you play live." ■

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—FROM PAGE 163, STANLEY CLARKE

the road with guitarist Larry Carlton and keyboardist Jeff Lorber for a fusion revival tour as the "Superband." That tour inspired the desire to jam more and brought in fans hungry to hear more fusion. Rather than just putting Clarke and White together with an array of stellar session musicians, they instead formed a real band, featuring violinist Karen Briggs, keyboardist Rachel Z and, perhaps most interestingly, rock guitarist Richie Kotzen. "This CD," states Clarke, "has the same musicians on every track, which is very unusual for jazz today."

Clarke explains further: "When we came up in bands like RTF, Weather Report and the Mahavishnu Orchestra, we didn't have outsiders on those records. So that's what this is about." As for the ensemble's name, "The concept, if there is a concept," says White, "is just to bring virtuosic playing back to the music. Everything has been smoothed out and homogenized to the point that it's broken." Clarke adds, "It's been like a quantum leap in technology since the '70s. With just the sheer nature of having what we have today, the music is already different."

Without a doubt, these gentlemen established themselves as incredible players ages ago. Nevertheless, they felt a need to make a statement with their new band: "We play our instruments," White stresses. "There's a commitment to actually be able to perform what's on the record. There's no drum machine or sequenced bass parts. Stanley didn't go in and say, 'I don't know if I can play that, so let me put in the sequencer.' He physically played it. That's a commitment. We'd actually like to get some respect back."

"We get respect from our fans and the press," Clarke clarifies, "but when one of those award shows has an instrumental honor, it always goes to Kenny G, and that's pretty much it."

Given the divergent opinions in both jazz and rock about fusion, it's not surprising to learn that Clarke and White are reluctant to fully endorse that classification for this project. Instead they refer to their music as "the 21st Century Sound." "I'm going to stay away from the word [fusion]," Clarke says. "I never thought it was right for music we did in the '70s and '80s. It depicts the music, but I always thought the word was kind of lame."

White joins in, "I agree, but let me give another perspective. With fusion, you put various kinds of music all together. But then what do you call hip

hop, 'cause hip hop does the same thing? The way they make the music is different, but it is a fusion of different styles of music. Hip hop is what fusion was in the '70s. Nowadays what is considered to be jazz is kind of a smooth jazz."

"Lenny and I like elements of smooth jazz," Clarke explains. "We have a bit of that on some of the songs. But our whole album isn't about that. It's not something you can put on AC radio and it will go from track to track. It's almost like classical music. Not that it sounds like classical music, but it's written very well. You can't just walk

in and play it—it had to be rehearsed. We had a month of just that. A lot of the music is very complex and demanding to play. It has the element of real composition, not like a groove with a sax on top, where you sit down by the fireplace with your lady and listen. It's not background stuff."

Helping Vertú capture their unique group sound on tape was engineer and co-producer Dennis McKay, an Englishman with a quick wit and a great feel for this style of music. McKay engineered Return to Forever's swan song, so the Vertú project was a reunion of sorts. In the field of fusion

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and progressive/jazz rock, McKay's credits speak for themselves—besides RTF, he worked with the Mahavishnu Orchestra, Jean-Luc Ponty, Allan Holdsworth, Jeff Beck, the late Tommy Bolin and many others. He's even done work with the heavy-metal band Judas Priest.

"I did Lenny's first solo album in the mid '70s," McKay recalls. "From that I got together with Chick Corea and Stanley Clarke to do *Romantic Warrior*. That's when I first met Stanley, Chick and Al DiMeola. Since then I've done seven albums with Al. I worked with Stanley on a trio record with Jean-Luc Ponty. So when [Clarke and White] called me up and asked me if I wanted to work on their new project, I said...no. Of course I said yes. I asked Stanley what is it going to be like. He says, 'It's like *Romantic Warrior* but far and beyond that.'"

As for the actual sessions, McKay states, "We recorded it at The Site outside of San Francisco [in a rural part of Marin County]. They have a Neve 8078, and both Lenny and Stanley said, 'Let's use the old Neve; we want some warmth.' We worked there for 13 days without a day off. We did most of it with the full band on backing tracks, with a few overdubs—about 30 percent. It was a great place, great people, great food, and we all got fat." Clarke adds, "It was a nice environment. That was the best move we made—not to record in New York or L.A. We woke up and there was basically only one thing to do—go to the studio."

McKay says that he made every effort to give the band a big, warm sound, and to that end "sometimes we quadrupled guitars and violins. I used a lot of ribbon mics, RCA77s, and some tube mics, especially for the upright bass and cymbals. We only used dynamic mics for the toms. All Lenny and Stanley kept saying to me is, 'Depth and warmth, Dennis.' So the approach was to try to keep it warm and stay away from digital stuff. But the CD is not entirely massive—there's a vocal track that Richie [Kotzen] sings and a live jazz club-like piece.

"For reverb I used the Lexicon 480, and I got a new unit called the M3000. I used an AMS on Lenny's drums, plus any other reverbs they had in the room. I try not to use too much EQ from the board. I try to get it from the source. I tell the musicians I'm recording, 'When you get a sound you love out there, all I have to do is re-create it



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in the control room, but only bigger.'

"The longest time was spent getting sound on Lenny and making it unique. Anyone can get a drum sound with a couple of mics, but Lenny's playing requires more. He does very fast rolls; some are loud, and some are quiet. Because there was going to be a lot of instrumentation, I had to make sure these subtleties came through. I didn't want to add EQ afterward because it would be noisy. We used a 421 on the toms, 57s on the snare, and ribbon mics on the cymbals. For the bass drum, a D-12 plus an RE20; one in and one on the side. That gave it the attack, and I didn't use any gate."

Because he had worked with White and Clarke before, McKay knew what they expected. "I'm pretty fortunate," he says. "I can imagine if someone else was doing this project, it would be like pulling teeth. They want a certain sound, and you can't bullshit them. They've done this almost all their lives, and Stanley has his own studio, too, which we used for overdubs."

White describes the situation from the musicians' standpoint. "We let Dennis handle the technical areas. We tell him what we want based on our previous studio experiences. Between the three of us, we have a great marriage." McKay quips, "I just had to make sure their hands wouldn't touch any of the knobs."

"Stanley would say, 'Lots of depth,'" McKay says. "He wants to *feel* the bass, not in terms of air pressure, but in body. Like it vibrates the room without distorting it—resonance with clarity. Every track on this album has a different bass sound. And because Stanley's famous red bass had gotten pretty banged up, Alembic decided to build him a new one. It was a year in the making. It's got little read-out lights by the frets. It cost something like \$26,000. The sound is very dynamic, but there are too many variations. We had to go back and drop in for certain sections and remember what EQ we were using for the bass, because it's so versatile."

During the mix, on a Neve with Flying Faders at Track in North Hollywood, McKay found that the most efficient way of editing and mixing was to work in short sections. "That's the only way it was going to work," he says. "I'd mix like a minute and 20 seconds, put it down and listen back; Lenny and Stanley would approve it," he says. "We'd alt some reverbs, different panning, a little sound change, and then go

again for the next section. There was no way we could change the EQ. We did at least six to seven edits on every track, and a minute and 20 seconds could take six hours to mix. On the track called 'Toys,' it took three days to mix with edits. This was so complicated. There are sections in this music that people will be wondering, 'How did they do that?' But I didn't use Pro Tools or Sonic Solutions; I just used the program in the Neve. I'm actually a bit of the 'old school'—after 30 years of doing this, I prefer hands-on."

McKay concludes, "I wouldn't change a thing on this project. Sonically

it's modern but has the old style of mixing." As far as White's and Clarke's comparisons to the beloved *Romantic Warrior* are concerned, McKay says, "To me this work is far more musical, more arranged, and with more overdubs. *Romantic Warrior* is great music, but it's very straight. This has been carefully thought out, a lot of work has been put into this album. Stanley, Lenny and everyone else worked very hard on this CD. I think they didn't want to let anyone down. What they were saying is that nobody is doing this right now. So when you hear it, it's amazing and very different." ■

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—FROM PAGE 163, BELA FLECK

et, Vol. 2, was recorded, edited and mixed totally in Pro Tools 24-bit. Those that know me as an ol' analog dog should now change that phrase to a DSP hog. One thing about Pro Tools, though—there will probably never be enough Farm cards for me. I can rapidly eat up DSP—like honey to a bear.

On many of the albums recorded in the past, splicing/editing 2-inch tape was the norm. When we recorded the Flecktone albums, we went to offsetting two machines to edit and used that method for years. While recording the first *Tales From the Acoustic Planet*, released in April 1995, an MTR-100A with 143 remote and Dolby SR was used. Again, editing was done by offsetting two machines. During the making of that album, Pro Tools had made its entrance into Nashville. One of the rooms at Masterfonics where the editing for *Tales 1* was being done had a small Pro Tools system in use in another control room. Seeing the ease of how editing could be done in Pro Tools, we saw that this would be the way for Bela to edit future albums. Since the Flecktones' live album, *Live Art*, Bela has increased his Pro Tools system to now include three 888s, Apogee 8000, two Glyph 9-gig rack mount hard drives, and three 9-gig and two 18-gig removable hard drives that go with the Glyph four-space rack. A Power Mac 9600 is the heart of the system, with 128 megs of RAM and a DLT backup system. The computer has a full complement of plug-in toys, including my favorites from Waves. For monitoring, Bela likes the Meyer HD-1 self-powered near-field speakers, running from a Bryston pre-amp. The cue system is a Don Cruz "Music Row Technology: Active Cue System" that will drive four clean, separate stereo mixes to the musicians.

We started this new project on December 18, 1998, by trying out various mics and mic pre combinations on Bela's banjos. A couple of days before Christmas there was a heavy ice storm that covered the roads for days. Most people in Nashville were iced in for Christmas, as I was. I'm glad I finished the outline of what was needed early, because Bela wanted to record this acoustic album at his home just outside of Nashville and there was much to do and to set up to get ready to record.

Four of the musicians would be performing in the dining room. It's a basic rectangle, with two recessed octagons in the ceiling where a chandelier hung high from the middle. The house sits well off

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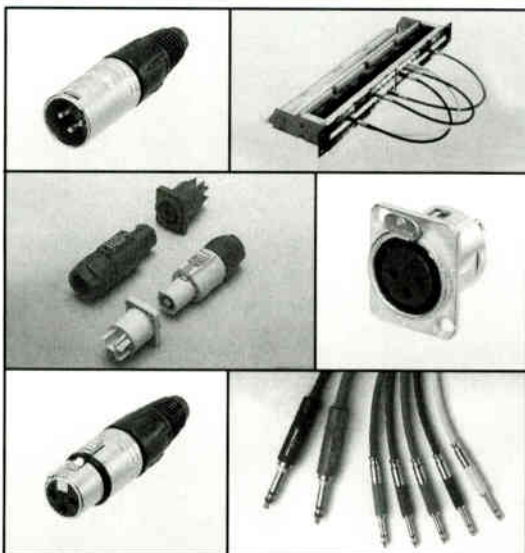
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the road, so the two windows that face the road were the only sources of possible external traffic noise. The room also had one large double-wide open doorway that leads to the living room; a single doorway to the kitchen, both without doors. These were the other sources where random noises could appear. The challenge was to change this room into an environment that would isolate the four instruments from leaking into the other mics while they all played live. Also, there would be no nails, tape or anything that would be adhered to the walls in that or any of the other rooms where different musicians would be.

So starting on December 30, the setup for the album began. The double-wide opening in the dining room was filled with a large piece of closed cellular foam. Other foam was used in different parts of the room along with tube traps to dampen the standing waves. So that each of the four musicians in the dining room—Jerry Douglas on dobro, Tony Rice on guitar, Sam Bush on mandolin and Bela on banjo—



Richard Battaglia (L) and Bill VornDICK in front of Bela Fleck's Pro Tools System

could see each other, foam pads were placed as an off-centered X. The musicians faced each other, Sam to Tony, Jerry to Bela. All the instruments were stereo miked. The floor was tongue-and-groove oak that I wanted to keep for the resonance factor around each musician. In the corners where the ceiling meets the floor, I put about a 2-foot width of folded carpet, and around the heat duct

as well. Three other rooms were also used, so they needed treatment also. A four-camera video setup allowed all the musicians in the different rooms to see each other. Helping me with the sonic end of things was Richard Battaglia, the sound reinforcement engineer with New Grass Revival when Bela played with that prominent bluegrass group from 1981 to 1989. Just before New Grass Revival broke up, Bela started the Flecktones and recorded their first album. When New Grass Revival split up, Richard went full-time with the Flecktones. Richard has been at all of the Flecktone sessions since the second album,

Flight of the Cosmic Hippo. He and I are old friends and we have enjoyed working together.

On the afternoon of January 4, 1999, musicians started to arrive and the shoot-outs between mic and mic combinations were done on each of them. Over that last couple of decades, I have collected various mics and mic pre's, so finding the combinations that



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The main cast of Tales...Vol. 2 (L to R): Jerry Douglas, Sam Bush, Bela Fleck, Mark Shatz, Stuart Duncan, Vassar Clemments and Tony Rice

musicians liked was not that hard. For microphones, this time I used a Sanken 31 and 32 on guitar, AT 4033 and Neumann KM84 on mandolin, U67 and a 47 on dobro, and U47 and KM54 on banjo. John Hartford's vocals were recorded on a U47, with a Sony C-37 on his banjo. After dinner we started to record, beginning with "Blue Mountain Hop." By 10:30 that night, that song was in the can.

The whole week of recording went very smoothly. We averaged about nine gigs per song, and ended up with 18 songs for the album. Each night before we left, backups were run to the DLT. In the morning, the backup would be done. For those of you who use Pro Tools, you know how important it is to back up data. I recommend it without question. And don't forget to save often during tracking. After the tracking was done, Bela went out on tour. He would edit the tracks when he would get home for a few days at a time. During that time I was able to finish seven other albums. By the time we got back together, it was late March and time to go over the mixes.

I have to confess that mixing on the computer is still rather strange to me. I am a fader kind of guy, and I like to grab a send and turn it. So chasing a mouse around is fine for me when I'm writing on a computer, but musically, mouse-chasing for a mix is not me. It takes too much time. When the mixes were finished, we transferred them from Pro Tools to the Sony 9000 at 24-bit/44.1k. We mastered the album with Denny Purcell at Georgetown Masters on Friday, March 28.

Because all of the players involved with this album have known each other for so long, the stories, jokes and

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humorous times during this session will stay with us all for years to come. One interesting story that I can share with you happened on January 8, in the evening. Bela's wife came up to hear a playback and mentioned to Bela that it was Earl Scruggs' birthday. Bela called Earl's home, and we all sang "Happy Birthday" to him over the phone. Shortly after that we recorded "Ode to Earl." Earl Scruggs, by the way, came in at a later date to record a duet with Bela for this album. That's the way it went with this album—old friends getting together to make some beautiful music. ■

—FROM PAGE 166, COOL SPINS

and Benet's soulful vocals is impressive and tasteful. It's interesting to hear how Benet combines different styles and approaches throughout the disc. On "Something Real," for example, in the midst of an up-tempo bass and rhythm section you can hear the light scratching of a turntable, adding a fine hip hop flare. There's even a modern take on Kansas' pop hit "Dust in the Wind." *A Day in the Life* is definitely worthy of a cool spin, but the best word to describe it is "hot."

Producers: Eric Benet, Wyclef Jean, Ali Shaheed Muhammad, George Nash Jr., Brian Morgan, Jerry "Wonder" Duplessis, Somethin' for the People, Demonte Posey, Viktor Du-Plaix. Engineers: Alek Sok, Andrew Holler, Sauce, Chris Theis, Jon Smeltz, Carlos Martinez, David Kennedy, Brian Morgan, Larry Funk, Nat Foster, Kevin "K.D." Davis (mix). Studios: River Sound Studios (NY), Glow Studios (NJ), Larrabee North (North Hollywood, CA), Westlake Audio (Hollywood, CA), River Sound (NY), The Trakhouse (Chino Hills, CA), The B-Section (Elk Grove, CA), The Crib (Milwaukee, WI), Record Plant (L.A.), Sony Studios (NY), The Studio (Philadelphia). Mastering: Brian "Big Bass" Gardner/Bernie Grundman Mastering (L.A.).

—Mark Hopkins

Stacey Earle: Simple Gearle (Gearle Records)

Stacey Earle got her first taste of performing helping out her more famous brother, Steve, on one of his tours. Now she's breaking through on her own with a lovely, heartfelt collection of original songs. The arrangements on *Simple Gearle* are, naturally, simple, in the poignant and true way of Gillian Welch's and David Rawlings' acoustic guitar-based recordings, and Earle has a sweet and clear voice. She sings mainly about basic emotions and daily life. With little adornment or fuss, *Simple Gearle* is as touching as it can be without being at all oversentimental. It's a treat for those who love real folk country.



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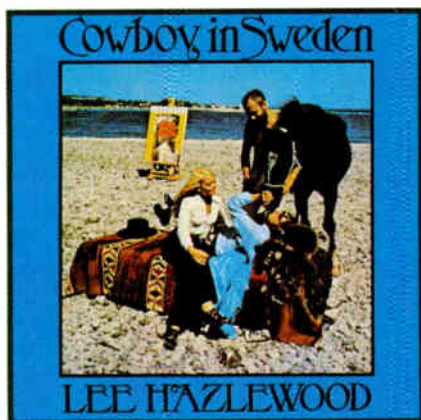


Producer: none credited. Recording and mixing engineer: Nathan Smith. Studio: Main Frame Recording Studio (Nashville). Mastering: Eric Wolf/Wolf Mastering (Nashville).

—Barbara Schultz

Lee Hazelwood: *Cowboy in Sweden* (Smells Like Records)

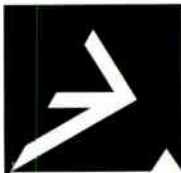
Although Lee Hazelwood is known for his work in the '60s with Nancy Sinatra, many folks don't know that he split the States for a stint in Sweden, and while there he participated in a movie called *Cowboy in Sweden*, which featured a bunch of his dark, off-beat songs. Now, thanks to this SLR reissue, we can enjoy his lush batch of song-stories, which hover curiously between campy and compelling. You can tell by listening closely to the words and some arrangements that Hazelwood is a weird, weird guy—an unbalanced maverick with a vision. It's tempting to lump it in with other swinging '60s/early '70s soundtrack/Herb Alpert-type stuff—it contains some similar production values and instrumentation (lots of horns, strings, reverb, doinky "hipster



guy" guitar playing, seductive female vocals)—but there's some deep-seated melancholy and vaguely threatening vibes going on here, with occasional assaults of gooey but surreal romanticism. Standouts are the haunting, anti-war "No Train to Stockholm" and the unsettling "The Night Before."

Producer: Lee Hazelwood. Associate Pro-

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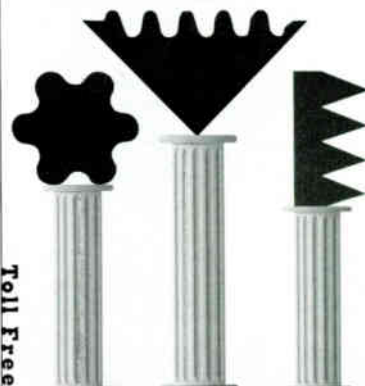


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ducers: Larry Marks, Donnie Owens, Jack Robinson, Shel Talmy. "For a Day Like Today" produced by David Anderle. Engineers: Mickey Crofford, Eddie Brackett. —Anne Eickelberg

Ali Farka Toure: *Niafunke* (Hannibal) and Toumani Diabate with Ballake Sissoko: *New Ancient Strings* (Hannibal)

What a wonderful music climate it is when acts from Mali, West Africa, receive exposure all over the world. Ali Farka Toure has been making exceptional records for years; he is perhaps best known in America for his groundbreaking collaboration with Ry Cooder four years ago, *Talking Timbuktu*. Toure has occasionally been compared to John Lee



Hooker, and the opening track and a couple of others on his excellent new disc show why—this is a primal bluesman at heart, with a snaky electric guitar style all his own. Much of the rest of the CD is more in the African folk bag, but is no less interesting than the more Western-sounding pieces. The Diabate-Sissoko CD is a real find—a beautiful session of kora duets by two masters of the 21-string instrument which has both guitar- and harp-like tonalities. Over the course of eight compositions written by Diabate, the two musicians weave a lovely, at times hypnotic, spell, with melodies and rhythms effortlessly flowing in and out of each other. Lovely from beginning to end.

Niafunke: Producer: Nick Gold. Engineer: Jerry Boys. Additional engineering: Nick Robbins, Simon Burwell (mixing assistance). Studio: An old building in Niafunke, Mali. Additional Studios: Livingston, The Church and Elephant Studios (all in London). Mastering: Jerry Boys, Tom Leader/Livingston Studios.

Ancient Strings: Producer: Lucy Duran. Engineer: Nick Parker. Recorded at the Palais de Congres, Bamako, Mali. —Blair Jackson

Kofy Brown: *Skinny and Tight* (Simba Music)

Kofy Brown is a Northern California-based group that has just released their third independently produced CD. *Skinny and Tight* sports 13 tracks, each reflecting a different aspect of the band's versatile style, which is a sort of mixture of funk, rock, hip hop and jazz fusion, with a retro '70s twist. Fronting a band consisting of guitarist Brian Hill, bassist Spencer Murray, drummer Maurice Miles and keyboardist Michael Wayne Meyers, vocalist/songwriter Kenya Sims brings the group's many influences together with a smooth, sensuous alto that is alternately mellow and powerfully energetic. Sims' lyrics are both poetic and emotionally charged, as she sings and raps about racism, love and society's ills.

Producer: Kenya Sims. Engineers: Spencer Murray, Generosa Litton, Marc Rosenberg, Raymond Randle. Studios: Simba Music (Oak-

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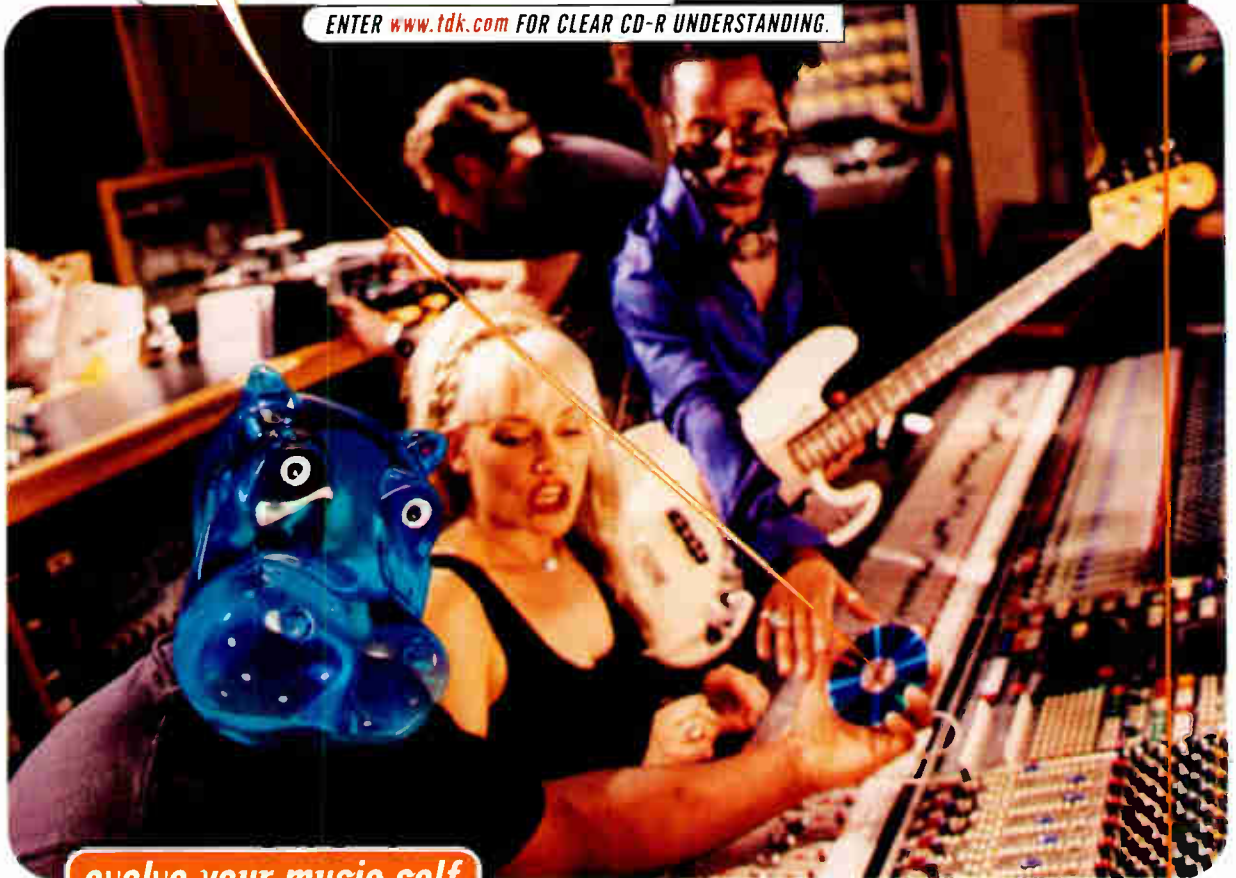
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—Shannon Kenoyer

The Comedy Harmonists: *Auf Wiederseh'n*
 (Living Era)

Anyone who has seen the recent German biopic *The Harmonists* will already be familiar with the vocal group's entertaining brand of close harmony singing and novelty vocal effects. Formed in Berlin in 1928, the Comedy (or Comedian) Harmonists were modeled on the popular American vocal groups of the '20s (such as The Revelers and the Mills Brothers) and became one of the most popular live and recording acts in pre-war Europe. Drawing from an eclectic catalog of jazz, pop and traditional folk music sources, the six-man group also recorded many familiar pieces by such classical composers as Strauss, Brahms, Offen-



bach, Rossini and Dvorak, usually enhancing them with innovative and technically challenging voice arrangements, accompanied only by piano. CD reissues are plentiful, but this Living Era release includes English sleeve notes and opens with the group's 1933 version of Ellington's "Creole Love Call," one of the many musical highlights of the amusing and dramatically polished film. If you missed the film, at least enjoy the original recordings.

Recorded 1928-1935 in Berlin, Vienna, London and Stockholm. No studios listed.

—Chris Michie

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COAST TO



PHOTO: DAVID GOGGIN

L.A. GRAPEVINE

by Maureen Droney

Skip Saylor caught the town by surprise with an announcement of the installation into his "back room," Studio B, of an SSL Axiom-MT digital console. Although Saylor's a die-hard SSL fan, and well-known for keeping his studio stocked with the latest and greatest in equipment, he's never been known for going out on a limb with technology. Not to say he's conservative (after all, he owns a recording studio!), but he makes decisions with the born-of-experience, hard practicality of a sole proprietor, and a move like this makes everybody sit up and take notice.

The MT, designed to have a short learning curve for SSL users, features 48 multitrack, 12 main and 12 aux buses, more than 200 mix returns, 192 moving faders and 96 channels equipped with all the traditional SSL in-line capabilities. All controls are dynamically automated, including the surround panning on both large and small faders. The desk's "channel banking" feature enables a 48-fader

Skip Saylor Recording installed an SSL Axiom-MT console in Studio B. Pictured are Skip Saylor, independent engineer Erwin Musper, Dutch artist Anouk, chief engineer Jerry Pearlman, Lynn Carey Saylor, assistant engineer Tracy Brown and SSL sales engineer Brian Bair.

control surface to manage any combination of the 96-channel/200-plus input system from the mixer's "sweet spot." Surround capabilities include a 6-channel main mix compressor and two sets of 5.1 monitor outputs, with insert points in both main and monitor outputs.

"It's the great-sounding, fully automated desk I've dreamed about since I first started engineering 25 years ago," Saylor says. "I'm serious when I say I've been waiting my whole career for this board. And I postured myself to be ready for it; I laid out of the 'J' race so that I could be ready for what I was calling the 'K.' Only it wasn't a 'K,' it was an 'MT.'"

Saylor has not been a digital maven; his studio—known for the mixes of classic albums by Guns N' Roses, k.d. lang, Everclear, DJ Quik and the Foo Fighters—has

—CONTINUED ON PAGE 192

NY METRO REPORT

by Gary Eskow

If you want to build a studio in New York City that won't turn around and bite you in the bottom, there are issues besides sonic integrity to consider. The real estate market here is quite volatile, which means that getting a read on your potential landlord is critical—will he or she understand that you've invested a small fortune in your space when it's time to negotiate your next lease? You'd also be wise to check out the kind of tenants that occupy the building and suss out what kind of industry is being attracted to the area; for example, you don't want to compete with a printing press on the next floor. The vibe of the neighborhood is also important. And then there are the acoustical questions.

Songwriters and producers Andy Marvel and Peter

Big Baby Studios (L to R): contractor Gary Neihsel, owners Peter Zizzo and Andy Marvel, and acoustical designer Richard Oliver

Zizzo have enjoyed considerable success over the past several years, penning songs for Celine Dion, Diana King, Jennifer Love Hewitt and other well-known acts. Sitting across from one another at dinner one night, they decided to become partners in a studio where they could write, develop acts, produce some records through the mix stage and prep tracks to be completed at outside facilities. Big Baby Studios is the result of their labors.

"Andy and I had known each other for years and had done some writing together, but mostly we were just good friends," Zizzo says. "He had been using his master bedroom as his writing space, but when his baby was about to be born, his gear had to go! I had a rented office on Fifth Avenue and 20th Street, but the space was limited."

Marvel picks up the thread: "I'm a native New Yorker. After spending a few years at Berklee up in Boston and gigging with some bands, I realized that I wasn't quite good enough to make it as a jazz player—this was back in '81. I started writing and got a pub-

—CONTINUED ON PAGE 195



COAST

NASHVILLE SKYLINE

by Dan Daley

This column went monthly about two years ago, and if things keep popping like this, we may have to put out a weekly faxed edition. Last month I reported on the

the studio has a rural architectural aesthetic—a log cabin exterior motif with a huge motorized waterwheel on the side—that has survived country music's and Nashville's own fast-forward into the glitz of the mainstream entertainment machine. The 10,000-square-foot facility has two studios, originally designed by



PHOTO: CRAIG CAMPBELL

At Ocean Way Nashville (L to R), Billy Payne of Little Feat, producer Peter Asher, keyboard player Craig Frost, Natalie Maines of the Dixie Chicks, Bob Seger, bassist Chris Campbell and Richie Hayward of Little Feat worked on various projects. Maines recorded vocal overdubs for a movie soundtrack with Asher, and Seger was tracking for his next album with Payne, Frost, Campbell and Hayward.

pending sales of East Iris to Emerald Recording, and the acquisition of Quad Recording (Nashville) by Quad Recording (New York). This month finds yet another major facility on the block. Music Mill, opened in 1981 by Harold Shedd and partners, is quietly up for sale—this writer spotted it as an anonymous classified ad in the back pages of *Billboard* in June. The rumored asking price is \$2.5 million for the entire facility, including real estate.

Music Mill has a long history as part of Music Row. Built at a time when country music's fortunes were ebbing in the wake of *Urban Cowboy*,

John Stanford. Both have gone through several renovations—the most recent being an update of the Focusrite-equipped A room by Russ Berger and a revamp by Steven Durr & Associates of the API Legacy B room. (Durr still maintains his Imagine Studios with a vintage API in a building across the street from Music Mill. The former Pete Drake studios are owned by Shedd but are not part of the package for sale.) Both consoles have been refurbished and recapped recently, and both are fitted with GMI automation packages. The studio renovations have also in-

—CONTINUED ON PAGE 198

SESSIONS & STUDIO NEWS

SOUTHERN CALIFORNIA

At Capitol Mastering (Hollywood), Robert Vosgien mastered Bush's new Trauma Records release and completed Bauhaus' new album. Mark Chalecki mastered new tracks for Priority Records artist Ras Kass and *Escape From Death Row*, a Private I Records compilation including Krupt, Daz Dillinger and Soopa Fly. Also toiling at Capitol: Ron McMaster, who worked on new

CIDs for Luis Miguel, Al Martino, Keely Smith and Doc Severinsen...Liz Phair recorded new songs at Grandmaster Recorders (Hollywood) with engineer Doug Boehm and assistant Andrew Alekel...Ice Cube tracked for Priority Records with engineer Daniel Romero at the Record Plant (Hollywood)...Flip Records band Cold was in at Music Box Studios (Hollywood) with producer Ross Robinson and engineer Grant Conway. Also at Music Box: Polish native and jazz trumpet player BAL—last heard on Ricky Martin's "Livin' la Vida Loca"—completed a new L.A.B. Records release, *Some-time Soon*. Music Box owner Jon Newkirk engineered, and Clark Germain mixed...Paul Westerberg mixed his new Capitol Records single "Whatever Makes You

Happy," with engineer Tim Palmer at Scream Studios in Studio City...Mixer Chris Puram and producer Mark Feist worked on "I Love You" with Universal Records artists Chante Moore and Keith Washington at The Enterprise in Burbank...

SOUTHEAST

Garth Brooks worked on his new album, *In the Life of Chris Gaines*, at Sound Stage in Nashville. Engineer jb and assistant engineer Doug DeLong joined him in the studio...Shane Theriot, guitarist for the Neville Brothers, laid down basic tracks for his upcoming CD at Poppi Studios (Nashville) with engineer Neal Cappellino and assistant Daniel Summer...At Starstruck Studios (Nashville), Reba McEntire overdubbed and mixed songs for her next MCA release with co-producer David Malloy, engineers Derek Bason, J.R. Rodriguez and Kevin Beamish and assistant Daniel Kresco. Goody Mob was also at Starstruck, mixing tracks for a new La Face recording with producer ONP, engineer Neal Pogue and assistant Kresco...Ardent Studios (Memphis, TN) has been hopping: The Bottle Rockets shot in to overdub and mix songs for their next Doolittle CD with producer Eric "Roscoe" Ambel and mix engineer Paul Ebersold. Anthony Bautovich and Darryl Mather of the Australian pop/rock band Orange Humble also tracked at Ardent, joined by guest artists Ken Stringfellow, Jody Stephens and Mitch Easter. Producer John Snyder was also in at Ardent, working on the trib-

—CONTINUED ON PAGE 198

—FROM PAGE 190, L.A. GRAPEVINE

been a bastion of high-quality analog gear. "I've never been a big fan of digital except for its cleanliness," he comments. "Sonically, it just never got all the way to the party. The bottom end always lacked a certain amount of 'fur on the bear,' the part of the sound that you can get from analog that makes the hair stand up on your arms. And for me, the top end was never right, either. So I was really surprised when I heard this console. I listened to it, I tested it, I held their feet to the fire on it, and I thought it was fabulous. I compared the converters as a separate unit to my new Apogee 24/96 converters, which I thought would kick ass on the MT's, and when I passed signal through both converters and listened, the SSL was brilliant.

"So it sounds great, and it can handle the most demanding mix session. Talking to SSL about what I was looking for, I said, 'I want to duplicate a session that we did in '91 with Guns N' Roses. Two 48 dig machines, 48 analog, a piece of analog gear over every channel, and, by the way, throw in 48 channels of Pro Tools, because if it had been around in those days they would've had that in

there too.' Well, we can do that session."

Queried about the dreaded delay issue, Saylor replies, "You just feed your analog tracks to different buses than you do your digital, and delay the digital buses with the built-in programmable delay so they match with the analog delay. We've tested it. It works. It cures the problems. The delay is only 1.2 ms anyway, so in many cases you might not even hear it.

Saylor Recording's Studio A has stayed busy through construction. On the day I dropped in to check out the improvements, producer and engineer Erwin Musper (Van Halen, Elton John, David Bowie) was mixing away on new artist Anouk. Musper was unperturbed by the activity in the back of the facility, where Studio B was being upgraded with new maple hardwood flooring in preparation for the MT install. Those of you who remember Studio B from its days as a rather small and dark API room will be surprised; the addition of a lounge and patio have completely changed the vibe, and the control room itself is now more spacious. It also boasts an innovative new feature that Saylor has already installed into Studio A: White ash swing-out equipment

racks now cover the back walls of both control rooms, housing all that famous outboard with easy access to the rear of all the units.

Designed by Saylor and his longtime contractor and studio builder, Lyle Ireland, the cabinets—dubbed "Skip's Wall of Sound"—are bound to be copied in other studios. "I was acquiring so much gear that I'd used up all my access space to my racks with more racks!" Saylor laughs.

Other acts in lately have been Snoop Doggy Dogg with Chris Purim engineering, assisted by Ian Blanch and Tracy Brown; Santana with T-Rey and Anton mixing, assisted by Brown; and Toni Braxton with G-One and The Outsiders and Noontime producing and Brown assisting.

"When I opened Studio A in 1987 with the SSL, I was an A-list studio," Saylor concludes. "When I laid out of the 'J' race, I dropped down to an A-minus or a B-plus. But now, I'm establishing a new A-plus list. Everybody in town is looking at my taillights and I'm loving it."

In the spacious third-floor lounge of Hollywood's Edmonds (as in Tracy and Kenny "Babyface" Edmonds) Tower, I

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World Radio History



CIRCLE #136 ON PRODUCT INFO CARD

found John Rhone and Ontario Haynes of the Whole 9 taking a break from their busy schedule. We sat looking south over Hollywood as the two—originally from Oakland, now living in L.A. and managed by Yab Yum Entertainment—discussed their recent projects. The Whole 9 have garnered lots of metal recently: They have produced and written for Silkk the Shocker with Mya, Tru, DRS, Mr. Serv-On, and the *Foolish* and *Jason's Lyric* soundtracks.

The Whole 9 (as in “the whole nine yards”) was a well-chosen name; Rhone and Haynes do it all, from songwriting and playing to arranging, producing and mixing. Their workspace is self-contained, too: Many of their recent successful projects—including cuts for Silkk the Shocker’s *Made Man*, C-Murder’s *Bossalinie* and Tru’s *The Crime Family*—were done completely at their home studio, where Rhone handles mixing chores on their Yamaha 02R/Akai DR16 setup.

The duo met in high school, where they both played in the symphonic band: Rhone on saxophone and Haynes, as he sheepishly admits, on bassoon. “Not a good instrument if you’re trying to be cool,” he laughs. “You definitely can’t get any women playing bassoon. I think it was assigned to me because I was tall and bassoon is a big instrument! I used to think, if I’d been handed a sax or a trumpet, I could have played that instrument for years and years! But now I think, well, maybe if I’d done that I wouldn’t have gotten into writing songs and producing.”

These days Haynes plays most of the keyboards and writes most of the musical parts on The Whole 9’s productions, while Rhone covers drum programming and mixing. The two started working seriously together in 1991, when they discovered that the music they collaborated on got a much more positive, instant response from their friends than the work they did alone. Once they got going, it wasn’t long before they were writing and producing out of their basement studio for the likes of DRS and Simply E. When Tony! Toni! Toné!’s Dwayne Wiggins came over to check them out, they ended up as writers on the song “Slow Wine” for the *Sons of Soul* album.

Living and working in Oakland, they came to the attention of MC Hammer. His RWI Entertainment was in its heyday at the time, and he signed them on as a team. The move to L.A. happened almost three years ago when their business manager, Len Turner, secured the team

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a publishing deal with Jobete Music. "I had been adamant about not living in L.A.," Rhone laughs, "but they were more adamant that we had to be here. And once you live here and figure the freeways out, it's not such a bad place."

Asked about how they come up with ideas or a plan for a song, Haynes says, "It's pretty spontaneous—we just attack it! We like to work that way because sometimes if it's too planned out, it will sound contrived. Sometimes it's really just better to walk in with a clean slate and say, 'What do I feel like this second?' Then you just go at it until you're done. We pretty much work six days a week at it, ten to 12 hours a day."

Lately, the Whole 9 find themselves working at lots of different studios—among them The Enterprise, Larrabee and Tracken Place in the Edmonds Tower. So they bring along a few of the things they can't live without—such as their MPC3000, which they sequence with Digital Performer. "We've been forced to use other sequencing programs a couple of times," Rhone confides. "But we try not to because it's always more time-consuming and stressful. For me, any time I've got to pull out a pad and pencil and do math to program, something's wrong!"

Other must-haves on a session are their E-mu ESI 4000 sampler, a Korg Trinity, the E-mu synth module Planet Phat and the Studio Electronics SE1.

At their home studio, Tannoy Reveal speakers are the monitors of choice. "They look good, too," Haynes laughs. Vocal sounds are, of course, a priority. The mic of choice usually is a Groove Tube through Avalon mic pre's, and a Joe Meek compressor. "We're pretty religious about the vocal setup," Rhone says. "All the vocals go through the Avalon; we bypass the pre's and the EQs in the 02R, but use the 02R to convert and send to the hard disk recorder. It sounds so good that way when we get to the mix there's not a lot to do...The vocals are fat right there."

No wonder these guys were taking an opportunity for a break in the lounge. On the day we met, The Whole 9 were in the middle of several projects: 3rd Storee, Beverly Crowder and Shya for Yab Yum/Elektra, 3D for Dream-Works. They'd just returned from a trip back to Oakland and some work on new Foster/McElroy-produced En Vogue tracks. Gotta hand it to those 12-hour workdays... ■

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—FROM PAGE 190, NY METRO REPORT

lishing deal with Sony. One of my biggest hits was the Diana King track "Shy Guy." That tune went to Number 12 in the U.S. and was an enormous hit worldwide, going seven times Platinum in Japan, for example." Marvel's "Treat Her Like a Lady" is featured on Dion's current album, *Let's Talk About Love*.

Zizzo is no technical slouch, but he says that Marvel, who has a background in studio engineering, is more gear-savvy. So design plans for Big Baby Studios included individual rooms for the two writers, with Marvel's room doubling as the main mixing environment.

Contractor Gary Neiheisel was brought in to build the room, and he recommended acoustical designer Richard Oliver. "Rich is really a genius," says Zizzo. "He has a very unique personality—he talks fast and speaks on a very high technical level, which is sometimes a bit hard for me to follow. When you're building space in New York—especially on a budget—you're constantly making concessions to go either for the most acoustically pure solution, or favor the aesthetics. Rich really understood the balance we were trying to achieve, and I think he did a great job of designing a space that sounds great and is

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a great hang."

Knowing that his room would be doubling as the mix room for both writers, Marvel considered a number of different consoles before deciding to purchase an Amek BIG. "I like this board a lot. It has a great analog sound, and its 104 inputs mean that all of my synths and 24 tracks of ADAT are wired in at all times. The fact that it has only 12 buses is something of a limitation in this environment, but we manage to work around it pretty well. The BIG is essentially a smaller Mozart; it has the same automation, which I love, although I have to manually reset the faders. When I see Peter working on his Mackie Digital 8•Bus, I long for instant fader resetting! All things considered, though, I really love this board. My engineer, Jim Caruso—you can call him Bonzai—recently mixed our first session here, and he loved the board and the sound of the room." Marvel owns a full-blown Pro Tools MIX Plus system and is still open to one day purchasing a Digidesign ProControl hardware interface and mixing completely within the computer.

"I love the Mackie D8B!" says Zizzo. "It's a very intuitive board. The layout in particular makes a lot of sense, and it's easy to learn. I was going to go the Pro Tools route, but in the end, having a board and Pro Tools didn't make a lot of sense, and I like to have a console to turn to. I checked out all of the units in its price range and felt that the D8B gave the most bang for the buck. I then decided to buy a MOTU 2408 interface and work with Digital Performer. Andy's room and mine are wired together—even our MIDI gear—and so I may change to another work method in the future, but right now I'm extremely pleased with the tracking and mixing system I've put together."

Bolstered by their writing and producing success, Marvel and Zizzo are fortunate in that they were able to build a space for themselves without having to worry about booking the rooms to outside clients. "Big Baby Studios is a real project place," says Zizzo. "Not a home project space, but a soup-to-nuts writing and recording environment designed to be a great hang for an artist! You want the talent you're working with to feel comfortable, creative and inspired, and Andy and I are excited because that's exactly what we feel we've got." ■

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—FROM PAGE 191, NASHVILLE SKYLINE

cluded the addition of a new kitchen and client lounge. The structure houses more than a dozen offices, as well as the two studios, and the adjacent parking lot has spaces for 25 vehicles.

Studio manager Todd Culross says that Music Mill has been experiencing the same low periods that the rest of Music Row and Nashville have undergone since country music's sales slump and the overbuilding of the regional studio infrastructure. But he added that the studio's client base has diversified in recent months, with sessions for Motown mixed in with the country dates. "It's nice to hear something other than fiddles and steel guitars once in a while," he says.

The fact that the facility is being listed in a national trade publication indicates that Shedd is casting wide for prospective suitors, and in light of the Quad-Quad transaction, that could make a lot of sense.

One of Music Row's first studio casualties, Sixteenth Avenue Sound, which shuttered its doors nearly two years ago, has found a new lease on life—one that better reflects the times.

What had been a two-room studio is now a subdivided honeycomb of several related and unrelated ventures. On the main floor, in what was Studio A, engineers John Trevethan and Mike Griffith have set up shop in Antarctica. They turned what had been the original control room into a Pro Tools-equipped mastering and editing suite run by Griffith, and they took what once was the piano iso booth and made that into a

new control room, outfitted with a Soundcraft DC2000 console. The recording and mastering businesses feed each other, Trevethan says, and both feed a graphics and Web site-building business run by his wife, Brenda.

"It's a one-stop shop—you can track, overdub, mix and master your record here, and then have the album graphics done on print-ready files and have your promotional Web site constructed, with MP3 files done on the Pro Tools system," Trevethan explains.

A third room above the studio kitchen is being converted into a recording studio by John Elliott, former member of Nashville alt/industrial band Dessau. Upstairs, what was once Sixteenth Avenue's B studio is now a studio operated by engineer/producer Brian Hardin, who was profiled in these pages several months ago as the audio auteur behind the strange sounds on MTV's hit series *Sifl & Ollie* (which he had previously been creating in his home kitchen). Like the old factories of New England, which filled with shops when the Industrial Revolution hit the skids, the multiroom studio facility has evolved into a collection of boutiques.

All of the above parties are renting space in a building that is still on the market, and all of them understand the tenuous nature of their businesses' existence. Says Trevethan, "Hey, if we gotta move, we'll move. It's not like anything's nailed down." ■

Send Nashville news to Dan Daley at danwriter@aol.com or fax 615/646-0102.

—FROM PAGE 191, SESSIONS & STUDIO NEWS

ute album *Blues Power: Songs of Eric Clapton on House of Blues Records*. Jason Latshaw engineered and mixed...At Ultrasonic Studios (New Orleans), the Dirty Dozen Brass Band overdubbed tracks for the upcoming *Wide-spread Panic* CD with producer John Keane and engineer David Farrell. The Billygoats recently re-recorded tunes from their debut CD and tracked new songs with legendary producer Brian Ahern at The Sound Kitchen in Nashville. Rocky Schnaars engineered, and Melissa Matthey assisted...At Treasure Island (Nashville), Marty Brown overdubbed tracks with producer Clyde Brooks and engineer P. Coleman...The Tams finished their latest project at BradleyHouse Studios (Quinby, SC) with

engineer Fred Shaw...

NORTHEAST

The Violent Femmes mixed tracks at EastSide Sound (NYC) with producer Warren Bruleigh, engineer Bil Emmons and assistant Fran Cathcart...At Trutone (Hackensack, NJ), engineer Phil Austin worked with Aldo Marin, mastering volume three of the Cutting Records compilation *Latin House Party*. Austin also mastered a vinyl Destiny Music Group EP by hip hop artist Kym Rae. McGruff, Brand Nubians, Grand Puba & Sadat X, and Father MC put in guest appearances on the production handled by Ty Phiff Sugarless/Def Squad, Redhead Kingpin, Mate Boogie and K-Def. Also at Trutone, engineer Joe Yannece mastered Cyndi Lauper's new version of

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"Disco Inferno," which will be released on Jellybean Recordings...Remote Recording Services (Lahaska, PA) recently recorded the Gershwin musical, *Crazy for You*, for WNET's *Great Performances* series. BearTracks Recording Studio (Suffern, NY), Strangefolk laid down tracks for a Mammoth Records CD with producer Nile Rogers, engineer Gary Tole and assistants Steve Regina and Michael Bates...Deirdre Flint recorded, mixed and mastered her humorous folk debut, *The Shuffleboard Queens*, at Indre Studios in Philadelphia. Greg Horne produced the effort with engineer and drummer Michael Comstock...

SOUTHWEST

At Muscle Shoals Sound (Sheffield, AL), Little Milton mixed his new CD, which featured guest artists Lucinda Williams, Keb' Mo' and Peter Wolf. Engineer Kent Bruce co-produced with Greg Preston. Johnny Taylor also laid down new blues tracks with producer and engineer Wols Stephenson. Toby Keith tracked with producer James Stroud and engineer Julian King. Country comedian Tim Wilson produced his own tracks with engineer Steve Nelton...Smash Mouth cut their teeth on "Lady is a Tramp" for a new Frank Sinatra tribute CD on Reprise at Stepbridge Studios (Santa Fe, NM). Tim Reynolds, guitarist for the Dave Matthews Band, also worked on his solo project at Stepbridge...At Encore Recording (Nacogdoches, TX), Willie Nelson returned to familiar ground: He tracked jazz standards for a new CD with head engineer Jim Taylor...

NORTHWEST

Seattle producer Jack Endino engineered (and co-produced with Tim Kerr) an Estrus records project by Quadrajets at Private Radio (Seattle). Burning Heads also flew in from France to work with Endino at Ironwood (Seattle) for Epitaph Europe...Xtreme Studios' mobile recording truck has been on the move, capturing bands for Sub Pop records. The studio based in Bellevue, WA, recorded Sunny Day Real Estate in Vancouver, BC for a live concert CD, The Hellacopters in Seattle for an album of studio and live recordings, and Zen Gorilla in Eugene, OR, for a CD single. Owner and chief engineer Steve Smith produced, recorded and mixed the projects...Several bands have been hitting the jackpot recently—namely *Jackpot!* Recording in Portland, OR. The Maroons began work on a

new album with Jeff Saltzman engineering and producing. Reclinerland was in with engineer and producer Sam Curtis. San Francisco's The Fade, which includes members of Pansy Division and The Snowmen, tracked songs with producer and engineer Larry Crane...Producer/engineer Tucker Martine recorded with Chris Eckman of The Walkabouts, who finished a solo project for Glitterhouse. Martine also worked with Bill Frisell, who was recording music for a theater piece...At Gravelvoice Studios (Seattle), producer, engineer and editor Scott Colburn finished editing Andrew Drury's debut CD, which was also engineered by Martine. Colburn also worked with Kyle Hansen of Black Cat Orchestra and recorded the soundtrack to *John Gill*, a short film by Laura Jean Cronin...Producer and mixer R. Chris Murphy and engineer Max Bacchin were at Paradise Sound (Index, WA) to overdub and mix a new album for Italian rock band, Hypnoise, with guest musician Trey Gunn of King Crimson...

STUDIO NEWS

Butch Vig, producer and drummer of Garbage, recently acquired Summit Audio's MPE-200 Microphone Preamplifier and four-band Equalizer for his Smart Studios, which is co-owned by band mate Steve Marker...Big Blue Mennie (Jersey City, NJ) purchased the first Amek 9098i recording and mixing console in the U.S. The studio's three control rooms and two live rooms include Amek's 44-channel Langley Big and Mozart RN, as well as a 24-track, 2-inch MCI/Sony analog recorder, four ADATs, a large collection of mics and an variety of vintage outboard gear...Village Recording Studios (West L.A.) recently bought a Martin Sound ACX 24-channel console expander, which will be used with the studios' vintage Neve 8048 board and Neve VRL consoles...Digital audio pioneer Ken Kreisel purchased two RADAR II HDR Series Digital Multitrack Recorders and two UFC-24s. The RADAR systems at M&K Records' studios in Culver City, CA, will be used to produce and record 24-bit, 48-track audiophile recordings including releases in the 5.1 DVD-Audio format...Engineer Mick Guzauski bought a Sony Oxford digital console and a Sony PCM-3348HR DASH PLUS recorder for his Barking Doctor Studio in Westchester County, NY...Four Media Company has acquired two mSoft ServerSound systems for its Four Media Sound Services and Pacific Ocean Post facilities. ■



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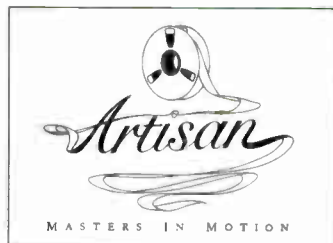
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Sheffield's truck is the largest SSL audio truck in North America. Add to that a Genelec 5.1 surround sound monitor system with a Martin MultiMAX controller, analog or digital 48-track format, 12-input Neve Melbourne—and one of the best crews on the road today. This is not just a truck; it's a complete facility. Recent 1998-1999 credits include Aerosmith, Puff Daddy, Lenny Kravitz, New Orleans Jazz Festival, Boston Pops, REM and the Tibetan Freedom Festival.



Adrian Carr Music Designs Mastering

630 Ninth Ave.
New York, NY 10036
(212) 977-5390; Fax (212) 489-0050
http://www.musicdesigns.com

Adrian Carr Music Designs Mastering: cutting some of the finest masters out of New York. We've rebuilt our main mastering room and continue to be THE full-service mastering facility offering the most impressive array of digital, analog and tube gear while keeping our client-friendly prices. We've just added a complete line of Cedar products to meet demands for sonic restoration/remastering. Other services include master vinyl cutting as well as the usual 1630's, PMCD, DDP Masters, etc.

cool dry place



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Cool Dry Place is a "one-stop shop" where progressive craftsmen (audio & video engineers, editors and graphic designers) combine with current, state-of-the-art technology to produce a unique hybrid of quality and creativity. The facility consists of two 24-track digital audio suites with Avid Audiovision/Pro Tools systems, extensive outboard processing and music/sound effect libraries. Also 3 Avid Media Composer suites, a 10-Bit Digital online edit suite and several Graphic/Animation suites

n p r

NPR

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Located in downtown Washington, D.C., Studio 4A offers a spectacular recording environment well-suited to all music genres. Studio 4A, at 2,600 sq. feet, is one of the largest recording facilities on the East Coast. We offer digital and analog multi-track recording, an extensive mic collection, digital editing suites and CD mastering. NPR also offers satellite uplinking, fiber and ISDN capabilities worldwide.



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DIGITAL MIXERS



Digital 8 Bus Mixing Console

Everything you've been waiting for and more!!! The digital 8 bus from Mackie features great sound quality full recording and mixdown capabilities, motorized faders and an array of digital features geared to take you flying into the next century. See for yourself what the entire industry is raving about.

FEATURES-

- 4x channels of automated compression, gating, EQ and de-verb
- Built-in 3-way meter display keeps you on top of your mix.
- Built-in meter bridge.
- Ultramax II automation for complete control, hook up an S-VGA monitor and you'll feel like you spent a lot more money.
- All functions can be automated, not just levels and mutes.
- Store EQ, reverb, compression, gating and even Aux send information.
- Fast SCENE automation allows you to change parameter snapshots on every beat.
- Reads Standard MIDI tempo maps, displaying clock info on the built-in position counter.
- Truly the cutting edge of mixing technology.



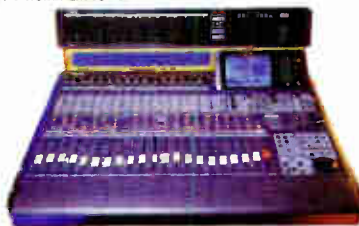
Panasonic

WR-DA7 Digital Mixing Console

Stop dreaming about your digital future, it's here! The Panasonic WR-DA7 digital mixer features 32-bit internal processing combined with 24-bit A/D and D/A converters as well as moving faders, instant recall, surround sound capabilities, and much more. Best of all it's from Panasonic.

FEATURES-

- 32 Inputs/6 AUX send/returns
- 24-bit converters
- Large backlit LCD screen displays EQ, bus and aux assignments, and dynamic/delay settings.
- 1-band parametric EQ
- Choice of Gate/Compressor/Limiter or Expander on each channel
- 5.1 channel surround sound in three modes on the bus outputs
- Output MMC
- Optional MIDI joystick



* meter bridge optional

TASCAM

TMD1000 Digital Mixing Console

You want to see what all the digital mixing buzz is about? The new TMD1000 from Tascam will have you smiling & automating in no time. It features fully automated EQ, levels, panning and more in an attractive digital board with an analog "feel". Your digital future never looked, or sounded, so clear.

FEATURES-

- 4 XLR mic inputs, 8 1/4" balanced TRS inputs.
- 20-bit A/D D/A conversion, 64x oversampling on input, 128x on output.
- Store all settings, fully MIDI compatible.
- **Optional IF-TD1000** adds another 8 channels of TDM and a 2-channel sample rate converter.
- **Optional FX-1000** FX board adds another 4 dynamic processors and another pair of stereo effects.



DIGITAL RECORDING



Lexicon Studio Recording System

The Lexicon Studio System interfaces with your favorite digital audio software for a complete hard disk recording package. Supporting both PC and Mac, Lexicon Studio can be expanded up to 32 voices from a variety of I/O options. For recording, editing, mixing and DSP, Lexicon Studio's here.

FEATURES-

- The Core-32 System PCI-Card is capable of supporting 32 audio streams simultaneously. It can also be used as a time code or clock master or slave.
- The PC-90 Digital Reverb daughterboard attaches to the Core-32 providing 2 discrete stereo reverbs.
- The LDI-12T delivers up to 12 channels of simultaneous I/O supporting analog (+4 XLR and -10 RCA), s/pdif, and ADAT.
- Direct support of Steinberg Cubase VST and many other software programs.
- Optional LDI-10T w/ 8 24-bit analog to digital I/O, external S/PDIF digital I/O and time code input (PC only)



• Open to the available LX: I/O hub allows up to 3 LDI-10Ts to be used simultaneously.

EFFECTS PROCESSING



Finalizer Express



The Finalizer Express is a fast and efficient way to turn your mix into a Professional Master! Based upon TC's Multi-Award winning Finalizer Mastering technology, it delivers the finishing touches of clarity, warmth and punch to your mixes, putting the world of professional mastering within your reach.

FEATURES-

- 24-bit resolution A/D & D/A converters
- 16 & 20 bit dithering
- TC's unique Multiband Comp & Limiter Algorithms
- Boost and cut over three bands with the Spectral Balance Controls
- Soft Clipping and Look Ahead Delay
- Finalize Matrix for 2x variations in style and rate
- Optimize overall level with the Automatic Make-Up Gain
- Extra compression in each band using emphasis keys.
- Record tapes from the built-in Digital Fader or the optional TC Master Fader via MIDI.
- Connections include AES/EBU, S/PDIF, Optical Toslink & MIDI I/O's.
- High Res LED Metering of I/O & multi-band gain reduction

M3000 Professional Reverb



Incorporating TC Electronic's new VSS-3 technology, the M3000 is a great sounding, versatile reverb that is easy to use. Combining ultimate control of early reflections with a transparent reverb tail, the art of reverberation is brought to a new level. Whether it's a phone booth cave or concert hall, the M3000 delivers high quality ambience.

FEATURES-

- VSS-3, VSS-3 Gate, C.O.R.E. & REV-3 reverbs as well as Delay, Pitch, EQ, Chorus, Flanger, Tremolo, Phaser, Expand/Gate, Compressor and De-Esser
- 300 high-grade factory presets including Halls, Rooms, Plates, Ambience, Gated Reverbs, and more
- Up to 300 user presets in internal RAM and 300 more using an optional PCMCIA card
- Dual engine configuration featuring 21-bit A/D/D/A's
- Connections include A/S/B, Coaxial, S/PDIF, Optical Tos-Link/ADAT & analog XLR I/Os, MIDI IN/OUT/THRU, Clock Sync and External Control



PCM81 Multi-Effects Processor



The PCM-81 has everything that made the PCM30 the top choice among studio effects processors, and more. More effects, more algorithms, longer delay and full AES/EBU I/O.

FEATURES-

- 300 Presets include pitch, reverb, ambience, sophisticated modulators, 20 second stereo delay, and dynamic spatialization effects for 2-channel surround sound applications
- 2 digital processors including Lexicon's Lexichip for the reverb and a second DSP engine for the other effects
- 24-bit internal processing
- Dynamic patching matrix for maximum effects control
- PCM card slot

COMPRESSORS



ACP88 8 Channel Compressor

Steering from their popular ACP8, the ACP88 comprises eight channels of compression, limiting and noise gating for a variety of studio applications. It features individual side chain for each channel and its attractive blue anodized finished lets you show your true sonic colors.

FEATURES-

- 8 separate compressors/gates with individual controls
- Servo balanced or unbalanced inputs & floating balanced or unbalanced outputs.
- Individual side chain jacks for spectral compression and a separate sidechain jack for gate processing
- Each channel boasts full gain reduction metering, compression threshold indication & gate open close
- Front panel buttons include hard/soft knee compression, peak/auto compression, bypass, gate range and link
- Link feature uses a unique summing bus for multiple combinations of master/save link setups.



Blue Series 160SL 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-

- 127dB dynamic range
- Program dependent "Auto", or fully variable attack and release
- Hard knee/OverEasy switchable



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ANALOG TO DIGITAL CONVERTERS



Rosetta 96k 24-bit Analog to Digital Converter

The high-end quality analog to digital solution for the project studio. With support for both professional and consumer digital formats you can now record your audio at a higher resolution and with greater detail than standard converters found on MDM's, DAT's and DAW's. Ideal for mastering or tracking.



- FEATURES-**
- 24-bit, 44.1-48, 88.2-96 kHz Sample Rate ($\pm 10\%$)
 - 116dB dynamic range (unweighted)
 - Improved UV22HR for 16 and 20-bit A/D conversion
- FRONT PANEL:**
- Power switch • Sample Rate (44.1, 48, 88.2, 96kHz) selector • 16-bit (UV22), 20-bit (UV22) and

- 24-bit resolution selector • S/PDIF-ADAT optical selector • Soft Limit on or off • 12-segment metering w/ over indicator & Meter Clear switch • Level trim
- REAR PANEL:**
- XLR balanced inputs • 2 x AES/EBU for 88.2/96kHz 2 channel path, Coaxial S/PDIF, switchable S/PCIF or ADAT optical outputs • Wordclock out

Lucid AD 9624 24-bit Analog to Digital Converter

Transparent analog to digital conversion designed to bring your music to the next level. XLR balanced inputs feed true 24-bit converters for revealing all the detail of the analog source. 16-bit masters can take advantage of the AD9624's noise shaping function which enhances clarity of low level signals.



- FEATURES-**
- 24-bit precision A/D conversion • Support for 32, 44.1, 48, 88.2 & 96kHz sample rates • Wordclock sync input • Selectable 16-bit noise shaping

- Simultaneous AES/EBU, coaxial and optical S/PDIF output • 20-segment LED meters w/ peak hold & clip indicators • ALSO AVAILABLE: DA9624 24 bit D/A converter

DIGITAL MULTI-TRACK RECORDERS

TASCAM

DA-88 Modular Digital Multitrack

The standard digital multitrack for post-production and winner of the Emmy award for technical excellence, the DA-88 delivers the best of Tascam's Hi-8 digital format. Its Shuttle/Jog wheel and track delay function allow for precise cueing and synchronization and the modular design allows for easy servicing and performance enhancements with third-party options.



- FEATURES-**
- 1:48 minutes record time on a single 120 min tape
 - Expandable up to 128 Tracks using 16 machines
 - User-definable track delay & crossfade
 - Shuttle & Jog capability
 - Auto punch with rehearsal

- SMPTE, MIDI and Sony 9 Pin sync capability
- Options include RC-323/898 Remote Controllers, IF-AES/IF-48SD digital interfaces, MU-Series master bridge, MMC-88 MIDI machine control interface, SY-88 Sync Card

DA-38 Digital Multitrack for Musicians

Designed especially for musicians, the DA-38 is an 8 track digital recorder that puts performance at an affordable price. It features an extremely fast transport, Hi-8 compatibility, rugged construction, ergonomic design and sync compatibility with DA-88s.



ALESIS

ADAT M20 20-bit Digital Audio Recorder

The M20 represents Alesis commitment to meeting the high standards of world-class audio engineers, producers, studio owners and high-end video and film post production studios. A new professional digital multi-track, the M20 records 20-bit for outstanding sound quality. Combined with a host of production features like SMPTE/EBU, the M20 is a powerful tool.



- FEATURES-**
- SVHS Recording format - up to 67 minutes recording.
 - 18-XLR connections (9 in and 9 out) as well as a 56-pin ELCO connection • Digital I/O
 - Includes LRC remote and a digital cable.

- 24-bit, 64x oversampling recording, 20-bit, 12:1x oversampling playback

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 Baking software lets the transport quickly wind to locate points while gently treating the tape.
- ADAT OPTIONS-**
- BRC for all ADAT (except M20) w/ 460 locate pts, smpte/absolute time & bar and beat timing references, digital editing and transport control for up to 16 ADATs
 - A13 20-bit 8 channel analog - optical I/O interface

- Remote control
- Servo-balanced 56-pin ELCO connector
- Built-in electronic patchbay
- Copy/paste digital edit; between machines.
- CAD1 remote control/autolocator for M20 w/ jog/shuttle & r-45 ethernet connector for long distance cable runs
- Adat/Edit integrated PCI digital audio card and software for recording and editing on Mac & Windows computers

CD RECORDERS



CDR-850 CD Recorder

The new HHB CDR850 is one of the most comprehensive CD-R, CD-RW recorders available today. It delivers the outstanding sound quality that HHB is known at a lower price than previous models. Equipped with a complete range of analog and digital I/O and easy to use, the CDR850 is suitable for any audio environment, no matter how sophisticated or demanding.



- CD-R, CD-RW compatible
- All functions accessible from front panel menu
- 4 one touch recording modes; 2 manual, 2 automatic
- Sample rate converter accepts any digital signal from 32kHz to 48kHz including varispeed

- Copies all CD, DAT, MD, DVD and DCC track starts
- Complete user control over SCMS
- Balanced XLR analog I/O, Unbalanced (RCA) phono analog I/O, AES/EBU digital input, coaxial & optical S/PDIF digital I/O

STUDIO DAT-RECORDERS

TASCAM

DA-45HR Master DAT Recorder

The new DA-45HR master DAT recorder provides true 24-bit resolution plus standard 16-bit recording capability for backward compatibility making this the most versatile and great sounding DAT recorder available. With support for both major digital I/O protocols plus the ability to integrate the machine into virtually any analog environment, the DA-45HR is the ideal production tool for the audio professional.



- FEATURES-**
- Word Clock
 - 24-bit A/D and 20-bit D/A with dither
 - XLR balanced and RCA unbalanced analog I/O
 - AES/EBU and S/PDIF digital I/O

- Word Sync In/Thru
- Alphanumeric data entry for naming programs
- Independent input level adjustment capability
- Output trim for XLR balanced analog output
- Optional RC-D45 Remote Controller

Panasonic SV-3800

The SV-3800 & SV-4100 feature highly accurate and reliable transport mechanisms with search speeds of up to 400X normal. Both use 24 bit D/A converters to satisfy even the highest professional expectations. The SV-4100 adds features such as instant start, program & cue assignment, enhanced system diagnostics, multiple digital interfaces and more. Panasonic DAIS are found in studios throughout the world and are widely recognized as the most reliable DAT machines available on the market today.



- FEATURES-**
- 64x Oversampling A/D converter for outstanding phase characteristics
 - Search by start ID or program number
 - Single program play, handy for post.

- Adjustable analog input attenuation, +4/-10dBu
- L/R independent record levels
- Front panel hour meter display
- 8-pin parallel remote terminal
- 25x normal speed search

Fostex

D-15 Pro Studio DAT Recorder

The new Fostex D-15 features built in 8Mbit of RAM for instant start and scrubbing as well as a host of new features aimed at audio post production and recording studio environments. Optional expansion boards can be added to include SMPTE and RS-422 compatibility, allowing the D-15 to grow as you do.



- FEATURES-**
- Hold the peak reading on the digital bargraphs with a choice of 5 different settings
 - Set cue levels and cue times
 - Supports all frame rates including 30p
 - Newly designed, 4-motor transport is faster and more efficient (120 minute tape shuttles in about 60 sec.)
 - Parallel interface • Front panel trim pots in addition to the level inputs

D-15TC & D-15TCR

The D-15TC comes with the addition of optional chase and sync capability installed. It also includes timecode reading and output. The D-15TCR comes with the further addition of an optional RS-422 port installed, adding timecode and serial control (Sony protocol except vari-speed)

SONY PCM-R500

Incorporating Sony's legendary high-reliability 4D Mechanism, the PCM-R500 sets a new standard for professional DAT recorders. The Jog/Shuttle wheel offers outstanding operational ease while extensive interface options and multiple menu modes meet a wide range of application needs.



- FEATURES-**
- Set-up menu for: preference selection. Use this menu for setting ID6, level sync threshold date & more. Also selects error indicator.
 - Includes 8-pin parallel & wireless remote controls

- SBM recording for improved S/N (Sounds like 20bit)
- Independent L/R recording levels
- Equipped with auto head cleaning for improved sound quality.

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TUBE MICROPHONES



AKG C12VR TUBE MICROPHONE

A legendary tube mic developed by AKG over 40 years ago. The carefully hand-made large oval diaphragm capsule offers a silky smooth, transparent high end, exquisite mid-range and a deep, rich bass response. Nine polar patterns and 3 bass roll-off positions are provided for unsurpassed flexibility. An outstanding mic for the serious recordingist.

- FEATURES-**
- Re-issues of classic tube mic the C12
 - Polar patterns include: Cardioid, Omnidirectional figure 8 and six intermediate settings; accessible via remote control
 - 3 position Bass-cut filter (Flat, 75 & 150Hz)
 - Includes N-120r power supply, H15/T shock suspension, 10M cable, W42 foam wind-screen and professional metal case
 - Frequency response 30Hz to 20kHz



audio-technica AT4060

Combining premium 40 series engineering and vintage tube technology, the AT4060 delivers a versatile and competent studio microphone. Low-noise and high SPL capabilities make the AT4060 a premier vocal mic as well as strings, guitars and other demanding applications.

- FEATURES-**
- 20 - 20,000 Hz frequency response
 - Dual gold-voicized large diaphragm element
 - Includes the AT8560 power supply, AT8447 shock mount, rack mount adapters and case.



SHURE KSM-32

The new KSM32 wide-address microphone features an extended frequency response for open, natural sound reproduction. Suitable for critical studio recording and live sound production, Shure steps up to the plate with another classic.

- FEATURES-**
- Class A transformerless preamplifier circuitry for improved linearity across the full frequency range.
 - Exceptionally low self-noise and increased dynamic range necessary for highly critical studio recording.
 - 15 dB attenuation switch for handling high SPLs.
 - Switchable low-frequency filter to reduce vibration noise or to interact proximity effect.
 - Great for vocals, acoustic instruments, ensembles and overhead miking of drums and percussion.
 - SL model also features an elastic shock mount which greatly reduces external vibrations.



BPM CR10

The BPM CR10 Studio Condenser Mic features a full frequency response for competition against the best of the best.

FEATURES-

- 1" Gold diaphragm
- Suitable for most guitar and vocal recording applications.
- Includes Lifetime Aluminum Road Case, XLR-cable, wind screen and elastic suspension.



SAMPLING



S5000 & S6000 Studio Samplers

AKAI is proud to announce its next generation of samplers with the introduction of the S6000 and the S5000. Building upon Akai's legendary strengths, both machines feature up to 128-voice polyphony and up to 256 MB of RAM. They use the DOS disk format and .WAV files as the native sample format allowing standard PC .WAV files to be loaded directly for instant playback - even samples downloaded from the Internet into your PC may be used. And of course, both the S6000 and S5000 will read sounds from the S3000 library.

- FEATURES-**
- OS runs on easily upgradeable flash ROM.
 - 2x MIDI In/Out/Thru ports for 32 MIDI channels
 - Stereo digital I/O and up to 16 analog outputs.
 - 2x SCSI ports standard
 - Wordclock connection
 - Optional ADAT interface provides 16 digital outs
 - .WAV files as native sample format

- S6000 ONLY FEATURES-**
- Removable front panel display
 - User Keys
 - Audio inputs on both the front and rear panel allow you to wire the S6000 directly into a patchbay from the back and override this connection simply by plugging into the front.



E-MU Systems, Inc.

E4XT ULTRA Professional Sampler

The Emulator legend continues with the new ULTRA series from E-mu. Based on the EIV samplers the new 32-bit PISC processing of the E4XT guarantees faster MIDI response, SCSI DTP and sampling.

- FEATURES-**
- 128 voice polyphony
 - 64mb RAM (exp to 128)
 - 32GB Hard Drive • Dual MIDI (32 channels)
 - 24-bit effects processor • 8 anal. outs (exp to 16)
 - Word Clock & AES/EBU I/O
 - EOS 4.0 software
 - 9 GB ROMs over 2GB Snds



MIC PREAMPS



Classic 80 Pentode Tube Mic Pre

Fronted by a low noise EF86 pentode tube and 2 additional triode tubes per channel gives this pre amp detail, openness and presence. Input and output level controls allows precise control of harmonic contribution of the tubes.

- FEATURES-**
- 2 Channel Mic Pre • Balanced Mic Ins w/48V Phantom Power • Dedicated 1/4" instrument input
 - High & low pass filters w/5 cut off frequencies (HPF - 50Hz, 100Hz or 150Hz) (LPF - 5kHz, 10kHz or 15kHz)
 - Phase reverse on channel 2
 - Drive & Peak LED's • Large rotary output faders
 - Illuminated VU meters • 250V HT voltage rail



dbx 586 Vacuum Tube Mic Pre

The DBX 586 Vacuum Tube Dual Mic Preamp uses hand selected and matched premium 12AU7 vacuum tubes ensuring ideal characteristics for a warm, distortion free signal path. Custom designed analog VU meters monitor tube level insert path or output levels while instrument and mic inputs make the 586 versatile enough to use with virtually any input source.

- FEATURES-**
- Mic or instrument inputs on each channel
 - 4+10 operation
 - Drive control for a wide variety of great tube effects
 - 3-Band EQ with sweepable frequency
 - Optional TYPE IV Conversion System outputs
 - Separate 1/4" insert send/return on each channel



JOE MEEK VC1 Studio Channel

The Joe Meek Studio Channel offers three pieces of studio gear in one. It features a transformer coupled mic pre, compression and a professional enhancer together in a sleek 2U rackmount design.

- FEATURES-**
- 48V phantom power, fully balanced operation
 - Mic/Line input switch
 - High pass filter for use with large diaphragm mics
 - Extra XLR input on front makes for easy patching
 - Compression In/Out & VU/Compression meter
 - Enhancer In/Out switch and enhance indicator
 - Internal power supply 115/230V AC



MONITORS



EXPOSE E7 Active Studio Monitors

When you need a truly neutral sounding near field monitor, look no further than the Expose E7 by KRK. From the unconventional enclosure shape that eliminates the resonances found in parallel designs to the custom designed Kevlar cones and bi-amplification, every aspect of this reference monitor has been built from the ground up to deliver sonic purity.

- FEATURES-**
- 7" Kevlar LF Driver
 - 1" Kevlar HF Driver
 - 54Hz - 2kHz, ±3dB.
 - Bi-amplified 140



- watts/size @ 8 Ohms
- Neutrik XLR 1/4" combo connector
- 109dB Max SPL continuous

M6000/S Studio Monitors

The KRK M6000/S are designed for close-field monitoring. A smooth frequency response in a compact size make these units portable and efficient.

- FEATURES-**
- High power handling
 - 62Hz - 20kHz, ±3dB.
 - Compact and portable
 - Low distortion
 - Smooth frequency response
 - Custom Gray finish.



These close field monitors from Mackie have a wide deep-response with exceptional detail. Each pair of these bi-amplified speakers has been clinically matched to ensure optimum performance.

- FEATURES-**
- 8.75" polypropylene woofer, 1" aluminum dome tweeter
 - 150W Bass amp, 100W Treble amp
 - Full space, half space and quarter space placement compensation
 - 1/4" and XLR inputs
 - Hi frequency adjustment, 10 frequency roll-off switch
 - Frequency Response 39Hz to 22kHz, ±1.5dB



Hafler TRM-8 Powered Studio Monitors

Winner of Pro Audio Review's PAR Excellence Award in 1997, Hafler's TRM8s provide sonic clarity previously found only in much more expensive speakers. They feature built-in power, an active crossover, and Hafler's patented Trans-nova power amp circuitry.

- FEATURES-**
- 45Hz - 21kHz, ±2dB
 - 75W HF, 150W LF
 - Electrically & Acoustically matched
 - Also Available!! TRM-6 Monitors



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—FROM PAGE 33, TWENTY YEARS OF WRITING would practice for months in vacant lots turned into “pan yards”) and, above all, costumes: huge, gaudy, intricate, heavy constructions using yards and yards of cloth, tinsel, foil, paper and other eye-catching materials that make Liberace’s grandest excesses look like a pair of old boxer shorts.

What holds these remarkable materials together? Copper wire, of course. Can the people of Trinidad afford the cost of this wire? (A single costume can require 100 feet or more.) Of course not. So they go to the best free source they can find: telephone lines. And where better to snip large amounts of wire from poles without being caught, than a remote jungle road leading to an isolated gringo-owned building where nobody is likely to be around at night? No where—and that’s why our phones never worked.

But our communication problems extended beyond simply telephone lines. The night before Carnival, it rained, which was a fairly unusual event. What was more unusual was that early on Carnival morning, on a day I was supposed to have off, my boss appeared at my doorstep (the phones to my apartment building were, of course, out), and said, “We have a problem.”

We drove to the studio, I in somnolent silence and he cursing under his breath. When we got there, the control room had a full inch of water on the floor. We looked up at the ceiling, and there was a neatly cut three-foot hole where the tropical sun shone through. We climbed up on the roof, where a crew had been replacing the ancient tin with aluminum, and found the large, heavy blue tarp that was supposed to have been stretched over the hole when the crew went home. Instead of being in its proper place, it was stacked neatly off to the side.

We headed off in the car again, in search of the chief of the roofing crew. We found him at home, bleary-eyed from the traditional pre-Carnival dark-rum binge.

“Were you there when the shift ended yesterday?” we demanded.

“Ya, I should say so,” he replied.

“Well, why didn’t you cover the hole?”

He seemed puzzled by how we could ask such a dumb question. “Because it’s Carnival,” he finally said.

“What the #&^! does Carnival have to do with it?” the boss screamed.

The poor man came out of his fog long enough to fix his gaze on the boss, as if addressing an ill-mannered but slow child. “Because, mon, Carnival is in the dry season!”

There were many other amazing stories that came out of my Trinidad experience, and when I finally escaped from there, I knew I had to tell them. But how, and to whom? People outside the recording industry wouldn’t understand most of them. So I decided to reach for an audience I knew would appreciate these tidbits. I contacted an English pro audio magazine that I had gotten to know in Trinidad, one that often ran industry horror stories under the heading “Agony.” I offered the editor two short anecdotes for the column, and the response came back: “More!”

And that, friends, is how in September 1979, I became a professional audio writer. I maintained a good relationship with that magazine for several years, not only telling my own stories, but the stories of many other engineers, producers, manufacturers and musicians, and I used it as a springboard to get into many more magazines such as *Recording Engineer/Producer*, *High Fidelity*, *High Technology* and even *High Times*. It also brought me to the attention of various equipment manufacturers in need of someone who might be able to write user manuals in something resembling English, and that’s how I got into documentation.

I never set out to be a writer—those were the people who sat in the front in my college English classes having heated debates with each other and the teacher (while I snored in the back or never showed up at all), and who went to places like Iowa for grad school. But I have managed to make a decent chunk of my living doing it for two decades. So I’m still playing with my childhood passions—music, mechanical toys, and words—but the way I balance them in my life is something I never would have thought up. I still have goals that I hope to attain someday—scoring a huge-budget Hollywood film, producing a hit record for Bruce Springsteen, conducting a major orchestra in Carnegie Hall—but I figure that whatever I do, writing will still be a part of my life. Because I like to tell people about stuff—I really do. And it sure beats working. ■

Paul D. Lehrman is back from an interesting (non-working) month in France, but is way too busy to talk about it just yet.

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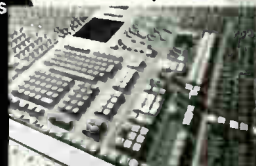
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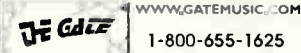
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—FROM PAGE 26, MONEY FOR NOTHING

with *much* bigger teeth. The number of cases brought to trial will increase. This is already happening. But this only affects those of you who are criminals, those who download this free stuff. The fact is the *vast* majority of warez downloaders will never be caught, as it is unlikely that they would ever be traced and linked, cookies aside. *But...*

The easy availability of cracked software and the support of the fools who download it are having a serious effect on what software *is*. Manufacturers—obnoxious, obscene, faceless Microsoft, and little audio plug-in companies alike—are really *feeling* the damage.

Microsoft just raises prices, delivers less for the same price in each new product or designs incredibly expensive updating policies. They *will* get the money they want, it matters not how.

But the little audio people, the ones who make the software we need to record, edit, EQ, compress, master, and basically everything else, are all new. They are all young companies; they all have huge development expenses. Most bring us packages at a fair price that do jobs we need done at a fair price. We *need* these things. We need these companies.

These companies, however, *don't* need us. Not if *half* of their stuff in use out there is stolen. Face it, the audio community is a tiny, tiny market compared to, well, almost *anything* else. That, and only that, is the reason we don't have Microsoft-knee compressor plug-ins. The market is too small for the big boys to play. We have to watch out for our own. We design our own, we make our own, we buy our own, we use our own.

Let me simplify. If we steal from our own, our own will fold. I can cite several cases of creative, productive companies that came out with truly innovative software and that are now *gone*, bankrupt because of piracy. If you have their stuff, you are now hosed. If you don't have their stuff, you are *still* hosed. Who knows what cool new package they were working on that might have answered your audio processing prayers?

And the companies that haven't folded? Well, several of those have been forced to cut way back on development of new products because they based their growth plans on market studies that, though correct, didn't translate to cash because of piracy.

Others have stopped creating and

innovating, because the only way they can survive is to pop out simple, easy-to-design plug-ins that can turn a profit in the month before they are cracked and rendered useless.

All this means less new stuff for you. This is not a theory of future trends, this is a report of current conditions.

And there is still another way this hurts you. Honest users have already begun to feel the effects of piracy. In addition to fewer new products and less innovation, customer support is becoming notoriously bad from several audio companies. And why not? With less than

**With the Internet
sporting literally
thousands of sites that
offer free illegally
cracked software,
the little kids
are the big guys.
Technology has brought
theft to the masses.**

the correct amount of money to pay support staff, why the hell should they support products that are cracked and useless to them? Now *some* companies just have lame support because they want to keep the money for houses on the coast, but they are in the minority.

Now, this overall malaise is producing another, very interesting effect—one that is starting to come back and bite those criminals who use cracked code. The legitimate users are beginning to turn against their sleazy counterparts and *turn them in*. The number of successfully prosecuted cases based on informant tips is rising dramatically. This trend is a true indicator of how acute the problem has become.

CHAPTER V

And what about protection? Those horrible little key disks and dongles that we all hate? You know, the things that piss us off so much that we use them to justify stealing the cracked versions? Guess what. The software manufacturers hate them even more than you do! They are very expensive and cause endless trouble. But without them, theft

can kill the survivors, and again, you will be left stranded.

How far will protection go? Until now, retaliatory protection has been basically illegal, but things are changing. As the piracy problem grows, there is growing acceptance of more extreme and even punitive solutions.

Heard of the Doomsday Engine? Here's how it works. It's a virus, purposely infecting the original application, that waits 30 to 90 days after install and then generates a new host configuration test that will pass for the legitimate owner, but fail for cracked copies. This delay assures that a significant number of illegal copies have been installed. The test sequence itself is not present in the legit original, so it cannot be found and bypassed by the hacker. How this is accomplished is very cool.

Upon failing the test, the Doomsday Engine begins to misdirect disk writes, slowly damaging random files. The illegitimate user eventually notices the damaged files but has no way of knowing what damaged them or when it happened. Once the Doomsday Engine has done its work, the only solution is to reformat the drive. Evil but appropriate.

EPILOGUE

The audio software industry is new and exciting, but it cannot survive the onslaught of these hackers without intervention—from law enforcement and from you.

I fully expect to agitate and offend certain people, and even lose readers with this column. The subject itself, when truly understood, is deeply offensive. How the porn industry finances these hackers, and what their motivations are, is another story altogether. To the rest of you, I do apologize for what may appear to be preaching, but this is a real problem that, if not stopped, will dramatically change what software is and will be, how it will be marketed, priced and supported. And I assure you that all of these changes will be for the worse.

We have it great right now, but we have reached the moment of truth. Cast your vote with action. Buy what you use and look the other way if you happen to see me walking into a dark alley with my arm around a pirate. I've had enough of this shit. ■

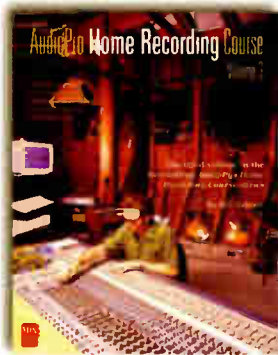
SSC loves this industry. In all his years as a member of the recording community, he has never seen a threat as insidious as software piracy. But then there's outlaw MP3...

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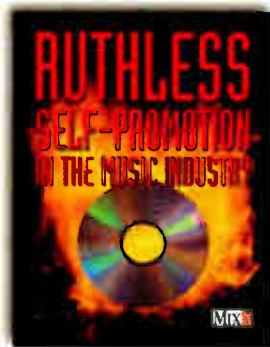
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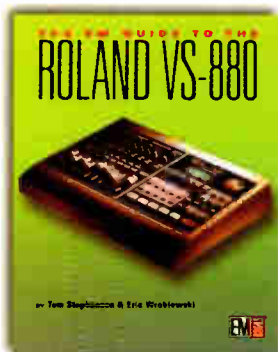


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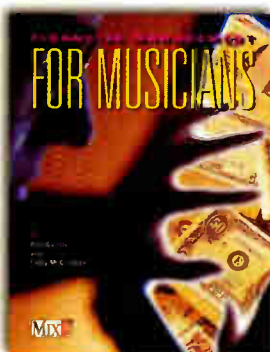
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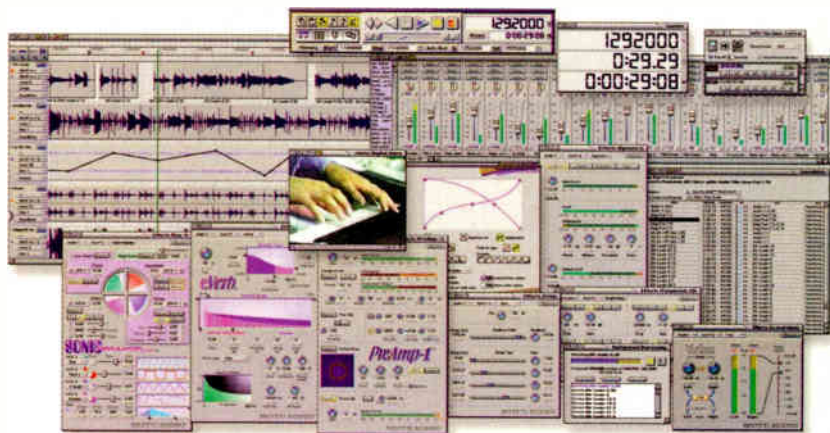
A GRAB BAG OF SHORTCUTS AND TIPS

A significant part of the MOTU 2408 Hard Disk Recording System's appeal lies in the powerful AudioDesk software, a sophisticated and feature-laden multitrack recorder/editor.

Transferring dozens of tracks of audio into AudioDesk from a multitrack tape recorder is a snap. Command-click the Record Enable button on any track to enable all tracks except the one you clicked. A second click (sans command key) on the same track's Record Enable button will ready it to record along with the rest. Option-clicking disables all the other tracks. The same command sequences can be used to quickly Play-Enable/Disable all tracks, or to toggle the Volume/Pan Automation on/off for all tracks (clicking on Play-Enable or Automation buttons, respectively). The Assignments command (in the Graphic Editor's mini-menu) brings up a dialog box that allows you to assign all selected tracks to consecutive inputs and voices with a couple of mouse clicks.

It's all too easy to lose your place when editing at the sample level. To keep your bearings, here's a quick way to zoom—both horizontally and vertically—way in and way out: Hold down the Option key while dragging the mouse over a small time range to zoom down to a microscopic view of that region. Then hold down the Option and Shift keys while you click anywhere in the Graphic Editor's grid to toggle between this view and the previous "macroscopic" view.

Here's a great arranging tool: Try substituting one sound bite for another by using the Merge function instead of pasting. This allows you to toggle playback between the original and substitute sound bites. The substitute sound bite will



MOTU's AudioDesk software offers comprehensive recording and editing features.

be placed on top of the original one, temporarily replacing it. To then hear the sound bite that was replaced, select the sound bite that was substituted for it and choose Move to Back from the Audio menu. This places it underneath the original sound bite on the display, so that it is not heard. Merging is much more flexible than using copy and paste with Undo/Redo, because you can change your mind at any time and go back to the sound bite you ditched. In fact, multiple sound bites can be merged to provide several alternative arrangements.

MOTU's inconspicuous Trim plug-in (bundled with AudioDesk) provides high-resolution stereo meters that are useful for viewing the output ceiling of stereo mixes transferred from DAT for remastering. Assign the stereo track to buses 1 and 2 via post-fader sends, and set the sends to unity gain in the Mixing Board window. (Double-click on the send knobs to set to unity.) Add a new stereo aux track via the Graphic Editor's mini-menu, and assign its inputs to buses 1 and 2. Then send the aux track "out to get pizza"—that is, assign its outputs to somewhere it will never be heard. We only want to use the aux track for metering purposes. Assigning the Trim plug-in to this aux track's insert will now allow you to view

the post-fader levels (downstream from all EQ and dynamics processing) of your mix.

To increase the resolution of the Trim's meters (in the Effects window), drag the triangles under "Range adjust" so that the meters show a range from about -6 to +2 dBFS. This will give you approximately $\frac{1}{4}$ dB meter increments around the 0 dBFS point and $\frac{1}{10}$ dB peak level read-outs, for ultra-precise metering of your available headroom. I like to leave around .3 or .4 dB of headroom to give consumer CD players a little leeway.

AudioDesk is just as precise with setting output levels as it is with viewing them. Sometimes dragging control points on automation volume curves may not give you the exact level you require, because the parameter value skips over too big of an interval. No problem. In the Graphic Editor, click on the control point, click on its parameter value read-out in the Information Bar (above the Time Ruler) and type in the exact number you want with your computer's keyboard. Using this method, resolution improves down to $\frac{1}{100}$ dB. That should be sufficient for all you tweakheads out there! ■

Michael Cooper is the owner of Michael Cooper Recording, located outside the small resort town of Sisters at the base of the Oregon Cascades.

BY MICHAEL COOPER

Buying a new
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September
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before CD players
came out.

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Revolutionary transducer designs, optimized network topologies and innovative materials are some of the reasons why the LSR line is being hailed as 'the world's most advanced monitor'. JBL's all-new *Differential Drive*® woofer permanently dispels the notion that better linearity, higher power handling and greater dynamic accuracy are somehow an unobtainable, evil triangle. *Dynamic braking* produces truly accurate bass at higher SPLs with maximum reliability. Composite materials, including *Carbon Fiber* in the woofer as well as *Titanium* and *Kevlar*® in the high and mid frequency components, insures performance that is always optimally maintained.

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LSR 32

12" 3-way mid-field monitor with rotatable Mid/High Elements.



LSR 28P

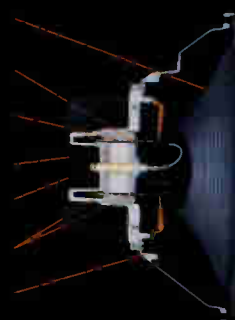
8" 2-way close field monitor with bi-amplification and active filtering.



LSR 12P

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- Dual Top Plate
- Dynamic Brake Coil
- Neodymium Magnet
- Aluminum Diecast Heatsink
- Dual Drive Coils
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