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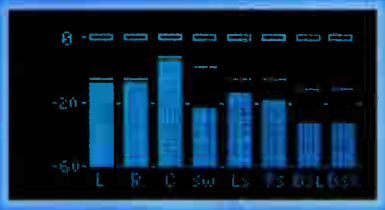

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Rob Chiarelli, Engineer / Mixer

Larrabee Studios,
Los Angeles.

XL Session Report

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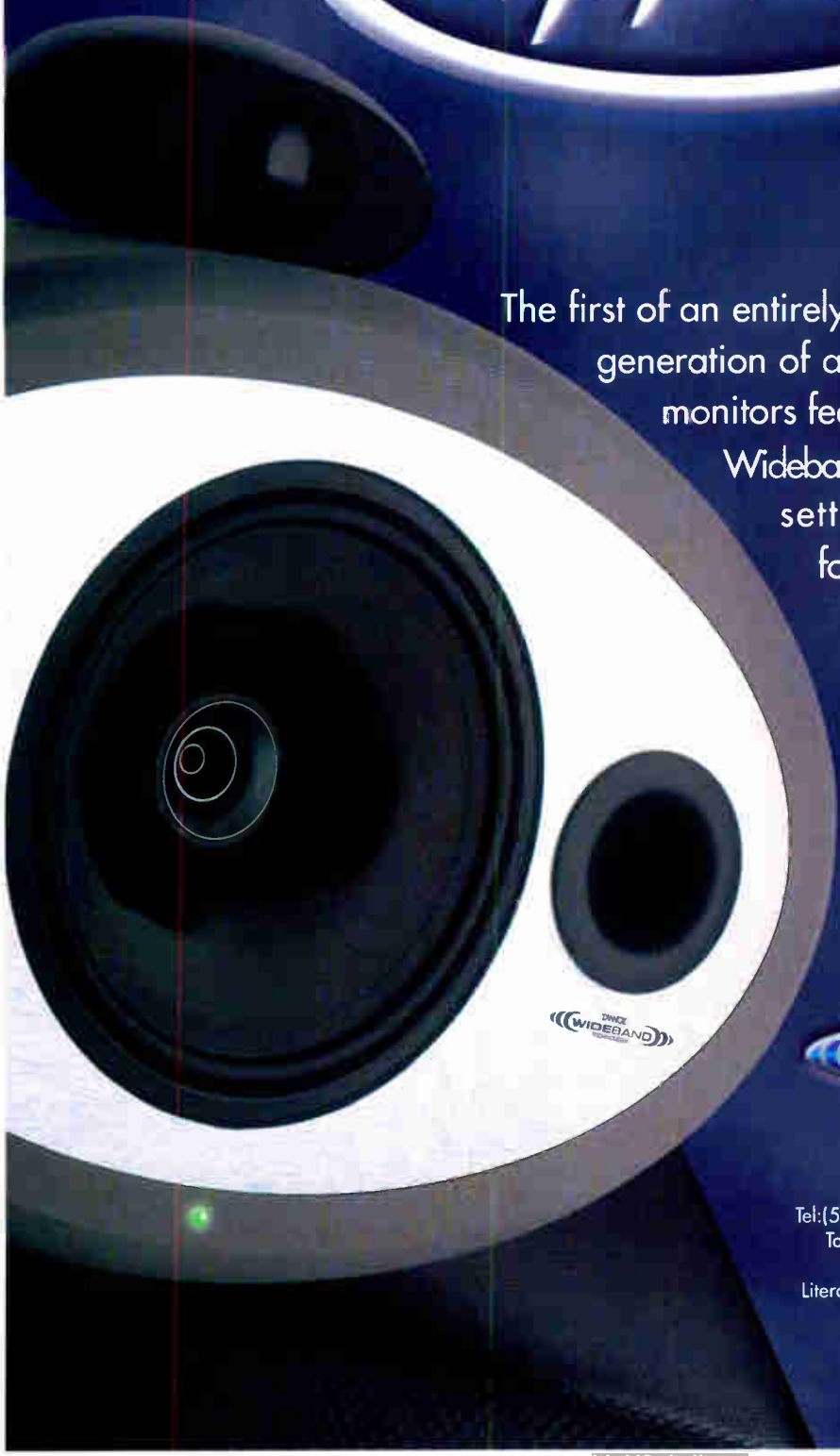

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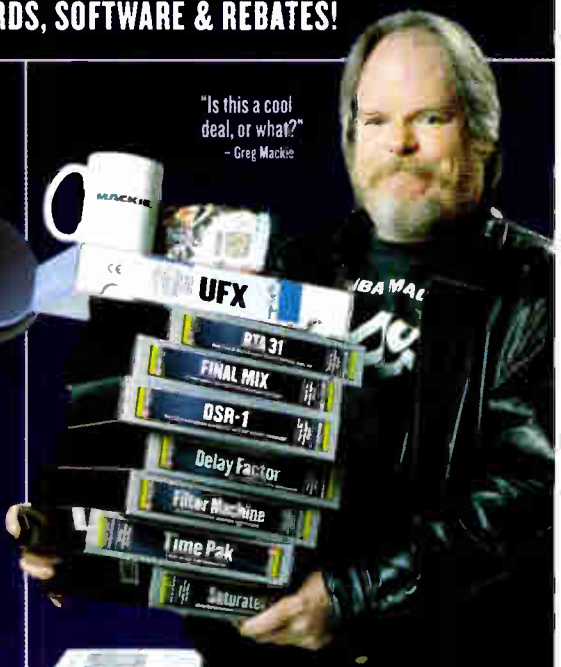

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TEC-nology

There's always excitement in the air around here as we approach the voting stage for the annual Technical Excellence & Creativity Awards. Now in its 18th year, the TEC Awards has become a major spotlight for pro audio's best and brightest engineers, producers, facilities, service providers, products and technologies.

But while we celebrate new technologies, we retain our reverence for classic, older gear. Pro audio is unique among technology-based industries in that we create with a blend of old and new products. In video production, there is little appreciation for tube-based cameras; in software development, the market in applications for older platforms such as Windows 3.0, Atari ST or Amiga is nonexistent.

New developments in audio are usually accompanied by a certain dose of skepticism—sometimes appropriate, sometimes not. For example, 20 years ago, the Compact Disc was touted as the "ultimate in audio reproduction," a statement that was, at best, overblown.

Several months ago, I was contacted by a writer for a European audio magazine who asked for comments to support his belief that the advent of pitch-correction devices—such as Antares' AutoTune and TC Electronic's Intonator—had somehow destroyed music. I think he was somewhat disappointed when I replied that such products are simply tools and haven't "destroyed" music any more than the ability to punch-in a passage 75 times until a performer gets it right, or "comping" a final vocal by combining parts from several takes, or using cut-and-paste editing to replace a flawed chorus with a good one. In fact, having a pitch corrector in the vocal chain can serve to enhance a vocal (live or studio) by providing a "safety net" so that the performer can concentrate on the overall performance without worrying about that one tricky note.

MIDI has been a mixed blessing, providing low-cost tools for music production—a definite plus—while encouraging and enabling some of the worst music ever written. At the same time, MIDI notation software allows for the simple creation of printed scores, leaving one to wonder how much extra output masters such as Mozart and Bach could have wrought had they been free of the drudgery of meticulously writing their creations by hand.

In our everyday activities, we may deal with punch-ins, vocal shapers or quantizing MIDI files—simple tools and techniques to enhance rather than replace musical skills. Veteran producers and engineers also rely on time-tested tricks such as sneaking a bit more reverb into a headphone mix, dimming the studio lights to create a mood or pre-recording a "guide" vocal to keep a shaky singer on track. The real artistry comes from knowing what combination of technology or techniques will succeed in creating the best possible performance—the ultimate blend of technical excellence and creativity.

George Petersen
Editorial Director

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* As reported by Music Trades Magazine April 2002 issue.

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Letters to Mix

Los Lobos

LOS LOBOS CORRECTIONS

I enjoyed the article on Los Lobos in the June issue. I did notice a couple of factual errors I'd like to comment on. The modules in Cesar's console are mostly 33114 and a few 33115s. Although I have informally chatted with Tchad Blake in over the years, I have never worked with him. So I have only been "schooled" by him insofar as his work has influenced me from a distance.

Dave McNair
Via e-mail

UPMIXING WITH DIGNITY

In the April 2002 issue, Hank Neuberger remarked on the downside of "up-mixing," pointing out the "baloney" of taking a 2-track mix, passing it through some process, and then misrepresenting it as a 5.1 DVD.

I, too, am concerned about producers "rechanneling" 2-channel material and passing it off as 5.1. And surely this will happen. It already has. But there are two sides to every story. I have invented a patent-pending algorithm that is a very powerful "up-mixer," together with that superb DSP programmer and inventor, Glenn Zelniker, who licensed my K-Surround process for Z-Systems Model ZK-6.

This is a true psycho-acoustically based ambience-extraction algorithm, which separates out the inherent ambience in recorded material and sends it to the surround channels, among other facilities in the ZK-6.

There are many legitimate uses for such a box, e.g., television mixes in surround that need to incorporate and "expand" original music that was originally produced in stereo and is not available in surround. Also, motion picture mixes where the mix engineer wants to expand and envelop original 2-channel music recordings, or surround mixes for record albums where the original multitrack tapes are damaged or unavailable.

Recently, the original mix engineer for an album that was being remixed for surround realized that two tunes for the album had been extensively edited on the 2-track. It would have been prohibitively expensive for him to remix and then re-edit this material, and the album could not have come out. He used the Z-K6 and was very happy with the results in 5.1. Note that the up-processing was performed by the *original* engineer in the same studio, with the same integrity, creativity and monitoring context as the rest of the 5.1 album that he was remixing. This is the way to approach such a problem with integrity. And that is the way in which the Z-K6 is marketed. It is not a "plug-and-play" tool that just anyone can operate; its parameters require the skills of an experienced mixing or mastering engineer. We have about a 50% success record turning 2-tracks to 6; not every one is suitable, and it would be a miracle to expect better.

There is a competing algorithm from TC Electronic that also performs "upmixing" and has other sonic attributes. Sometimes mixes that do not work well with our system are better suited for the other, and vice versa. But what both systems have in common is the need for the taste and skills of an experienced producer, preferably the original producer of the record. Do I agree with Hank that this kind of approach is "disrespectful to the artists, their music and the audience"? Not in this case—not when it's done with integrity and professionalism.

Bob Katz
Digital Domain
Orlando, Fla.

INSECURE ABOUT SECURITY

As an avid *Mix* reader and Internet-addicted audio professional, I am quite surprised by the lack of coverage of the content industries' lobbying efforts directed at your country's legislators. Laws such as the DMCA and bills such as the Consumer Broadband and Digital Television Promotion Act (CBDTPA), formerly known as the Security Systems Standards and Certification Act (SSSCA), are designed to give downright ludicrous and devastating legislative powers to Hollywood, the record labels and the like.

The Broadcast Protection Discussion Group (BPDG), for instance, is proposing that all A/D converters be fitted with technology that allows them to shut down if the data they are processing is watermarked and, therefore, deemed copy-protected by Hollywood (see http://bpdg.blogs.eff.org/archives/000113.html). Can you imagine the implications this would have on our industry? Your new Telefunky MR3205 would actually shut down if the converters detected a watermark from, say, a show from the TV that's on in your control room. All the fancy gear with A/Ds in your control rooms would be illegal, because they do not possess watermark-detection circuits.

The content industry would like to slip all these changes under the radar of the American people and make them into law, thereby increasing their monopolistic stranglehold on content, and I feel it is the responsibility of your publication to keep your readers informed. Our industry's technological side is borne from innovation and free development. We need fewer restrictions, not more.

Peter Jankowski
Audio systems coordinator
Corel Centre/Ottawa Senators Hockey Club

Copyright legislation, security and rights-management issues are undergoing constant revision as technologies develop. For the newest developments in copyright and digital rights-management schemes—and their implications on the audio industry—check out this month's "Bitstream" and Paul Lehrman's take on the latest "copy-protected" CDs in "Insider Audio." —Eds.

ATTACK-RELEASE-COMPRESS

A letter in the May issue titled "Apples or Oranges?" questioned Eddie Ciletti's statements with regards to compression and limiting in his January "Tech's Files" column. I believe Eddie's statements, taken within the context of the article, were in reference to VU meter response for different types of material and compressor/limiter action. Also seldom mentioned with older variable-mu compressor/limiters is the fact that attack time does somewhat dictate whether you get compression or limiting, due to the speed and level of transients causing limiting in most program situations. This also is completely dependent on the release time setting, as well as the threshold/ratio setting; for instance, a fast enough release at *any* ratio for most units will lower the ratio to nearly unity again. That is why this circuit type generally has only a few presets; wide control functions allow for wildly different results and a very steep learning curve.

One can understand early engineer's yearning for a compressor/limiter with discrete control functions. I suspect many early poorer-sounding units were sales successes on the merits of their control functions alone, despite having inferior overall sound.

Doug Williams
Electromagnetic Radiation Recorders
Winston-Salem, N.C.

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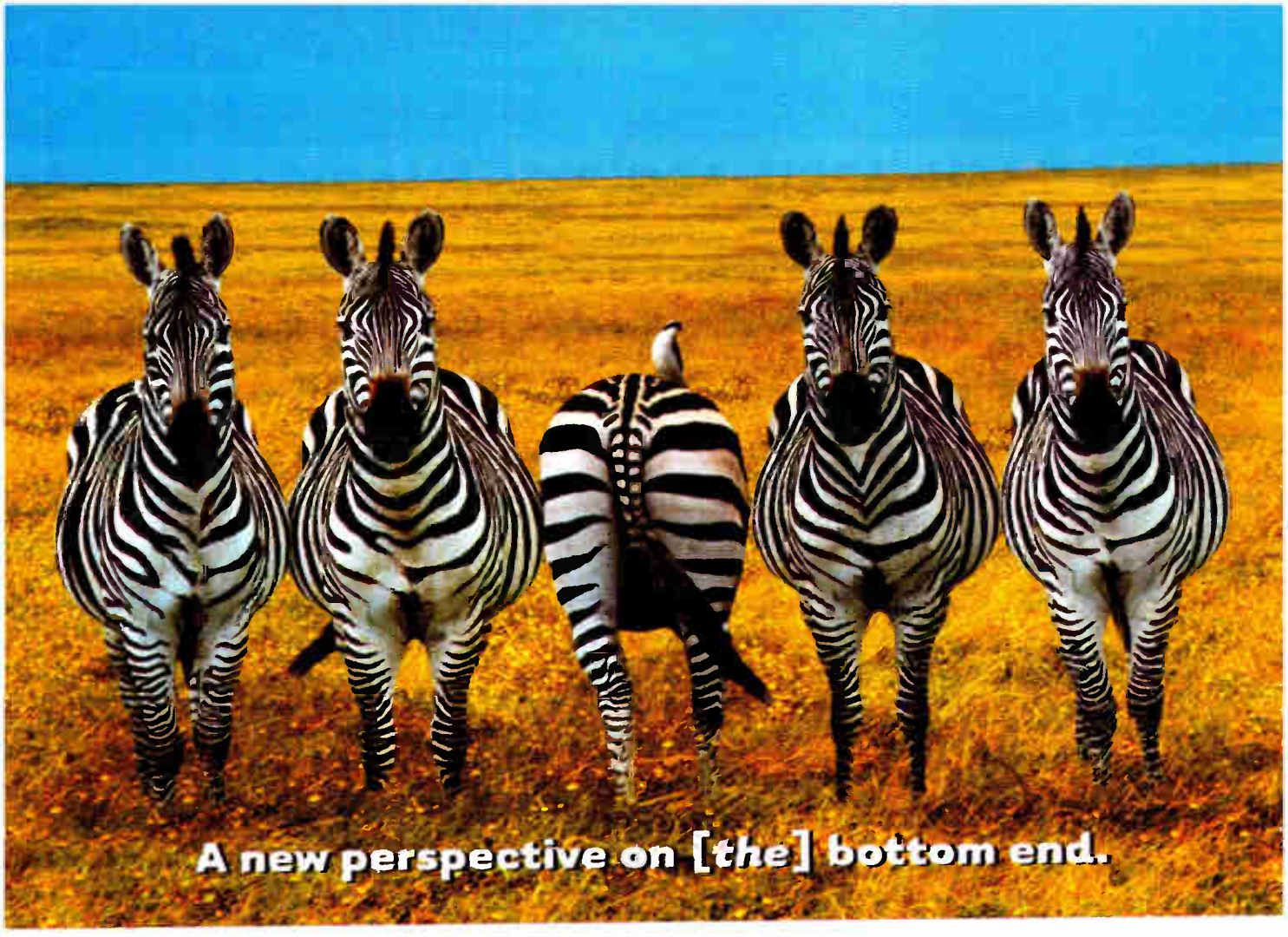

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LE MOBILE IS LE 25

MIXING IT UP AT MTV'S MOVIE AWARDS

Celebrating its 25th year on the road, Guy Charbonneau's "sound studio on wheels," Le Mobile, rolled into the Shrine Auditorium (Los Angeles) to record and mix the music for the MTV Movie Awards. Jay Vicari (*Saturday Night Live*) was primary engineer and music mixer for the festivities; he was assisted by Le Mobile's Charlie Bouis. Ted Barela and Ian Charbonneau manned the stage tech positions.

After a day of setup, Vicari and Bouis pre-recorded track transfers and editing, as well as backup vocal pre-records of the hosts and guests inside the truck. On June 1, the awards show's music was recorded to hard disk using a Tascam MX-2424, with editing and mixing handled the next day.

Jay Vicari (left) and Charlie Bouis celebrate a job well done in Le Mobile.

"I think we did a week's worth of work in three days," commented Vicari, "but it came out sounding great. That's why I've used Le Mobile for the last five years to do this gig; it just sounds so good in there. You never have to fight to make up for any deficiencies in the audio quality."

NOTES FROM THE NET

The Web is greater than the sum of its parts: The International Federation of the Phonographic Industry (IFPI) released a study on June 11, that stated that bootlegged music sales increased by almost 50% worldwide last year. The IFPI targeted out "pirates" who used the CD-R format to release 1.9 billion illegally duplicated units in 2001, an estimated $4.3 billion value. According to Jay Berman, IFPI chairman and chief executive, most pirates are involved in sophisticated, international networks that feed off of the lax copyright laws found overseas, especially in countries like Russia, China and Brazil. This is where the WIPO (World Intellectual Property Organization) enters the international scene. Signed on May 20, 2002, the World Phonograms and Performances Treaty (WPPT) bars the unauthorized delivery of recorded or live musical performances on the Web. Grouped with its sister treaty, the WIPO Copyright Treaty (WCT), which protects the copyrights of authors and publishers, the WPPT will bring "international copyright in-line with the digital age," a spokesman for WIPO said in a statement. As of press time, 35 and 34 countries have signed the WCT and WPPT, respectively.

Calling the kettle black: But the CD-R format that pirates use to create the revenue loss is the same technology that is driving legitimate sales by consumers, according to a study released by market research company Ipsos-Reid. The study found that 80% of music downloaders said that their music-buying behavior remained the same or increased, despite their use of CD-Rs. This is similar to research provided by Jupiter Media Matrix, which concluded that people who use file-sharing networks were more likely to spend money on music. Can you see the labels prick up their ears? Beginning this summer, Universal plans to distribute tens of thousands of digital singles for 99 cents and albums for $9.99 through Liquid Audio (which was recently bought out by Alliance Entertainment) to online retailers such as Amazon.com, Best Buy and Sam Goody. And this same CD-R technology that the labels are seemingly fighting against will soon find its way onto the labels' online music services. Universal's upgraded service will also let buyers burn the music files onto CDs. Sony's service also plans to allow CD burning in the near future.

Industry News

Chris Trevett

Andrew Caulfield

Kip Whitehead

Simone Lazer

A year after he was named managing director of **Fluid** (New York City), **Marc Schwartz** has been made a partner. Joining Schwartz on coffee breaks is **Brad Stratton**, the company's senior music producer...New York-based **Sound Lounge** promoted **Rob DiFondi**, a staff assistant for the past two years, to mixer, where he will be rubbing elbows with Philip Loeb. Sound Lounge recently broke a bottle of champagne on the custom window treatments of Loeb's all-new, custom-designed digital audio mixing suite...**Simone Lazer** has joined **Slingshot** (New York City) in the director of new-business development role...Name-dropping on the East Coast: **SOS Management** (New York City) has added mix engineer **Chris Trevett** to its talent roster...Numerous personnel changes at **Waves** (Knoxville, TN): **Paul Bundschuch**, VP of sales and marketing for the company's semiconductor division, has reduced his support for the professional and broadcast products divisions to focus exclusively on Waves MaxxBass ASIC and other technologies; **Bob Reardon** has been appointed VP of sales and marketing for North and South Americas in the professional products division; **Didi Dori** has been hired for the marketing coordinator position for the professional products division; and **Pete Carty** has been promoted to the product specialist position in the professional division...You may remember him as the former sales manager at Rane Corporation: **Jack Ewer** is **Carver Professional's** (Portland) new director of sales and marketing...**HHB USA** (Los Angeles) has brought **Tim Murray** onboard in the national sales manager role...Based out of New York, **Neil Hochman**, account manager, will be telecommuting with his bosses at Springfield, Oregon-based **Sony Digital Authoring Services**...Filling Don Peterson's shoes, **Kip Whitehead** has been promoted to technical support/field service manager for **Crown International** (Elkhart, IN)...In conjunction with its expansion of distribution operations in Melville, N.Y., **Korg USA** has hired **Andrew Caulfield** to the newly created position of director of distribution operations...New distribution deals: **Apogee Electronics'** (Santa Monica, CA) digital audio conversion systems and accessories will be distributed by **Arbiter Group plc** (Hendon, UK) in the UK and Republic of Ireland; **TC Electronic** (Westlake Village, CA) will be distributing **Lab.gruppen** (Kungsbacka, Sweden) amps in the U.S.; Las Vegas-based **Transamerica Audio Group** is the exclusive distributor of **Z-Systems** products in the U.S.; and **Zero International** (Bronx, N.Y.) has opened a new distribution center in North Las Vegas to service customers in the Western states. It is located at 2450 Losee Rd., North Las Vegas, NV 89030; 702/633-9300; fax 866/585-3230.

World Radio History

TASCAM DM-24:
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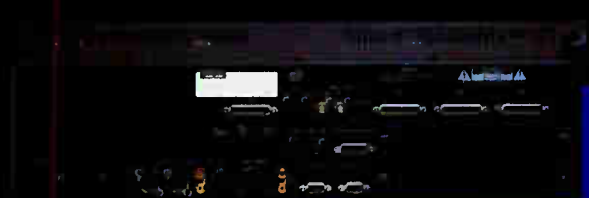

The DM-24's rear panel includes AES/EBU digital I/O, S/PDIF digital I/O, MIDI In, Out and Thru jacks, ADAT Optical input and output, external footswitch connector, time code input, GPI port, word sync in, out/thru, DTRS remote port, RS-422 9-pin control port, 24-channel TDIF I/O and more. Shown here with standard interfaces. Not luxurious enough? Customize your DM-24 with two expansion ports for extra analog, TDIF, ADAT or AES/EBU modules.

Luxury usually comes with a hefty price tag. Not so with the new TASCAM **DM-24 32-Channel 8-Bus Digital Mixing Console**.

The DM-24's features are usually reserved for super high-end mixers. With 24-bit/up to 96kHz digital audio, the DM-24 blows away the standards in sonic quality for affordable consoles. With its internal automation, you'll get more power at your fingertips than you would from those huge consoles in commercial facilities. With some of the finest spatial and modeling processing from TC Works™ and Antares™, you can create fully polished productions without ever going to the rack. With incredibly flexible routing, fully parametric EQ, machine control capabilities, touch-sensitive motorized faders, and lots of audio interfaces, you can integrate the DM-24 into any studio environment.

Whether you're working with standalone hard disk recorders, DAW systems, MDMs or analog tape, the DM-24 is optimized to be the very best choice in consoles designed for 24-track recording. Ready to get everything you ever wanted (and more) in a digital console? Get the DM-24 today at your authorized TASCAM dealer.

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World Radio History

Avatar Blends the Past and Future

By Paul Verna

With 25 years under its belt, the New York-based complex now known as Avatar Recording Studios is one of the city's legendary music haunts. It has hosted a parade of superstars that includes Bruce Springsteen, Diana Ross, Talking Heads, David Bowie, Nile Rodgers, The Ramones, Eric Clapton and Foxy Brown. Unlike other studios that pride themselves on their history, vibe and vintage equipment, Avatar places as high a premium on its future-mindedness as on its heritage, emphasizing such high-tech areas as ISDN connectivity, Pro Tools HD and Direct Stream Digital. Nowhere else in New York do past, present and future collide the way they do at Avatar.

It is a mark of the studio's greatness that it has survived bankruptcy filing, an auction, a name change (from Power Station) and shifts in ownership.

Asked what makes Avatar special, president/owner Kirk Imamura says, "First of all, it's the rooms. They sound great, even after all these years. I have to credit [Power Station founder] Tony Bongiovi for the unique design. It still stands today. Beyond the sound, it's the look and feel of the wood. The way Studio A's tracking room is domed, it gives you a warm feeling when you walk in. Drums sound great in there. The studio musicians who come in can't stop raving about the room, and their talents really jump out in it."

Imamura also attributes the studio's success to its commitment to nurturing the engineering staff. "We treat our assistant engineers very well here," he says. "They have a pretty good employment arrangement with us where they get a guaranteed number of hours of work. Because of that, people are loyal here. Scott Young, our chief engineer, still believes in training and passing down his knowledge." Studio manager Tino Passante has been with the studio since the Power Station era. Chief technical engineer Ken Bailey and Young date back to the early Avatar days before Imamura took over in early 2001.

PHOTO: DAVE KING

Studio A includes a vintage Neve 8068 board and a view of Avatar's most famous tracking room.

PHOTO: DAVE KING

Engineer/musician Jeff Bova

Another factor in the studio's success, according to Imamura, is its casual, but professional attitude. "We don't try to impress," he says. "The rooms speak for themselves, so we don't feel we need to intimidate people when they come in."

Judging by the number of clients who are making return trips, Imamura's approach is paying off. Forceful Enterprises—the production company owned and operated by the famed Full Force production crew—recently leased space on the second floor of the Avatar building for its new headquarters. This move brings Full Force full circle to the studio where the crew got their start.

"We actually started out in this building more than 20 years ago when it was Power Station," says Full Force leader Bowlegged Lou. "It's nice to be back. It's wonderful to have these great-sounding rooms right next door."

Similarly, engineer/mixer Roy Hendrickson is "returning" to Avatar as an engineer/mixer-in-residence. Hendrickson was a Power Station staffer from 1985 to 1992, when he left to pursue a freelance career and has since worked in other world-class studios. He credits the Avatar rooms as acoustically and ergonomically outstanding: "The building feels like home to me. It is a great place for inspiration and creative support. It was like that during Power Station days, and it is still like that today as Avatar."

Full Force and Hendrickson are the newest members of an elite group of engineer/musicians. Others include Jeff Bova, Jan Folkson and Jim Janik. "I think of this creative community as a marketplace where people are comfortable doing what they do," says Imamura. "As people get more and more familiar with other people who do the same thing, something great is bound to come out of the situation."

This tradition of musicians, engineers and producers cross-fertilizing each other's

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PHOTO: DAVE KING

Full Force, then with Bowie (inset) and now. Full Force are, from left, Curt-t-t, Shy-Shy, Paul Anthony, Baby Gerry (front), Josh Wilber and Bowlegged Lou. Pictured with Bowie at Power Station are, from left, Paul Anthony, Nile Rodgers, Steve Salem (Full Force's late co-manager) and Bowlegged Lou.

projects is a throwback to the early days when legends like Bob Dylan would meet young upstarts, like Full Force, and end up collaborating on sessions. Imamura wanted to build a similar culture at the new Avatar, and he's already seen evidence that his efforts are bearing fruit. For instance, when producer Gregg Wattenberg was at the studio recently working on material by Chantal Kreviazuk, he got Michelle Branch, who was working in another session, to sing with Kreviazuk on a track.

If Avatar is a hotbed of creative activity in New York, then it is also a nexus of state-of-the-art recording and processing. Recently, Avatar installed a Pro Tools HD system, keeping pace with the latest generation of the popular digital audio workstation. Avatar is also a pioneer among independent recording studios in offering Direct Stream Digital recording, the process that underlies the Sony/Philips Super-Audio CD format.

PHOTO: DAVE KING

Engineer/mixer-in-residence Roy Hendrickson

Imamura explains: "There's a producer here, Yasohachi '88' Itoh, who was one of the first clients for Power Station. He's affiliated with Sony's Japanese studios, and he wanted to produce albums here that could be a showcase for SACD. Since I'm a Sony veteran myself, having worked for the company for 17 years, I hit it off with him and we decided to do this." Besides Itoh's projects for Sony, several jazz albums have been cut at Avatar on one of two DSD systems: the 2-track "silver box" and the 8-track Sonoma recorder/editor. Clients have included Hank Jones and Elvin Jones (Studio A), Max Roach and Clark Terry (Studio C), and various Telarc projects. "The end result sounds great," says Imamura of DSD. "It's just another way for us to gear up for the future."

Alongside its commitment to digital technology, Avatar has decided to stay with analog mixing consoles in its four main rooms. Studio A houses a vintage Neve 8068 and the tracking space for which Avatar is most renowned—a room that Sony and Yamaha have sampled for their high-end reverb boxes. Studio B's control room is equipped with a 72-input Solid State Logic SSL 9000 J analog console with a 5.1 monitoring matrix, Total Recall and Ultimation. It adjoins a 20x30-foot tracking room with a ceiling height of 15 feet at its highest point.

Studio C is based around a 72-input Neve VRP with a 24x40-foot studio with 24-foot ceilings and flexible architecture, which allows the space to be divided into three large iso booths. The recently rebuilt Studio D—with its glossy black walls—departs from the natural wood tone in the rest of the facility. It now houses a second SSL 9000 J.

The consoles reflect the preferences of Avatar's clients, who appreciate digital technology in the form of hard disk recorders, editors and processors, but prefer the sound and feel of large-format analog consoles. Listening to clients and staff might seem like an obvious tactic for a studio owner, but Imamura says that he is surprised at how often equipment decisions are made without looking at the wishes of the people who use the gear.

As attentive as Imamura is to his high-end clients, he is equally supportive of the underground community. "If we have unbooked studio time," he says, "we invite unsigned artists and give them a reduced rate so that they can put together demos. We want to encourage people who want to get into the industry. Why shouldn't they have a good-sounding demo?"

To nurture the local music community was one of the founding principles at Power Station, which opened in 1977 as a venue for seminal New York acts such as The Ramones and the Talking Heads, as well as a wealth of rock, pop, jazz and advertising clients. Bongiovi ran Power Station until 1996, when he declared bankruptcy and was forced to auction off the studio. The buyer was a group of entrepreneurs, led by Voikunthanath Kanamori, who renamed the facility Avatar but otherwise kept it largely intact. Imamura took the helm in early 2001.

Today, a re-energized Avatar thrives, surviving even the terrorist attacks of September 11, which dealt a serious blow to the New York industry. It took a toll on the studio's bookings, but business has picked up, according to Imamura. "After September 11, a lot of projects were put on hold until early spring," he explains. "That's when a lot of projects got the go-ahead from the record labels, and we're starting to feel the effects of that. Normally, summertime is slow in the studio business, but this year is atypical. It looks like summer's going to be busy for us." ■

World Radio History

BY STEPHEN ST.CROIX

We All March...

To a Different Drummer

ILLUSTRATION: ANDREW SHACHAT

Drums are fascinating—acoustically inefficient and laughable as low-frequency emitters, yet loud enough to scare the hell out of unsuspecting bystanders. Impossible to mike, but so satisfying when you do.

And we put them in the hands of the last people on Earth who should have access to such things. We give drums to *drummers*!

No, this column is not going to be about the ageless war between drummers and all the other guys in the band. Nor will I stoop to cruel (though often accurate) jokes and anecdotes crafted to bring that special feeling of warmth and camaraderie to everyone else in the industry at the wholesale expense of drummers. You won't even see the words "push," "lag," "loose," "drift," "off" or "deaf." And I *certainly* won't bring up classic observations posed to drummers over the decades like, "Well, I guess now we know where all the Quaaludes went," or the same line with "coke" replacing "Quaaludes."

Nope, I'm takin' the high road on this one.

THE ABSURDITY OF THE DESIGN

If you put a 24-inch woofer in a 24½-inch-round, 24-inch-deep, *open-back* box, would you expect any low frequencies to be generated? Of course not. Everybody knows if you don't do something to stop the out-of-phase back wave from the rear of a low-frequency driver from canceling the front wave, you get nothing. That's why speaker cabinets are sealed or have tuned ports.

But not drums. On a typical rock kick, you have well over ½-inch of initial diaphragm excursion on a 2-foot membrane. With any well-designed cabinet, this should break windows and impress the cops who show up when the glass hits the ground.

Toms aren't that much better, but they do make the token tube a little longer as the tom gets bigger, the sort of noncommittal brute-force approach to acoustic design that hasn't changed since the first Heavy Pre-Metal tribal drummer stretched a skin over a hollow log.

And snares? I still play an old Black Beauty. This thing was designed to do one thing: make a very loud

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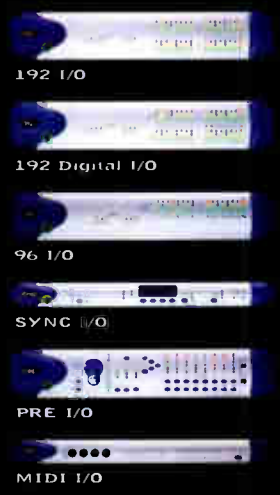

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short spike with metallic overtones. It was specifically created to output as narrow an energy signature as possible, while hurting as many ears as possible. A well-executed rim shot on this thing will cause any nearby narcs to drop to the ground and reach for their weapons.

So we have to face the fact that drums have always been designed to project the loudest possible transient at the cost of any real content control. Sure, efforts are made in choosing materials, tension approaches and laminating techniques to work out the more inharmonious components while accenting any pleasing harmonics. But an incredible amount of broadband energy is discarded in favor of the one spike that each drum can best project.

There *is* also a legitimate consideration in this seemingly imprecise school of drum design—drums must be tunable. Because of this, high-Q resonant drum designs are out of the question.

SO WHAT?

So how bad is all of this? Well, it's bad. And it's good—*real* good. The fact is that drum acoustic characteristics are very unstable and can change dramatically in response to tiny changes in head tension, head tension uniformity, how many wallets or feminine napkins are duct-taped to the skins, and, of course, mic choices and placement.

But the problems and instabilities that you face when you mike a drum kit are really opportunities to shine at your craft.

Recording drums separates the technicians from the true artists. Properly printing a full kit requires much more than the proper gear and more than experience and understanding: It requires musical creativity and acoustic artistry. Recording drums is an Art unlike any other.

TWENTY STUPID THINGS JUST MIGHT YIELD ONE AMAZING TRICK

We all know what mics we are supposed to use for each drum by now, and we all know where to put them. But have you actually tried all of your mics on every drum? I have. Even the insane ones. A couple of U47s can do interesting and unusual things as an LR overhead setup, though I admit that the fun is over when the drummer hammers one and caves in the screen. And close 451s can actually produce a very fat and friendly but defined sound while handling peak transients in novel but predictable ways, if you are creative with placement.

And, surprisingly, with a little work, I have had very nice results with several of the mid-priced Japanese electrets made in the '80s. There is something about how they act under extreme stress from high-level transients that drums produce.

For kicks, I have always liked a large dynamic inside for a fat, warm, almost fluffy bottom, with a fast condenser off-axis on the mallet side for snap and harmonics. I never really cared if the internal dynamic got overloaded a little, as it just added to the feeling of power and volume that only a dynamic pushed really hard can give you. A little mush can usually be covered by proper mixing of the *phase-inverted signal* from the condenser. Oh, yeah, there is one rule for this: Whatever EQ you use on the backside dynamic should be applied to the condenser as well, or the phase shift from the EQ on one mic will create a certain artificiality when mixed with the audio from the other mic.

BANG THE GONG

Cymbals. I have been able to get amazing

—CONTINUED ON PAGE 174

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TRUST YOUR MIX TO MIDAS

"Frankly, there is nothing that compares to the Venice in sound quality and size! And believe me, I've tried everything..."

Marvin Sutton, FOH engineer, Morgan Sound
Faith Hill/Tim McGraw

TEC NOMINEE

"I can honestly say that this is the sweetest sounding board I have tested."

Jamie Rio, Technical Reviewer, *Gig* Magazine

Blue Barrel Jazz and Blues Festival

"We auditioned the Venice 240 at AES this year and were blown away!"

Marty Wentz, FOH Engineer

9-piece showband, "Which Doctor"

"I've dreamed of something like this, and now Midas has come through with its Venice series."

Etienne Lemery, Technical Reviewer, SONO Mag World Edition

"This is an outstanding console. We've had it jammed to the max and it performs wonderfully! Truly a MIDAS!"

Jack Haffamier, Manager, Nelson Sound

Pasadena Pops/Wayne Newton/Jay Leno at Bally's Events Center

"Keeping the show within budget. Saving the sound. Truly fantastic!"

Robbie McGrath

Peter Yorn/Weezer U.S Tour

"This is the money! I had every single hole at the back of the Venice 320 filled with all the toys like Summits, Focusrite® and Drawmers®. I was running three sends back to stage for monitors, two for effects and the last for subs. DI outs to Pro Tools®. I was maxxed out, and it seemed to like it. I did too!"

Cristiano Avigni, FOH Engineer

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obnoxious sine wave sweep.

"It got your attention, didn't it?" he laughs today. "Those ads gave us an immediate identity, which is very important with radio. No one told us they wished the oscillator sound went on twice as long, but it worked." His conversational voice is far more pleasant, and less insistent than in his commercials. The distinctive radio ads were first produced in their own factory, on a pair of Advent cassette decks and mics, with various types of test tones sounding in the background as technicians worked. When the ad production went pro, they kept the sound.

Cambridge Soundworks was bought in 1998 by Creative Technology, the giant Singapore company that brought us the infamous SoundBlaster card, and that also now owns E-mu and Ensoniq and makes Nomad MP3 players. DeVesto didn't really want to sell the company, but "it was publicly traded and the offer went so high, my attorney tapped me on the shoulder and said, 'If you don't sell, the shareholders will get mad.' So I left the company, and sat on a non-compete agreement for a while." Not to mention a decent pile of cash, I'm sure.

But before the company started, when Advent went bankrupt in the early '80s, he and Kloss bought the entire remaining stock of Advent table radios. (One of my first "business" reporting assignments for a magazine was to go to New Hampshire and cover the bankruptcy auction. It was a very depressing sight. The hottest items were a couple dozen IBM Selectric typewriters. I bought a box of unlabeled tweeters.) "Those radios were legendary," he says. "Every time someone Henry or I knew had a wedding or a bar mitzvah, they got a radio. And in divorce proceedings, who got the radio was sometimes a big issue."

So after the non-compete agreement ran out about two years ago, the two went back to where they once belonged, and introduced, yes, a table radio: The Tivoli Audio Model One, which sells in mid-level and high-end retail audio stores (but *not* at Cambridge Soundworks outlets) for about $100.

What's so special about the Model One? It's a simple, mono, tabletop AM/FM radio. It has an internal FM antenna and a jack for an external one. It sounds quite good for something its size. But, amazingly, this little sucker picks up and sorts out stations that none of the other tuners in my house can touch. In fact, it does such a good job of this that, in 2001, the readers of *Stereophile* magazine, that venerable journal of home audio tweakers, tinkerers and big spenders (their idea of a "budget" stereo system is anything that costs less than $5,000) voted it one of the 10 best "analog source" products of the year. The next least-expensive item on the list was a $2,000 phono cartridge. The other FM tuners on the list were...well, actually there weren't any.

When I brought a Model One home, I set it up right next to the old Sony cassette boom box, which was the only radio I had that could pick up WUMB. The Model One is extremely unprepossessing: There's an on/off AM/FM switch, a volume knob and the large tuning knob, a power lamp and a yellow tuning indicator. It has a 3-inch speaker in front, and a port running through the middle from the bottom up to give it some bass. No bells, whistles, displays or infrared remotes. I attached the little single-wire antenna that's included and turned it on. A few counterclockwise

—*CONTINUED ON PAGE 182*

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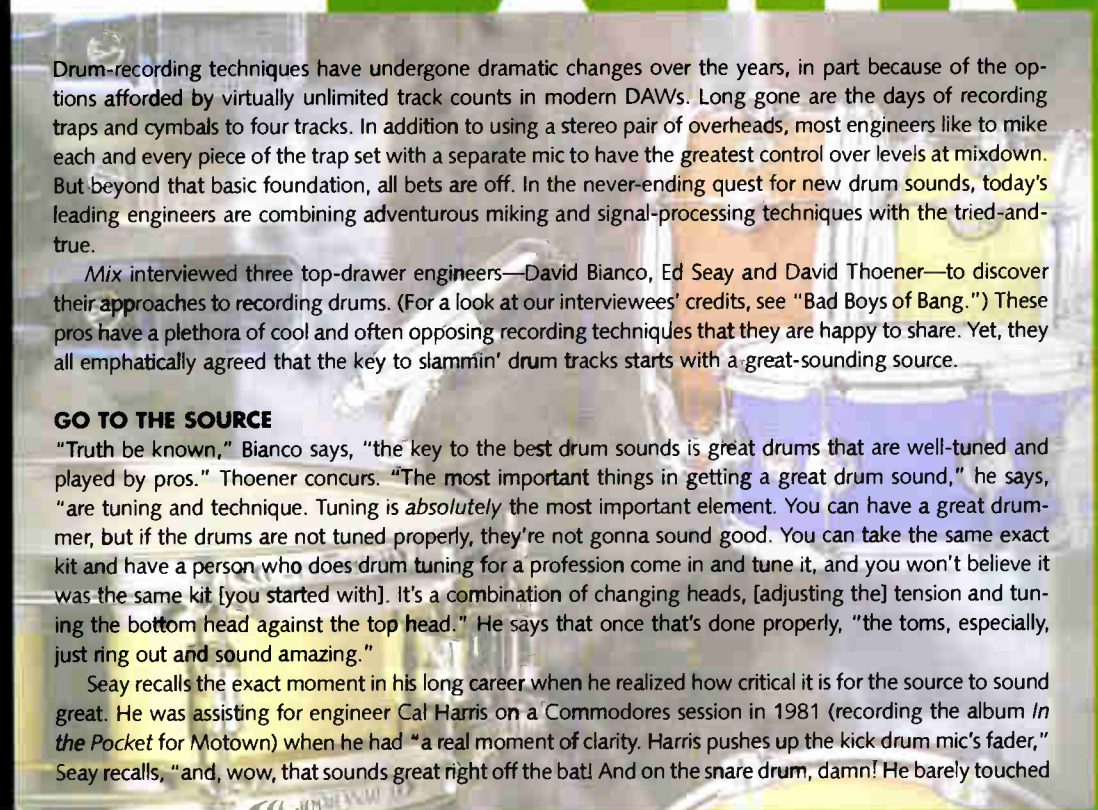
World Radio History

THE Big Bang

ENGINEERS GIVE THEIR TIPS ON RECORDING DRUMS

BY MICHAEL COOPER



Drum-recording techniques have undergone dramatic changes over the years, in part because of the options afforded by virtually unlimited track counts in modern DAWs. Long gone are the days of recording traps and cymbals to four tracks. In addition to using a stereo pair of overheads, most engineers like to mike each and every piece of the trap set with a separate mic to have the greatest control over levels at mixdown. But beyond that basic foundation, all bets are off. In the never-ending quest for new drum sounds, today's leading engineers are combining adventurous miking and signal-processing techniques with the tried-and-true.

Mix interviewed three top-drawer engineers—David Bianco, Ed Seay and David Thoener—to discover their approaches to recording drums. (For a look at our interviewees' credits, see "Bad Boys of Bang.") These pros have a plethora of cool and often opposing recording techniques that they are happy to share. Yet, they all emphatically agreed that the key to slammin' drum tracks starts with a great-sounding source.

GO TO THE SOURCE

"Truth be known," Bianco says, "the key to the best drum sounds is great drums that are well-tuned and played by pros." Thoener concurs. "The most important things in getting a great drum sound," he says, "are tuning and technique. Tuning is *absolutely* the most important element. You can have a great drummer, but if the drums are not tuned properly, they're not gonna sound good. You can take the same exact kit and have a person who does drum tuning for a profession come in and tune it, and you won't believe it was the same kit [you started with]. It's a combination of changing heads, [adjusting the] tension and tuning the bottom head against the top head." He says that once that's done properly, "the toms, especially, just ring out and sound amazing."

Seay recalls the exact moment in his long career when he realized how critical it is for the source to sound great. He was assisting for engineer Cal Harris on a Commodores session in 1981 (recording the album *In the Pocket* for Motown) when he had "a real moment of clarity. Harris pushes up the kick drum mic's fader," Seay recalls, "and, wow, that sounds great right off the bat! And on the snare drum, damn! He barely touched

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the EQ! I thought, 'No *wonder* these records sound so good. They've come in with great-sounding instruments. Duh!' Even though I knew that the sound has to be great at the source, I didn't know how bad the sources I'd been given [in the past] were until I heard professionals. I'd been working with a lot of road bands, live groups and rock groups with ragtag gear. Now, it's like, 'Boy, look at how much better my engineering just got today when all these *good* people came in,'" he says with a chuckle.

MANO A MONO

Each of the engineers interviewed for this article has a different approach to miking drums. Bianco shoots for a very cohesive effect, where the individual pieces of the kit don't sound separate from one another. To achieve this effect, he always begins with "a mono microphone in front of the drum kit, placed where it will get the most complete picture of the drums: an equal amount of kick and snare, and just enough cymbals to where it's not overdoing it. I add some cardioid mics on the left and right to that," he says. "Then I fill it in with [separate mics on] the other drums."

World Radio History

Bianco likes to place a kick drum mic "maybe four to six inches off the beater and pointed right at it." He'll often take the front head completely off of the kick, though he notes that it can sometimes impart flattering resonance if it's left on and tuned a half-step higher than the pedal-side head.

Bianco often likes to experiment with using a second "crazy" mic on the kick drum. "Sometimes, I put an additional condenser microphone on the pedal side of the kick drum and squash the heck out of it with as inexpensive of a compressor as I can get," he says with a laugh. "That gives you a really crazy, almost gated-reverb kind of sound. It adds size to the kick drum and serves as a snare undermic, as well. In fact, I've been using a pedal-side kick mic more often than an underneath snare mic. I'll go in on the hi-hat side with a U87 and place the mic two inches off the beater-side head, pointed right at it. I'll flip the mic's phase and use a dbx 160x or something else on it. On its own, it sounds crazy, but mixed in, it gives the kick drum a lot more low-end punch. If you do it right, it almost sounds like there's a lower octave to the kick drum. I find it sounds more effective than using an outside kick drum mic [on the front head]. For bands that are trying to be more like Beck or the Beastie Boys, it's a wild-sounding drum sound on its own. But, I've also run it through a [Line 6] Pod or some kind of amplifier to get a great drum loop sound. It's astounding." To keep his options open at mixdown, Bianco prints the beater-side mic's signal to a separate track.

Thoener takes a decidedly different approach to miking a kick drum. He typically aims at getting a natural sound, and one that has more low end than beater click. "I place an [AKG] D112 flush with the front head of the kick drum," Thoener notes. "The mic would be touching the head if the hole wasn't there. Then, I'll mess with the angle to find the sweet spot."

Thoener will often build a 2- to 3-foot-long tunnel in front of the kick drum by draping a heavy packing blanket over two flanking mic stands. "I'll put a Neumann U47 inside the tunnel, about two feet back from the front head. I'll adjust [the U47's mic height to be somewhere] between the middle of the drum and the floor. That mic picks up a lot of bottom that you don't get from the closer mic." To get even more low end, Thoener will set up the drums on a riser whenever possible, thus isolating the kit from the damping effect of the studio's floor.

Seay usually avoids miking the kick drum with two mics because of the phase cancellations that can result when the two signals are combined. When he does use two mics, he'll align the two signals so that their waveform spikes line up in Pro Tools. But most of the time, he'll simply place one mic just inside the hole in the kick's front head and adjust the mic's angle to get the sound he's after. The Audio-Technica ATM25 and Neumann U47 FET are his favorite mics to record kick drum.

Ed Seay

MY HI-HAT'S OFF TO YOU

When he's putting a mic on the snare drum, Thoener always asks the drummer to "move his hi-hat as far over to his left as he possibly can and still play comfortably." This allows Thoener to place a Shure SM57 on the snare drum so that the mic's null point is directly facing the hi-hat. "I try to angle my snare mic underneath the hi-hat, but place it about two fingers' [width] in height above the [perimeter] of the shell," he explains. "That way, I'm gonna get some air off of the snare drum. I try to never choke on any of my mics. If you place the mics too close to the source, you get too much proximity effect."

Thoener typically places two SM57s on snare, one on the top and the other on the bottom of the drum. He usually flips the phase of the bottom mic's signal to align it with the top mic's.

Thoener recalls the days when the total tracks available for recording drums were meager, usually forcing him to use only one mic on the top of the snare drum. To compensate at mixdown, he would re-excite the snares by feeding the pre-recorded snare track to an Auratone speaker aimed at the live drum. For isolation, both the speaker and snare drum would be placed out in the studio. Thoener would turn the snare drum upside down and suspend it off of the floor between stacks of books. Then, he would place the Auratone underneath the snare and on the floor so that it was facing up at the top head of the drum. Finally, he'd mike up the snares, which would rattle whenever the Auratone would voice the pre-recorded snare hits.

Of course, one man's pleasure is another's pain. Seay never mikes the bottom of the snare drum. "I've played with that," he says, "and I just don't love it. It never sounds like a big improvement to me. It's not the way my ear hears the snare drum out in the room."

GROUND CONTROL TO MAJOR TOMS

All three of these engineers generally prefer to record each tom with a separate mic placed on the top side of the drum only. In rare instances where Thoener feels he needs more bottom from a floor tom, he'll also place a Sennheiser 421 on the bottom head of that drum. "I'll start with a 421, and if that's not working, I'll switch to a U87," Thoener says. He cautions that the bottom mic should be pointed in a way so that it rejects the sound of the other drums.

Seay very rarely mikes the bottom of toms. "But every now and then, I do," he admits. "I think it provides a very neat perspective. It adds a depth and body to the sound that you can't get any other way."

As for topside tom mics, Thoener likes to use 421s with one exception: Where a drummer has a few "bongos," or very small toms, in addition to the standard-sized rack toms, he'll place a sole SM57 across all of the bongos.

Bianco also likes using 421s on toms. "I try to mike toms from as far away as I can," he notes, "so I get as much ring [as possible] and not just attack. Usually, I end up with the mic five to seven inches away and pointed toward the center of the drum."

A potential drawback to such a setup is that the tom mics may pick up excessive cymbal bleed. Bianco offers a creative solution for both cymbal and hi-hat bleed: "I'll build a cardboard hood for snare and tom mics. "I'll tape the hood to the microphone's body or to the rim of the drum to make the mic reject the cym-

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"The KSM44 is a remarkable achievement. I am especially impressed with the versatility of this microphone and have yet to find its limits."
-**Steve Albini** (Nirvana, Page and Plant, PJ Harvey, ...)

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World Radio History

bals and hi-hat a little bit more." If the cardboard causes any diffractive effects, he'll put a bit of absorptive foam inside the hood, as well.

Miking up the cymbals themselves, Bianco likes to use AKG 414s, 452s or C12s. He will sometimes place a pair of 452s in an X-Y configuration, "just above where the drummer's ears are," and pointing toward the front of the kit. But he stresses the importance of optimizing the exact placement of the overhead mics in order to minimize phase cancellations. "If you use wide cardioids," Bianco says, "you'll find that your kick drum starts to disappear until you find the right spot for the mics." Just moving the overhead mics a few inches can make a big difference in the sound.

Thoener avoids phase problems with overheads by spacing cardioid-mode AKG 414ULS mics above the far left and right sides of the kit, "on the outer edges of the cymbals." Seay likes using AKG 414s, 451s or 452s, or Sanken cardioids in a spaced-pair or an X-Y configuration for overheads.

ROOM TO GROW

Room mics make a huge contribution to achieving a big drum sound. "I think the room mic is just as important as any other element [of the mic setup]," Seay says. "Even if the room mics are pulled in really tight in a really dead room, the sound is more pleasing and accurate to my ear than without [using them]. For more bombast or more rock, you can pull them back [farther away from the kit]."

David Thoener

Seay sometimes ends up using the tracking room's talkback mic as an extra room mic, in addition to using two room mics placed in a spaced pair or an X-Y configuration. He cautions that when using a widely spaced pair of mics, one should make sure that one isn't picking up a lot more snare than the other; otherwise, it can throw off the stereo image of the overall sound.

If he wants to capture more bottom-end guts from the drums, Seay will place his room mics "almost on the floor, so that the reflections are negated, and looking up at the kit. That's a good way to avoid all of the cymbal bleed. It 'plays up' the bottom of the kit.

"Almost anything will work for room mics," Seay continues, "as long as the mic is decent. [AKG] 414s or [Audio-Technica] 4033s do well. Sometimes, SM57s are perfect if you're really going for crack and raw harshness."

Thoener always records room mics in case he can use them in the mix, although they don't always end up being useful. He likes using a stereo AKG C24 or Royer or Coles mics for "rooms," placed roughly 15 feet away from the kit—as long as there are no other instruments in the room besides drums that could bleed into those mics. "I'll usually keep the mics up fairly high," he notes. "I really don't want my room mics to pick up too much kick drum. If I've got an uptempo song or 60 faders on the mix, I really don't want my kick drum getting too ambient because it's just going to get lost in the mix. A lot of times, I find myself rolling off the bottom on those room mics so that I can work them into the mix without them taking presence away from the drums. Sometimes, if I like what they do for the snare but not for the other elements of the kit, I'll gate the room mics and key them with the snare [mic's signal].

"Instead of using room mics," Thoener continues, "sometimes I'll put one [Telefunken] 251 about three or four feet above the drummer's head height, placed dead center right over the snare drum. Sometimes, I compress that just a little bit. I find that adds a natural ambience to my snare drum that the overheads don't get."

Bianco is a fan of using multiple room mics—including some with extreme processing applied—when recording drums. "I always have some tracks that use heavily compressed microphones for the more crazy kit sounds," he enthuses. "I'll use a mono omni or a stereo pair that are distressed big time with an [Empirical Labs] Distressor compressor. A four-to-one ratio sounds the best to me, but I really crank the input. Omni mics, even if they're close in, can give you that Led Zeppelin kind of sound. I'll also use the Distressor's Distortion 2 setting a lot of the time; you get a little more grind using that."

PROCESS THIS

Thoener will also use a Distressor while tracking drums, but only to achieve a relatively mild effect. He'll typically use it on the snare drum to elongate the decay. "I'll do maybe 4 or 5 dB of compression at

BAD BOYS OF BANG

From Mudhoney (*Tomorrow Hit Today, March To Fuzz*) and Ozzy Osbourne (*Ozzmosis*) to John Hiatt and the Black Crowes (*Sho' Nuff*), **David Bianco**'s engineering and mixing credits span a wide range of musical styles. Bianco also often lends his skills as a multi-instrumentalist to the records he produces. It was Bianco who tracked Tom Petty's *Wildflowers* (Warner Bros., 1994), which won a Grammy for Best Engineered Album.

Ed Seay has recorded, mixed and produced scores of hit records since the late '70s. His early successes with pop artists Paul Davis (*Paul Davis*), Marie Osmond (*All in Love*) and Melissa Manchester (*Essence of Melissa Manchester*) were followed by hit records for country icons Martina McBride (*Way That I Am*), Highway 101 (*Reunited*), Ricky Skaggs (*My Father's Son*) and Collin Raye (*Walls Came Down*), to name just a few. Upcoming projects include new albums for Travis Tritt and Blake Shelton.

David Thoener has tracked and/or mixed hit records for Matchbox Twenty (*Mad Season*), Wheatus (*Wheatus*), Aerosmith (*Get a Grip*), Phil Vassar (*Phil Vassar*), and many more. Thoener won two Grammys—Record of the Year and Album of the Year—for mixing the single "Smooth" by Santana, featuring Rob Thomas (*Supernatural*, Arista, 1999).

—Michael Cooper

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three-to-one [ratio]," Thoener explains, "using a slow attack and a fairly quick release. That gives me a little more ring on the drum."

Seay typically only applies compression to the room mics during tracking.

David Bianco

He'll compress the kick drum, however, if the dynamics are a little erratic or if the drum "needs a little pop on the front end."

Thoener, Seay and Bianco are not shy about applying EQ to drums when tracking, as long as they've taken mic choice and miking techniques as far as they can go. Seay is the most outspoken of the three on the subject, confessing that he always applies some EQ. "My philosophy is, 'Make it sound as good as possible, as quickly as possible,'" Seay elaborates.

It's totally valid to beef-up the drums by any means while tracking, as long as you're absolutely certain that they need it. That said, Thoener makes a plea to up-and-coming engineers who are tracking cuts that other engineers will mix. "Please, *please*," Thoener implores, "stop over-compressing drums to tape. Compression should be used as little as possible [when tracking]. You'd be surprised by how many tapes I get where the overheads and room mics are compressed 20-to-one." Thoener acknowledges that a heavily compressed sound might be what the tracking engineer was shooting for, "but if you decide, all of a sudden, that that sound is not working for you any longer [at mixdown]," he warns, "you can't change it. There's nothing you can do about it." ■

Michael Cooper is a Mix *contributing editor and owner of Michael Cooper Recording in beautiful Sisters, Ore.*

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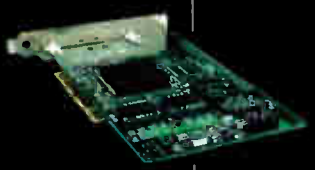

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you can never have enough mics

ADK A-51sc

AKG C 451B

Audio-Technica AT3031 (right) and AT3032

Beyerdynamic MC 930

Vintage mics are just plain cool. Both legacy and newbie mic builders continue to study at the altar of past designs of diaphragms, backplates, housings, electronics and capsules, while breaking new ground with emulations and innovations. The majority of that infatuation has been tube- and large-diaphragm-based, but a nice crop of fresh, new small-condenser mics have popped up over the past year.

Nothing improves your tone like adding a new mic (or three) to record silkier overheads, transparent toms, and incredibly present guitars, pianos, vocals, strings, hand percussion and more. Defining a large diaphragm as 1-inch and above and a small-condenser as everything under 20 mm (¾-inch), *Mix* looks at the latest offerings in condenser mics of the small variety.

From ADK's Audiophile Series-FET comes the new A-51sc Small-Capsule Condenser High-SPL Version mic ($399). Introduced at Winter NAMM 2002, the A-51sc is a true condenser design with a 20mm diaphragm, fixed-cardioid polar pattern and 20 to 20k Hz frequency range. ADK suggests its latest mic—which weighs a mere 4.2 ounces—for pianos, snares, strings, overheads and that sweet spot at the twelfth fret of an acoustic guitar. A -10dB pad has been added to the A-51sc, making it a good kick drum mic, as well. Included are a mic clip, vinyl pouch and small flight case.

Next up is the C 451B ($549) from AKG (see *Mix* review April 2002). Dedicated to the company's classic 1969 CMS Series mic with interchangeable capsules (namely, the C 451 EB plus CK 1), the new mic boasts improved specs while faithfully reproducing the original's acoustical behavior. Features include a switchable highpass filter (75 or 150 Hz), switchable pre-attenuation pad, and a flat, on-axis frequency response from 20 to 20k Hz. The mic also provides excellent RF interference protection.

Audio-Technica's new 30 Series includes the

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What's New in Small-Diaphragm Condensers

BY RANDY ALBERTS

CAD/CTI GXL1200

Marshall Electronics MXL 603S

Groove Tubes GT44

AT3031 cardioid and AT3032 omnidirectional small-diaphragm, fixed-charge backplate, permanently polarized condensers. Both models have a frequency response of 30 to 20,000 Hz, a conservatively rated self-noise of 16 dBA, high-SPL-handling capability (148 dB, or 158 dB with the -10dB pad switched in), and an 80Hz, 12dB/octave, low-frequency, roll-off switch. The mics are priced at $259 each, with stand clamp, foam windscreen and protective pouch.

As we went to press, we heard about the new M-Series miniature condenser mics from Audix. Its 12mm capsule is housed in a compact, 90mm-long body, with internal FET electronics based around the company's popular SCX-1 preamp. Optional interchangeable capsules offer users the choice of cardioid, hypercardioid or omni patterns. The mic (with one capsule) retails at $399; a version with pad and LF roll-off switches is $499.

Unveiled at AES Munich 2002, Beyerdynamic's cardioid MC 930 condenser is optimized for piano, percussion, brass and overheads, and offers high-end performance at a low price. Intended for either studio or live applications, the MC 930 is a true condenser design featuring a cardioid pickup pattern, a nonreflective black finish, recessed switches for -15dB pad and a -6dB/octave bass roll-off at 200 Hz. Specs include a 30 to 20,000Hz frequency response and a signal-to-noise ratio of 71 dB.

CAD/CTI's GXL1200 cardioid instrument mic ($99) is a compact, rugged omnidirectional condenser model.

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you can never have enough mics

Frequency response is 30 to 20k Hz in this 5.33-inch, 4-ounce mic that operates on either 24-volt or 48V phantom sources. Optionally, two GXL1200s can be purchased as a matched stereo pair.

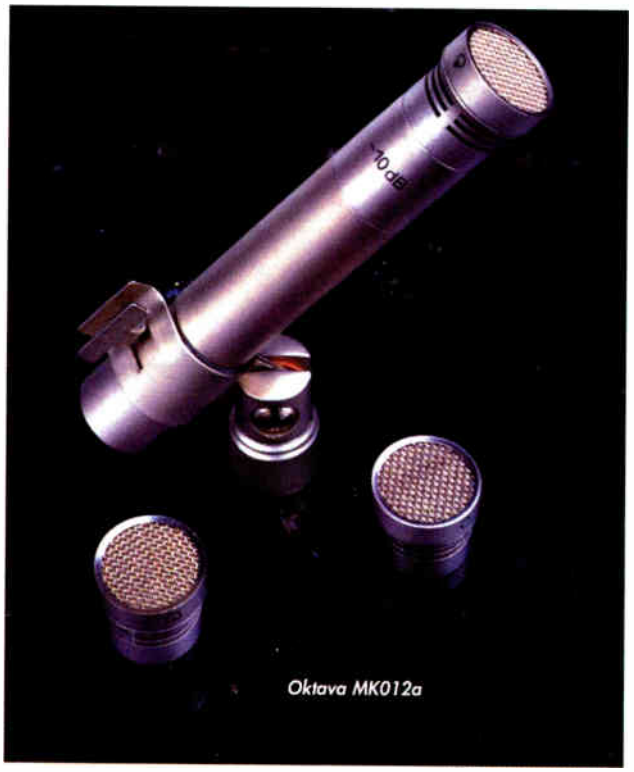
MBHO 440 CLS

Now distributed by Midiman, the **Groove Tubes** line of true condenser mics includes two end-address models with 0.75-inch capsules and 6-micron, gold-evaporated diaphragms. The GT33 studio cardioid is based on solid-state, phantom-powered, Class-A FET electronics and retails at $599, including hardmount, shockmount and hard mic case. The cardioid GT44 (with optional interchangeable omni and hypercardioid capsules) features Class-A electronics using a GT6205 vacuum tube. The GT44's $999 retail includes a PSM1 power supply, multipin 25-foot soft audio cable, hardmount, shockmount, AC power cable and mic case. All Groove Tubes mics measure within ±1 dB of a standard reference mic, so matched pairs are available at no additional cost.

The MXL 603 Instrument Microphone ($99) from **Marshall Electronics** is a new 20mm, 6-micron, gold-diaphragm condenser mic. Intended primarily for drum, ambient and orchestral miking applications, the supercardioid MXL 603 is internally wired with high-quality Mogami cable throughout and is externally finished in classic silver. Specs include a 20 to 25k Hz frequency range and 137dB maximum SPL, and its transformerless design provides a solid bottom and open top end. It's also offered bundled with Marshall's large-diaphragm MXL 2001-P as the $199 Recording Package.

Nady Systems SPC-15

Two new small condenser mics from Germany-based MBHO have been released since last year's New York AES convention. The cardioid MBNM 440 CL ($369, with a surcharge for matched pairs) has a 4-inch body in a nonreflective, matte black finish. The MBP 603 ($639 with body and modular KA-200 capsule; $699 in special Nextel finish) is a transformerless mic body that accommodates a number of MBHO capsule cartridges. Omnidirectional, cardioid, hypercardioid, figure-8 and other capsules are offered.


Oktava MK012a

RØDE NT4

Known for its wireless systems, **Nady Systems** also offers wired condensers, including the SPC-15, a multipurpose vocal/instrument mic with a 50 to 18k Hz frequency response and a mid-high presence boost. This supercardioid, back electret condenser handles up to 136dB SPLs and retails at $119.95.

Added last year to the MK012 condenser line, **Oktava**'s MK012a ($129) is a single-capsule cardioid mic based on the

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company's interchangeable MK012. Like the MK012's body, the MK012a has a frequency response of 20 to 20k Hz and can be specially ordered in matched pairs. The MK012 Multi-Capsule package comes with three interchangeable condenser capsules (omni, hypercardioid and cardioid) and includes a 10dB pad for high-SPL situations.

RØDE Microphones debuted its NT4 and NT5 mics at Winter NAMM 2002. The stereo NT4 ($899) is a cardioid true condenser with two ½-inch capsules mounted in a 90° X-Y arrangement. Suited for studio or location recording, the NT4 includes XLR and mini jack cables, and it can operate on phantom power or a single 9V battery. Specs include a 20 to 20k Hz response, 128dB dynamic range, 143dB SPL handling and 78dB signal-to-noise ratio. RØDE's NT5 ($599) is a matched pair of cardioid condensers offering stereo recording at a more affordable price. The NT5 is sold as a set with two matched mics, a custom-molded carry case, two stand adapters and a pair of foam screens—all weighing just four pounds complete. Each of the two NT5s included has specs identical to the two-headed NT4.

Schoeps U.S. Stereo Set

Two new versions of the U.S. Edition Stereo Set were announced in April of this year by **Schoeps**. The CMC64 ST ($1,845) features a pair of stereo-matched cardioid mics in a custom wood box complete with two elastic suspensions and pop screens. The ST system has a frequency range of 40 to 20k Hz, 132dB maximum SPL, 12 to 48V phantom power and comes in a soft-gray matte finish. The CMC64 ($875) is identical in specs and performance, but comes as a single MK4 cardioid capsule with a custom wood box and without the elastic suspension. U.S. Edition Stereo Sets offer six configurations for coincident, near-coincident and A/B arrays. Each CMC64 set features two sequential serial-numbered Schoeps CMC6 amplifiers and a pair of capsules factory-matched for frequency response and sensitivity. ■

Randy Alberts is a California-based audio/music journalist. His first book, Tascam: 25 Years of Recording Evolution, *is expected to ship later this summer.*

CONTACT INFORMATION

This article focuses on *new* small-diaphragm condenser mics; however, there are numerous existing products available from other manufacturers, so the following list includes companies not mentioned in the text. Here are some Websites to check out for further information.

ACO Pacific	www.acopacific.com
ADK	www.adkmic.com
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Earthworks	www.earthwks.com
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Hebden Sound	www.hebdensound.co.uk
Josephson	www.josephson.com
Marshall Electronics	www.mxlmics.com
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BY RICK CLARK

The Gospel According to Dolly Parton

Bringing Her Success Back to Her Roots

Dolly Parton's flamboyant, exaggerated, country girl-meets-Hollywood look is one of the most identifiable in American culture. A less-talented or savvy artist might not have been able to get away with such an audacious visual statement, but Parton is so talented as a singer and a songwriter that there's no question that her true gifts shine through.

Our interview was held in a small house at Parton's walled Southwestern-style office complex in midtown Nashville. When I was led through the courtyard and into the dwelling, the first space I entered was a well-lit, mirrored dressing and make-up room adjacent to a homey living area and kitchen.

Almost immediately, Parton entered the room looking like...Dolly! She seemed to glow, yet she was very accommodating and down-to-Earth; in fact, she offered to fix me breakfast. I didn't doubt the sincerity of her offer, but I didn't exactly want to put her to work.

At the time of the interview, Parton was excited about her newly completed album for the Sugar Hill label, *Halos and Horns*, which she eagerly previewed for me on a jam box. It features a new band she calls The Blueniques (for "unique bluegrass"); members include Steve Turner, Kent Wells, Jimmy Mattingly, Richard Dennison, Gary "Biscuit" Davis, Brent Truitt, Jay Weaver and Randy Kohrs.

Fans of her last two bluegrass and roots music albums (also on Sugar Hill) will probably love this collection, too. It contains more of Parton's fine original compositions, as well as two classics, which, as Parton puts it, she "Dolly-ized": Bread's "If" and, believe it or not, Led Zeppelin's "Stairway to Heaven."

Hello.

Do you want some breakfast? I can make you some toast and eggs if you need it.

I appreciate it, but this is just fine (rummaging through candy in the coffee table bowl).

Are you sure? I'm happy to do it.

You don't need to do that, but thanks. Snickers and Milky Way: This is a fine starter for the day.

Like typical studio people, you're eating candy right away. [Laughs] Eat junk. You can do like we all do in the studio—just throw the wrappers on the table. Don't worry, I'll get rid of it later. Now, you can eat all the candy you want.

Unlike the last two albums, the majority of this new album features original compositions. Many of those seem to have a spiritual undercurrent. The title track is really strong.

I wrote several songs after September 11, like we all did. That event really just shook everybody's confidence: You saw how fragile life is and how small and fearful we all are. You just realize that there must be something greater than you; otherwise, you'd totally fall apart. You think you can just screw around all you want to until you get in trouble, and then the first thing you say is, "Oh God, help me now." It's sort of like a child getting hurt.

I just felt real inspired, and this idea started rolling out and I wrote "Halos and Horns" in no time. I have very strong feelings about that song. It's a real solid country, bluegrass thing—one of those hard-singing songs. I really like it.

This album is really just life stories. It goes from heartache to heaven. There are some gospel things—like "Hello God"—to one that is talking about swimming naked in a pond. [Laughs] Spirituality to sexuality.

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You could say that it's all part of the big picture.

Yeah, well, it's true. That's how I look at life.

When I first heard that you were going to do "Stairway to Heaven," I thought that was an audacious choice. But when I sang through the melody in my head before I came here, I could hear you singing it.

I love that song, and I always thought it sounded like a spiritual song. Robert Plant said he had always thought of it as a spiritual song and was thrilled that I had put the choir on it, 'cause he had always heard it like that. I believe a good song can be done any way if you really mean it from the heart.

Everybody's been trying to get a copy of my version of this song. They've been offering everybody money to bootleg it. Rock stations have been calling us, and country stations just out of curiosity. I'm sure some of them think it's a big joke. I'm sure that some of them are going to want to crucify me, and maybe they will. But in all sincerity, I did it because I love the song.

I take this stuff so seriously. These things are sacred to me. When I decided I was going to do "Stairway to Heaven," I truly felt like I was walking on sacred ground. It's the same with a song like "If." When you get a great song that's a classic that's touched the lives of so many people, you have to handle it with delicate care. You just don't go in and put anything on it. You look at it like, "What can I do with this great song that is a little different and will still not be a gimmick, but to make it my own?"

I remember all the quality songs through the years that I've heard, and I just loved David Gates' stuff and the

ENGINEERING "HALOS AND HORNS"

L to R: Gary "Biscuit" Davis (production assistant), Scottie Hoaglan (assistant engineer), Danny Brown (engineer), Dolly Parton and Richard Dennison of Velvet Apple Music.

When Dolly Parton began looking for a place to record *Halos and Horns*, her production assistant, Gary "Biscuit" Davis, brought her to Southern Sound Studio, a multiroom recording and mastering facility located in Knoxville, Tenn. The Stephen Durr-designed studio, which is near Parton's east Tennessee retreat and less than an hour away from the Smoky Mountains, has been at its current location since 1994. That year, it was recognized by *Mix* as one of the best-designed new facilities in the country. It is owned by Danny Brown (who engineered and mixed the project) and Paul Jones.

When Brown began working with Parton's voice, he initially worked with a Neumann M149, and his mic pre of choice was a Drawmer 1969. "The Drawmer 1969 seemed to sound the best with Dolly's vocal and the M149," says Brown. "Though the M149 is very EQ-friendly, we found we had to add quite a bit of 5k to 12k to get the presence Dolly was looking for. We then brought in a Sony C-800G, and the results were fantastic. Her voice translated so well through this mic with no EQ at all." The Avalon VT-737 became the mic pre of choice for the Sony mic and Parton's voice.

"One of the great aspects of the Sony is that it has little to no off-axis coloration, even in the cardioid position. Every time Dolly stepped up to the mic, she delivered a vocal performance; every song, every vocal track," Brown adds. "She is a very emotional singer. Her mouth never stayed right in front of the mic. The Sony was very forgiving and seemed to capture every detail of her voice, no matter where her head was turned. We were all very pleased with the end result."

A new Universal Audio LA-2A was used on her vocals during the mix. Parton's vocals were tracked without EQ and just about 1 to 2 dB of compression from the Avalon VT-737. During the mix, the LA-2A was used with a bit of EQ from the VT-737, mostly just to add a little more air to her sound.

"We did some vocal comping, but that became difficult at times. What I mean is, which line do you pick? Which verse do you go for when they all sound so incredible?" Brown says with a laugh, who did the comps with Richard Dennison and Davis. "We found ourselves basically comping for what we thought would best suit Dolly, because every take was excellent."

Everything was recorded on the iZ Technology RADAR 24. Brown mixed on a DDA Profile 56-input console with Uptown moving fader automation. The mix was monitored on Dynaudio M-1 near-fields.

"We ran the mix bus through a Waves L2 into an Alesis Masterlink at 24-bit, 44.1," Brown says. "It then went to Soundcurrent Mastering, which is based at our facility, to be mastered by Seva. Nuendo was used to do some editing. The main monitors for tracking were custom TADs, powered by Crown Macro reference amps."

—Rick Clark

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group Bread. I did "If" up-tempo—sort of like what Ray Stevens did with "Misty." It kind of reminds me of the song "Everybody's Talkin'." It's kind of got that rolling thing, and I think it worked.

A defining quality that seems to push your career and persona along is fearlessness.

You're right. What have I got to lose? If you don't take some chances, what are you going to do that's of any quality? I've made a lot of mistakes in the minds of some people, but I've made few, if any, in my own mind. If I make five mistakes and do one great thing, well, I'm not going to worry about the five mistakes I made. I'm going to just wallow in the glory of the one great thing I did in hopes that it brought some joy to somebody else. What some would call a mistake is just me trying. If it works, fine. If it don't, what are they going to do? Kill me? Then, if they kill me, are they going to eat me?! [Laughs] You can't really go about your life like that and be productive. That's why I think I've been at it for so long.

When you get a great song that's a classic that's touched the lives of so many people, you have to handle it with delicate care. You just don't go in and put anything on it.

I'm *up there*. I'm 56 years old, and I've been doing this since I was a little kid. I started writing serious songs when I was seven. I started singing on TV when I was 10. I was just a little backwoods country kid that had a more outgoing personality than some of the other backwoods kids. I was still nervous, but my desire to do things was always greater than my fear of it. I just always kind of drug from that God thing. My grandpa was a preacher, and I guess at an impressionable age, I believed that through God I could do everything. And I still have a lot of faith in God, as I perceive him, and that's why so many of my songs have an inspirational feeling.

Everybody thinks of God as a different thing. To me, God is that greater, higher energy—that greater, wiser wisdom. It's that thing in all of us that we all have to draw from. I've always trusted God and trusted myself, which to me are intertwined. I'm a creative person, and what gifts I have come from that divine place that I try to tap into. So who have I got to be afraid of?

How did this new album evolve?

This album all started because I was really just trying to find a band. I'd been writing songs for several months, and I went to east Tennessee to try to find as many musicians back home as I could for a band. A lot of these people work at Dollywood [Parton's successful amusement park]. Gary Davis, who helped me pull all of this together, put the band together. I thought, "I'm just going to go in and demo these songs through my publishing company and pay for this and find a good studio up home. I'll bring these musicians in to play on the demo; that way, I can feel them out." Well, when we got in there, they just all sounded great from the start.

I was looking for a good studio in the area where I could stay up in my old Tennessee mountain home and write. Then, Gary Davis told me about a really great studio called Southern Sound Studio outside of Knoxville. Danny Brown, who was the engineer for this, is one of the partners of the studio. They do a lot of important stuff there. So, I decided to go ahead and do a whole bunch of songs there; we did 25 songs over the course of several weeks.

You self-produced this effort, and it sounds like you have another album in the can.

Yeah, if I want to do that. I don't know what I'll do next. I always just let the spirit lead me. But, definitely, there's enough stuff for another album at some point.

When we started doing this, I told Steve Buckingham, who's my friend and has worked with me as my producer and co-producer for 12 or 13 years—he also runs the label and everything—"This stuff is turning out really good. It sounds like it could be a record." Steve said, "Well, just go on with it. Just let what happens happen." So I did. I missed working with Steve on it, but he's been really behind me all the way with this project. I was so excited about my new band because I haven't had a band together in 10 years. We're going to be doing some concerts in July and August. We're going to go out and promote this, and if it feels good, then I'm going to do some touring.

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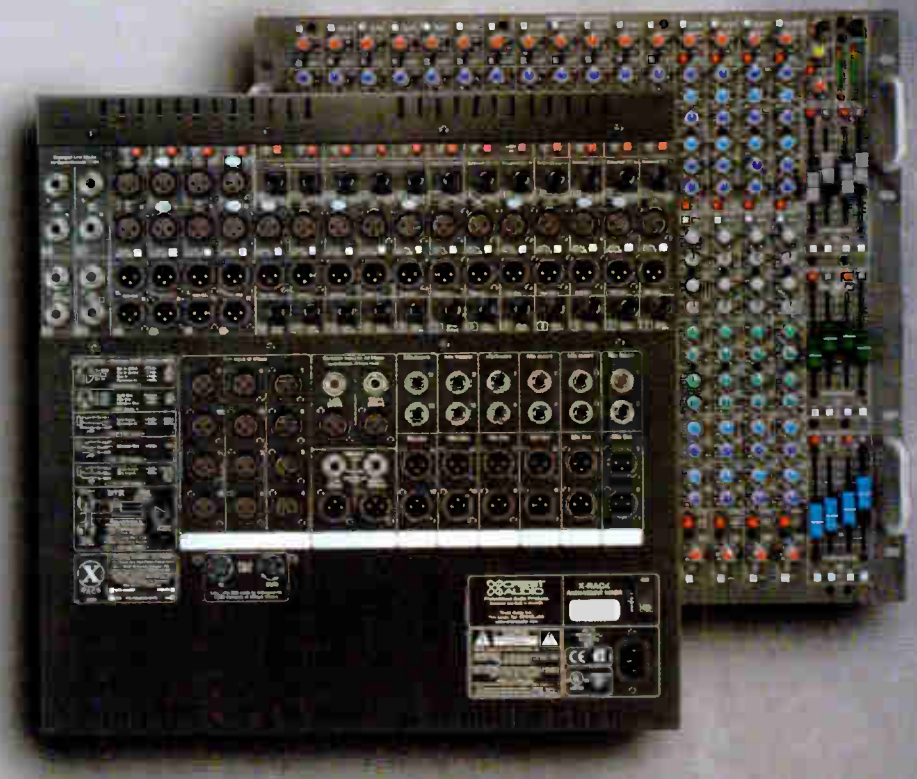

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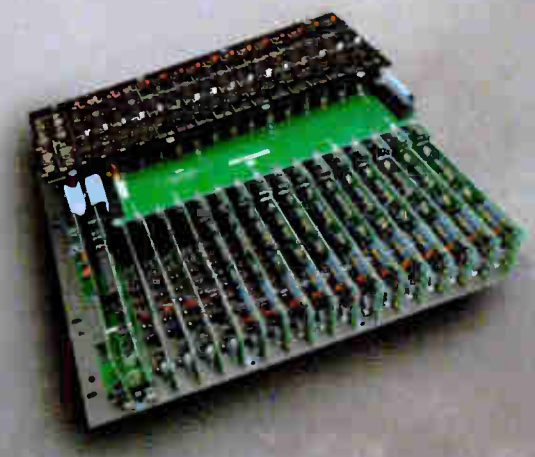

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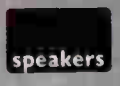

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You didn't tour behind your previous two albums?

No. We never could pull it together to where we could tour. Jerry [Douglas, dobro player] is with Alison [Krauss], and they are all committed to other projects. It was driving Steve crazy trying to pull a band together, so he is thrilled to death that I've got a band now.

Dollywood is one of the most successful theme parks in the country. What inspired that project?

Well, a business mind and the whole idea that the Smoky Mountains is the most visited national park in the United States. We got almost 3 million people last year, and we're only open six full months [a year]. It came from me just wanting to do something to make my people proud of me, and it's also really provided a lot of jobs for the area. It's helped a lot of people, and it's helped me, too. I just thought it would be great to have something to leave for my family.

I found it interesting that Dollywood's ad campaign was focused on a world music theme. You came from the mountains of east Tennessee but you've seen the world, and I was struck with a sense that you were bringing the world into the place you were raised.

That's exactly right. It's a wonderful thing, and people have responded so much to that. That's my home, I suppose, in that it's where I was born and raised, and I love the mountains and that's my foundation. But my home is everywhere. I often joke that home is anywhere I hang my hair. It's true. Whether it's Russia or here, I love people. I just feel like I am part of everything. I am part of that bigger picture.

I perform there several times a year, including benefit shows for the Dollywood Foundation. We have a huge thing that the United Way is in on now called the Imagination Library. For years now, we've given scholarships to people with medical

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and school needs, and we still do. We even have a hotline for kids. Every child that's born in Sevier County [where Dollywood is located] gets a book a month from the day the child is born until the day it starts kindergarten. We've given out thousands of books now all over, and it's really growing. They call me the Book Lady. It's a wonderful thing, because my dad couldn't read or write, and so many of my relatives didn't get an education, and it was important for me to do that. So, not only is Dollywood a theme park, it really does a lot of good things, and a lot of good stuff comes out of that.

Parton with engineer Danny Brown

Now, I'm having to speak to all these educators and teachers, and I hated school growing up. I've done more homework in the last five years just working on these projects than I did in 12 years [in school].

Somebody said, "Well, now that you're the book lady and you're involved with these kids and this education, are you going to tone down your look?" And I said, "Why should I? It was all of that that made all of this that put me in this position! Don't you get it? I might *look* like a phony now, but if I start changing things, then I would *be* a phony. This is who I really am. I see no reason to think that I have to look like a schoolteacher. I'd rather look like a whore. I'm getting the job done, it shouldn't matter." You know, people are funny about changing.

It's like a version of "Harper Valley PTA."

That's true. A lot of my look came out of a little country girl's idea of what glamour should be. But then it got to be really comfortable, and I liked it—just like how people like to dress up. I've always said that if I hadn't have been a woman, then I'd have damn sure been a drag queen. That might be a funny line and people get a kick out of it, but I mean that in all sincerity. I just love it.

People say, "Do you wear those shoes around all the time? Do you wear that makeup all the time?" I say, "Yeah, I do most of this even when I'm by myself." I can't stand to walk around slouchy all day. When I'm alone writing songs, sometimes I'll go for a couple of days and I won't put on makeup and stuff, but I don't look at myself. Sometimes, I look in the mirror and I'll say, "Oh good Lord, go clean up!" Everybody's comfort level is their own.

Thank God that early on I understood who I was. I understood that being from a family of 12, I was in a spot where nobody was going to pay that much attention to me, so I had to get to know myself through God and through the birds and the bees and the stuff outside and my imagination. Thank God I had talent. But most of my family had talent. I took it and channeled it, and the better I got, the more I wanted to do good, and the more I realized that this is important stuff.

When I get one of those songs that's got all that heart and guts and soul and tears—whether it's a happy song or not—that a certain kind of song and my soul just dance. It's in that real place, and as long as it comes from my gut and from my heart in a very real place, I think people will accept it.

I'm proud of Dollywood and all the business stuff that I've been at least smart enough to be wise to, where I could make my money doing other things. But, to me, all that other stuff just affords my habit, which is music. First and foremost, above everything else, I'm a singer, a musician and a writer. I never got so busy I didn't write songs. I write all the time, and I love it. I pay for my own sessions, then I lease them to whatever label, and then my masters go back to me. After a certain amount of time, I'll want my masters throughout the years to go to my family. That's the way I'm doing it. But I'd be singing if I had to sell it out of the trunk of my car. I will be doing my singing and my writing no matter what. ■

Mix's Nashville editor Rick Clark is also the producer of the award-winning Oxford American *music CD collections.*

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But by that time, all kinds of field recordings were being made, including a lot of great New Orleans jazz, which I admired greatly. I was a total fan of Bunk Johnson and George Lewis, and Bill Russell was an old-timer who had devoted his life to recording the authentic New Orleans jazz musicians, and he was still doing it on 78s. Most of these guys, when I started, were just switching over to tape.

What did you make your early recordings on?

On tape. I wish I'd had the money to get an Ampex right off, but I didn't, so I made a big mistake and bought a cheap Japanese copy. I bought a Roberts; everybody told me it sounded like an Ampex. Well, the damn thing started overmodulating within a year that I had it. They'd apparently left all of the expensive parts out of the Ampex. It functioned, but the electronics were terrible. Then, slowly, I worked my way up. I used an Electro-Voice 636 mic. I couldn't even afford a 666, which was much better.

Where did you make your early recordings?

Mostly in Texas, and I did a few here in California, and then in Dallas-Fort Worth, Houston...and I traveled over to Louisiana. In Baton Rouge, I recorded some stuff, and some in Mississippi, and so on.

What type of venues?

It was mostly in people's houses, except I caught some of the early zydeco people who were just beginning to kick into gear in Houston at that time. This was in '60, and nobody had ever heard of this stuff except in these few beer joints down there. I was lucky to meet up with this fellow Mack McCormick, who lived in Houston and was not only trying to be Lightning Hopkins' manager, but he also knew a lot about the scene, the ethnic music in Houston.

My other informer was Paul Oliver, the British blues writer who I met up with in Memphis that same summer. He had sent me an amazing list of musicians, mostly blues, who had recorded in Dallas-Fort Worth in the '20s and '30s. And so when my friend Bob Pinson and I came into Fort Worth, we'd start asking for people, like detectives on a street corner.

The trouble was the names that Paul had sent me didn't mean anything to me, because I had never heard of these people, except they did have colorful names. Anyway, I just stopped these guys playing dominos on a street corner and asked them, "Any of you ever heard of Little Brother?" And they all looked at me as if I was from Mars, and they said, "What you want with him?" They probably all thought I was the police or a bill collector, and I said, "Well, I got this record by him, and I kind of like the way he plays guitar and sings blues."

Strachwitz and the king of zydeco, Clifton Chenier

So, one guy comes over and says, "Well, he hangs out with Black Ace," and Black Ace was on my list from Paul Oliver. "So, where could I find Black Ace?" "He comes into this tavern that's right down the street here. You can't miss him. He has a white shirt on with a big 'Ace' written over his pocket. He comes in at 5 o'clock."

Sure enough, I went back at 5 o'clock, and there's this big black man with a white shirt on and 'Ace' written on it. I said, "Are you Black Ace?" He said, "Yes, sir." That's how we found Black Ace. I never did find Little Brother.

We also looked for Little Son Jackson. We knew his name was Melvin, because that was the composer credit given on the 78 we had. We looked in the phone book, but there was no such person, but then Pinson said, "[Let's go back to] when he was going big, let's say around '51." So, we went to the library and looked in the old phone books, and there was a Melvin Jackson, and we found him. He had quit the music business because he had been in an accident, and because he had enough of it. He was a very shy person, and he was working for an auto parts place, and that's where we met him. And I recorded some of his things in his house.

How did you convince people to make recordings with you then?

If they were already commercial artists, I had a problem. I think I had $1,000 for the whole trip in my pocket, and when Son Jackson said, "Well, I want $1,200 for that many songs," I said, "I just can't afford it." So, he said, "Let's make a few," and I gave him something and told him when it came out that I'd try to pay him the rest.

I had the same problem with Lightning Hopkins. He was used to getting $100 a side, so I never succeeded in recording him that first trip, but since Lightning was running off to go to California, Mack McCormick said, "Chris, you've got a car. I bet there's more people like Lightning out here in these woods someplace."

So, I stopped along the highway where all these people were chopping cotton, and I asked them, "You know of any guitar pickers in these parts?" They said, "Well, you gotta go to Navasota for that."

And that's where you found Mance Lipscomb, the artist on your first album. Had he ever made a record before?

He had never made any recordings, so he didn't really ask for any money. He was sort of scared of us, I guess.

What did you do to set him at ease?

I think we obviously knew this music. At first, he played "Shine on Harvest Moon," because he thought that's what all the white folks wanted to hear. But we want-

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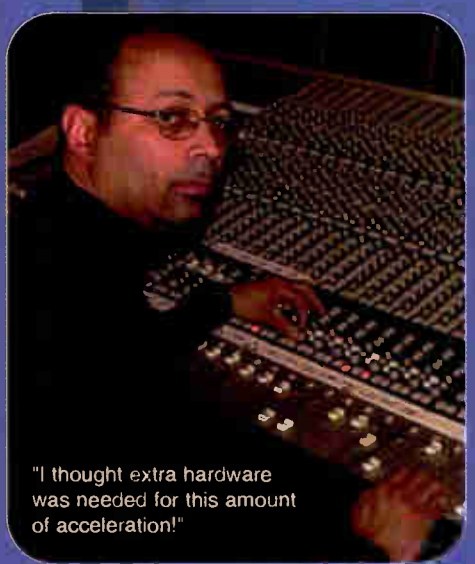
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ed the real stuff like "Tom Moore's Farm," and he loved to play. And when we left, we put whatever little money I had—I think it was $35—in his hand. That's all I had on me right then, and I told him we'd probably be coming back.

When we came back, he said, "I gave that $35 to my wife, and she said, 'Well, I'll be dog-gone. Them people paid you more than you ever made playing that damn guitar.'" So, to her it was a whole lot. We developed a nice thing with Mance, and it was Mack who told me on the way back to Houston, "Chris, you ought to put this out as your first record, because this is really pre-blues; this is probably the most important person you'll ever find." And although I didn't really care for his music all that much, I was totally impressed by the man.

Mance Lipscomb recorded Arhoolie's first album.

Why didn't you like his music?

This was sort of sweet folk music; that isn't exactly what I was after. I wanted alley blues like Lightning—drunk, nasty stuff. I had heard Lightning the year before, you see, and I was totally knocked out. This guy could improvise in these beer joints as to what was happening to him that day. I had never heard anything like it. It was also the last time that he was that kind of a bard for his own neighborhood, so to speak. Once he started traveling and realizing that the white folks liked his stuff, but they wanted the old records that he made, he had to relearn all this stuff and make an act out of it.

When did you finally get to record Lightning Hopkins?

It was about two years later, when he came to California. I had met him and hung out with him. I was like a puppy dog. I couldn't get enough of that cat, because it was something I had never encountered before. And then, one night back in Houston, he said, "You want to go hear my cousin?" And I said, "Oh, sure."

I said, "Who's your cousin?" He told me he was named Cliff Chenier. Well, to me, that was an R&B artist, because I had known his record of "Ay Te Fee" on Specialty. To me, that wasn't really low-down blues. But anyplace Lightning wanted to go, I'd go, so we went to French Town in Houston. We walked into this little beer joint, and here was this black man with this big accordion strapped on his chest and just a drummer backing him up and playing the most low-down blues I've ever heard on a damn accordion, except he was singing in this weird patois I'd never heard before, and I was totally knocked out by it. I mean, he put in so much soul it was scary. So, Lightning introduced me, and Cliff said, "Oh, you're a record man. Let's make a record tomorrow." He hadn't had a single in some years, so he figured any white guy that's in the record business, that must be it. I finally agreed. We went over to Bill Quinn's studio.

So, you recorded with his equipment?

Yeah, but what showed up the next day was not only Clifton and his drummer, but he brought his whole damn band. And he said, "Well, you know Chris, that old French stuff isn't hitting. I gotta make rock 'n' roll records." I said, "Well, I don't know. What I heard last night knocked me out; I didn't care for that 'Ay Te Fee' so much."

Anyway, he had a drummer and a guitar player and an electric bass man and a piano player, and, well, thank goodness the bass literally didn't work because the whole damn paper on the cone of the bass amplifier had come off. And the guitar player's amp started smoking; it was an old military surplus, and it went out. So, we were down to piano and accordion.

You were getting closer to what you wanted.

We were getting closer, except for the repertoire. He didn't want to do that French stuff. So, we did "Ay Ay Ay," and I forget the other side. It was just a single. And then I wrote to him and said I wanted to go back next year and record an album, because this was really unusual music, but I said I wanted the French stuff.

He said, "Okay, I'll make you a deal. We'll do half the album in French and half what he called rock 'n' roll. Well, the good thing was, he did this one number singing in French with just the drummer and his brother on the rub board, and he came popping out of the studio and said, "I gotta call my old lady; she's got to hear this one." Bill Quinn was standing behind me and said, "Chris, that's going to sell down here; it's got that sound."

So, after he talked to his old lady and let her hear it, I said, "Clifton, what am I going to call it?" He said something in French that means something like "Every night is not the same." I said, "How do you spell that?" And he said, "Any way you want to," but I don't speak French and asked, "Can I just call it 'Louisiana Blues'?" It was probably the smartest thing we ever did, because if we had put that French name on there, the jockeys probably wouldn't have played it. But this way, they put it on, and the first note just killed you. You just heard that unbelievable low-down song, and it doesn't really matter which language he's singing in.

Once you started to have some success, did you upgrade your recording rig?

I started using a Magnacord, a big, heavy machine. It was great, and I used it for a lot of years, though I almost busted my back lugging it around. I think it weighed like 80 pounds, and the handle on it was kind of in the middle of the damn thing, so it was just awkward to carry.

This is still in the '60s, right?

Yeah. And I used that until the '70s.

What mics would you have been using at that time?

I used a single microphone, a condenser mic called a Capps. There was a woman named Miss Capps who produced this microphone. I didn't really use stereo, just that one microphone. That's what I recorded Fred McDowell with, the Hackberry Ramblers, and a whole bunch of stuff. I would hang it from the ceiling for a group;

—CONTINUED ON PAGE 202

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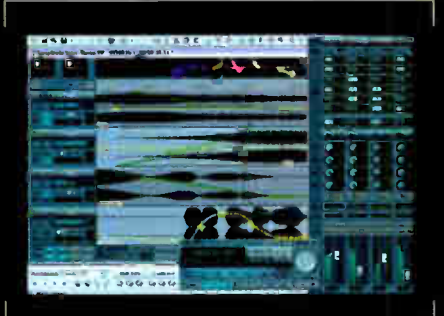

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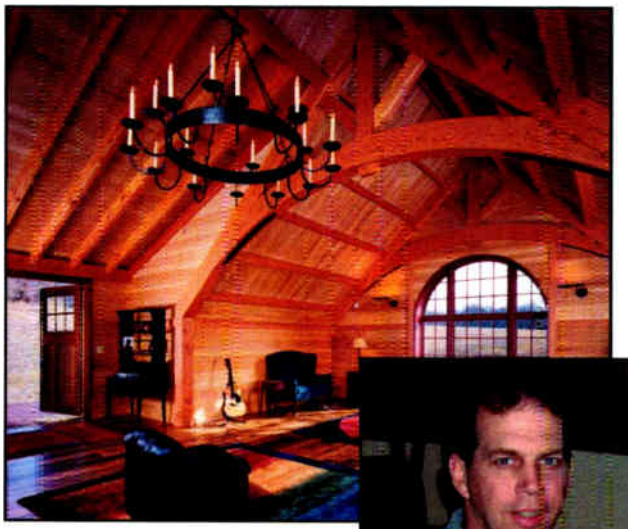
BY BARBARA SCHULTZ

Mark Blaha's Barn

Music Recording, Down on the Farm

Sounds like nice work if you can get it: "We have 20 acres, nine cats, 15 sheep, two dogs and a lot of grass to cut, and I enjoy my studio," says Mark Blaha, the happy owner of a new ground-up project studio in Chadds Ford, Pa. Blaha and his wife, a teacher and textile artist, have lived on Cannonhill farm for six years, and they used to share workspace, as well. A 150-year-old bank barn on their property was divided in two: half for Mark Blaha's music and recording projects, and half for tapestry weaving.

However, "she said, 'get out, because I need the whole space,'" laughs architect Peter Archer, AIA. "So, we said, 'Let's move you, create a new structure for you that will have the look of a traditional barn, but inside will meet all of your technological and acoustical needs for a music studio and hangout space.'" Archer, of Archer & Buchanan Architecture Ltd. (West Chester, Pa.), designed a new bank barn where Blaha's studio occupies the upper level and farm equipment can be stored below.



The recording room—a thing of beauty.

Mark Blaha

Because the studio is situated in the middle of a rolling countryside, sound isolation was a lot less of a concern on this project than on most. So, any money that might have been used for floating floors and double-thick walls was happily spent on the magnificent new timber construction, exposed structural beams and period touches, such as the multi-paned window between the control room and recording space. ("You can see that the window is certainly not a barn window," says Archer, "but it transcends that sort of timeless nature of old barns versus new uses.")

Archer also enlisted the help of acoustician Tony Hoover of Cavanaugh Tocci Associates. Archer says that Hoover, president of the National Council of Acoustical Consultants and a professor in acoustics at Berklee College of Music, usually works on music spaces as impressive as his credentials, and that he took on Blaha's project because of its unique beauty and style. Hoover worked with the architect using the room's shape and planes to create the desired acoustical spaces. "If the ceiling had not been angled the way it was, and with very significant beams," Hoover explains, "we might have looked for a different type of shape. We were trying to control reflection of sounds in certain areas, looking to scatter sound in a variety of ways. And one of the big elements there is the roof structure. We were pleased to have significant structural timber members there, because it really demonstrated that it would scatter the sound in a very desirable way." Hoover also suggested the room's "L" shape: "Instead of designing a long shoe box shape, we varied the dimensions and the geometry, resulting in slightly different delay times and ambience at different locations, providing the engineer with a more colorful palette."

Blaha, whose interest in recording stems from his days touring and playing locally with rock 'n' roll and blues bands, chose all of the studio equipment himself, including his 24-channel Tascam M 2600 mixing board, Fostex RD-8 multitrack, Tascam DA-20 DAT and Alesis Monitor 2 speakers powered by Alesis Matica 500 amps. Blaha also uses a Roland SP 50 music workstation, a Mac iBook running Digital Performer, Alesis processing gear, and mics such as E-V RE-20, Audio-Technica 4033A and Shure SM57.

"I was in a blues band in this area, Red House, and I've had them in to record," Blaha says, "and a few other local bands. But more or less, I do this for myself. I don't mind having some bands in, but I wouldn't want to do a large-scale commercial operation. And if people do come in, the location is great. It's very peaceful, and it's a different environment to relax in and lay some tracks."

"The studio looks and feels wonderful," Archer says. "He has one of the nicest Martin guitars I've ever seen, and when he strums, it resonates just beautifully. And he's got a big smile on his face, just as happy as can be. I'm not sure he's left the place since it was finished." ■

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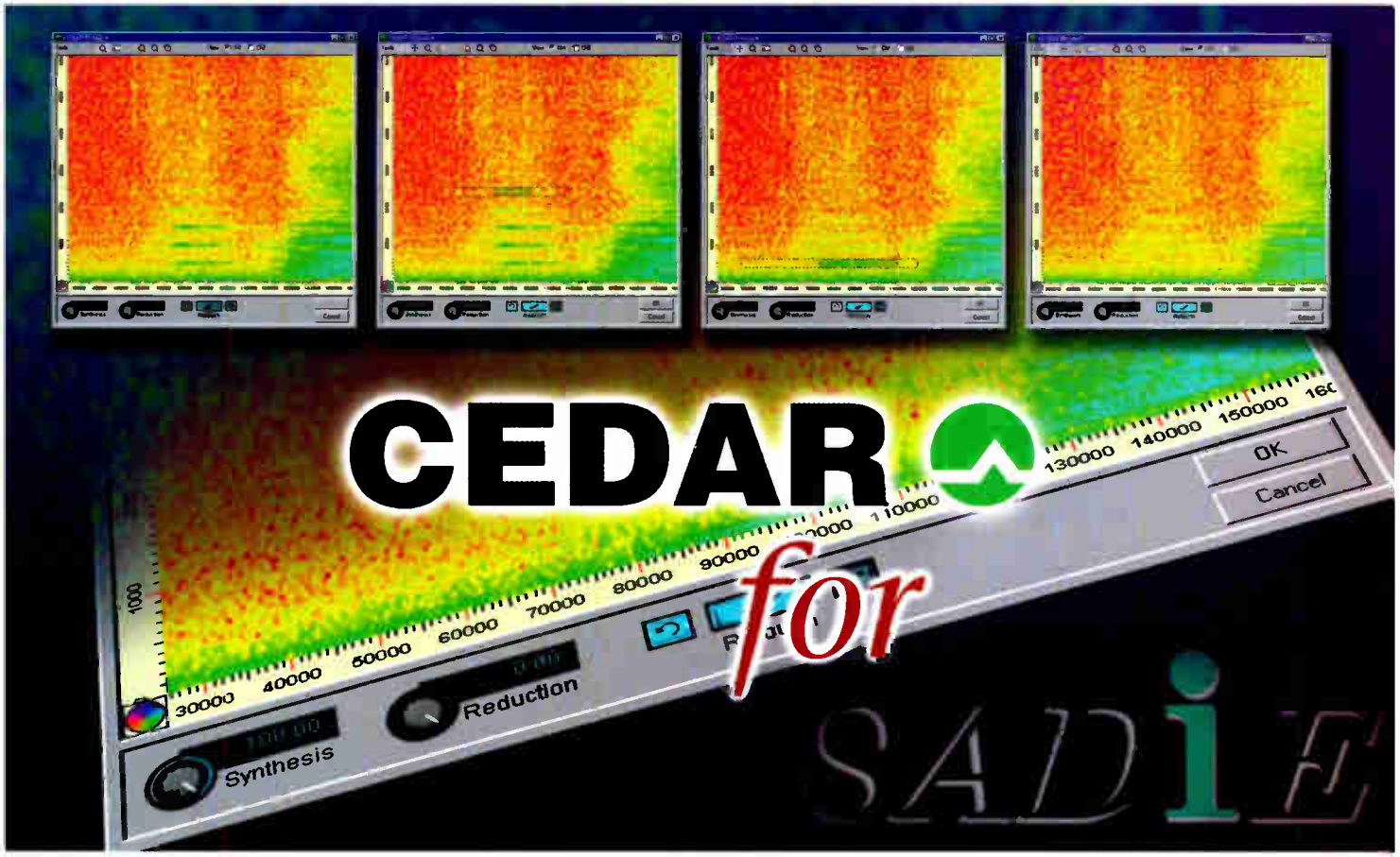

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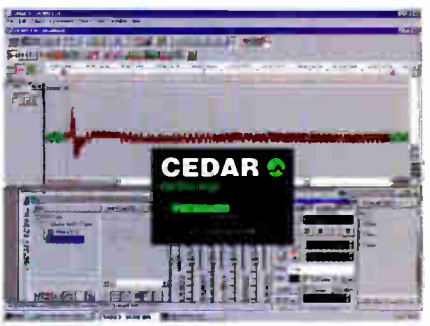

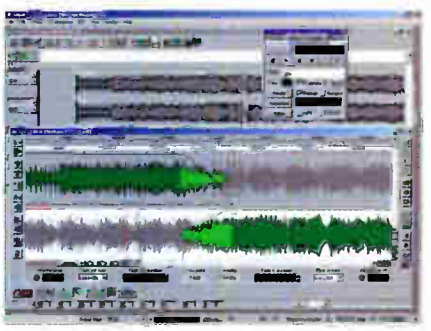

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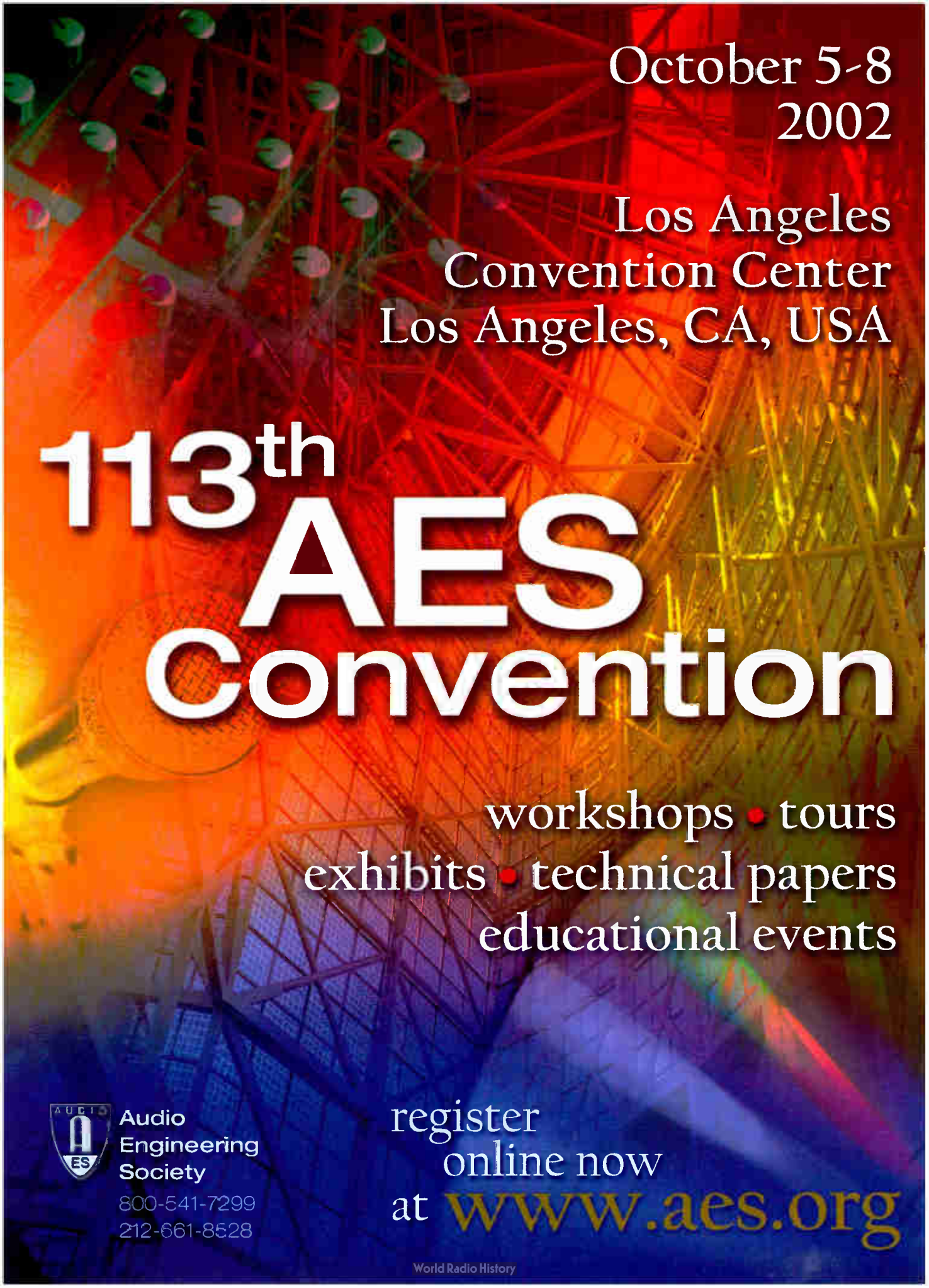

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18th Annual Technical Excellence & Creativity Awards

Beginning on page 66 are six pages of nominee descriptions. Please take the time to read this information before voting, then vote in the categories in which you are most qualified. Your ballot must be returned **no later than** Friday, September 6, 2002.

You are also invited to join fellow members of the pro audio community at the TEC Awards ceremony at the Wilshire Grand Hotel in Los Angeles on October 7, 2002, on the third night of the AES Convention.

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As the leading magazine for the professional recording and sound production industry, Mix covers the entire spectrum of professional audio and music: studio recording, live sound production, sound for picture and multimedia, digital audio technology, facility design and construction, tape/CD replication, broadcast production, education and more. Founded in 1977, Mix reaches more than 51,000 professionals worldwide. Mix also publishes the annual AES New Products Guide, the Mix Master Directory, the Mix "Finest" series, the MixLine e-newsletter, and mixonline.com. Mix is the leading sponsor of the TEC Awards.

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Established in 1945 in Wedemark, Germany, Sennheiser is an acknowledged leader in microphone technology, RF-wireless and infrared sound transmission, headphone transducer technology, and most recently, in the development of active noise-cancellation. Brands distributed by Sennheiser Electronic Corporation in the U.S. include Neumann microphones, InnovaSON digital consoles, True Systems preamplifiers and Turbosound loudspeaker systems.

Solid State Logic

Solid State Logic (SSL) has grown over 30 years to become one of professional audio's most successful high technology enterprises. A constant innovator, the company is constantly introducing new consoles to its product range. Each incorporates SSL's latest generation of processing and is tailored to different applications in music, broadcast, film and post-production. SSL supports its leading-edge technology with an international network of offices, establishing an industry benchmark for customer service.

TC Electronic

TC Electronic was founded in 1976 with the objective of developing, manufacturing and marketing first-class audio products. This has, and will always be, the company's main goal. Since 1992, the primary focus of the company has been the development of advanced DSP-based products. Beginning in 1996 TC has enjoyed tremendous growth and is now a primary supplier of products to the music, film, broadcast, and video post-production markets.

Yamaha

Yamaha, a leading manufacturer of innovative analog and digital products, offers a diverse scope of recording, post-production, and sound reinforcement products through its Commercial Audio Systems Division. Yamaha professional audio products range from signal processors (including this year's TEC-nominated SREV1 digital reverb), powered and reference monitors, digital audio workstations, powered amplifiers, speakers, digital mixing engines, and analog consoles to the PM1D live digital console and recently introduced DM2000 and 02R96 production consoles.

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A. Studio Design Project

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Studio Architect: Wave:Space, Inc. **Acoustician:** Carl Yanchar. **Studio Owner:** Audio Properties Burbank.

PatchWerk Recordings, Atlanta, GA
Studio Architects: Robert G. Traub, AIA, Brandon Stewart/Russ Berger Design Group. **Acoustician:** Russ Berger/Russ Berger Design Group.
Studio Owner: Bob Whitfield.

Right Track Studio A509, New York City
Studio Architect: Janson Design Group. **Acoustician:** Dennis Janson. **Studio Owner:** Right Track Recording LLC.

Sterling Sound-Chelsea, New York City
Studio Architect: Abelow Connors Sherman Architects. **Acoustician:** Francis Manzella Design Limited. **Studio Owner:** Murat Aktar.

B. Tour Production

Includes Tour Company, FOH Engineer and Monitor Engineer.

Crosby, Stills, Nash & Young
Tour Company: Sound Image. **FOH Engineer:** Tim Mulligan. **Manitor Engineer:** Rance Caldwell.

Dave Matthews Band
Tour Company: Ultra Sound. **FOH Engineer:** Jeff Thomas. **Monitor Engineer:** Ian Kuhn, Lonnie Quinn.

Janet Jackson
Tour Company: Clair Brothers. **FOH Engineers:** Trip Khalaf, Dave Kob. **Monitor Engineer:** Pete Buess.

Madonna
Tour Company: Clair Brothers. **FOH Engineer:** Dave Kob. **Monitor Engineers:** Blake Suib, Patrick McCarthy.

U2
Tour Company: Clair Brothers. **FOH Engineer:** Joe O'Herlihy. **Monitor Engineers:** Don Garber, Raza Sufi, Niall Slevin, Dave Skaff.

C. Remote Production/ Recording or Broadcast

Includes Remote Facility, Remote Engineer, Production Mixer and Music Mixer.

Wall to Wall Miles, NPR
Remote Facility: Aura Sonic Ltd. **Remote Engineer:** Steve Remote. **Production Mixer:** Edward Haber. **Music Mixers:** Steve Brown, Duke Markos.

The Concert for New York City, VH-1
Remote Facilities: Remote Recording Services, MTV Networks/Remote Recording Division. **Remote Engineers:** David Hewitt, Mark Repp. **Music Mixers:** Bob Clearmountain, Thom Cadley.

2002 Grammy Awards, CBS
Remote Facility: Effanel Music. **Production Mixer:** Ed Greene. **Music Mixers:** John Harris, Adam Blackburn, John Botes.

Madonna Drowned World Tour, HBO
Remote Facility: Effanel Music. **Production Mixer:** Don Worsham. **Music Mixers:** John Harris, Patrick McCarthy.

America—A Tribute to Heroes,
all networks
Remote Facilities: Effanel Music, Sony Music Studios, NYC; Westwood One, Los Angeles; CBS Studios Stage 36, Los Angeles; Top of the Pops, England. **Production Mixer:** Paul Sandweiss, Los Angeles, Al Centrella, NYC. **Music Mixers:** Jay Vicari, John Harris, Mitch Maketansky, NYC; Biff Dawes, Los Angeles; Richard Rainey, Mike Felton, UK.

D. Film Sound Production

Includes Supervising Sound Editor, Sound Designer, Re-recording Mixer, Production Sound Mixer, Score Mixer and Audio Post Facility.

Black Hawk Down
Supervising Sound Editors: Per Halberg, Karen Baker. **Sound Designer:** Jon Title. **Re-recording Mixers:** Michael Minkler, Myron Nettinga. **Production Sound Mixer:** Chris Munro. **Score Mixers:** Malcolm Luker, Alan Meyerson. **Audio Post Facility:** Todd Studios West.

The Lord of the Rings: The Fellowship of the Rings
Supervising Sound Editors: Mike Hopkins, Ethan Van der Ryn. **Sound Designer:** David Farmer. **Re-recording Mixers:** Christopher Boyes, Gethin Creagh, Michael Hedges, Michael Semanick. **Production Sound Mixers:** Malcolm Cromie. Hammond Peek. Ken Saville. **Score Mixer:** John Kurlander. **Audio Post Facility:** The Film Unit, New Zealand.

Moulin Rouge
Supervising Sound Editor: Roger Sovage. **Re-recording Mixers:** Anna Behlmer, Andy Nelson. **Production Sound Mixer:** Guntis Sics. **Score Mixer:** Geoff Foster. **Audio Post Facility:** 20th Century Fox.

Pearl Harbor
Supervising Sound Editors: Christopher Boyes, George Watters II. **Sound Designers:** Chris Boyes, Robert L. Sephton, Ethan Van de Ryn. **Re-recording Mixers:** Kevin O'Connell, Greg P. Russell. **Production Sound Mixers:** Peter J. Devlin; Ken Weston: UK. **Score Mixer:** Alan Meyerson. **Audio Post Facility:** Sony Pictures Studios.

Shrek
Supervising Sound Editors: Lon Bender, Wylie Stateman. **Sound Designer:** Scott Martin Gershin. **Re-recording Mixers:** Anna Behlmer, Andy Nelson. **Score Mixer:** Alan Meyerson. **Audio Post Facility:** 20th Century Fox.

E. Television Sound Production

Includes Supervising Sound Editor, Sound Designer, Re-recording Mixer, Production Mixer, Score Mixer and Audio Post Facility.

Late Show with David Letterman, CBS
Supervising Sound Editors: Michael DeLugg, Jim Rose, Kevin Rogers, Harvey Goldberg. **Re-recording Mixers:** Michael DeLugg, Jim Rose, Kevin Rogers, Harvey Goldberg. **Production Mixers:** Tom Herman, Larry Zinn. **Audio Post Facility:** Ed Sullivan Theater, NYC.

Saturday Night Live, NBC
Re-recording Mixers: Chris Seeger, Jay Vicari. **Production Mixer:** Robert Palladino. **Audio Post Facility:** NBC.

Six Feet Under, HBO
Supervising Sound Editor: Bob Newlan. **Re-recording Mixers:** Peter Reale, Roberta Doheny. **Production Mixer:** Vince Garcia. **Audio Post Facility:** Miles O' Fun at Universal Studios, Universal City.

The Sopranos, HBO
Supervising Sound Editor: Anna MacKenzie. **Re-recording Mixers:** Kevin Burns, Todd Orr, Fred Tator. **Production Mixer:** Mathew Price. **Audio Post Facility:** Todd Studios West.

United We Stand, ABC
Re-recording Mixer: Bobby Douglass, Paul Sandweiss. **Production Mixers:** Adam Blackburn, John Harris, Mark King. **Audio Post Facilities:** Effanel Music, Sound Design Corporation.

F. Record Production/ Single or Track

Includes Recording Engineer, Mixing Engineer, Producer, Recording Studio, Mastering Engineer and Mastering Facility.

"Drops of Jupiter," *Drops of Jupiter,* Train
Sony Music Entertainment
Recording Engineer: Nick DiDia. **Mixing Engineer:** Brendan O'Brien. **Producer:** Brendan O'Brien. **Recording Studia:** Southern Track Recording, Atlanta, GA. **Mastering Engineer:** Bob Ludwig. **Mastering Facility:** Gateway Mastering & DVD, Portland, ME.

"Fallin'," *Songs in A Minor,* Alicia Keys
J Records, Arista Records.
Recording Engineer: Kerry "Krucial" Brothers. **Mixing Engineer:** Russ Elevado. **Producer:** Alicia Keys. **Recording Studios:** KrucialKeys Studios. NYC; Electric Lady Studios, NYC. **Mastering Engineer:** Herb Powers. **Mastering Facility:** The Hit Factory, NYC.

"Jaded," *Just Push Play,* Aerosmith
Sony Music Entertainment.
Recording Engineers: Rich Chycki, Marti Frederiksen, Paul Caruso. **Mixing Engineer:** Mike Shipley. **Producers:** Steven Tyler, Joe Perry, Mark Hudson, Marti Fredricksen. **Recording Studios:** The Boneyard, The Bryer Patch, The Mix House, South Shore, MA. **Mastering Engineer:** George Marino. **Mastering Facility:** Sterling Sound, NYC.

"Lady Marmalade," soundtrack for *Moulin Rouge,* Christina Aguilera, Lil' Kim, Mya and Pink
Twentieth Century Fox/Interscope Records
Recording Engineers: Brian Springer, Michael C. Ross, Dylan "3D" Dresdow, Tal Herzberg. **Mixing Engineer:** Dave Pensado. **Producers:** Missy Elliott, Rockwilder, Ron Fair. **Recording Studios:** Westlake Audio, Los Angeles; Royaltone Studios, North Hollywood; The Enterprise, Burbank, CA. **Mastering Engineer:** Eddy Schreyer. **Mastering Facility:** Oasis Studio, Studio City, CA.

World Radio History

"The Space Between," *Everyday,*
Dave Matthews Band
BMG Entertainment.
Recording Engineer: Karl Derfler. **Mixing Engineer:** Chris Lord-Alge. **Producer:** Glen Ballard. **Recording Studios:** Conway Studios, Hollywood; Image Studios, Hollywood, CA. **Mastering Engineer:** Bob Ludwig. **Mastering Facility:** Gateway Mastering & DVD, Portland, ME.

G. Record Production/Album

Includes Recording Engineer, Mixing Engineer, Producer, Recording Studio, Mastering Engineer and Mastering Facility.

Acoustic Soul, India.Arie
Motown Record Company.
Recording Engineers: Kevin Haywood, Avery Johnson, Jim Lightman, Blue Miller, Mark Niemiec, Bob Power, John Smetz, Mike Tocci. **Mixing Engineers:** Mark Batson, Carlos Broady, Kevin Haywood, Gearge Karas, Mike Shipley, Jim Lightman, Blue Miller, Bab Power, Alvin Speights, Dave Way. **Producers:** India.Arie, Mark Batson, Carlos Broady, Blue Miller, Bob Power. **Recording Studios:** Access Sound; Battery Studios, NYC; Blues House Studio; Electric Lady Studios, NYC; Larrabee West Studio, Hollywood, CA; Music Mills Studio; New Reflections Studio; Record One Studio, Los Angeles; Sony Studios, NYC; Sound Kitchen; Stankonia; The Studio; Worldbeat. **Mastering Engineer:** Chris Athens. **Mastering Facility:** Sterling Sound, NYC.

Drops of Jupiter, Train
Sony Music Entertainment.
Recording Engineer: Nick DiDia. **Mixing Engineer:** Brendan O'Brien. **Producer:** Brendan O'Brien. **Recording Studio:** Southern Track Recording, Atlanta. GA. **Mastering Engineer:** Bob Ludwig. **Mastering Focility:** Gateway Mastering & DVD, Portland, ME.

Lateralus, Tool
Volcano Entertainment II, LLC.
Recording Engineer: David Bottrill. **Mixing Engineer:** David Bottrill. **Producer:** Tool, David Bottrill. **Recording Studios:** Cello Studios, Hollywood, CA; The Hook, Big Empty Space, The Lodge and Larrabee Sound North, North Hollywood, CA. **Mastering Engineer:** Bob Ludwig. **Mastering Focility:** Gateway Mastering & DVD, Portland, ME.

The Look of Love, Diana Krall
The Verve Music Group, a division of UMG Recordings, Inc.
Recording Engineer: Al Schmitt. **Mixing Engineer:** Al Schmitt. **Producer:** Tommy LiPuma. **Recording Studios:** Avatar Studios, NYC; Abbey Road Studios, London; Capitol Studios,Hollywood, CA. **Mastering Engineers:** Doug Sax, Robert Hadley. **Mastering Focility:** Mastering Lab, Los Angeles.

Songs in A Minor, Alicia Keys
J Records, Arista Records.
Recording Engineers: Gerry Brown, Brian Frye, Kerry Brothers, Chris Wood, Ralph Cacciuri, Acar Key, Ricky St. Hillaire. **Mixing Engineers:** Gerry Brown, Phil Tan, Russ Elevado, Manny Marroquin, Tony Masserati. **Producers:** Alicia Keys, Kerry Brothers, Jermaine Dupri, Brian McKnight, Kandi, Jimmy Cozier, Arden Altino, Mini Benin. **Recording Studios:** Battery Studios, NYC; Southside Studios, Atlanta, GA; Electric Lady Studios, NYC; KrucialKeys Studios, NYC; Larrabee Studios, Los Angeles; Backroom Studios, Glendale, CA; Sony Studios, NYC; Doppler Studio, Atlanta, GA; Unique Studios, NYC; The Hit Factory, NYC. **Mastering Engineer:** Herb Powers. **Mastering Focility:** The Hit Factory, NYC.

OUTSTANDING TECHNICAL ACHIEVEMENT

A. Ancillary Equipment

Equi=Tech ET 5WQ Balanced-Power Cabinet System: The ET 5WQ power-distribution center offers a complete balanced-power system in a wall cabinet. The new "Q" option for the ET models 5-watt and 7.5W adds oversized, low-capacitance transformers and two electrostatic shields for superior isolation from high-frequency interference. A proprietary winding design drastically reduces high-inrush current for distortion-free playback performance under the most demanding conditions.

Future Sonics EM3 Universal Earphones: The Ears™ EM3 Series universal-fit in-ear transducers are designed as an affordable, one-size-fits-all alternative to the company's high-end customized Ear Manitors™ line. The EM3 features FSI's F/R dynamic drivers for a stated 40 to 20k Hz response, and terminates in a standard 1/8-inch stereo TRS plug for interfacing with headphone amps or beltpack receivers.

Gold Line/PMI TK51 5.1 Audio Toolkit DVD: This disc has more than 80 test signals, laid out in a logical progression for the quick calibration and debugging of 5.1-channel systems with THX Surround EX. Tests and signals include midrange pink noise, wideband pink noise, LF pink noise, imaging test, 1/3-octave pink noise, 1-octave pink noise, 1/3-octave burst headroom test, noise leakage tests sine wave signals, swept sine wave signals, 5.1-channel music, subwoofer tests and more.

Hosa PBP-362 Lightpipe Digital Patchbay: Designed to emulate the operations of the half-normaled analog patchbays we're all familiar with, the PBP-362 is a multifunction Lightpipe-patching system that puts all of a studio's ADAT Lightpipe (or S/PDIF optical) sources and destinations within fingertips' reach. The PBP-362 is designed around plug-in modules, allowing users to customize the system to their needs by adding more I/O capability or inserting optical splitter units for multing signals.

Millennia Media LPE-2 Archival Playback Environment: The LPE-2 "Analog Legacy" playback system is a handcrafted collection of Millennia's discrete phono preamp/EQ circuitry, tailored for the needs of archiving and mastering professionals. All Legacy formats can be correctly preamplified and compensated with the LPE-2, including early acoustics and vertical groove cuttings. Employing 36 discrete bipolar and field effect transistors, the LPE-2 exemplifies Millennia's hallmark sonic invisibility and dynamic uniformity.

Sennheiser HD280Pro Headphones: Engineered for the professional, the HD280Pro features swiveling/pivoting ear cups for different monitoring styles, while a folding, lightweight design makes them portable and comfortable. Its 32 dB of passive attenuation provides excellent isolation, while modular parts allow easy field replacement. Specs include 8 to 25k Hz response, 64-ohm impedance and outstanding 113/1V RMS efficiency for reliable and trustworthy monitoring results with any associated equipment.

B. Digital Converters

Apogee Electronics AD-16/DA-16: The AD-16 and DA-16 form a complementary pair of converters designed to enhance digital audio systems, with industry-standard AES/EBU, ADAT, S/MUX and TDIF interfacing and 24-bit, 96kHz sampling. The AD-16 includes Soft Limit, maximizing digital output without overs, and UV22HR, Apogee's industry-standard word-length reduction for 16/20-bit outputs. ADAT with S/MUX support is built-in; AES/EBU or TDIF is optional. The DA-16 includes all three interfaces.

Genex GXA8/GXD8: These converters offer sonic purity at a price not seen for this level of performance. The converters are uniquely capable of eight channels of 24-bit/192kHz PCM and DSD conversion. The effects of the ultra-low-noise and -distortion analog circuitry, ultra-low-bandwidth PLL's, DSP-free design and, most importantly, linear-phase filtering combine to produce astonishing clarity and realism. The converters offer support for ADAT, AES and DSD I/O formats.

Lynx Studio Technology LynxTWO: The LynxTWO PCI card is a 24-bit/192kHz multichannel audio interface that's compatible with Windows and Mac-based workstations. Its advanced analog stages and conversion technology provide 117dB dynamic range. The LynxTWO features AES digital I/O with SRC and a SMPTE reader/generator, and can lock to composite video- and studio-reference clocks. Two LStream expansion ports provide additional ADAT, multichannel AES and TDIF interface options.

MOTU 896: Built on the success of the MOTU 828, the first-ever FireWire audio interface for Mac and Windows, the MOTU 896 is the first-ever 96kHz FireWire audio interface. The 896 offers eight channels of 24-bit/96kHz analog recording and playback with eight mic preamps, eight channels of 24-bit ADAT optical digital I/O and AES/EBU digital I/O. Up to four 896s can be connected for 72 channels of I/O.

Midiman/M-Audio USB Audiosport Quattro: USB Quattro delivers the promise of affordable, professional 24/96k audio with any USB laptop or desktop. USB Quattro uses AC power to facilitate top-fidelity audio and features 4x4 balanced I/O (+4dBu/-10dBV), 1x1 MIDI I/O and zero-latency direct monitoring. Ubiquitous Mac and PC driver support facilitates plug-and-play reliability. Adding Omni I/O as its front end, USB Quattro gains two mic preamps, eight more inputs, headphones sends, busing and more.

Swissonic AD8: The Swissonic AD8 is an 8-channel universal preamp/A-to-D converter. Virtually every signal source, such as microphones, hi-Z instruments or keyboards can be connected to the combination 1/4-inch XLR inputs. The full-feature channel preamps provide excellent audio and signal conditioning for high-end A/D converters at 44.1/48/88/96kHz sampling. Different digital output modules provide the innovative AD8 for future expandability and compatibility.

C. Amplifier Technology

Bryston 6B-ST: This new, single-chassis design is based on modular channels, each with electronic circuitry, connections and independent power supply. The chassis provides soft-start AC to each channel and separate power LEDs indicating channel power status. Output is 3x350 watts per channel @ 8 ohms (3x500 watts/channel @ 4 ohms). Three completely separate and independent power supplies are employed to prevent channel-to-channel crosstalk or interference.

Crown CTs Multichannel: Crown's flagship amplifier line for the fixed-installation market, the CTs Series, has an array of LEDs indicating channel mode status, channel activation, IQ status, signal strength, thermal protection, clip and fault. All feature switchable highpass filters (flat, 35Hz and 70Hz) for constant-voltage applications, efficient heat sinks and proportional-speed fans. A CobraNet digital audio-input option is also available

World Radio History

Hot House Model Two Thousand B: The result of a decade's worth of R&D on amps that make music (not just power), the discrete dual-monoblock Model Two Thousand B can provide 2,400 watts continuously into low impedances and deliver up to 200 amperes of peak current per channel with no global feedback. The five-rackspace, 95-pound Two Thousand can drive any manitor, with sound quality equaling the most exotic audiophile units at a fraction of their cost.

QSC CX168: The CX168 offers eight channels of power in two rackspaces, providing an unprecedented level of channel density for multichannel amplifiers. Each pair of channels can be bridged to configure the CX168 as a 4, 5, 6 or 7-channel unit. Like QSC's entire CX Series, the CX168 features compact size and unmatched reliability, making it the ideal solution for multizone sound systems, with DataPorts for remote-amplifier management or DSP and QSC's exclusive PowerWave™ technology.

Quested AP500: The newest in the AP range of amplifiers, the AP500 features complementary Class-A/B bipolar outputs for soft-start power-on sequencing with mains inrush protection, and sophisticated monitoring of load, temperature and other operating parameters for safe operation. Protection of the loudspeaker is provided by internal audio limiters that only come into the signal path during limiting and are inaudible during normal operation. Output per channel is 300 watts into 8Ω and 500 watts into 4Ω.

D. Mic Preamplifier Technology

AMS Neve Modular I/O System Quad: The compact 4U MIOS rack houses up to six hot-pluggable modules and connects to the console via MADI. The Quad Microphone Amplifier module is based on the classic Neve mic input stage, coupled with precision 24-bit, 96kHz conversion. Each mic amp can switch between two mic and one line-level input, and includes a remotely switchable analog limiter and highpass filter that can help control difficult sources before the digital conversion.

Aphex Model 207: The Model 207 is a full-featured, audiophile-quality mic/instrument preamp combining the best traits of tube and solid-state circuitry for a sound that's warmer, fuller, more detailed and present. The patented Reflected Plate Amplifier tube stage assures that the great sound will remain consistent without the compromises associated with traditional tube designs. The patented MicLim mic-level limiter makes the mic and instrument inputs of the 207 virtually crashproof.

Crane Song Spider: This no-compromise, 8-channel amalgam of the Crane Song product line has eight discrete, Class-A Flamingo mic preamps (with optional FAT for color), channel inserts, peak limiters for overload protection, A/D conversion (four sample rates plus WC) including tape emulation, plus analog dither a la HEDD192. Three multitrack digital output options (AES, ADAT Lightpipe or TDIF) and digital stereo outputs via AES, S/PDIF and Toslink with 8-channel and stereo metering are offered.

George Massenburg Labs 2020: The 2020 High-Resolution Discrete Input Channel sets a new standard in signal processing. Combining elements of GML's flagship 8200 parametric EQ, 8300 mic preamp and 8900 dynamic gain control, the 2020 embodies the legendary detail and accuracy for which GML is renowned. These revolutionary processors also feature line and instrument inputs, highpass filter, front panel phantom and phase switching, and flexible routing options, as well as maintain the GML standard of performance and transparency.

Groove Tubes VIPRE: Each hand-built VIPRE preamp features four variable-transformer impedances to optimize every mic, five variable rise-time settings, eight tubes, fully differential (balanced) signal path, 75dB total gain, precision stepped attenuators (no pots!), VU metering with five viewing options, +4dB/-10dB transformer-balanced outputs and separate instrument input preamp. Specs include low THD and noise and an extremely wide bandwidth (4 Hz to over 100 Hz).

Universal Audio 2-610: This 2-channel tube mic preamp is based on the legendary Universal Audio 610 modular console designed by Bill Putnam. Particularly noted for its preamplifier, the 610 left its mark on classic recordings from Sinatra to *Pet Sounds* to Van Halen to *L.A. Woman*. Unlike many "vintage-style" mic pre's, the 2-610 is true to the design of its predecessor, while adding functionality with more boost/cut settings, phantom power, direct inputs and impedance controls.

E. Microphone Technology/ Sound Reinforcement

AKG C900: The C900 is a pro handheld condenser with a frequency response tailored for vocal applications. It features a 24-karat gold-encased capsule with a frequency-independent cardioid polar pattern. Its uniform response makes it an excellent choice for onstage use with foldback or in-ear monitors. Other features include an optional presence-boost adapter for optimum intelligibility, rugged die-cast body, industry-standard gold XLR connector, stand adapter and gig bag.

Countryman E6: The Isomax E6 EarSet is the smallest head-worn microphone in the world. Light and springy, the EarSet clips easily around your ear, not around your head. Available in hypercardioid, cardioid or omnidirectional patterns and four attractive skin-tone colors, the Isomax EarSet is the answer when you need flawless sound and feedback control for reinforcement, broadcast or recording, without the bulk and appearance of conventional headsets.

DPA 4066: The 4066 couples DPA's high-SPL (144 dB before clipping), high-resolution, pre-polarized, omnidirectional cartridge with an ingenious, adjustable headset design for a quick fit to anyone's head, eliminating the need for "left" or "right" models. It's used extensively in broadcast and theatrical applications where low-profile wireless miking is a necessity. Look closely, and you can see the 4066 on The Weather Channel, FOX Sports broadcasts, and various Broadway and Las Vegas productions.

Sennheiser MKE2 Gold-EW: For more than a decade, the MKE2 miniature condenser lavalier microphone has been the standard on Broadway stages everywhere, in newscasting, and anywhere a low-profile, high-quality microphone is required. The MKE2 Gold-EW version updates this benchmark microphone with an additional diaphragm to prevent moisture sensitivity, or "sweatouts," thereby increasing reliability in performance. The mic's "EW" designation indicates compatibility with the Sennheiser's Evolution Wireless systems.

Shure Beta 98H/C: The Beta 98H/C is a premium miniature condenser mic that can be securely mounted to any horn or percussion instrument via a clip-on clamp that allows for quick change between instruments. Boasting a capacity for high-SPL handling and optimal gain-before-feedback, the cardioid mic has a low-profile design, a flexible gooseneck, a locking windscreen, and integrated isolation mount that controls horn "key noise" and other mechanically transmitted sounds.

F. Microphone Technology/Studio

AKG C451 B: The C451 B is the latest model in the popular C451 Series, which dates back to 1969. It features a cardioid design with matched acoustics of the original CK1. The transformerless preamp is encased in an all-metal body and finished with satin nickel. Features include selectable three-position pads (flat, 10 or 20 dB) and a three-way bass roll-off (flat, or -12 dB/octave at 75 or 150 Hz).

Audio-Technica AT3035: This large-diaphragm studio condenser mic features exceptional detail, high max-SPL handling and wide dynamic range. Its low self-noise (12dB SPL) is perfectly suited for today's sophisticated digital recording equipment, while its extended low-frequency response offers a rich, full sound. The AT3035 includes a custom shockmount for superior isolation, a low-cut switch (-12dB/octave @ 80 Hz) and -10dB pad

BLUE Kiwi: Our top Class-A discrete model offers nine selectable patterns, delivered by our own hand-built capsule. Each Kiwi is acoustically matched and tuned by BLUE engineers in our anechoic chamber for optimum performance. Included is the Shock, our spider shockmount, and a gorgeous cherry-wood mic bax. Optional accessories include "The Pop" (our brass mesh filter) and the "Kiwi High-Definition" microphone cable, all crafted in the style for which BLUE has become famous.

Neumann M150: Utilizing a 12mm, all-titanium pressure transducer mounted flush into a 40mm sphere, the transformerless M150 is unique in the world of microphones. Based on the renowned M50—a decades-old classic treasured today for its unique sound—the M150 Tube has a signature polar response with unparalleled transient detail. Ideal for Decca Tree recording, surround miking and stereo-recording techniques, the M150 draws on Neumann's seven-plus decades of design/manufacturing experience.

Royer R-122: Based on Royer's acclaimed R-121, the R-122 Active Ribbon Microphone is the world's first active, phantom-powered ribbon mic. The R-122 features all-discrete, ultra-low-noise FET head amplifiers, making it as sensitive as a condenser mic and eliminating the need for ultra-high-gain preamps. Plug the R-122 into any preamplifier and you'll get full Royer performance, regardless of how quiet the sound source, with enough gain to drive any recording medium.

Soundelux E47: This large-diaphragm, multipattern tube mic is modeled to sound like the classic Neumann U47 (retailing at half of the average price of a "vintage" U47). The 1950s era Tube 47 remains an essential studio microphone, known for its big vocal sound and excellent, smooth response. The Soundelux E47 re-creates the extraordinary sound of the best original Tube 47 versions while maintaining the features and the mechanical and electrical topology of the originol.

G. Wireless Technology

Audio-Technica Freeway Series: Available in two frequency bands (470 to 480 or 482 to 492 MHz), the Freeway Series is a frequency-agile system with 10 selectable channels. Features include an advanced dipole antenna, adjustable squelch and a removable docking power supply that inserts into back of receiver. Transmitters include a bodypack with bath mic and hi-Z guitar inputs, and a handheld unit with a dynamic unidirectional element and superior internal shock-mounting.

Electro-Voice RE-1: The RE-1 features Advanced ClearScan™ with programmability in 25kHz steps across its 24MHz operating bandwidth, for more than 950 passible channels and simultaneous operation of up to 16 systems. Advanced ClearScan finds the clearest group of channels, allowing users to configure up to 16 systems in minutes. Power users can program their own groups/channels for custom tours. UHF operation is enhanced by the patented DSP Posi-Phase diversity system for clear, dropout-free audio.

Mipro ACT-707 Series: Designed for pro sound reinforcement, system integrators, sound contractors, P.A. rental and touring, the ACT-707 Series provides very reliable RF circuitry and high-quality audio in a space-saving, single-rackspace mainframe device that houses up to four ACT-707MA true-diversity UHF receivers. Available transmitters include the MT-808 pocket pack and the MH-808 handheld.

World Radio History

Sennheiser SK5012: Sennheiser has combined the latest miniaturization technology with a powerful, state-of-the-art bodypack transmitter in the SK5012. Using only two AAA batteries, the transmitter provides 30mW constant transmission power for up to seven hours via an innovative power-management system. Audio frequency range is 60 to 20k Hz, while signal-to-noise ratio is greater than 110 dBA. The all-metal SK5012 measures a mere 17x53x60 mm in size, including batteries.

Shure ULX: Shure's ULX Standard and ULX Professional UHF Wireless Systems feature Shure's world-renowned audio and proprietary Automatic Frequency-Selection circuitry, an innovation that simplifies system setup by automatically scanning a user's environment for open frequencies. ULX receivers include Predictive Diversity™ circuitry, which virtually eliminates RF dropouts, as well as easy-to-read, multifunction liquid crystal displays for fast monitoring group/channel selection, battery level and TV channel.

Sony WRT-847B/WRR-862B: Building on the success of Sony's 800 Series is the WRT-847B UHF synthesized transmitter and the WRR-862B UHF synthesized dual-diversity tuner, which allow flexible, simultaneous, multichannel operation over a 24MHz frequency band. The WRT-847B has five optional, interchangeable mic heads for vocals, broadcasting or ENG applications. The compact WRR-862B receiver has two built-in tuner modules to meet the demand for 2-channel reception in ENG and EFP applications.

H. Sound Reinforcement Technology

EAW KF760: Engineered to solve the problems of real-world line array applications, the KF760 Series Line Array maximizes the benefits of line arrays, while simultaneously improving upon the shortcomings of existing line array products. By utilizing some of the best of EAW's proprietary technologies, this integrated line array is easier to design with, provides better sonic performance, supports smoother cluster-to-cluster array ability, flies faster and packs more efficiently than other line array systems.

Electro-Voice QRx-153/75: This full-range, three-way system features a 15-inch woofer, 8-inch, horn-loaded, sealed-back midrange for warm mids, and superb pattern control. Perfect for FOH systems, concert arrays or fixed installs, the 15° trapezoidal cabinet allows easy flying in tight-pack situations. A rototable asymmetric HF horn provides a 15° up/35° down vertical coverage, 45 to 18,000 Hz (-10dB) on-axis frequency response and 400-watt (EIA) continuous power handling.

Funktion One Resolution 5: Suitable for everything from small venues to stadiums, Resolution 5 demonstrates innovation and engineering excellence in a small, minimum-weight package. This high-efficiency, three-way system delivers highly controlled dispersion utilizing specialized holistic waveguide and driver designs. The ingenious integrated flying system allows two people to fly arena systems in 20 minutes, making it economic in terms of system cost and production budget. Above all, its sonic quality is without its equal.

JBL MPro MP418SP Crown-Powered Subwoofer: How do you get the best sound? Power the best speakers with the best amps. The MPro MP418SP is a single-18, powered subwoofer combining JBL's premium VGC™ (Vented Gap Cooling) drivers and a dual-channel, 640-watt Crown amplifier module. The second amp channel can be used to power a second passive subwoofer or a mid/high-satellite speaker system. The power and flexibility of the MP418SP set a new performance level for powered speaker systems.

Meyer M3D Line Array: M3D is the only line array system to feature self-powering and state-of-the-art BroadbandQ technology, which marries the new REM™ high-frequency manifold system with Meyer's proprietory, award-winning, directional, low-frequency technology to control vertical and horizontal coverage precisely between 40 and 18k Hz. The result is a highly optimized line array behavior, affording performance widely praised for its power, clarity and coherence—particularly in critical long-throw applications.

Nexo GEO: Based on Nexa's patented GEO technology, the Geo Series allows the construction of multispeaker arrays that are as coherent as single acoustic sources. The smallest and lightest vertical arrays available today, GEO arrays deliver homogeneous SPL levels throughout the audience area with high intelligibility, eliminating the need for delayed speakers in many applications, and are ideal for stadiums, exhibition centers, and musical and theatrical shows.

I. Studio Monitor Technology

ADAM S3-A: This compact, three-way studio monitor features a unique Accelerated Ribbon Technology high-frequency driver that follows Dr. Oskar Heil's Air-Motion Transformer principle, and accelerates air 4x faster than any traditional design. Two 7-inch HexaCone™ woofers deliver linear bass down to 32 Hz (-3dB point). Three 150-watt amplifiers guarantee outstanding dynamic performance. The unit's front panel has a Standby switch, input gain, tweeter gain, and high- and low-shelving EQ controls.

Blue Sky International Sky System One: Blue Sky International's Sky System One is a 2.1 system consisting of two Blue Sky SAT 6.5 bi-amplified monitors and a complementary powered Sub 12 subwoofer. Employing Blue Sky's proprietary computer-optimized crossover and bass-management networks, the Sky System One delivers seamless full-range audio from the subwoofer to the main monitors with smooth on- and off-axis frequency response. In addition, the Sky System One is THX pm3R-approved for use in THX pm3-certified studios.

Dynaudio Acoustics AIR 6: The Air Series' monitor utilizes DSP and the TC Link Digital Network technology to enhance performance and user convenience. This is a result of intensive collaboration between Dynaudio and TC Electronic. In addition to extremely precise and flexible filters, the AIR concept offers bass management, analog or digital inputs, and a central control for 5.1 and stereo monitor systems.

Earthworks Sigma 6.2: Earthworks Sigma 6.2 are accurate in both time and frequency. They are a 40kHz, time-coherent, sound field reproducer, with a frequency response that is flat and wide-band; their impulse response is fast and well-behaved and their step function chart looks like the theoretical text book ideal. The Sigma 6.2 have remarkably stable impedance vs. frequency. Their unique port design provides accurate bass reproduction and doubles as a convenient handle. The low frequencies are put into the room in the correct relationship with the rest of the signal.

KRK V4: The V4 is a bi-amped system with a 4-inch Kevlar woofer and 1-inch soft-dome tweeter, utilizing separate amplifiers for both tweeter and woofer, which makes it extremely clean and virtually eliminates any distortion. Video shielding is standard, making it an optimum choice for small audio workstations. At the input stage, the V4 is capable of receiving balanced and unbalanced signals. The Neutrik Combo connector gives it ultimate flexibility for use with three different connectors (XLR, 1/4-inch TRS or 1/4-inch instrument).

Mackie HR624: The Mackie THX pm3-certified HR624 benefits from the same technology found in Mackie's award-winning HR824. It has the same HF transducer, a cast-zinc waveguide, and dual FR Series power amplifiers to provide 100 watts to the woofer and 40 watts to the tweeter. And, like its big brother, the HR624 has an integrated rear-firing passive radiator to increase bass response. Each HR624 includes an individual, signed Calibration Certificate that guarantees accuracy.

J. Musical Instrument Technology

Akai MPC4000: The Akai Professional MPC4000 utilizes the new Z-96 LSI sampling engine, combined with a high-performance Intel™ CPU, to provide ultra-fast processing with 24-bit audio resolution and sample rates up to 96 kHz. Six real-time controllers can be assigned to control a wide variety of parameters. A USB computer interface and ak.Sys Network and Control software enhance the large LCD and Q-Link interface, making the MPC4000 the most powerful and easiest to use groove production tool.

Korg Karma: The Karma™ Music Workstation adds a new level of expression to the workstation experience. Founded on the same sounds, effects and sequencing capabilities as Korg's award-winning Triton, it adds a powerful new technology called Karma. Responding interactively to the player's performance, Karma automatically generates note and controller data, manipulating phrases and patterns in ways that are otherwise impossible to produce in real time. The result is a musical instrument that unleashes creativity and inspires performance.

Nord Lead 3: This advanced subtractive-performance synthesizer has been enhanced with new features, such as keyboard hold, parallel polyphonic glide in Legato mode, single-key triggering of whole chords (or clusters of slightly detuned voices for super-unison effects), monophonic operation with highest/lowest note priority, the ability to sync LFOs and arpeggiator to global master clock (or MIDI clock) and five complete detuned virtual voices per note—in stereo!

Propellerhead Software Reason: Propellerhead's Reason is a virtual software studio rack of instruments, packed with all the gear one could possibly need: samplers, analog synths, mixers, step-time drum machines, effects, and a real-time multitrack sequencer for fast and intuitive music making. All of Reason's instruments have the look and feel of the real thing; more importantly, they have the sound, the performance and the attitude to rival any hardware out there.

Steinberg HALion: HALion is a revolution in the world of sampling. Sampling on a computer has never been more powerful and intuitive. An unprecedented navigation system and drag-and-drop functionality make working with your samples faster and easier than ever. Pristine sound quality is achieved through 32-bit support and various filter types with a cut-off slope of up to 24 dB. Sample-accurate timing and seamless integration, and flexible sample format compatibility (including Giga, Akai and Emu) make HALion not only the best software sampler, but simply the best sampler, period.

Yamaha Motif: The Yamaha Motif music production synthesizer combines the sonic power of an advanced synthesizer, the hands-on immediacy of a groove box and a revolutionary Integrated Sampling Sequencer that seamlessly combines the realism of audio sampling with the flexibility of MIDI. The addition of a real-time external control surface, full expandability and outstanding online support make Motif a truly revolutionary, all-in-one music production experience.

K. Signal Processing Technology/Hardware

Antares Vocal Producer: The Antares Vocal Producer combines Antares' TEC Award-winning Auto-Tune Pitch Correction and Microphone Modeler technologies with analog tube modeling, a variable-knee compressor, downward-expanding gate, variable frequency de-esser, flexible parametric EQ and automatic double-tracking, all with a straightforward, easy-to-use interface. Designed to be equally at home in the studio or in live performance, the AVP-1 provides everything needed to create stunning vocal tracks for any musical style.

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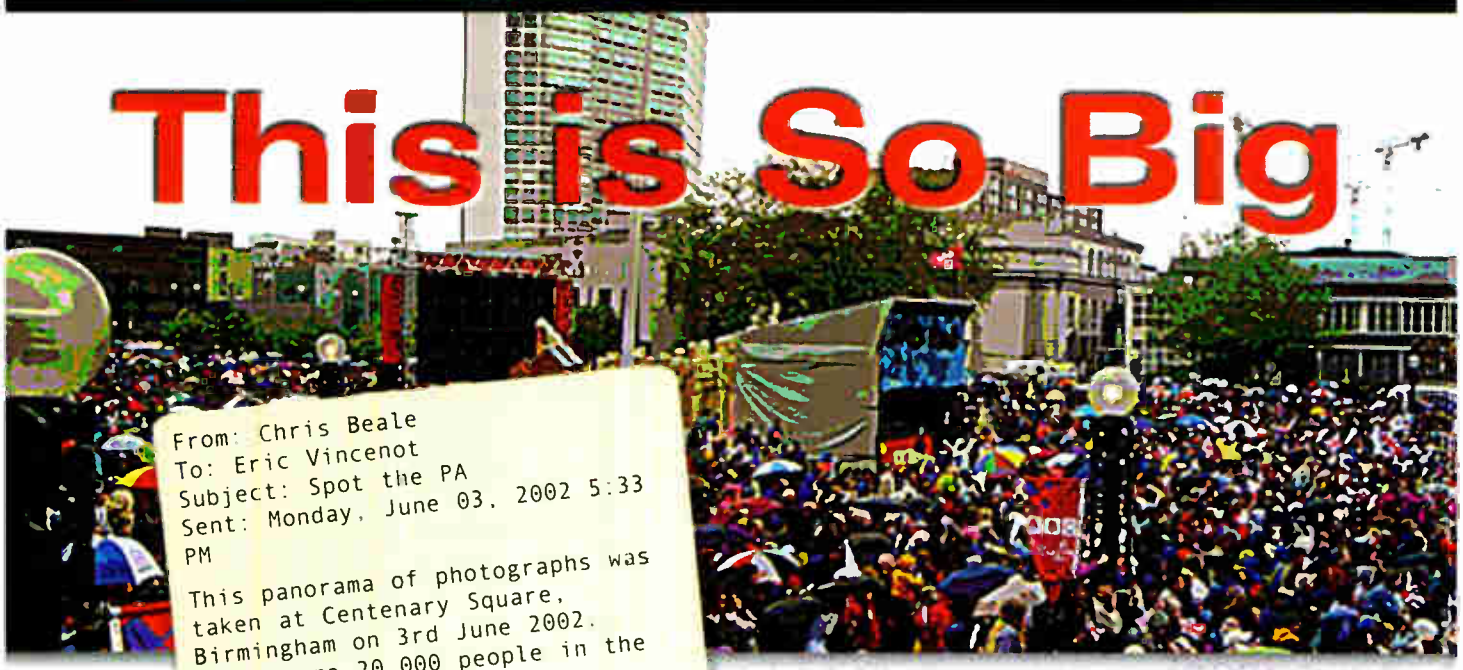
G E O t e c h

This is So Big



From: Chris Beale
To: Eric Vincenot
Subject: Spot the PA
Sent: Monday, June 03, 2002 5:33 PM

This panorama of photographs was taken at Centenary Square, Birmingham on 3rd June 2002. There were 20,000 people in the audience.
The sound level was 97dB Laeq
There were 11x GEO S805 and 1x GEO S830 plus 5x CD12 per side
There were 3x Camco Vortex 4 and 2x Nexo NX 241 per side
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Chris Beale
Director
SSE Audio Group

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w w w . n e x o - s a . c o m

GEO wavesources set up for test and measurement

Data acquisition and post-processing

*Patent pending

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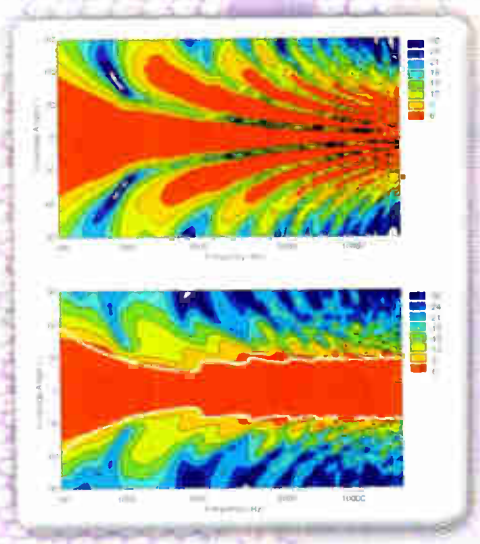

Top: interference created by a pair of conventional coercive 30° horns.

Bottom: coherent wavefront created by a pair of 30° GEO wavesources. White line is calculated response for a 500mm 60° isophase ribbon.

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Facing "Full Frontal"

How I Became Pals with PAL, and Working in Final Cut Pro

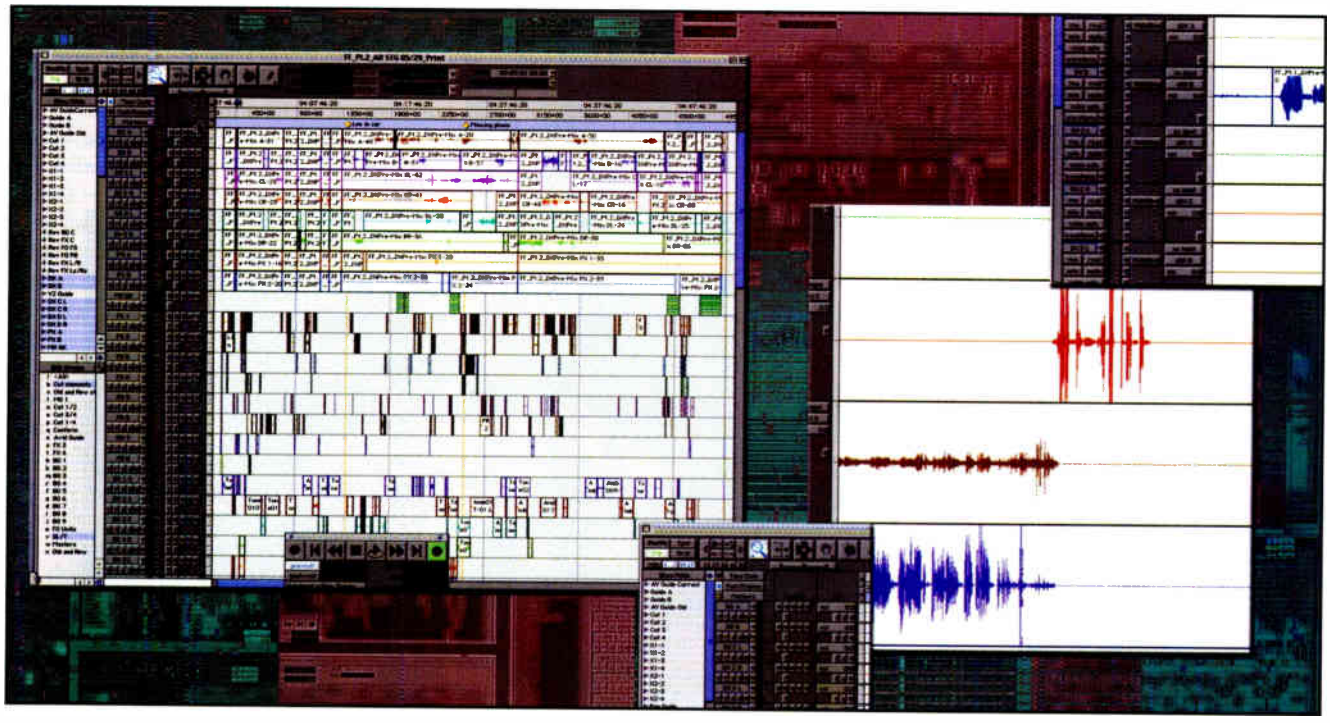

ILLUSTRATION: LIZABETH HEAVERN

By Larry Blake

I've been very fortunate over the past five years to be able to divide my time between average ($50 million) features in Hollywood and a number of low- and very-low-budget features and documentaries through my company in New Orleans.

Working on "A" feature films gives one a chance to do it right—no excuses. You learn what resources are available to you and how to best make use of them in pressure situations, which are abundant in the big leagues. In spite of the additional money available (read: given up by the producers without blinking), I never take advantage of the situation and try to justify each dollar spent. This approach no doubt comes from my having to frequently turn right around and do a film for a fraction of what's spent on big Hollywood films.

I've tried to keep the same "no excuses" approach with low-budget films, in spite of the specter of less money, which results in less of the most important factor: time. The advantage to low-budget films is that you learn a whole new set of tricks, learned from a different relationship with "necessity being the mother of invention."

Whatever the advantages or disadvantages, my name is on a low-budget film just as on more prominent ones, and my bond with my client is the same. Directors put as much, if not more, of their heart in low-budget films; and in that spirit, I try to make all of my mixes a "no excuse" zone.

Earlier this year, I worked on a film that's an odd $2 million hybrid of the two: low-budget, but with some amount of high profile. Shot in 18 days on both PAL Mini-DV and 35mm, *Full Frontal* stars Julia Roberts, David Hyde Pierce and Catherine Keener, among many others, and was directed by Steven Soderbergh, with whom I have done both much bigger and much smaller films.

SHOOTING

Now that shooting-on-video is all the rage—seen on projects ranging from *Star Wars: Episode II* on high-definition tape to dozens of low-budget features shot last year on Mini-DV—one question keeps popping up: Do you record sound on the camera? Sound, as in "the" sound that will go to the final mix. Despite the frequency in which this question is uttered, I'm always surprised to hear it asked. (I am not referring to sound for documentaries, which has a whole different mindset.)

To me, and to production sound mixers, this is a rhetorical question: Yes, you can record whatever you want on the camera(s), but the hero sound will always be double-system. While recording the sound on the cameras appears at first guess to be the simplest approach, it's actually fraught with complications. How do you get the sound from the mixer to the camera? Hard-wired is best, but what camera operator wants to be trailing cabling *just for sound*? You can use a wireless link, but that brings with it a whole 'nother set of quality and logistical problems. You have to ask the same questions all over *again* when you have to deal with getting sound back from the camera so that the production mixer can listen

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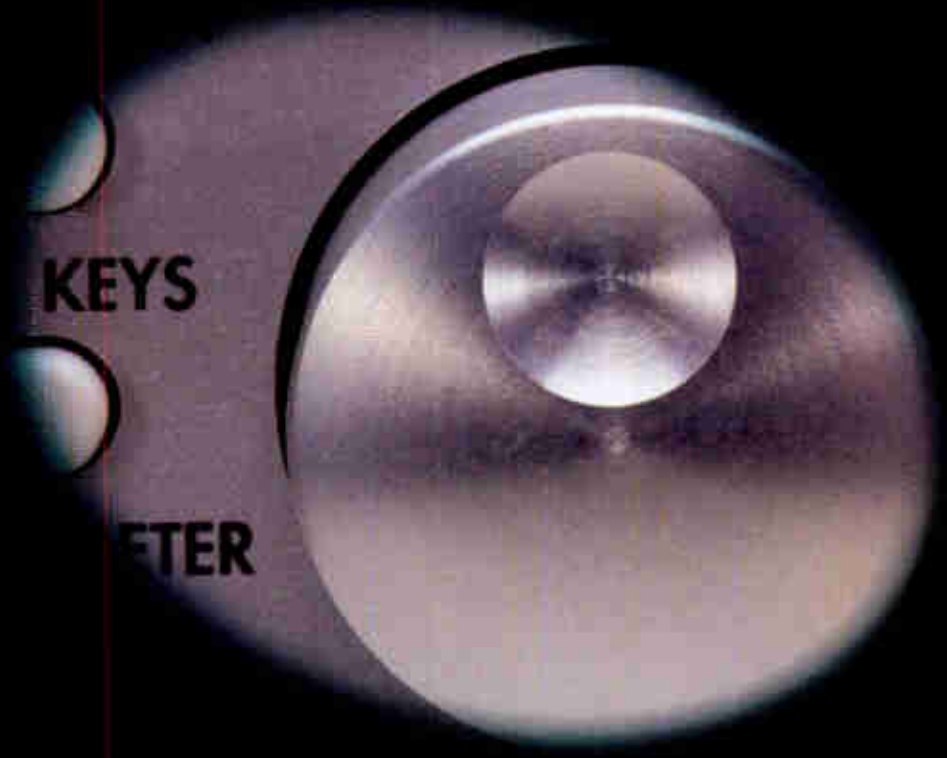
Grab it and go.



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With the current iteration of FCP (Version 3), you have to "consolidate" the media, meaning that you have to re-render the audio files, creating short handles that give you precious little extra material to play with. This would be a problem with a standard feature film in which you're looking for large gobs of room tone to smooth out the dialog, but thankfully the cutting style of *Full Frontal* made this mostly a non-issue.

Another oddity of FCP's OMF output was that the volume maps were not carried across to the Pro Tools sessions. Not a big deal, but it's been helpful in the past in keeping valuable work started in picture editing. This omission is ironic in that Sarah and Susan say that some of the volume-mapping abilities of FCP exceed those of Film Composer.

None of these quibbles change the fact that FCP is a superb product. It's amazing to see how far along it has come in a few short years. Considering that you can buy feature-quality picture editing software for $1,000, it is automatically in my Lean and Mean Filmmaking Machine Hall of Fame.

DEALING WITH PAL

This was not only my first experience working on a "film" that was shot on video, but also my first PAL experience. For those of you unfamiliar with the European TV standard, there are 25 video frames per second, with each frame (like those in NTSC) comprising two fields. When *Full Frontal* was "filmed out," the two fields were merged into one film frame, and as a result, the linear speed of the sound was reduced 4.16% (25/24) when played back at the film standard of 24 fps. Because Paul rolled at a rate of 48.000 kHz on his time-code DAT during shooting, the effective sample rate of the production dialog became 46.079 kHz at film speed. But we're not done yet.

This was the first time in two years that I've actually recorded a premix going into the final mix.

Post-production sound work is performed in the U.S. referenced to NTSC video, whose rate is 0.01% slower than a precise 24.0 fps. Therefore, the final sample rate of *Full Frontal*'s dialog at NTSC speed would be 46.079 divided by 1.001, which is 46.033.

This means that to maintain the correct pitch of the dialog relative to the way it was shot, we would have to counteract the 4.27% slowdown in linear speed by pitching up the dialog by the same amount. Sure, we could simply not do this, as many have (not) done, but when one is dealing with voices as recognizable as Ms. Roberts', I think it's unwise at best, and can potentially drag the audience out of the movie without their knowing why.

Exactly when one pitches the production dialog back up is the question—at the premix stage, at the final mix or as a composite printmaster? Initially, I thought that I would be final mixing the film to the original 25 fps PAL edit, and would pitch shift all of the dialog and music stems after the final mix was finished. This posed a simple problem: We would never hear, until it was "too late," the

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effect of the pitch shifting on the dialog and music.

Furthermore, in our tests we couldn't find any pitch-shifting device or plug-in that not only sounded good, but was also phase coherent across six tracks.

Fortunately, there is a solution to this problem, and that is to edit the music to a slow PAL video transfer. "Slow PAL" is a transfer technique that treats each PAL video frame as if it were a film frame, and spreads them in a 2:3 sequence onto an NTSC dub. In this manner, the first frame of picture in PAL goes to two NTSC fields (of 01:00:08:00, let's say), while the second frame goes to the next three fields (two of 09:00 and the first field of 10:00), and so on. This allows a "slow PAL" transfer to mimic the exact sync of the NTSC telecine of the eventual PAL video-to-35mm film transfer.

It was then easy for Susan to cut the music for *Full Frontal* to this slow PAL tape so that it was "in sync and in pitch" from the get-go. We also used the slow PAL output to cut backgrounds and hard effects, and to record and edit the Foley.

But where did this leave us with dialog? Once I finished dialog editing in PAL, with picture coming from the QuickTime video output from Final Cut Pro, we made a predub to another Pro Tools system, looping the audio through a TC6000 to pitch up the track 4.27%. We set one of our Rosendahl Nanosyncs wordclock generators to drive the playback system at -4.16% (46.079) and another Nanosyncs locking the record system to a +0.01% clock (48.048). When the record system was played back at the rate of our stems (48.000 kHz at NTSC speed), the stems were "slowed down" by 0.01%, thus giving us the requisite "double-pull-down" totaling 4.27%.

I know, I know, all of this gives me a headache, too. But it worked flawlessly, and in comparing the rendered dialog premix against the slow PAL guide track, we were no more than a sprocket off throughout a whole hourlong part. The TC6000's pitch-shift algorithm sounded great to our ears, but for some reason, the second engine (each engine processes four tracks) was different from the first in its simple ability to keep sync. We did a dialog test from Part 1, placing a series of sync pops throughout the hour. Where the first engine performed flawlessly, the sync pops in tracks 5 through 8 were, uh, screwy. The pops looked deformed and we never figured out why. We ended up

GLOSSARY

DOGME: The cinematic "vow of chastity" stemming from a handful of Danish directors who wanted to define (and certify!) movies that met their anti-Hollywood, big-action-film standards. Among the requirements: Shooting must be on location and set in present day, with no lighting or optical effects allowed. And last, but not least, the director cannot be credited! The shot-on-video parts of *Full Frontal* meet most of these requirements...somewhat.

DOUBLE SYSTEM: Recording sound separate from the camera. All video cameras also have audio tracks and are therefore "single system," although the addition of a separate tape recorder makes the shoot double system.

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"K19"

FROM PAGE 74

U.S.S. Pampanito, Murch's requirement of credible footsteps from the location now entailed a reconstruction of the conditions of the stage in order to bring it in on time, "by recording to Pro Tools as spotted," says Schalit, "in stereo [no less] with an auto-naming Quick Key designed by Foley supervisor Larry Oatfield."

DOWN THE HATCH

"The thing was how to get a rig into the sub," says Schalit. "Originally, I thought, 'Okay, we'll build it into a rackmount system and roll it around.' But Pat [Jackson] had already been on the sub and said, 'It's not going to fit through the hatches.' We realized that what we had to do was build a system we could carry down in bags, set up on little trays, then tear down and move to another compartment pretty quickly."

As in Murch's early days [see sidebar], budgetary constraint became the mother of invention. "The company wasn't giving us the money to build our ideal rig. So the next thing was, 'What can we use that we have available?' The system that was put together was a lot of bits and pieces of equipment from various members of the crew," says Schalit.

The main components of the system were a stereo Neumann RSM190 microphone from sound editor Doug Murray, Schalit's G3 Powerbook and a setup to play digital picture from Pro Tools to a monitor for the Foley artists, Margie O'Malley and Marnie Moore.

For this latter requirement—one that has frustrated many in the quest for a compact mobile workstation—Schalit benefited from his contact with *Panic Room* sound editor Eric Dachs. "We didn't want to install a video card or any additional hardware," Schalit says. "Dachs was using a DV format file and outputting it through a DV deck. What we did was digitize the Beta tapes to Oatfield's mini-DV player, then load them through FireWire to a compact 80-gig drive using iMovie. Because the file size is limited to 2 Gigs, which is less than nine minutes, we had to break the picture files for each reel into two or three parts.

"When we played them out of Pro Tools, I'd be playing a movie file through a FireWire cable to a mini-DV deck. Then we'd take the NTSC signal and send it to two monitors. To get the video to actually play out of the Firewire, there's a utility called Echofire, which is an essential part of the setup."

The system still had two slight hitches. "The first thing we discovered was this DV latency," he says. "A delay, in other words, in outputting and converting digital video to an NTSC signal unique to a given system." More trial and error followed as they advanced the picture in Pro Tools until it matched up with the audio guide track. "Once you figure it out," Schalit says, "it's always the same, it doesn't drift. In our case, it was six-and-a-half frames."

A PRO TOOLS MINI-SAGA

The other challenge was to figure out a simple way to record into Pro Tools. "The first option was to get a mic preamp and an A/D converter/audio interface, but these are kind of bulky," Schalit says. "Then 'Bear' [assistant editor, Chris Barrick] found out about this USB preamp by Sound Devices, a tiny little box that is a mic preamp and an A/D converter that converts its signal through the USB port and is powered by USB.

"The key is that you don't use any Digidesign hardware. The USB pre has its own control panel that integrates with the Sound Manager, which means you've got to use a version of Pro Tools that gets its signal that way," he says.

Schalit and his team—which included Oatfield, assistant Brian Chumney and apprentice Ken Wright—had a minor saga in finding a version that could be tailored for a traditional Foley session. Pro Tools Free, the version on which Sound Devices had modeled its preamp, was quickly ruled out. "It only has eight tracks and you don't have a footage counter or timecode," says Schalit. "I had to go back to a version called Pro Tools 4.3 with Powermix."

That created another problem, as all the extensions had to be set just so. "You can't have Appletalk on," Schalit says, "and you don't want to have any Ethernet polling either."

With that out of the way, they were ready to begin the session—or so they thought. "As we recorded the first pass, I monitored it off the USB pre on headphones, and it sounded great. But when I played it back off of the laptop, it sounded incredibly noisy. I realized that every time I launched Pro Tools, I had to reset the Sound Manager to be looking for the USB pre as its input. Essentially, what I'd been doing was recording through the built-in microphone on the laptop."

WALTER MURCH ON DIY FOLEY

"When I started working on features," says Walter Murch, "the idea of doing Foley was very exotic and nothing that we could afford. On *The Rain People,* Francis [Coppola] was shooting on location with the actors, and they were traveling across the country. At the end of the day, he would ask the actors to walk through all of the moves they made without saying anything. On *THX [1138,* George Lucas' first feature], I would put the Nagra somewhere and walk around duplicating the footsteps in a real space. We did versions of that on *The Conversation* and *American Graffiti.*

"On *Godfather II,*" Murch continues, "we'd figure out the rate at which the principal was walking, and we had a little portable electronic metronome, which we would set at that frame rate. I remember doing the footsteps for Fanucci where he comes up the stairs before he's killed by DeNiro [young Vito Corleone], and we found the marble staircases in the old Zoetrope building were very much like the staircases in that actual location. So, I set the metronome and I had my assistant at the top. I walked a couple of flights up, so you hear these footsteps coming from far away. They get closer and closer, which is the whole idea of the scene, and then I stopped, as Fanucci stopped, at the top. I said Fanucci's next line, and when we took the track and sunk it up, all of the footsteps sunk up. On the Foley track, you can hear my voice, and it exactly syncs with the lips of Fanucci."

PHOTO: MIKE AXINN

Walter Murch

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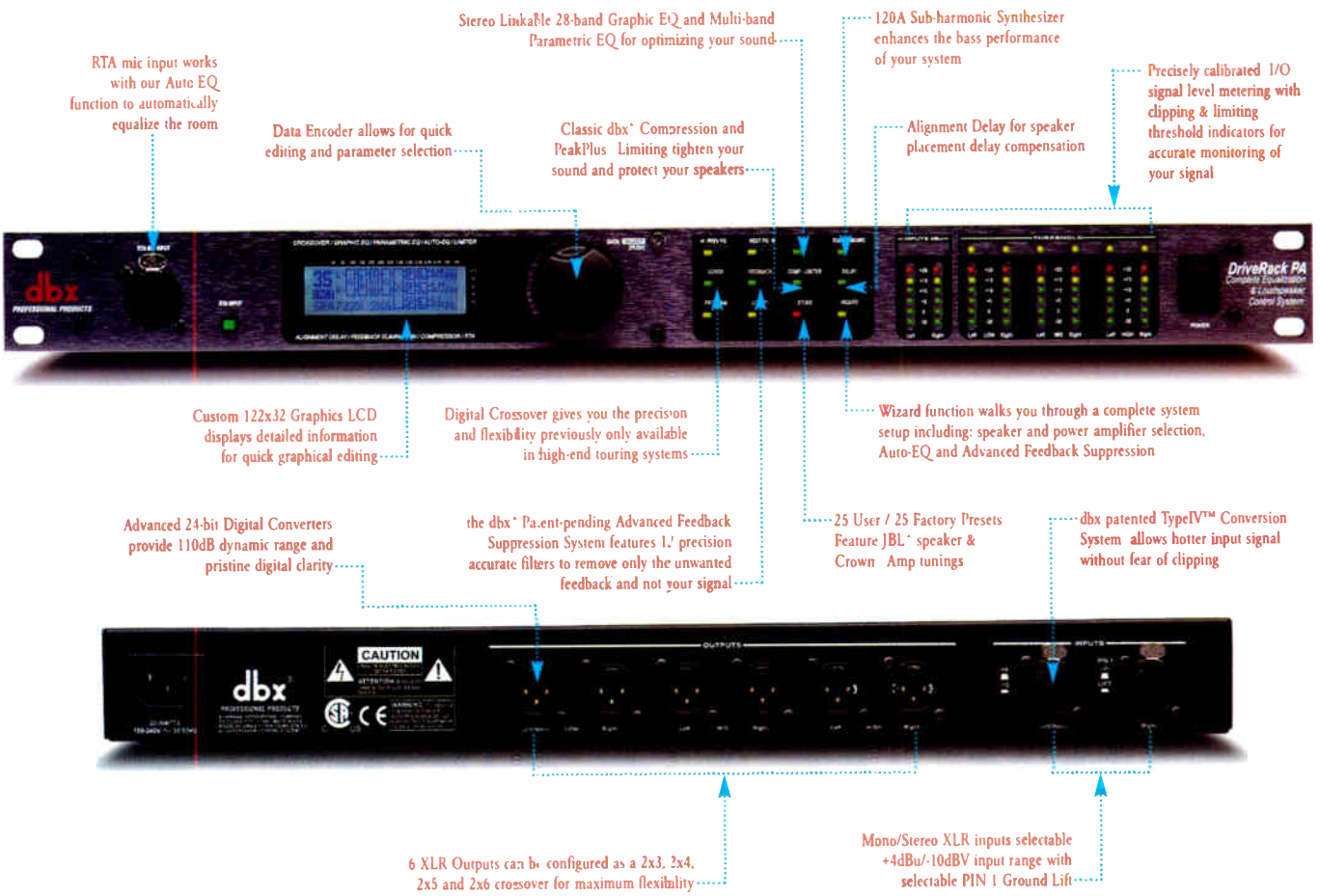
The Cure for the Common PA



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can transfer recorded material from one studio to the other."

On the synth and sampler side, the studio has three Giga DAWs (assembled by Sound Chaser), a Roland XV5080 with orchestra card, a Nord Rack virtual analog synth, Studio Electronics SE-1, Korg Wavestation, Roland R-8M, and E-mu Procussion and E6400. Effects-wise, Young's setup includes a Roland SDE-3000 digital delay, Ensoniq DP/4+, a Yamaha Rev 7, Lexicon 300, Yamaha SPX90, an TC Electronic FireWorx and a 2290 Digital Delay.

Despite the technology around him, Young remains an old-school composer. "I'm a pencil-to-paper guy," the composer confesses. "If you were to walk into the room that I write in, your jaw would probably drop to the ground. All I have is an upright piano, a television with a videocassette machine, a click machine that I can lock up to picture, and paper and pencil. That's how I write.

"Certainly, I use electronics for mocking up things for show and tell," Young continues. "But, in addition, for films like *Swordfish* and other action films or thrillers or horror films, those are the moments in which the electronics become a much more active part of the final score. In *Swordfish*, it's obvious I'm using the drum loops, [that] I'm using the electronics to provide pulse.

"In horror films or thrillers, I resort back to my *musique concrête* days [in college], where I used the electronics to create these unworldly sounds. They're atmospheres, they're blobs of sonic blood and guts," he says with a laugh. "That part of the usage of electronics has always fascinated me much more, where you abandon tonality. You don't really have to worry about its commercial viability, you just embrace sound for sound's sake, and try to figure out a way to work it into the drama of the film."

A key factor in Young's success is his eclectic musical background. Young began drumming around age 10, playing throughout his teenage years. Initially, he played in rock bands, but by age 17, he "got the jazz bug [and] started swinging," he says. "I worked in a variety of eclectic jazz sextets and octets. Then, finally, my brain started thinking in pitch and harmonic thought. My initial attempts at writing were for these kinds of groups, then I graduated and moved into bigger groups of more classically oriented instruments, orchestral instruments, and studied along the way."

Young says he discovered film music

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Wave Group

FROM PAGE 75

to do any symphonies in the [live] room. We were looking at what our existing clients want, what other services we wanted to be able to provide, and started from there. We designed the facility from the need on back, rather than the other way around. Lots of folks throw in the neatest, latest stuff without really thinking about who they are working for."

Before determining client needs and equipment choices, Littlejohn and Pelmulder took a hard look at the studio's acoustics. "When we first walked in [the live] room without the acoustic treatments, you could hardly have a conversation," she says. "I told [the ASC rep] that we didn't want it dead, but we needed to be able to record two people talking to each other. It's not just a music room." Consequently, treatments were designed to handle bass and low-mid problems, while offering an even response without taking out the highs. ASC Studio Traps enabled them to fine-tune the room. In the voice-over booths, Pelmulder stood her ground for 3-inch sonic foam for even response. "Those rooms are not completely dead, but there is not an echo," she says.

Once the live room was acceptable, Pelmulder got to work upgrading the studio. Because the Fremont location was a working studio during the day, she found the time—six months of soldering patchbays after-hours—to wire the entire facility to a new central machine room.

The machine room includes a pair of 20-bit Alesis ADATs and four Tascam DA-88s, in addition to Tascam MX-2424s. Wave Group also does a variety of Webcasting projects, so the machine room, which can be expanded in a snap, also includes a Gentner DH 10 and a Sony DVW A500 Digital Betacam.

For additional recording and editing, the team turned to a combination of Pro Tools and a Sony DMX-R100 console with four 8-channel AES/EBU cards. The key, says Littlejohn, was to remain flexible. "It was that old problem you have in studios: Do you want Pro Tools or do you want the board? We wanted a real board," he says.

During a brainstorming session, Pelmulder came up with the idea of building an unconventional work surface, where either Pro Tools or the R-100 could be front and center. "We do a lot of voice-over work," says Littlejohn. "We do a lot of work where there's a lot of acquisition going on with a lot of people sitting around with laptops. So, you need a surface area for people to spread their stuff out on. We drew it out, and Sue, being an engineer, had a schematic of the work surface laid out a week later. She literally designed it from scratch, so it is a one-of-a-kind thing."

Pelmulder worked with cabinet builder Dan Devoe to come up with a desk that can be rotated via dolly tracks. "It's a flexibility thing," Littlejohn says. "If you're doing voice-over work, the Pro Tools station can be oriented toward the booth, or if you're tracking in the live room and you want to do it through Pro Tools, you can do the rotation." Pelmulder designed the system so nothing has to be turned off before or during the switch—it's all in an S-Cable of audio and video that's been anchored with strain relief.

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BY OLIVER MASCIAROTTE

Cloak, No Dagger

The Latest (and Not-So-Greatest) in Digital Rights Management

ILLUSTRATION: MAE LAROBIS

This month, I'm talking about a controversial subject, the ephemeral rights-management chimera composed of equal parts copy control, cryptography and steganography (hiding information within apparent information). Each is distinct but part of a virtual wrapper, swaddling the content and protecting the content holder from loss of sales revenues. When implemented well, DRM, or digital rights management, is effective when out of sight. When botched, it's intrusive at best, and a product killer at worst.

Though the underlying technology of DRM is complex and multifaceted, the basic concept of copy control is familiar; lock it up and control who gets the keys. This premise revolves around trusted systems, because once a digital asset leaves the content creator's hands, it is open to a variety of "attacks," which can destroy the entire concept of controlling the product and, hopefully, profiting from it.

The basis for authentication of most trusted systems is itself a trusted mechanism, typically the public/private key-encryption standard first commercialized in 1977 by RSA Security and commonly used throughout modern e-commerce and banking. RSA's standard, to quote its tech notes, "...describes a method for implementing [a] Diffie-Hellman key agreement, whereby two parties, without any prior arrangements, can agree upon a secret key that is known only to them and, in particular, is not known to an eavesdropper listening to the dialog by which the parties agree on the key. This secret key can then be used, for example, to encrypt further communications between the parties. The intended application of this standard is in protocols for establishing secure connections, such as those proposed for OSI's transport and network layers." The SSL, or Secure Sockets Layer, Web protocol is a common use of public key encryption. If you look in your browser (Win IE5.5: Tools, Internet Options, Content, Certificates; Mac IE5.1: Preferences, Security), then you'll find public key certificates from Thawte, Verisign and many other certificate service providers that sell digital authentication. These certificates, used as part of verification requests to unlock or access information, are used to ensure that the responding entity matches the "real" brick-and-mortar version and is not being spoofed or sidetracked.

Attacks on protected data can take various forms, from sophisticated to simple. With some serious computing power or a great deal of time, highly motivated individuals can usually overcome most encryption schemes, given enough resources; the basic premise of most trusted systems is that a reasonable amount of protection is afforded against the time and energy of a casual attacker. However, once an asset is in the analog domain, copying is simplicity and circumvents all digital controls.

TRACING THE JOURNEY

For those instances when controls may have been avoided, as in an analog copy, there's always water-

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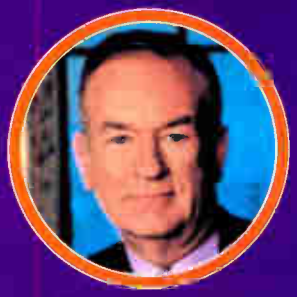

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marking. Watermarking is a form of steganography, the science of data hiding. Though development began in ancient times, the idea of steganography is to hide information rather than encrypt it. The classic "Paul is dead..." backward-masking message on Beatles records is a good example of information "in plain sight," but not readily apparent to the average listener. Digital implementations of watermarking for audio and video provide a low-bandwidth channel for data to any receiver designed to "understand" the hidden message, typically about information concerning the content holder and the date and recipient of some individual copy. This allows the source of pirated material, even via analog copying, to be traced back to the offender in the event of legal proceedings.

The DVD-Audio standard includes the use of watermarking. Some DVD-Audio titles, especially those from Warner Music, have been watermarked prior to MLP encoding. One senior record label executive allegedly said during the brouhaha surrounding the first DVD-A watermark listening tests, "Sooner or later, any encryption system can be broken. We need watermarking technologies to tell us who did it." Unfortunately, the license to use the sanctioned DVD-A watermarking mechanism is prohibitively expensive. Along with questions about survivability, audibility and resultant degradation of quality, the cost keeps most smaller record labels from using the watermarking technique.

Another, perhaps better, use for watermarking, part of a holistic approach to managing content rather than just locking it up, is monitoring the deployment and usage of an asset. Verance, the same licensors of the 4C-approved watermarking mechanism for DVD-A, offers ConfirMedia, a complete package to broadcasters that allows music to be tagged prior to transmission and monitored after it's been broadcast. ConfirMedia can "accurately monitor and track television and radio commercials, music, programs and program promos whenever and wherever they air...[and you] receive reliable, detailed broadcast detection reports the very next day. Plus, [its] free software-based encoding process is simple to use and will not interfere with the sound quality of your final audio mix." If you live in one of the top 100 U.S. media markets, as I do, then perhaps your fave FM station is watermarking its feed.

Many times, you implicitly trust the party at the other end of a transaction and need only "harden" the transport mechanism itself. There are several solutions to that problem, from basic file-transport programs such as SFTP (secure FTP) to complete turnkey systems from vendors like WAM!NET. Warner Music, along with Vivendi Universal and others, use WAM!NET's Optical Media Solution to move files from one remote point to another during its production process.

Speaking of complete B2B (Business-to-Business) packages, the solution offered by DMOD, a vendor of media access-control products, "packages" all content on-the-fly for each individual recipient and every transaction. This individualized wrapping means that even if one recipient breaks the key and compromises a file, other recipients cannot gain access, as was the case with the CSS encryption standard used in the DVD-Video format. Other DRM vendors use, as DMOD says, "...a pre-packaged digital rights-management model, where the content is encrypted once for every recipient, and access is controlled through a license server." One of those other DRM vendors, WebWare offers complete Web-based management products that integrate all stages of production and delivery to the end-user.

DRM AT THE END-USER

An interesting event in the DRM space occurred last December, when Microsoft was awarded a patent for what the company describes as a "digital rights-management operating system." The patent appears to deal specifically with antipiracy technology as an integrated part of its operating system, which brings us to what is often the weak link in the whole rights-management chain: the consumer. The B2C (Business-to-Consumer) market, what we think of as distribution, tends to be conceptually different from content creation. DRM has seen very little success in that marketplace, but that doesn't seem to have discouraged certain special-interest groups such as SDMI and 4C.

Okay, so what examples are there of a successful approach to end-user DRM? Actually, I can't think of one—our industry's track record has been ridiculous! Also, no new distribution format has gone live that builds DRM in at the start. DataPlay's fundamental concept—start with a proprietary medium and wed it to recorders that always include imbedded DRM—is sound. They've also worked hard to garner buy-in from the majors, which should allow pre-recorded, read-only discs to appear at the product roll-out without worries of piracy. Rights management must be a cradle-to-grave approach for the content, or all bets are off. There are too many potential attack methods for a step-by-step protocol to work. Unfortunately, it's the pioneers who often get the arrows in their backs, while the second or third wave of settlers reap the full rewards of this new endeavor. Old-school pioneers, like A2B and Liquid Audio, have found that revenues don't cover the cost of purchasing infrastructure while buying mind share in both business alliances and consumer confidence. And, because traditional distribution channels have amortized these factors long ago, they continue to serve the public just fine.

As an example of a poorly conceived and executed end-user DRM solution, what better than the SDMI, the Secure Digital Music Initiative? Pah-leeze...How about pay-for-play downloadable music? If any of you out there have actually spent more than $10 on music downloads, please write and tell me what the value is to you. While not approving of wholesale trading via P2P or other mechanisms, I do download a good deal of noncommercial, no-cost music to explore new material that I probably would have missed out on; it helps me make informed decisions at my local record store. But I can't, for the life of me, figure out why any adult would sign up for a service like Pressplay or MusicNet. What they were thinking of when they dreamed up their tariff schedules is beyond me. The only pay-for-play content schemes that I see making sense are rich-media channels delivering either time-critical business intelligence or fetish entertainment, whether it be cooking, sex or sports. But audio-only stuff? I think not. There are too many alternative distribution channels, thank the Gods, and I'm certainly happy with those prior offerings in optical, downloadable and streaming channels. ■

OMas looks forward to fall colors and this month's Linux World Conference and Expo here in the Pueblo by the Bay. The digital assets for this column, all 49 of them, were managed while under the influence of The Swimming Hour *from Andrew Bird and his Bowl of Fire, along with the classic strains of Rudy Van Gelder's reissue of Lee Morgan's* The Sidewinder. *Links and other useful info relating to "Bitstream" August are hanging out for your perusal at www.seneschal.net.*

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Tools of the Trade

OXFORD EQ FOR TC WORKS

Sony's Oxford EQs are now available as a plug-in for TC Works' PowerCore card. These "Oxford-quality" EQs feature identical algorithms to those in Sony's R3 console and the OXF-R3 plug-in for Pro Tools. The 5-band parametric design offers selectable shelf settings on low- and high-frequency sections and low- and high-frequency filters providing up to 36dB/octave slopes. Four selectable EQ types are available, with support for sample rates up to 96 kHz. The plug-in is fully automatable (including separate automation for A and B settings); six plug-ins are included for optimal DSP usage (mono and stereo versions of EQ, filters, and EQ and filters). Retail price is around $490; check out a demo or purchase the plug-ins at www.sonyplugins.com.

DPA WIDE-CARDIOID MICS

DPA Microphones (www.dpamicrophones.com) introduces the 4015 and 4016 Wide-Cardioid Microphones. Designed to offer a brilliant sound in close-miking applications and a linear response in the diffuse field, the 4015 has a linear frequency response from 40-20kHz. Both the 4015 and 4016 are transformerless and capable of handling 158dB peaks before clipping. An additional 10dB headroom can be obtained by choosing the 4016 paired with the HMA4000 2-channel High-Voltage Microphone Amplifier.

DIGIDESIGN/ROCKET DIGIDELIVERY

Digidesign (www.digidesign.com) and Rocket Network (www.rocketnetwork.com) introduce DigiDelivery, a new product available from DigiProNet.com that allows users to quickly and securely send any type of files (Pro Tools sessions, video, graphics, text, etc.) to anyone with an e-mail address. All DigiDeliveries are automatically encrypted. Digi-Studio Control 2.6 with the new Digi-Delivery functionality is available to both current and new DigiStudio users as a free download. Users pay for the Digi-Delivery service on a per-use basis; pricing is based on file size and number of recipients for each delivery.

AEA R78 VOICE MICROPHONE

AEA's new R78 ribbon microphone continues in the tradition of the RCA 44, whose sensual sound has long been the standard for voice work. The R78 is a dedicated figure-8 ribbon microphone optimized for close vocal work, voice-overs, character voice and on-air work, and has the comfortable, intimate clarity and extended bottom of the 44 in a smaller physical package with an extended top end. Options include a switchable highpass filter and Rycote "furry" wind filter. Available in "TV" finish (umber) or optional "Radio" finish (black and bright chrome). Price: $2,000.

PRESONUS FIRESTATION

PreSonus (www.presonus.com) debuts FireStation, a recording interface for DAWs that connects to recording software via a high-speed FireWire connection. Incorporating Yamaha's new mLAN FireWire recording/audio-networking protocol, FireStation accommodates hundreds of channels of digital audio and MIDI on one network connection and promises to be compatible with many Mac and PC software packages. FireStation features eight channels of analog I/O, 8-channel ADAT and S/PDIF I/O, MIDI I/O and an integrated 10-channel analog mixer. In addition, FireStation has two dual-servo preamps with a switchable "Tube" circuit, two ¼-inch instrument inputs, 48-volt phantom power, -10dB input pads, control room and headphone outs, and wordclock I/O via BNC connectors. The unit is expandable to 48 channels of I/O. Price: $899.95.

EVENT EZ8 OPTICAL I/O

New from Event is the EZ8 Optical Audio-Interface PCI card with ADAT Lightpipe I/O. Designed for use with the EZBus, EZ8 supports up to eight channels of 24-bit/48kHz recording and playback. The card also features an S/MUX mode, which allows simultaneous recording and playback of up to four channels of 24-bit/96kHz audio. The EZ8 is part of a suite of three audio devices, collectively

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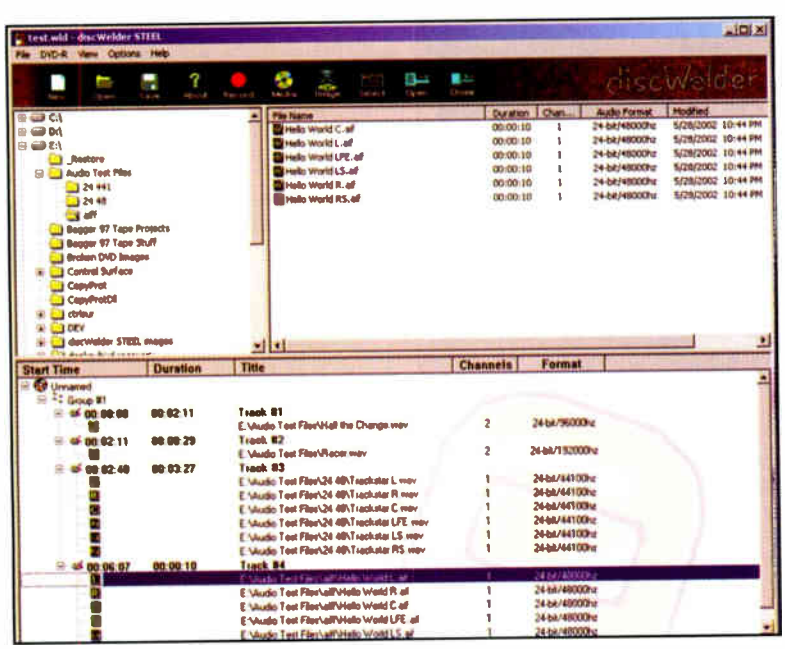
known as the EZBus Audio System Plus, comprising the EZBus, the EMP-8 8-channel digital mic preamp and the EZ8. When used with an EZBus, the EZ8 greatly expands the number of discrete tracks users can simultaneously record and play back. EZ8 lists at $199, including two 2-meter optical cables.

MINNETONKA DISCWELDER STEEL

Minnetonka Audio (www.minnetonkaaudio.com) introduces discWelder Steel, an entry-level DVD-Audio writing program. For $495, users can import all linear-PCM formats supported in the DVD-A specification; surround and stereo tracks may be used on the same disc; and a discWelder-burned disc will play on any DVD-A player that supports DVD-R. This Windows-based program also lets users edit the titles of the disc, group and tracks. Users requiring higher-level authoring and editing features such as menu options, background images, slides, MLP import and others are not offered in discWelder Steel—users should check out discWelder Chrome ($2,495), Minnetonka's full-featured DVD-Audio authoring program.



MACKIE CONTROLLER FOR MOTU

MOTU (www.motu.com) and Mackie Designs (www.mackie.com) have teamed up to develop hands-on hardware control for Digital Performer. The new Mackie Control automated, touch-sensitive hardware control surface is manufactured by Mackie, with custom user interface and software engineering for Digital Performer designed by MOTU. The unit offers nine 100mm, motorized, touch-sensitive, 1,024-step Penny & Giles faders, with programmable rotary V-Pots on each channel strip, along with Mute, Solo, Select and Rec/Ready buttons and dedicated assignment buttons that provide access to mixing parameters such as EQ, dynamics, I/O configuration and plug-ins. A large, backlit LED strip displays channel settings and plug-in parameters, and channel- and bank-switching buttons provide access to any track. Transport, zoom, scrub and shuttle mode buttons, along with a large ergonomic jog/shuttle wheel, control transport and zooming/locating features.

LEDs provide instant visual location reference in bars/beats or SMPTE frame time. In addition, the MOTU design team has taken advantage of new functions in Digital Performer 3.1, including enhanced track-grouping features, temporary track groups and enhanced transport modes. Mackie Control is expected to ship this quarter; price TBA.

ENCODERS FOR NUENDO

Steinberg (www.steinberg.net) releases Dolby Digital Encoder and DTS-encoder plug-ins for Nuendo. The Nuendo Dolby Digital Encoder is licensed by Dolby Laboratories and has all of the features of the original Dolby hardware. It supports encoded bit rates from 56 to 640 kbps and channel configurations from mono to 5.1-channel surround sound. All settings originally invented by Dolby Laboratories are included with the Nuendo Dolby Digital Encoder. The DTS-encoding process has also been licensed to Steinberg; encoding is integrated as DTS file format in Nuendo's export dialog, and necessary routines are all automated for ease in encoding. The DTS-encoded audio can be saved as a .WAV file to burn a 5.1 mix directly to CD. Both encoders are available this quarter.

DIGITECH GNX3 GUITAR WORKSTATION

The GNX3™ Guitar Workstation from DigiTech (www.digitech.com) combines a hands-free, 8-track digital recorder with a Multi-Modeling floor processor, and features a 44.1kHz sampling rate and 24-bit AD/DA converters. The system offers 16 guitar amp models, three

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bass amp models, 15 cabinet models, 10 distortion stomp box models, built-in drum machine, JamMan™, Delay Looper, Whammy™, Learn-a-Lick™,advanced CIT™ Cabinet-Imaging Technology, pickup simulator and additional studio-quality effects. I/Os include guitar and XLR mic inputs, analog and S/PDIF digital outputs, full MIDI implementation and a built-in programmable expression pedal.

QUIK-LOK KEYBOARD STRUCTURES

Quik-Lok Musical Instrument Stands (www.quiklok.com) offers the new range of Zeenith Series Rapid Setup Pro "Z" Keyboard Structures. Heavy-duty single and double-tier Zeenith keyboard stands can support 250 pounds, lock into playing position in seconds and feature a main tier adjustable to 13 height positions. The single-tier Z-71 is priced at $199.95; the two-tier Z-72 is $299.95; and the Z-2 Add-On Tier Set is $99.95.

ART DISTRIBUTES ALTO LINE

Applied Research and Technology (www.artproaudio.com) is now the U.S. distributor for the Alto line of analog and digital products. The Alto AlphaVerb features a wide range of studio and live reverb algorithms, developed by the Alto software team over the past seven years. AlphaComp is a dual-band digital stereo compressor/limiter with presets. Other Alto products include high-power, all-digital stereo power amps, crossovers, digital EQs, graphic EQs, half-rack tube mic preamps and much more.

CAD GLOBAL AUDIO CONDENSER LINE

CAD (www.cadmics.com) has introduced its new Global Audio line of condenser microphones, including the M37, a single-pattern, side-address mic designed for demanding professional recording and broadcast applications. Featuring a 1-inch, gold-sputtered single diaphragm and an externally biased condenser capsule capable of handling 143dB SPL (with pad), the M37 also includes transformerless, balanced output circuits, a 20dB non-capacitive pad and stainless-steel internal pop filter. MSRP is $159. Other cardioid-only models in the line include the GXL2200 and GXL2400 large-diameter condensers ($109 and $129, respectively) and the $99 compact GXL1200.

GALAXY CHECK MATE SPL METER

Galaxy Audio (www.galaxyaudio.com) has introduced the Check Mate CM100 SPL meter, a compact, IEC 651 Type-II, sound pressure-level meter. Accurate to within ±1.5 dB, the Check Mate offers three selectable ranges (35-80, 50-100, 80-130dB SPL), A and C weighting, a Max/Min function and a frequency range of 31.5-8k Hz. The unit includes an electret condenser microphone, level range display and offers an AC signal output. The Check Mate will operate for up to 50 hours on an alkaline 9-volt battery and is supplied with owner's manual, 9V battery and windscreen. Price is $149.99.

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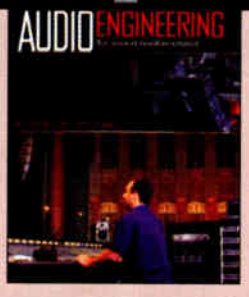

"JBL AUDIO ENGINEERING FOR SOUND REINFORCEMENT"

After two years of writing, refinement and editing, authors John Eargle and Chris Foreman offer *JBL Audio Engineering for Sound Reinforcement*, a reference guide covering material from basic information to the latest technologies of line arrays and digital signal processing. The 450-page, 29-chapter book discusses the basics of acoustics, psycho-acoustics, electrical concepts and digital processing, and relates those principles to the tasks of selecting system components and the practical side of system design. System layout, specifications, analysis and design are covered, with detailed descriptions of sound systems for tours, houses of worship, auditoriums, sports facilities, etc. Distributed by Hal Leonard Corporation, *JBL Audio Engineering for Sound Reinforcement* (ISBN 0-634-04355-2) is available at music and bookstores nationwide, or through Music Dispatch (800/637-2852; www.musicdispatch.com). For complete product and company information, go to www.jblpro.com.

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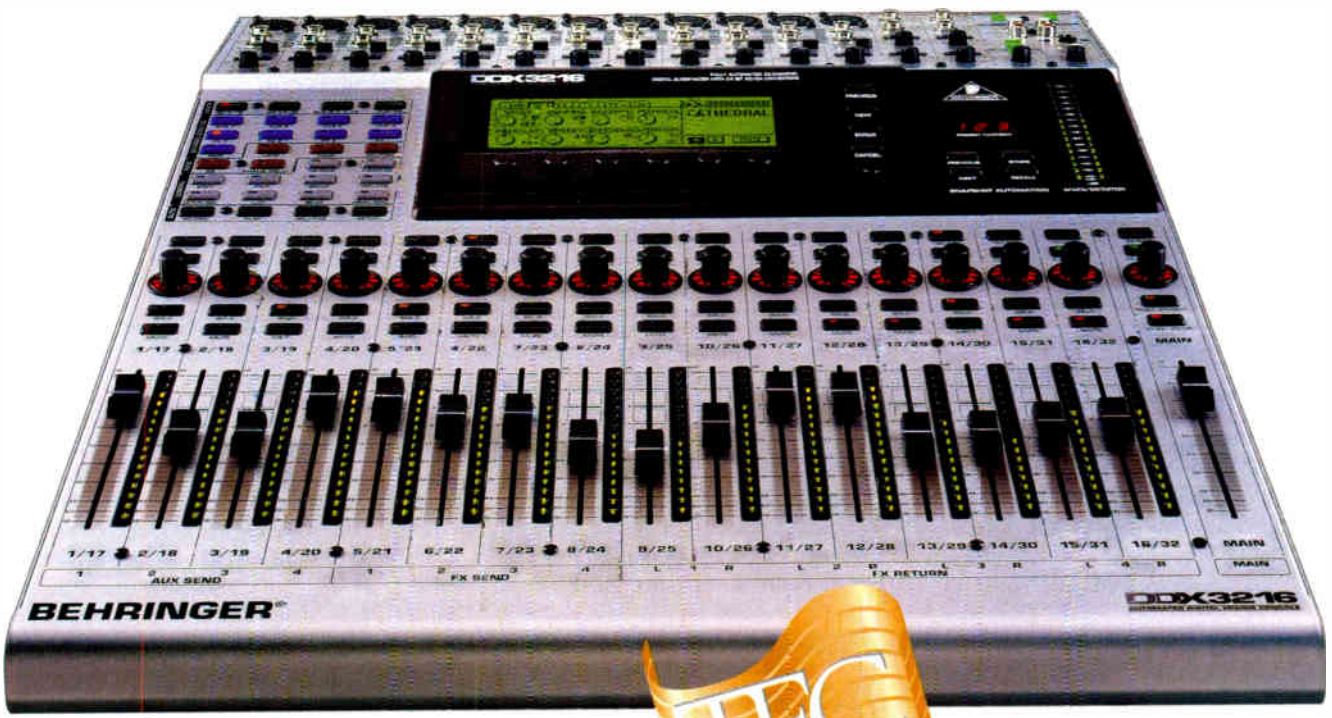

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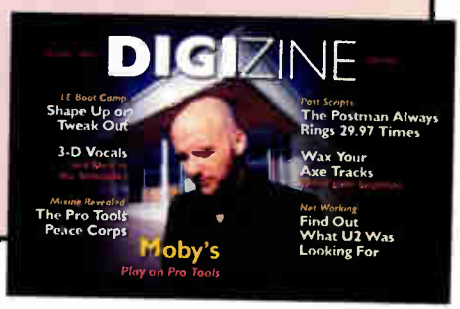
PANORAM MULTIPANEL DISPLAY
The Panoram Technologies (www.panoramtech.com) PV230 DSK display features three connected image panels providing 2.4 Megapixels of screen space, with a fully articulated swing arm and Digital Direct DVI inputs. The three image panels feature a separation of only 11 mm, making it easy to expand information across the three screens without any detrimental visual breaks; the display accommodates RGB and DVI computer sources, as well as composite and S-video inputs. In addition, an adjustable, ergonomically tuned swing arm lets the user set the display at the correct working angle; cable management for data, video and power cables is built into the arm.

MICROBOARDS 40X CD DUPLICATORS
Microboards Technology (www.microboards.com) announced it is now shipping the CopyWriter Tower 40x CD duplicator product line. Configurable with anywhere from two to eight recorders, the CopyWriter Tower comes with a built-in reader, letting the user make up to eight copies simultaneously from a single master. In addition, the CopyWriter Pro version comes with an integrated hard drive and custom interface module for access to features such as speed selectability, image archival and track extraction for the creation of customized audio CDs. Retail pricing starts at $1,595.

UPGRADES AND UPDATES

The **Molex interactive Web CD** allows designers to review over 40 interconnect products that interface with Molex's innovative Networking Solutions Cube. Designers can select an interconnect and link directly to the respective page on the Molex Website to find part numbers, etc. To order a free CD, call 800/78-MOLEX or go to www.molex.com/cube.html...**Digidesign** (www.digidesign.com) **is distributing Native Instruments' Studio Collection and NI Spektral Delay** PTE. The Studio Collection bundle includes the B4 organ, the Battery sampler and the Pro-52 virtual analog synthesizer; the Spektral Delay PTE effect offers classic virtual instruments and sound design for Pro Tools. RTAS and HTDM formats are supported; for more information, visit www.ni-protools-edition.com...**Otari Corporation has dropped the price of its popular MTR-90 III 24-track multitrack tape recorder.** The package now available includes the MTR-90 III 2-inch recorder, matching remote controller and stand, and the CD-120 99-point memory auto-locator, all for $34,995, a $12k price reduction. Call 615/255-6080 or visit www.otari.com... Cycling '74 (www.cycling74.com) is now **shipping Pluggo 3.0**, which offers over 100 real-time audio effects and virtual instruments, and makes full use of the new and improved Max4/MSP2 audio-programming environment. List price is $199; upgrades are $59...Mackie announces **SpinAudio plug-in support for the Soundscape 32 DAW**. Visit www.mackie.com for more information... **Allen & Heath has reintroduced its RTA software** as a free download at www.allen-heath.com/rta.asp. The trial software is a full version, which expires after two weeks. The software may be unlocked for permanent use for a nominal fee...**Special offer from Waves** (www.waves.com) **and Yamaha** (www.yamaha.com): Purchase a Y56K effects processor card for your Yamaha **AW4416 or AW2816** between now and August 31 and receive a **$75 rebate...Stardraw.com offers its complete range of products in Italian**, as well as in English, French, German and Portuguese. Products already available include Stardraw Audio, A/V, Lighting 2-D and the recently launched Stardraw Radio. All language versions may be downloaded from www.stardraw.com using Stardraw LiveUpdate. For more information, surf to www.stardraw.com...**Discrete Drums** now offers **multitrack drum libraries for the Roland V-Studio** line. Existing Roland users can receive a free sampler disc from Roland, or purchase your own from www.discretedrums.com...**Gefen's USB-500 is a 4-port USB extender** with a range of 1,650 feet. Visit www.gefen.com for specs...**CreamWare is 10!** For its anniversary, the company is offering a variety of special bundle offers, available through the end of this month. Visit www.creamware.de for details... **Digidesign** launched **DigiZine**, a new monthly educational online magazine aimed at both beginner and professional Pro Tools users. Each month, DigiZine will feature a cover story on a high-profile Pro Tools user and three Pro Techniques interviews in which professionals share some of their favorite Pro Tools tips and techniques. Check out DigiZine on Digidesign's Website, at www.digidesign.com/digizine.■



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BY BARRY RUDOLPH

SPL Kultube

Stereo Compressor

New equipment from Sound Performance Lab is always worth checking out, as the company always offers unique approaches to complex audio processing with very musical results. Like SPL's Vitalizer and Transient Designer, Kultube—the company's latest dynamics controller—uses a few intuitive, front panel controls to bring a tweaky, computer-based approach to hardware-based processing.

Essentially, Kultube is a solid-state stereo compressor/upward expander with ECC83 interstage tubes running in Class-A that feed Burr-Brown OPA 2134 op amp output amps and optional LL1539 Lundahl output transformers. The addition of tube stages and the "decompression," or upward-expansion mode, greatly broaden this unit's usefulness from pleasing and subtle stereo mix compression all the way to very extreme squashing and distortion treatments of individual tracks.

KUL UNIT

Housed in a two-rackspace, road-ready steel cabinet, the unit is well-built with sturdy circuit boards, toroidal power transformer, shock-mounted tube sockets with hold-down straps, paralleled XLR and TRS I/O connectors and a multivoltage AC power input. A rear panel slot is provided for an optional AD/DA converter, although my unit did not include one. Kultube uses SPL's proprietary discrete Class-A VCAs for gain control elements. As with the Transient Designer, an envelope representing the audio's instantaneous level is generated and converted to a control voltage for the VCAs. The front panel attack, release and ratio controls modify this envelope for precision control over gain reduction.

Kultube uses a single, large VU meter for all metering. At first, I thought this was unusual for a 2-channel unit, but a lot of great stereo compressors, like the popular SSL FX G384, use a single meter. Kultube's meter reads either gain reduction or output level summed in mono, as well as input levels when the unit is in hardwired bypass. Because Kultube's primary purpose is stereo processing, the channels cannot be unlinked for dual mono use; however, onboard multichannel link facilities can slave any number of Kultube units to a designated master for surround applications. All slaved units' functions—except the Tube Harmonics settings—are controlled by the master's front panel settings, but all slave units' signals are constantly analyzed and used to derive consistent, overall multichannel dynamic processing and control.

The front panel has a row of 10 illuminated switches (meter gain reduction/level selection, analog/digital I/O, hard/soft-knee compression curves, compression/upward-expansion operation, PTC (Progressive Time Control) over attack and release, key-on/key-listen sidechain control, slave/master linking, and a hardwired bypass. Six knobs (Threshold/Ratio/Attack/Release/Gain Make-up/Tube Harmonics) should be familiar to most users, with the exception of the last, which overdrives the tube stage from a pristine 0% distortion to 100% filth. All six controls have very precise, silk-screened front panel scale markings for exact recall of settings. I like this attention to detail and expect it from quality professional gear.

IN THE STUDIO

I inserted the Kultube into some theme-park music sessions I engineered for an industrial music client. It sounded superb across the analog mix bus of an API console. My multitrack source was a 24/48k Pro Tools session. I used the manual attack and release controls with soft knee, as I am leery of presets or "automatic" compressor modes until I am familiar with what exactly they are doing to the sound.

I first tried the Progressive Time Control on the attack parameter. PTC uses a special circuit that determines the best attack time from moment to moment, and applies an appropriate attack time from 20 microseconds up to 980 ms. With PTC Attack depressed, the Attack control knob goes from a manually set, fixed value into a "depth" or intensity control for PTC's program-adapted attack time values. Think of it as a slope control for the compressor's attack; the compression starts just as quickly, but goes into compression at a slower speed. For music program, the PTC-optimized attack times were generally slower than I might set manually, so I had the best of both worlds: I could adjust on top of the PTC settings for faster attacks, with fewer undesirable side effects. After first setting attack and release manually to my liking, simply pushing the PTC button produced an instantly denser sound with harder transients. This worked beautifully for my theme-park music mixes, which had many stops, starts and huge musical differences, from quiet orchestral interludes to loud rock crescendos. Manually setting a compressor to work well under all these conditions is problematic at the least.

The PTC release button lengthens or shortens the compressor's release time, depending on an instantaneous determination. PTC calculates the average level of the music source so that music program mixes will get longer release times while percussive material gets shorter release times. The release control, when PTC is activated, affects the averaging process by including more or less signals, more or less often, when the release is set faster or

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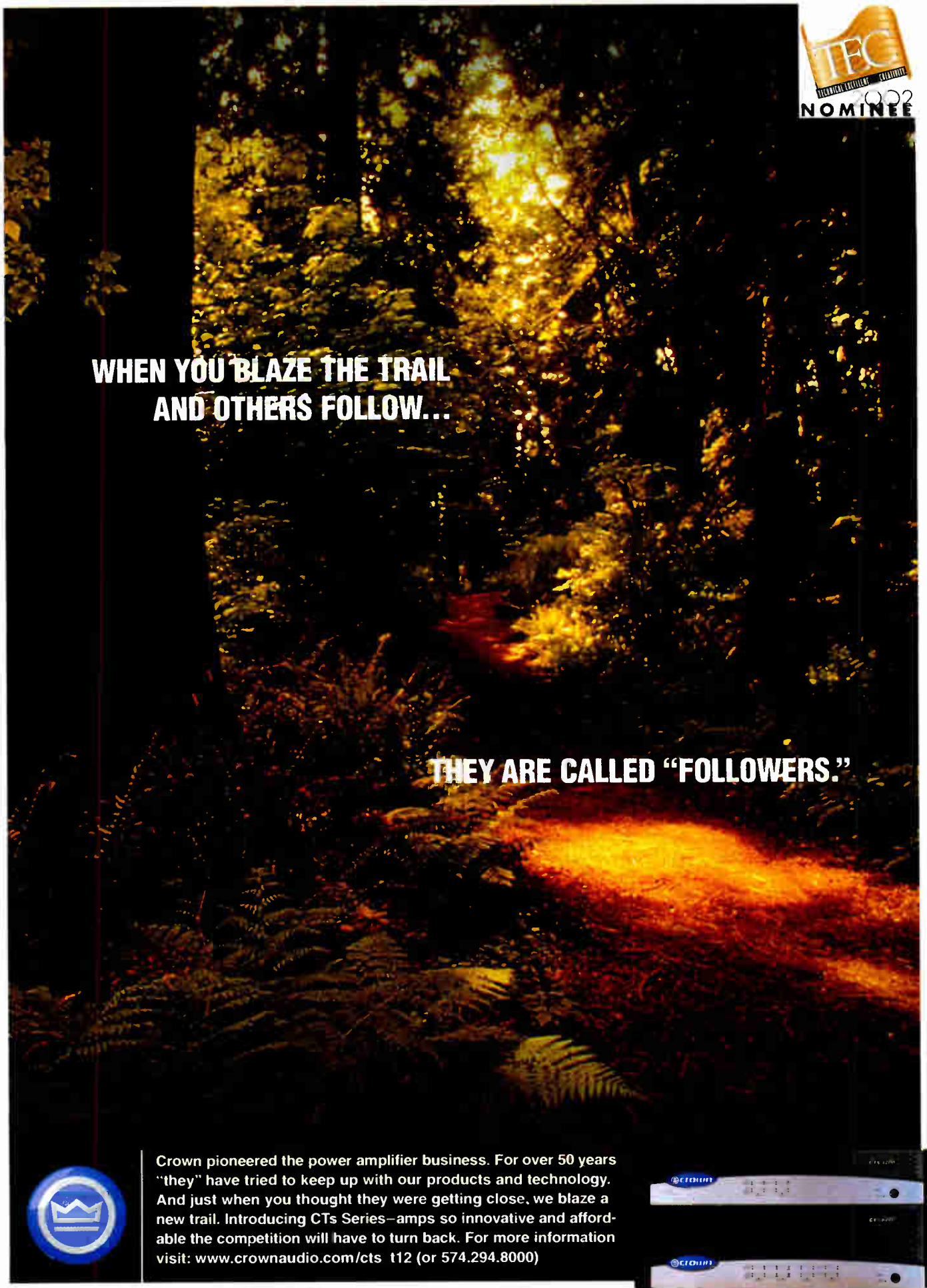

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slower. After using the unit for many sessions, I found that PTC was the best way to get maximum loudness with minimal negative sonic side effects.

KUL-DE-COMPRESSION

The De-Compression function works as the opposite of compression. When the De-Comp button is pushed, all signals above the threshold setting get louder proportionate to the ratio setting. In the real world, only ratios of 1:2 or lower work well, as higher expansion ratios quickly exceed the unit's headroom capability of +22 dBu. You'll find this out as the make-up gain now works backward, becoming "make-down" gain, and quickly distorts the output if you crank it down too much.

I use the Kultube as a stereo expander on a pair of clean-sounding, but overly squashed ambient drum tracks. Using a ratio of 1:1.3 with a -3dB threshold setting not only saved the record, but at the very least, it saved me from throwing up my hands when the producer asked if I could do anything with these poorly recorded drum tracks we inherited.

KULTUBE HARMONICS

Those same re-animated drum tracks also benefited from the Kultube's unique Tube Harmonics processing. This circuit lets you overdrive the ECC83 tube stage as much as you want without affecting the output level or the settings of any concurrently running compression/expansion processing. There is also no additional noise buildup with Tube Harmonics, which was welcome news, because adding loads of tube bloom usually brings up more noise from another unit patched in the chain. This could be a main reason to buy the Kultube over another solid-state compressor. Beyond simply using it on stereo mixes, I found the ability to try tube distortion quickly on individual tracks—a very creative touch that found enthusiastic approval from producers and artists.

Retailing at $1,699, Kultube offers a unique combination of processing in a single package. I like the compressor for full mixes, de-compression for drums, and Tube Harmonics for broadening and coloring guitars, vocals and keyboards. It's a great "go-to" box when no other processor—hardware or plug in—will exactly do what is needed.

SPL Electronic, dist. by Group One Ltd., 200 Sea Lane, Farmingdale, NY 11735; 631/249-1399; fax 631/753-1020; www.g1ltd.com or www.soundperformancelab.com. ■

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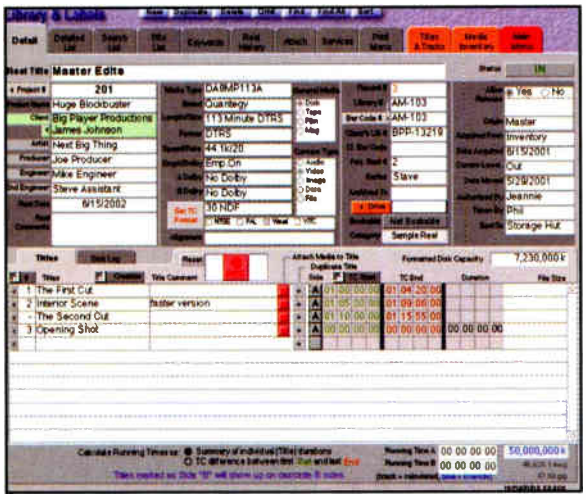
BY ANDREA ROTONDO HOSPIDOR

AlterMedia Studio Suite 5

The Next (Affordable) Step in Studio-Management Software



Studio Suite is a relational database built in FileMaker Pro.

When *Mix* magazine called to ask if I'd like to test-drive AlterMedia's Studio Suite Version 5 studio-management software, I jumped at the chance.

For those unfamiliar with Studio Suite, it's an "everything-and-the-kitchen-sink" software package that simplifies the management of recording studios, video post-production facilities, record labels and production companies. Built around the sturdy FileMaker Pro relational database engine, Studio Suite can slice, dice and chop its way to an organized facility. How so? Well, because it's a relational database (one piece of information relates and feeds other reports and menus), you can input and manage contacts, calendars, sessions and projects, billing, media, rooms, equipment, repair logs, samples and clips, and much more. In fact, there is so much packed into this product that it's surprising to learn that the price tag is a mere $499 for the first license. (Additional "seats" for your network are available for $199 each.) It's important to note, however, that while Studio Suite runs off of FileMaker Pro 5, that product is not included in the purchase price.

Before I even sat down with Studio Suite, I made a lunch date with a friend who uses the package to manage his studio. When I arrived at the studio, I was surprised to see the good old schedule book—a tattered-looking, denim-covered, three-ring binder—taking up prime real estate on his desk. I asked if the software wasn't working out. "Oh no," he said. "The software is fantastic, but I can't bring myself to toss this book. I've been using it for the past 20 years!"

GETTING UP AND RUNNING

I tested Studio Suite 5 as a single user on a Macintosh G4 with a 19-inch monitor (the larger the monitor, the better). A cool thing about this software is that it's cross-platform networkable. This means that you (the studio owner or manager) can be running off of a PC and still allow networked access to your engineering and production crew who use Macs.

If you have never used FileMaker Pro (or other relational database package) before, do yourself a favor and spend a few days with the tutorial. Learn how the database operates and how information in one field "feeds" another. Without taking this first step, you may be a bit overwhelmed when you first launch Studio Suite.

Because you will be dealing with a relational database, you'll be opening up many files that relate to one another. When using Studio Suite's buttons and tabbed interface to navigate, windows for all of the separate files will open and hide automatically, showing only the window that you need at the moment. You do need to resist the temptation to "close" each window, as that actually closes that database file, requiring Studio Suite to open it again when it needs data from that file. If you use the tabs or buttons to get where you want to go, Studio Suite will manage the "windowing" for you. Because there are modules that you may use regularly, you can create an Open Preferred preference for each user so that Studio Suite will remember which files that person usually needs, and it will launch those automatically on startup.

STUDIO SUITE IN ACTION

After launching Studio Suite, you'll be greeted by an intuitive main menu with 20 buttons that correspond to modules. These 20 modules are divided into three subsets: Office, Studio and Tech. As you can imagine, the Office subset offers modules for controlling everyday activities such as Contacts, Calendars, Communications, Petty Cash, Purchase Orders, Invoices, Media Inventory and Bar Codes. The Studio section commands Sessions and Events, Library and Labels, Titles and Tracks, Recall, and Samples and Clips. And finally, the Tech modules include Rooms, Equipment, Maintenance Log, Patchbay Labels and Parts.

There are six steps that must be followed before the program can help your business. For a multiroom facility, set aside one hour per day for a week to sit down and "explain your business" to the software. Let's step through this process now, because it really gives you a sense of what can be accomplished with the software.

The first step is to tell Studio Suite about your users (individuals who will have access to this database). Security features are built-in, and there are five levels of user access. This makes it easy for you to determine who will get an all-access pass vs. those who will be frozen out of certain areas such as Layout mode or ScriptMaker, financial data and personal contact information.

A neat thing you can do at this point (or later down the road) is create start-up alerts for certain users. Does Jill handle all of your billing? Set up an automatic Overdue Invoices alert from the Invoice module that will only pop up when Jill logs on to the system. Does your intern Jeff handle media ordering and inventory? A Low Media In-

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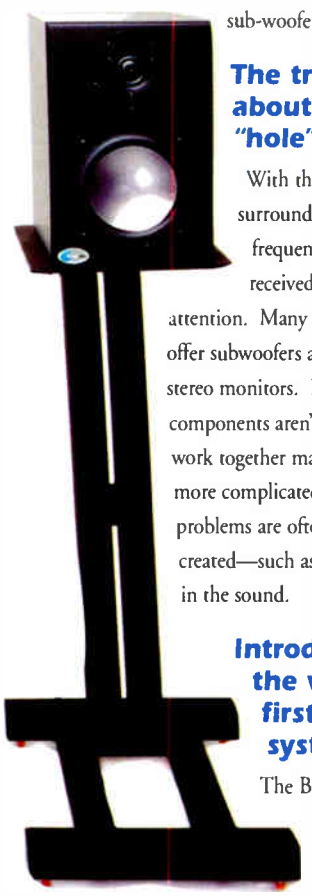
Truth is the most valuable thing we have. Let us economize it — *Mark Twain*

The truth about nothing but the truth.

The problem with most so called reference monitors is they simply can't reproduce the full range of audio frequencies needed for true representation of the sound, especially low frequencies. Today's most common monitors use a 2-way design with 8" woofers to cover the low frequencies, but they can't go down low enough to give you the lowest octaves that are essential to the character of so many instruments, like bass and drums.

Ported v sealed boxes.

Some designs use ported cabinets to help do the job woofers can't do on their own. While a port can extend low frequency capabilities, it can't deliver the transient response of a sealed box. At high levels, airflow through the port produces turbulence that reduces efficiency and actually causes high frequency noise. There's no getting around it—If you want a true reference, you need a sub-woofer.



The truth about the "hole" truth.

With the advent of 5.1 surround sound, the low frequencies have received much more attention. Many companies now offer subwoofers as add-ons for stereo monitors. But when components aren't designed to work together matters can get more complicated, and new problems are often created—such as an audible hole in the sound.

Introducing the world's first 2.1 system.

The Blue Sky 2.1 System is the first stereo monitor to deliver full range sound without compromises. It is a true system in every sense. It includes two powered 2-way satellite speakers and a powered subwoofer with a 12" driver in a sealed cabinet. 2.1 Bass Management circuitry directs all the frequencies where they belong. It's a true integrated three-way system. Every component is optimized for the system. Our 2.1 system delivers coherent, seamless audio that is more accurate and more full range than even the most expensive alternatives.

Your room is a part of the system.

Because of its essential design, the 2.1 system allows the user to place the satellites for optimal imaging and the subwoofer for optimal bass response. The system design acknowledges the listening environment as a major factor in what we hear

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The Blue Sky BMC (Bass Management Controller) offers a total in-place solution for controlling any 5.1 system.*

51 integrated surround SYSTEM

With Blue Sky Systems, you get accurate, full range audio in a real room—your room. And the transition between subwoofer and satellite is totally seamless. It reproduces smooth, even bass response throughout the monitoring area.

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ventory warning can be set up for Jeff.

Once you input information about your Studio Suite users, move on to the second essential step: company information. This package can run more than one "company" at the same time, so if you have a recording studio and a music house, then you can optimize the software for both. Enter basics like your location, contact information, logos and tax information here. You can also adjust the terminology used throughout the package. For example, under Booking Status, you'll see confirmed, on hold, completed, canceled and postponed. If your studio jargon is different, change it here. You can also tell the software about your invoicing, project and library numbers so that future projects mesh with your existing standards.

Next, you can define the rooms you have available to book and the services you offer in each room. There are also fields for installed equipment in each of your rooms, but I caution you to go light here because there is another entire module devoted to equipment.

The fourth step, detailed lists of your equipment, is only absolutely necessary if you rent equipment separate from your room rate. However, this section is wonderful for insurance and inventory purposes, and I highly recommend that you devote some time to it. This will become a detailed record showing when you purchased something, how much you paid for it, which room it's currently in, the serial number, its estimated value (for vintage gear, etc.), and much more.

Step five will take the longest to complete. This is where you enter all of your contacts. You have the ability to save a lot of time here by simply importing this information. Basically, you'll want to add anyone you book, bill or pay. Once the contact information is added, designate the entry as client, vendor, employee, personal, prospect, etc. You'll also be able to add financial information such as terms, credit limit, account number, taxes, discounts and other significant data.

The final step is a breeze. Here, you'll identify your media inventory. Make sure to add any type of media that you have used in the past or may use in the future. You can always add to this list later.

Once you've climbed this mountain, you're ready to use Studio Suite. On my first try, I found the package to be fairly intuitive and I had no trouble navigating through the modules via the tabbed interface and the function bar at the top of the screen. Using sample data that comes loaded with Studio Suite, I was able to easily look up a client in the Contact module, access his payment records, refer to rates he'd been offered in the past, look up the in/out status of a reel from this client, book a room, engineer and equipment for his upcoming project, document a mix in the Recall module (which comes standard with faceplate diagrams of commonly used outboard gear), generate an invoice and export my billing records to QuickBooks.

Studio Suite's 20 modules include an amazing amount of functionality, and it takes time to discover the real power behind the software; this discussion merely scratches the surface. Visit AlterMedia's Website and download a demo to see the software in action. (You don't need FileMaker Pro.) Studio Suite is easy to use and packs a hell of a punch for just $499. Make the emotional and financial investment and install Studio Suite 5 at your facility.

AlterMedia; 3727 W. Magnolia Blvd., #830, Burbank, CA 91505; 800-450-5740; www.studiosuite.com; info@studiosuite.com. ■

Andrea Rotondo Hospidor is an engineer and freelance writer.

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Schoeps DSP-4P

Digital Microphone Processor

The Schoeps DSP-4P ($3,850) is described by the company as a digital microphone processor for the PolarFlex system. What does the PolarFlex system do, you might ask? The PolarFlex system presents an interesting proposition: Two pairs of vertically coincident omni/figure-8 or back-to-back cardioid capsules may be used in combination to create two virtual microphones. Also, the user may, by combining the patterns, create a pair of virtual microphones capable of any pattern between, and including, the omni and figure-8 patterns.

In addition, the frequency response of the combined pairs can be collectively altered past the confines normally associated with any particular mic pattern by creating highly adjustable crossover points, which provide a multiplicity of single-band, dual-band or 3-band equalization circuits.

While Schoeps does not mandate that its microphones be used for the PolarFlex system, the company does suggest the use of small-diameter condenser microphones. Schoeps suggests the CCM 2S omni, CCM 8 figure-8, CCM 4V or CMXY 4V cardioids from the Compact Series, or CMC 62S omni, CMC 68 figure-8 or CMC 64V cardioid from the Standard Series. Schoeps was kind enough to provide pairs of CCM 8 and CCM 2S mics and mounting rigs along with the DSP-4P. (The total cost of this rig would be $8,765, including all mics, cables and the DSP-4P.)

AROUND BACK

The Schoeps DSP-4P microphone processor is housed in a compact chassis (8.6x3.5x9.6 inches) that weighs six pounds. The 24-bit digital I/Os are optimized for high-quality digital audio and use Motorola 56009 DSP. The AD/DA converters are from AKM. On the back panel, there are two rows of XLR connectors. The top row, all 24-bit digital, consists of two AES/EBU inputs (four channels of digital audio), two AES/EBU outputs (four unprocessed digital audio channels) and one AES/EBU processed stereo output. Internally, all audio signal processing is handled by fourth-order Infinite Impulse Response (IIR) filters used with 56-bit DSP accumulators.

In addition to being a digital audio input, the first XLR is also used as the master digital input to synchronize the DSP-4P's internal A/D converters to an external clock when the analog inputs are used. Multiple DSP-4P units can be operated together in master/slave configurations. The second XLR also functions as the slave input, switching the DSP-4P to Digital Input mode when a digital signal is detected.

The bottom row of analog XLRs consists of two 5-pin female XLR connectors that can be used either as mic inputs for the two pairs of mics or as four analog line inputs. The 48VDC phantom power delivered to these input XLRs cannot be defeated. To prevent the phantom power from damaging the output circuitry of any attached devices, Schoeps suggests using isolation transformers when interfacing line-level equipment. Analog outputs 1 and 2 are 5-pin XLRs that carry the four channels of unprocessed audio. Analog output 3 carries a 5-pin processed stereo output.

Also on the back panel are toggle switches to select 44.1/48kHz operation and pads to accommodate +20dB mic (for 10mV/PA condenser mics) or +10dB line inputs. Mics that are more sensitive than 10 mV/Pa may also use the line input. An IEC standard power receptacle is used, and the power supply can be operated at 110 to 120 VAC or 220 to 240 VAC. Power consumption is 15 VA.

AROUND FRONT

The front panel has five multi-functioning knobs; a two-position switch determines their usage. The PATTERN/CR.-FREQ. position allows the three upper knobs to be adjusted to create three different polar patterns: one for lows, one for mids and one for highs. Patterns are selectable in 11 steps, from omni to figure-8. Each of the three patterns can also be turned off, which is the equivalent of introducing an 18dB/octave cut across the particular frequencies established by the crossover frequencies.

The fourth and fifth knobs are used to move the two crossover frequencies, thereby creating 1, 2 or 3-band operation. The crossover frequencies are adjustable in ⅓-octave steps from 100 to 1k Hz and 1 to 10 kHz.

In the GAIN/dB MODE position, EQ is achieved by cutting each of the three parts of the frequency spectrum a maximum of 5.5 dB in 0.5dB steps. Although EQ is entirely cut-based, one band can be raised by lowering the others and boosting the Overall Gain control. Both analog and digital input signals can be raised in 12 3dB steps to a maximum of 33 dB with this control. The fifth knob is used to configure the DSP-4P for Mode A (omni/figure-8 microphones) or Mode B (back-to-back cardioids).

A three LED display indicates -24dB, -12dB and -3dB levels, and suggests that the -3dB light be barely lit to prevent distortion. I tested it. They are right; even moderate -3dB illumination results in some nasty-sounding audio. Once you

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Snapshot Product Reviews

CAD M9
Cardioid Tube Microphone

When everybody in the audio biz goes one way, CAD always comes up with something different. This time, that something is the M9, a cardioid tube mic combining a 1.1-inch diaphragm capsule with the servo-valve technology used in its flagship VX2. The front end is driven by a single 12AX7, followed by a high-speed, low-noise, dual op amp that drives long cable runs with ease.

From the M9's impeccable fit, finish and feel, you'd never know you were dealing with a product retailing at $599—including aluminum flight case, power supply, 30-foot 7-conductor cable, and shockmount. The latter's die-cast construction and sturdy elastics are light years ahead of the usual "free shockmount" that accompanies most other under-$1,000 mics, and the unit is great at isolating the mic from external vibrations.

This side-address design has recessed switches for its -16dB (non-capacitive) pad and a subtle, quite gentle (-6dB/octave @ 100 Hz) bass roll-off filter. The power supply is simple, with AC switch (selectable for 120- or 240VAC use), removable power cord, 7-pin XLR input and standard 3-conductor XLR output (pin 2 hot).

The M9 is plug-and-go, although on power up, I was greeted by a cacophony of pops and hiss until the tube stabilized about a minute later. Then the noise disappeared completely, leaving just the sweet sound of this mic. I started with a tracking date on a Taylor acoustic guitar, with the mic about a foot from the soundhole. The result was well balanced and bright, capturing the entire top end with tons of warm bottom and detail. I had similar results cutting solos on my Gold Tone Banjitar (6-string banjo). Normally, large-diaphragm tube mics aren't my first choice on close-in stringed instruments, but the M9 really surprised me here with well-formed transients and lots of zing. Owwweee!

Next up, for overdubbing female R&B vocals the M9 really shined, with its extended top end adding a smooth breathiness to the track and a warm—but not overdone—proximity effect up close. The tightness of the M9's cardioid pattern is great for isolating the mic from other sounds, but requires the vocalist to stay on-axis with the mic. This, however, was only a problem when close-miking singers moved around a lot. The M9 was equally nice on male vocals, where its slight presence bump around 5 kHz helps bring baritones and bass singers out in a mix, while providing a smooth balance of lows and highs.

The M9 performs like it costs a lot more, and its clean, flexible performance fits in well, either as a first "good" mic for the novice or as a new flavor in a well-stocked mic collection.

CAD Professional Microphones; 440/593-1111; www.cadmics.com.

—George Petersen

REEL DRUMS
Multitrack Drum Loops

There are lots of drum loops on the market, ranging from the classic *Drum Drops* LPs to dozens of libraries for popular samplers or loop players such as Sonic Foundry's Acid. Reel Drums is an 18-CD collection of drum loops presented in 24-bit/44.1kHz multitrack Pro Tools sessions that are ready to rock.

Rather than the typical repackaged TR-707 sounds we've all heard too many times before, Reel Drums was recorded from the ground up with this project in mind. The drummer is session ace Joe Franco, recorded by multi-award-winning engineer Kooster McAllister in a great room (Bear Tracks, Suffern, N.Y.), captured directly to the vintage API console in the renowned Record Plant Remote truck.

Besides a large variety of grooves and styles—from teary ballads to slam-dunk rock—there's lots to choose from: Different cuts have feels reminiscent of greats such as John Bonham, Carmine Appice, Mitch Mitchell, Billy Cobham and Chad Smith. Stylistically, the set runs the gamut from Bo Diddley, Phil Spector, the Black Crowes, Motown and Sly Stone to Aerosmith, Led Zeppelin and Hendrix—blues, punk, rock, R&B, you name it. The sessions are supplied on standard CD-ROMs, and you simply copy the files to your hard drive and open them as Pro Tools sessions. Everything worked fine on my PT 5.1 rig.

Once in a session, you uncover the beauty of Reel Drums. Each tune is laid out with chorus/verse/bridge sections and fills as separate loops, so cutting or extending files is a breeze. The set also includes an *Audition* CD to quickly locate the session that you need, without loading all of the files into Pro Tools. A disc of single hits is also provided to easily customize or create your own loops.

The tracks do not have reverb or gating, so you can process as needed by your own project: demo or master. For example, I added some under-snare mic (it's also provided on all sessions) to add bite, but needed to gate some of the sympathetic buzz between hits—no sweat in Pro

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For complete specs and a manual visit
www.alesis.com/masterlink, or call 310-821-5000
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Tools. And, with two mics on *each* kick (Sennheiser 602 and AKG D-112), I could pick whatever suited the tune best. The individual (or multiple) mics on each drum, stereo distant room mics and a mono "depth" mic, allow a near-infinite range of possibilities and really sets this apart from stereo-only loops. About the only thing missing from Reel Drums is a click track. I suppose one could create a click track via MIDI (tempos are solid throughout), but an existing click would be a useful addition. Maybe in the next revision.

Reel Drums is just like its name: It rocks, sounds great, is fast and lots of fun. The set of 18 CD-ROMs in Pro Tools session format (plus *Audition* disc) runs for $299. A 2-CD set (single hits plus stereo loops mixed by Kooster of all the performances) is $99. A stereo version for GigaStudio/Rex/Acid is $199.

Reel Drums, dist. by Wave Distribution; 973/728-2425; www.reeldrums.com.

—George Petersen

DRAWMER DS501 Power Gate

Twenty years ago, Ivor Drawmer secured his place in audio history when he introduced the first frequency-conscious gate, the DS201, which allowed users to tightly tune out unwanted sounds by filtering the key signal. Tens of thousands have been sold, and the DS201 has become the measure of all products in this category. For many, there is still no substitute. Drawmer's new upgraded DS501 Power Gate is the only revision to this product since XLR connectors were added a decade ago.

The two units are sonically indistinguishable, except for two added features. A new 4-segment vertical LED meter next to the threshold control shows the signal's level below threshold, making it much easier to adjust and obtain optimal rejection of unwanted background sounds that can't be monitored during a live show.

If you know the 201, the 501 will be instantly familiar. The 501's controls are nearly the same as the 201's, except for Threshold, which adjusts down 18 dB further to -72 dB. The trademark black knobs with yellow pointers at their skirts are slightly reduced in size to accommodate two additional controls at the end of each channel.

Peak Punch is a dynamic feature first introduced five years ago with the MX40 quad gate, a worthy product overlooked by many live engineers. It accelerates the leading edge as the gated signal opens, adding up to 12 dB of gain for the first 10 milliseconds, and breathing life back into a gated signal whose transient is usually clipped off. Intended for percussive material, Peak Punch is ideal on kick, snare and toms.

The 501's version of Peak Punch adds an octave-wide filter that's tunable from 75 to 16k Hz to contour the effect's response, letting users select a portion of the signal to emphasize with the process. Especially effective when the kick drum takes up all of the available headroom in a wedge monitor mix, Peak Punch tuned low can put a little extra thump in the signal without clipping the mix. FOH engineers will enjoy similar benefits for drum inputs, achieving more impact without overpowering a mix. Tuned higher, Peak Punch can put some snap back into a gated snare mic. Studio engineers who use gates creatively will find many other uses for this feature, which can be effective on all different types of percussive tracks: guitars, keyboards, synths and horns, for example. Drawmer has enhanced its legendary product without alienating users by changing it too much. With a list price of $899, vs. $749 for the DS201, it's an obvious choice for updating any outboard rack.

Drawmer, dist. by Transamerica Audio Group; 702/365-5155; www.drawmerusa.com.

—Mark Frink

OKTAVA ML52 Studio Ribbon Microphone

Mention "ribbon mics" and the word "expensive" usually comes to mind. However, due to the recent resurgence of interest in ribbon mics, Oktava—the 55-year-old microphone company that was once Russia's sole supplier of ribbon mics—has now returned to building affordable ribbon models.

Housed in a large body with an open "birdcage"-style top, the new Oktava ML52 uses a double 25-micron-thick aluminum ribbon element with a classic figure-8 pickup pattern. Including foam-lined carry case and standmount, the ML52 lists at $799.

One drawback common to all ribbon mics is their low sensitivity, which in the case of the ML52 is no exception, coming in at 1 mV/Pa. As with dynamic mics, there are no onboard electronics, and hence no self-noise. However, like other ribbon mics, the ML52 needs a clean preamp with lots of gain, and preferably a preamp that's as close to the mic as possible to avoid long cable runs. I paired the ML52 with an Aphex Model 1100 tube preamp, which has plenty of gain and ultra-clean, -135dB EIN specs—a great combo for use with ribbon mics.

With the ML52's low price, there are some tradeoffs. The standmount feels cheap, and when the mic's coarsely threaded attachment ring is removed, paint overspray on the threads makes them harder to manage. Fortunately, Oktava offers an optional shockmount, which does a far better job of holding the mic in position. Because the mic is quite susceptible to stand-borne vibrations, the shockmount is a necessity. The same goes for a pop filter, as the mic is highly sensitive to breath noise; here, a standard Pop-per Stopper™ stocking filter was just right.

First up for the ML52 was cutting male vocals on an R&B tune. The mic has a very flat, mostly uncolored response, so just a hint of upper-HF EQ added a nice sparkle to the track. There's a nice, thick proximity boost up close, but with the Popper Stopper in place, popping plosives presented no problems. On female lead and background vocals, the ML52 really jumped, yielding an ultra-smooth, velvety track that was warm and unhyped.

Next up was tenor sax overdubs, a task that ribbon mics typically excel at. Here, again, the ML52 didn't disappoint, offering a lush close-in sound that, with 60 ms of delay and a medium-room reverb, was exactly what we were looking for. I also

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-Alan Silverman
Mastering engineer for multiple Grammy Award-winning recordings and owner of Arf! Digital, New York

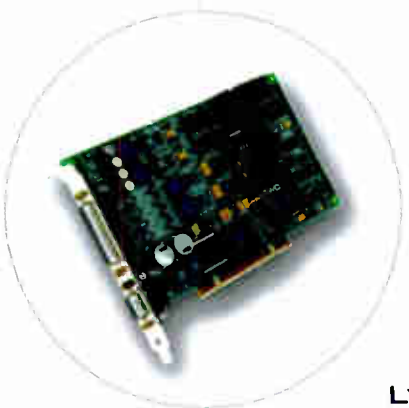
"First, the audio performance is exemplary And second, the cost is reasonable compared to top-of-the-line stand-alone converter boxes and believe me, the comparison is apt. It looks like my recommendation that people keep audio out of the computer needs updating - the LynxTWO proves it can be done. What's more, it does it well."

-Craig Anderton
Executive Editor of EQ magazine

LynxTWO

"It's certainly the best-sounding soundcard I've ever reviewed. With a milestone product like the LynxTWO, competition is understandably thin on the ground. However, the real comparison should be with high-end stand-alone converter boxes. The LynxTWO provides audio performance on a par with rack mount gear costing considerably more. In short, I can't think of any other product that comes close!"

-Martin Walker
Sound on Sound Magazine, March 2002



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noticed that the ML52's pickup pattern was tight and highly controlled, with excellent side rejection. The mic's front and back sides are nearly identical in sound—perhaps just a twist more present on the front (logo) side. This opens up some possibilities, offering a bit more variation from a single mic.

Retailing at $799 (the street price is much lower), the Oktava ML52 offers an affordable introduction to the ribbon microphone world. Anyone looking for something "new" should give this one a listen.

Oktava, dist. by A&F MacKay Audio Ltd.; (44) 01428-708-400 (UK); www.oktava.net.

—George Petersen

DEMETER HXM-1 Stereo Tube Mic Preamp

James Demeter has been building great tube gear for two decades, and artists and engineers worldwide love his Classic Series. It's also pricey for those without major-label funding. With this in mind, Demeter offers the HX line of single-rackspace gear, which puts tubes in the first stage (for maximum sonic benefit) followed by a transistor output stage (for clean sound and major cost savings). Current HX products consist of the HXC-1 (a very LA-2A-sounding tube optical compressor) and the HXM-1 tube stereo mic preamp/direct box.

Despite its affordable $1,399 pricing, the HXM doesn't scrimp on quality, using high-grade parts such as Jensen input transformers, metal film resistors, high-spec film caps and custom toroidal power transformers. The front panel has identical controls for each channel, and each offers a ¼-inch hi-Z input, 200Hz -6dB/octave highpass filter, switchable -20dB mic pad, phantom power, phase (polarity) reverse, 30dB rotary gain pot, volume control and 10-segment LED meter with -10/+4dB switching. The internal 115/230VAC (selectable) power supply has a front panel switch and LED. The rear panel has balanced TRS/XLR mic inputs and TRS/XLR outputs for line-level signals.

Operation is straightforward, but I wondered if the front panel gain and volume pots might act like a guitar-amp-style master volume arrangement to add distortion. Not so: The gain knob controls gain by varying the amount of feedback going to the tube. Volume allows users to tweak levels to match their systems via a fader between the tube preamp and the solid-state balanced line driver output stage.

Tracking with tube, condenser and lots of dynamic mics, the HXM-1 was wonderful. The combo of the Jensen transformer with the 12AX7A front end provided a rich, silky top with a warm, full—dare I say phat?—low end. But I was really impressed with the unit's headroom that doesn't seem to end. (The manual lists it at +28 dBv—enough for anybody, anywhere!) The DI input was a perfect complement on Hofner bass, Epiphone Casino, Gibson J160E and Rickenbacker 12 for some Beatles-style sessions we were doing: clean, full and sweet.

Demeter Amplification; 818/994-7658; www.demeteramps.com.

—George Petersen

CLEARSONIC FLECTOR Acrylic Panel Reflector

ClearSonic's hinged 2-foot-wide acrylic panels have long been a favorite for isolating drums in the middle of an ensemble. Now, horn players can get in on the action: ClearSonic's Flector 8 and Flector 12 are 8- and 12-inch-diameter (respectively) transparent discs ($12 and $14 list respectively) made from ⅛-inch-thick modified acrylic (Plexiglas MC), which is much stronger than regular acrylic. A slightly off-center ¾-inch hole allows the panel to fit over the threaded end of a mic stand's boom arm, and a mic clip screwed over it holds it in place. (A larger hole in the center allows the cord to pass through.) The use of a short 6-inch gooseneck makes it easier to correctly position the Flector and can even obviate the need for the boom arm.

In addition to making it easier for a musician to hear his or her instrument, Flectors also deflect sound away from both other musicians and other microphones in front of them, diffusing the narrow, high-energy acoustical beam associated with brass instruments, and making the stage more bearable for those in the "line of fire." (Because of its larger size, the Flector 12 blocks and reflects twice as much sound as the Flector 8.)

Another benefit can be increased gain-before-feedback and isolation from floor monitors pointing at the back of microphones. I used the smaller Flector 8 with success on acoustic guitar mics, which are typically half as far away from the floor monitor as the vocal mic is, yet often need to be twice as loud. Even if you're only using a guitar's pickup in the monitor, an instrument mic tends to hear the wedge and impart a hollow sound in the mains to both voice and guitar. A short stand with a boom arm offers the right angle if it's placed directly between player and wedge, but the artsy angles that some musicians insist on for their mic stands may again require a short gooseneck.

I found another application with my Smaart measurement mic when mixing at the back of a room and trying to take a measurement there. The larger Flector 12 helps block comb-filtering from back-wall reflections with just the tip of the mic protruding through the smaller hole and the boom arm going back through the larger hole in the center.

Finally, broadcast and recording engineers working on live shows will find that the Flector increases the isolation of certain primary mics from the sound of the room and the P.A. enough to warrant using these panels for either musical soloists or spoken-word lecturers. For the price of a roll of gaffer's tape, you can add a tool to your gig bag that you never knew you needed.

ClearSonic; 800/888-6360; www.clearsonic.com.

—Mark Frink

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BY EDDIE CILETTI

The Phantom Menace

Understanding the Power Within

As August heats up, so does the Minnesota State Fair—a mix of old and new, farm animals and related technology, outdoor concerts and unusual foods on sticks. It's what's on the end of some other sticks, however, that has my pantaloons in a bundle. Yes, this month's focus is on the studio microphone, and I will be geeking on the much-misunderstood subject of phantom power as it applies to both condenser and ribbon mics.

THE MENACE STRIKES BACK

A customer with an Amek Angela console calls about a few nagging problems, the most annoying of which is a buzz in aux-6. (The console is easily 12 years old.) I had the master module brought to the shop for a D&C (where I added a miniheadphone jack) and then scheduled a house call.

The client uses aux-5 and aux-6 for the Cue system; the former was clean while the latter was snot. I had expected the problem to be in the headphone system and was surprised to learn otherwise—after a minimal amount of troubleshooting. The master module still needed some attention, so I addressed each issue while monitoring through the new (and very local) headphone jack.

LOOKING FOR CLUES

Two supplies powered the console: one for the audio, phantom and logic, and the other for the LED metering. With the light meter supply off, the buzz was gone (Clue One). The bottom panels were pulled to inspect the various power connections to the motherboard. Once confirming the location of the aux-summing buses, I used a screwdriver (with clip lead to ground) for further interrogation while monitoring via headphones. The six aux-summing buses are physically in order on the momma board; shorting bus six made the buzz go away (Clue Two). There was one additional circuit-board trace next to aux-6, and a quick check of the schematic revealed it to be the *phantom power bus*. A 'scope probe on the 48-volt rail revealed an oscillation (Clue Three) that disappeared when the light meter supply was off, yet phantom power was still present. Odd...

The rear-panel access to the light meters and their power connections revealed, via 'scope, that one of the power rails was indeed oscillating. Here's where science comes in: High frequencies travel on the outside of a wire, a phenomenon known as "the skin effect." The power distribution cabling for both supplies travels as one bundle in the console; the close proximity exists for a long enough distance so that the oscillation induced itself into the wire carrying 48 volts to the phantom bus. The short-term fix was a .1µF ceramic cap from the phantom bus to chassis ground. With aux-6 now clean, I accepted the supply for an overhaul at the customer's earliest convenience.

Note: Phantom power is a common-mode DC sig-

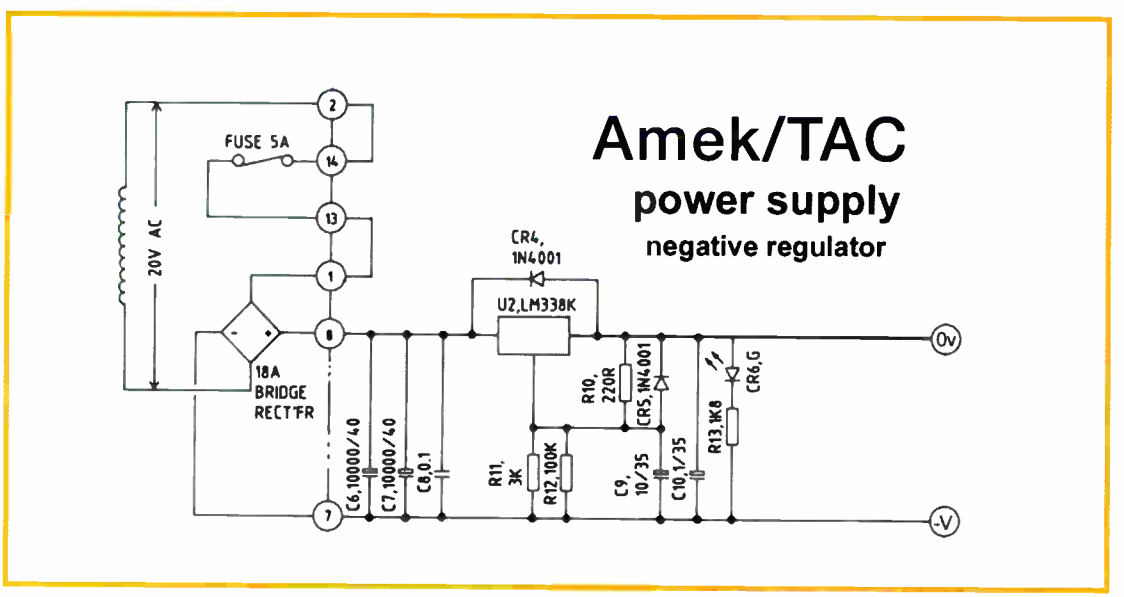

Figure 1: Portion of Amek/TAC power supply showing one of three regulators. Capacitors C9 and C10 (shown)—as well as C4, C5, C13 and C14 (not shown)—should be replaced.

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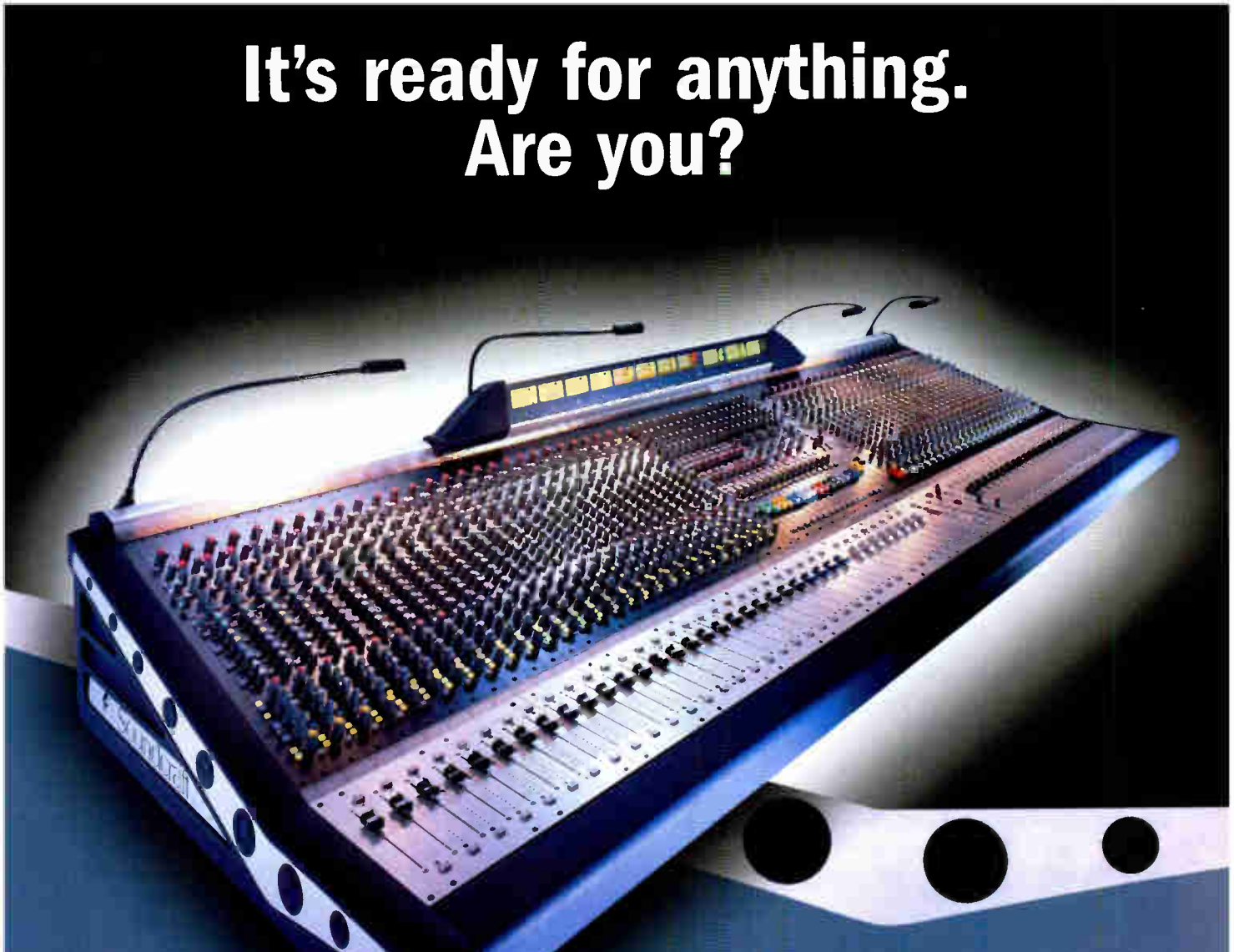

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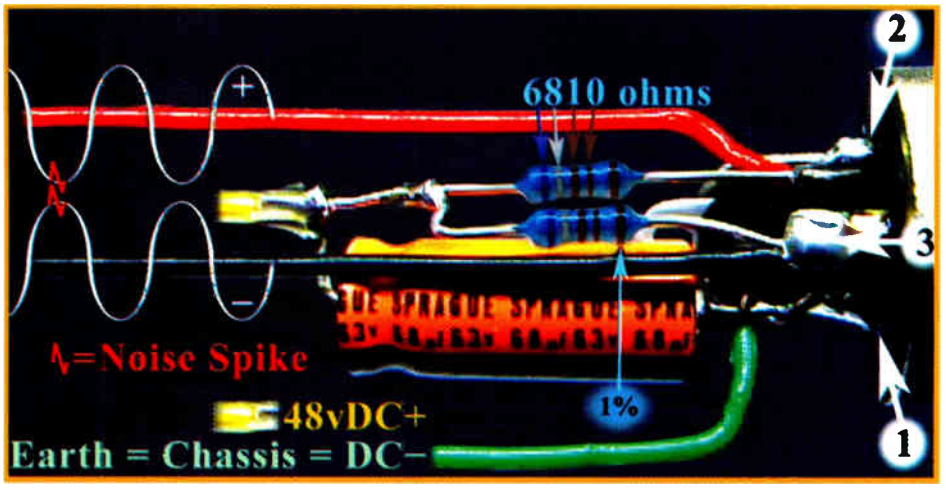

Figure 2: Phantom power distribution in pure hardware.

nal. Even if the oscillation (which was beyond the range of human hearing) made it to the microphone, it would have been (mostly) canceled by way of the mic preamp's Common Mode Rejection Ratio (CMRR, the relationship between signal amplification and noise rejection).

I wrestled with this light meter supply many moons ago, as it is the very same one Amek used in the TAC Scorpion. And so, like all geeks who never throw anything away, I had the one schematic that the Angela customer didn't have; a partial view is shown in Fig. 1. The power supply consists of two LM-338 positive regulators wired in series to create bipolar 18 volts. C9 on the schematic is specified as 10µF (electrolytic), while C10 is .1µF (tantalum) but on the circuit board, both are generic 10µF electrolytic caps. (On the positive regulator, not shown, look for C4 and C5. If this supply is used with the Scorpion, check the phantom supply caps, C13 and C14, as well.)

All of these caps were replaced with 10µF versions of Panasonic's FC Series, (105° centigrade, switching grade). I paralleled each with a .3µF K Series (a tantalum-grade electrolytic) just for overkill. Three of the old caps tested at 60% of their rated value, and one was no longer a cap. Combine this with the current being drawn over a long cable acting as antenna, and it's not surprising that this supply oscillated.

FREQUENCY	CMRR
60 Hz, 125 dB	60 Hz, 125 dB
1 kHz, 100 dB	1 kHz, 100 dB
10 kHz, 80 dB	10 kHz, 80 dB

Table 1: Common Mode Rejection Ratio (CMRR) specs for three frequencies as published by John Hardy for his Twin Servo 990 mic preamp using the Jensen JT-16-B input transformer.

Manufacturer	Model	Type	Phantom
AKG	414	Side-addressed 25mm diaphragm	9 to 52 volts as per DIN 45596
AKG	451B	Small-diaphragm	12 to 48 volts as per DIN/IEC
Audio-Technica	3035	Side-addressed 26mm diaphragm	11 to 52 volts 3 mA typical
Audio-Technica	4050	Side-addressed	48 volts (±4 volts)
Microtech Gefell	UMT 70S	Side-addressed	P 48, DIN 45 596, IEC 268-15 3 mA

Table 2: Phantom power requirements of a few condenser mics.

PHANTOM POWER: DON'T BE AFRAID

Questions about phantom power generate much e-mail. To clear up some of the mystery, let's see how it applies in a basic way—to condenser and dynamic microphones. Figure 2 shows the essential hardware; 48 volts feeds a pair of 68k-ohm resistors connected to pin-2 and pin-3, the signal pins. The DC "return" path shares pin-1 with the earth/shield connection. A local capacitor keeps the signal clean.

As mentioned earlier in this piece, phantom power is distributed as a common-mode DC signal, riding piggyback on top of the audio signal. This clever solution was backward-compatible with existing cables and microphones. The pair of sine waves represents the differential signal (one is 180° out-of-phase with the other); noise is represented by the red spikes, both of which are in phase. When all signals get to the preamp, the differential input amplifier does just that, it "looks for the difference." Subtracting pin-3 from pin-2 translates into a double negative, otherwise known as "addition" for the intended audio but "subtraction" for the noise (aka, cancellation). Table 1 shows how CMRR can be different at various frequencies.

TINY RIBBON, BIG SOUND

I spoke with David Royer of Royer Labs (www.royerlabs.com) and Wes Dooley of Audio Engineering Associates (www.wesdooley.com), both of whom manufacture ribbon microphones in the good old U.S. of A. Each does his best to educate users on the do's and don'ts of ribbon technology, offering mic placement tips, accessories and a generous warranty policy. (Ribbons are more vulnerable to plosives than dynamic mics.) David now has a phantom-powered ribbon mic that kills two birds with one stone by increasing the output level *and* protecting the ribbon from miswired cables.

Wes manufactures the AEA R44 to the original specs, offering replacement parts that are interchangeable with the original RCA 44 ribbon mic. Like many retro manufacturers, Wes has taken the time to talk to veteran designers and engineers, collecting some of their stories to share at the upcoming AES show in October. One

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tip to use an RCA 44 safely on kick drum blew me away (without blowing away the ribbon): Simply lay the 44 on its back against a pillow in the bottom of the drum so that the air goes across the face. I can't wait to try that!

The "ribbon" is a narrow strip of aluminum foil, hammered out in the same old-world-style tradition as gold, gently locked into place with just enough tension to center it within an extremely powerful magnetic gap. (The resonance is at the lowest possible extreme of the audio band.) It is both delicate and articulate. Ribbon microphones are perfectly capable of interfacing with phantom power as long as the cables are correctly wired. If you have a transformerless mic preamp, then turn the phantom power off before connecting the mic so that you allow time for the blocking caps to discharge, just in case they do so at an uneven rate.

AVOID A DREADFUL MISCARRIAGE

Under normal circumstances, 48 volts are applied to both pin-2 and pin-3 (with respect to ground) and not across the coil or ribbon, both of which are typically isolated from the outside world via a transformer. Because there is no potential difference, phantom power is invisible to dynamic and ribbon mics. However, if pin-1 and pin-2 (or pin-1 and pin-3) are reversed—as would happen with a miswired cable—48 volts would be applied either across the mic's transformer or across the capsule itself. Turning a dynamic mic into a tweeter is not a good thing. I've seen bad cable trash a perfectly good Sennheiser MD-409 (that is not transformer isolated).

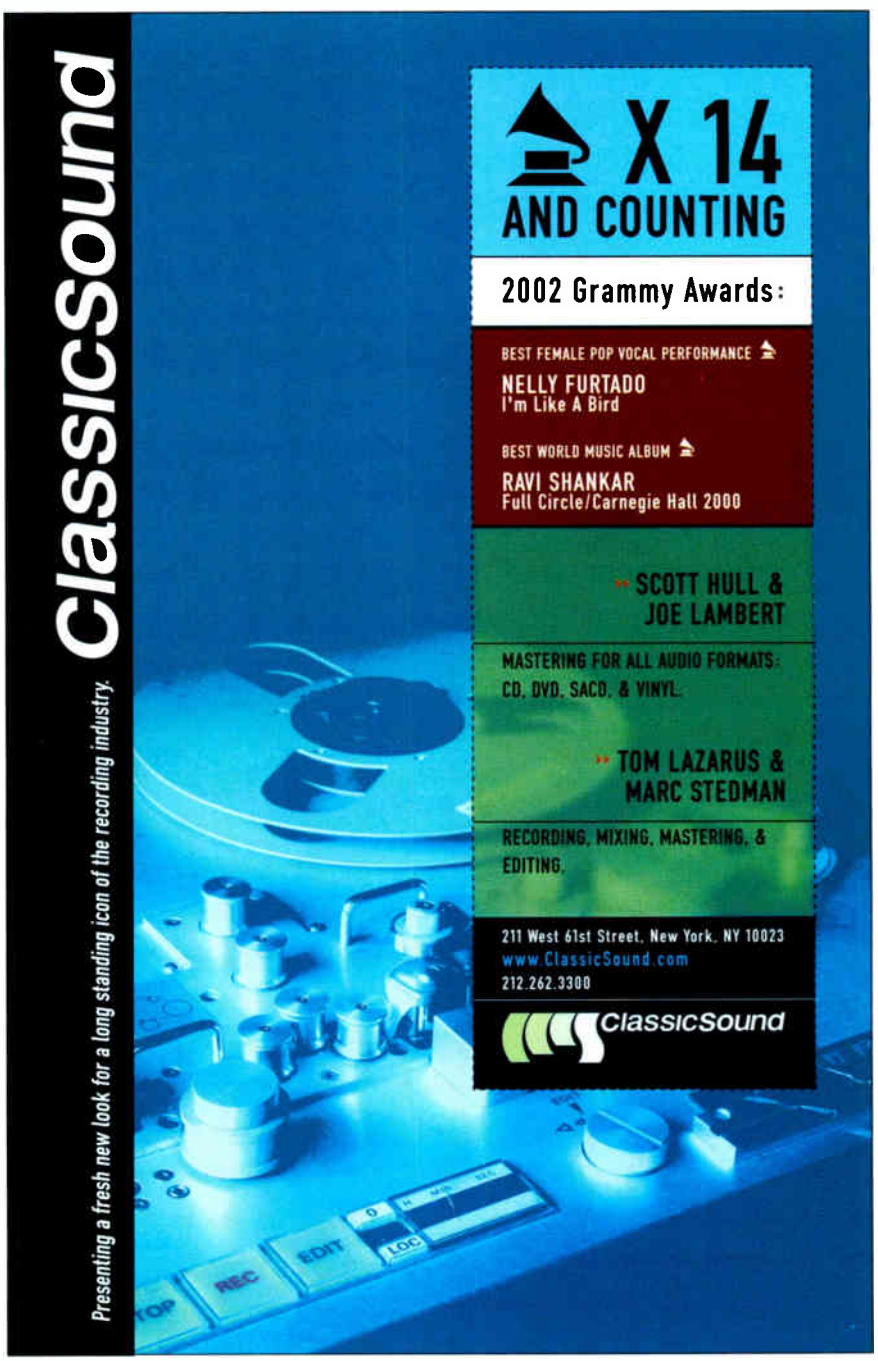
The output impedance of most microphones is 200 ohms, 50 ohms for ribbon mics; the ribbon itself is less than an

TAPE HEAD CLEANING TIPS

I must spend two paragraphs on head cleaning, having recently received two Tascam DA-45 DAT recorders with trashed heads. Just about every mastering engineer has a Tascam DA-45 to play 24-bit DATs, and while these machines may not see heavy use, keeping the heads clean is key to low errors in 24-bit mode. Despite the myths and "mythters," if clogged heads are the cause of digital fuzz, then cleaning tapes will do the job (provided you don't go bollistic and do 10 cleanings each time there's a problem). I prefer head-cleaning cloth for both its efficacy and its safety. I use Twillwipes; visit www.chemtronics.com for a dealer near you. Cleaning tapes are safer than what's been destroying heads lately—namely, chamois-on-a-stick, which I neither use nor recommend.

Apply 99% isopropyl alcohol or denatured alcohol to the cloth. Place the cloth against the side of the head drum with one finger while rotating the drum—counterclockwise only, slowly—with the other finger. When the cloth is correctly applied, it will be possible to feel the head chip as it passes under your finger. This added feedback confirms that manual cleaning will be worth your effort. It is far less dangerous, because the wide contact area reduces surface pressure and the possibility of snagging and breaking off the head chip. Follow the wet cloth with a dry cloth. Check each cloth for dirt; alternate wet and dry until satisfied. Allow time for the alcohol to dry before reinserting a tape.

–Eddie Ciletti



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ohm and requires a step-up transformer to get the signal to a usable level. An input transformer's DC resistance (10 ohms to 40 ohms, typical) is considerably lower than its AC impedance (300 ohms to 12k-ohms, typical). Connecting a miswired cable with the phantom power *on* will send a momentary spike across the transformer to the coil or ribbon, stretching the latter out of shape.

CONDENSATION

Condenser mics are thirsty for power; tube mics, in particular, require their own supplies, most of which are bulky and inconvenient but beautiful. Solid-state condenser mics were liberated by phantom power, allowing some to be battery-operated.

As you can see in Table 2, some mics will operate on as little as 9 volts on up to 52 volts, thanks to a "switching" or switch-mode power supply that converts phantom power into the necessary capsule-polarizing voltages. Pretty clever, eh? Two condenser mic manufacturers publish their current requirements as 3 mA. As you can see, not all of the mics shown have the same voltage tolerance or current demands.

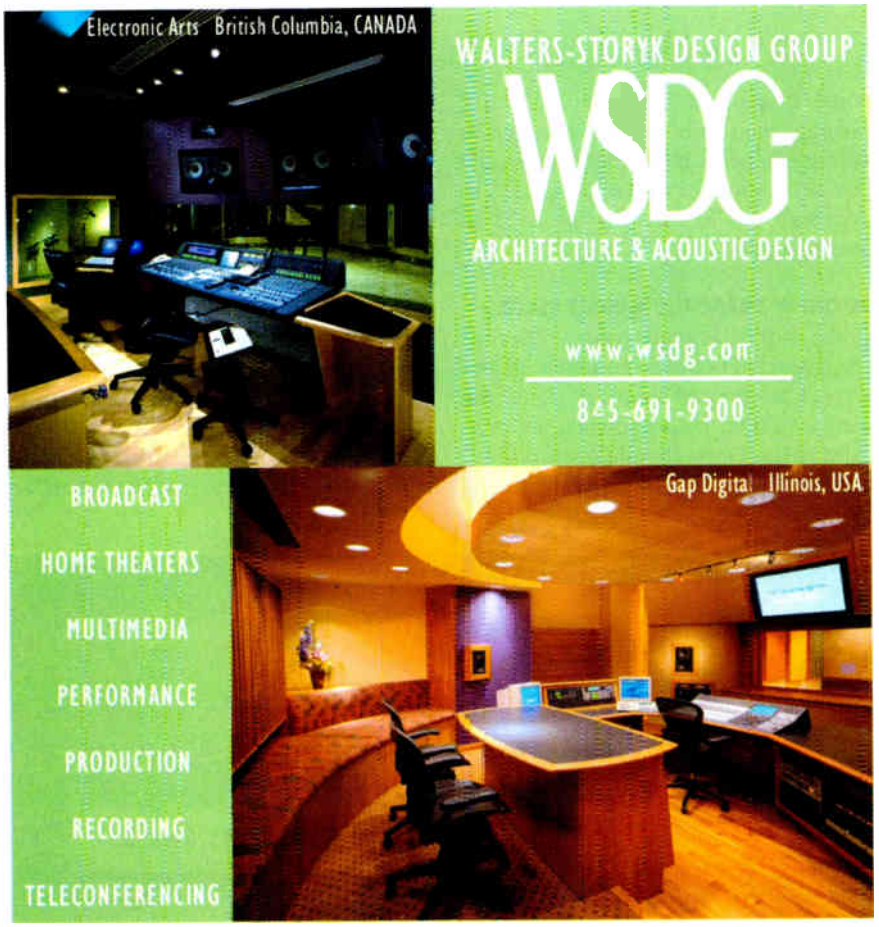
LAWR AND AWDAH (LAW AND ORDER AS PRONOUNCED BY SOME NEW YORKERS)

Just a quick detour to our old buddy Ohm's Law with a little test to see how much current might be supplied by the phantom power distribution circuit (and misapplied to a mic's output transformer under miswired conditions).

Using Fig. 2 as reference, short pin-2 and pin-3 to ground so that the two 68k-ohm resistors combine in parallel to become 34 k-ohms. Apply Ohm's Law: A=V/R (Amps equal Voltage divided by Resistance); the maximum current that can be delivered by two resistors to ground is 14 milliAmps (mA) = 48 volts/3,400 ohms, or 7 mA per resistor. The resistors plus the low-DC resistance of a transformer (5 ohms to 50 ohms) makes almost no difference in the total current, which is considerably high for this application—enough to power an LED! Remember that DC does not travel across the transformer winding; it just appears as a momentary spike.

That's all the room I have this month. See you in September. ■

Eddie just finished building speaker stands/bass extenders for the Fostex NF-1A monitors. Check them out at www.tangible-technology.com—Woof!



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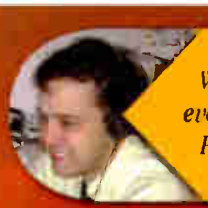

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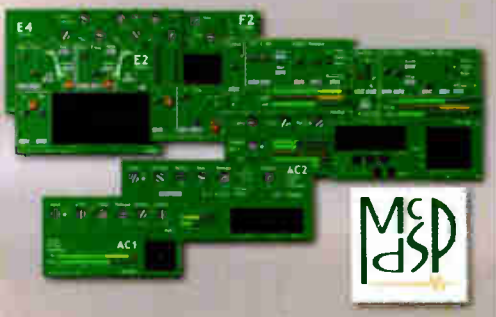

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From left are Nickelback's Ryan Peake (guitar/backing vocals), Ryan "Nik" Vikedal (drums), Chad Kroeger (vocals and guitar) and Mike Kroeger (bass).

pressors and gates in McNeill's rack, originally intended for bass and drum channels, he has since bypassed at the request of individual bandmembers.

"All of the individual mixes are pretty much what you would expect, except for the bass player's," says McNeill. "The drummer is the only one I do anything in stereo for; it's all panned how he would see it. He takes everything really loud. The bass player takes kick, hi-hats, rides, toms, bass and that's it. No guitars, no vocals, nothing—it's kind of strange to listen to it. And the guitar players have their guitar, their vocal, a little of the other vocal and little bit of everything else.

"This is pretty much the dream gig," McNeill continues. "Everyone in the band and the crew are cool, and they pretty much encourage you to party and have fun. I've also learned a lot from my monitor tech Greg about getting better levels with the belt packs and things like that. It's been a great learning experience."

2002 will certainly be a busy year for the entire Nickelback crew. The band is already committed to dates that will have them on the road until the holidays. ■

Robert Hanson is an assistant editor at Mix. *Check out www.blacksnakemoan.com to see what he's up to when the sun goes down.*

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The KF760 long throw module combines PPST™, VA⁴™ and SuperSub™ technologies to create an array building block that is both compact and powerful:

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New Sound Reinforcement Products

XTA DEBUTS SERIES 2 DIGITAL SIGNAL PROCESSORS

XTA Electronics (www.xta.co.uk) has announced four new digital signal processors in its new Series 2 line. The C2 Dual/Stereo Compressor, D2 Stereo Dynamic EQ, E2 Stereo Parametric EQ and G2 Dual/Stereo Gate feature the power of DSP technology allied to user-friendly, traditional, front panel controls. The C2 compressor includes "look-ahead" attack times for instantaneous transient control, automatic time constants and built-in sidechain EQ. The D2 stereo dynamic equalizer offers linked sidechains for 100% tracking accuracy, three bands of fully adjustable dynamic EQ, with independent control of envelope and frequency per band and switchable shelving. Each band can be monitored and independently bypassed. The E2 provides four bands of fully parametric sweepable EQ, each with high-resolution Q and level adjustment. The G2 dual-channel/stereo-gating system offers fully adjustable envelope including hold time and large status LEDs showing attack, hold and release phases. Prices are $1,795 for each of the Series 2 processors.

BSS UPGRADES OMNIDRIVE SOFTWARE

BSS Audio (www.bss.co.uk) has released new firmware for the FDS-366 Omnidrive Compact Plus loudspeaker management system. The new firmware, Version 1.10, features a new menu system to speed navigation and setup, and BSS has also enhanced the functionality of the Alignment Assistant facility, allowing for automatic alignment of loudspeaker drivers by means of an integral pink-noise source and alignment algorithm. Current FDS-366 owners may download a free software loader that will update the firmware from www.bss.co.uk/software/software.htm.

NEW CROWN IQ SOFTWARE

Crown International announces that IQ for Windows software Version 5.1 is now available for free download at www.iqaudiosystems.com. The new application is an upgrade from Version 5.0 released last fall and offers key improvements. IQ for Windows V. 5.1 is a powerful, 32-bit software application designed for configuring, controlling and monitoring Crown IQ Systems, and is compatible with Windows 95, 98, ME, 2000/Professional and NT 4+. IQ for Windows V. 5.1 fully supports Crown's six new CTs Series amplifiers, including the 4-channel CTs 4200 and 8-channel CTs 8200. The new software also now implements a drag-and-drop methodology to create custom user-controlled panels.

NEUTRIK NEW SPEAKON SPX

Neutrik (www.neutrikusa.com) has introduced the Speakon SPX Series, which offers the same rugged reliability of the Speakon NL4FC with increased power handling, connection security and flexibility. The SPX, which includes the NL4FX and the NL4FRX Series, delivers 50 amps RMS of continuous current on all contacts for audio applications. Electrical contact is made only after the NL4FX is completely inserted and locked, which prevents arcing when disconnected under load. The new cable connector consists of only three parts, and the one-piece internal chuck accepts cables with outer diameters of 6-14 mm (0.24-0.55 inches). A right-angle version, NL4FRX, is also available. The NL4FX can be ordered with boots in any of five colors.

E-V DSP-CONTROLLED AMPS

Electro-Voice (www.electrovoice.com) has introduced the Precision Series line of DSP-controlled, 2-channel power amplifiers with five new models: the P3000 RL, the P1200 RL, the P900 RL, and two 70-volt models, the P1200 RT and the P900 RT. All feature E-V's RCM-124 digital engine, which provides remote control of all amplifier parameters, centralized system configuration, and preset and program change for different applications. The RCM-124 also facilitates the display of acoustical responses of E-V speakers in real time and the selection of processed presets for E-V loudspeakers. Signal processing includes 12 filters, two delays, and a compressor and a limiter for each amplifier channel.

DBX DRIVERACK PA

dbx (www.dbxpro.com) offers the DriveRack PA, a rackmount unit that provides two input and six output channels, each featuring an array of signal processing for a wide array of sound reinforcement applications. Each channel has an assignable EQ that may be switched between 28-band graphic and multiband parametric types, multiple crossover options and limiters on the output channels. Additional features include integral feedback suppression, the dbx 120A Subharmonic Synthesizer, and a built-in RTA with a front panel XLR mic input. A Wizard Setup menu speeds setups and includes presets for JBL speaker and Crown amplifier tunings. Price is $499.95.

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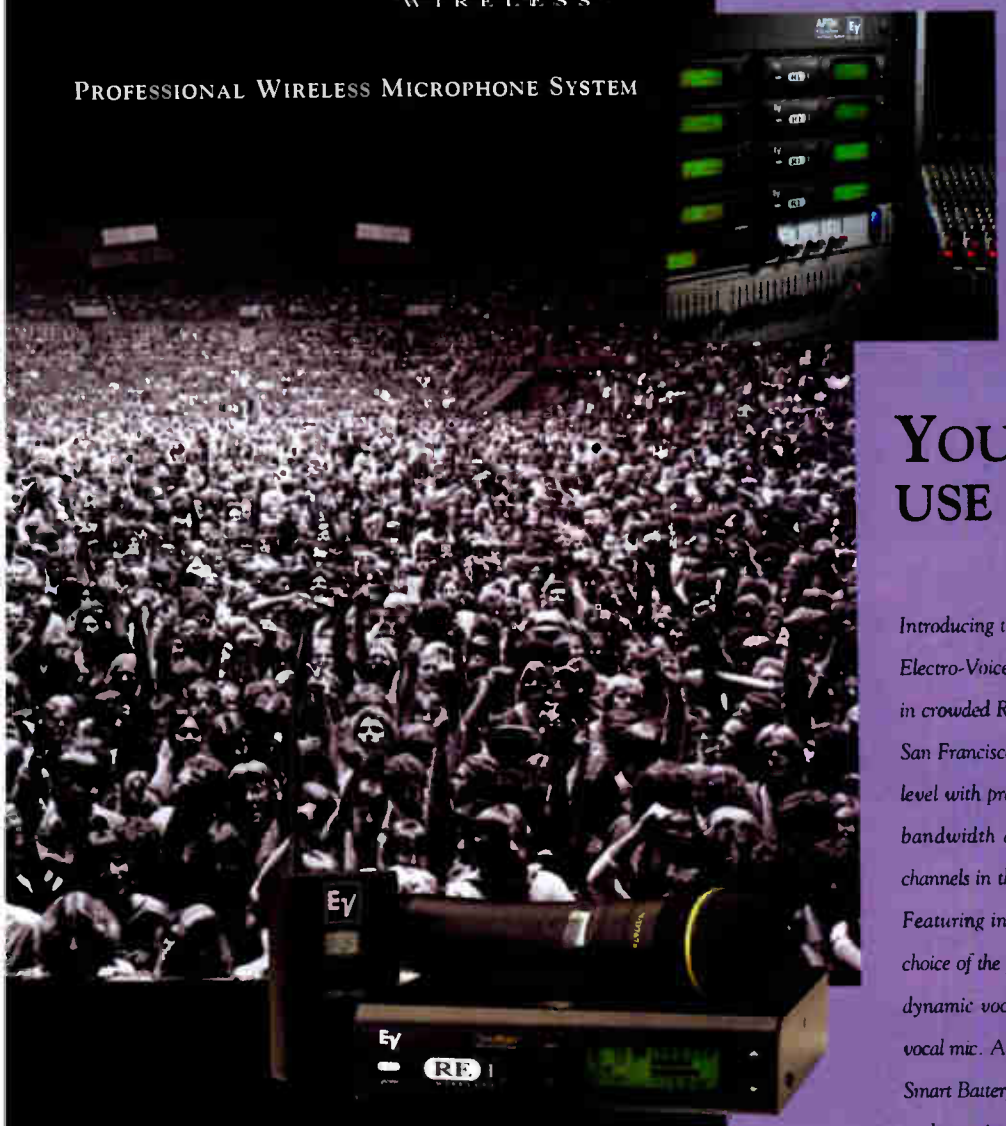

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L to R: Patrick Wilson, Rivers Cuomo, Scott Shriner and Brian Bell

PHOTO SEAN MURPHY

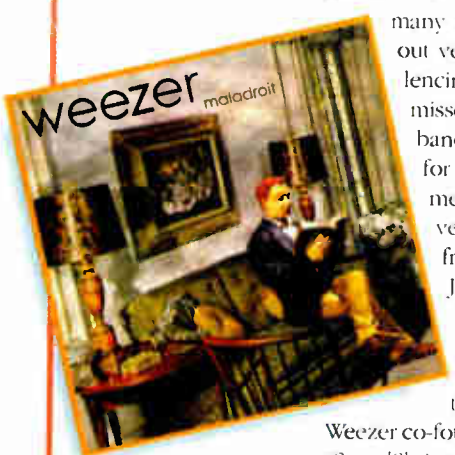
WEEZER

KEEPIN' IT ROCKIN'—AND REAL

By Kimberly Chun

Mixing it up with your longtime engineer? Say it ain't so, Weezer.

Not many artists have the gumption or clout to go up against a respected mixer with a Platinum touch such as Tom Lord-Alge. But then again, not many bands are Weezer. After selling out venues around the world and silencing naysayers who once dismissed them as one-hit wonders, the band decided to stick to their guns for their latest recording. And that meant occasionally tangling with a veteran who has mixed everyone from the Rolling Stones and Billy Joel to Blink-182 and Marilyn Manson.



"We would fight with him. We'd be like, 'C'mon, dude, there's good stuff on here,'" says Weezer co-founder and drummer Patrick Wilson. "Scott [Shriner, bassist and vocalist] especially was fighting with him because he was a tone monster. I mean, he plays a vintage P-Bass through an SVT and he takes a lot of pride in his sound, and here comes Lord-Alge who's like, 'Okay! We're not going to use the amp sound. Let's plug it right into the SansAmp.' Scott was bombed. He was like, 'Ggg-uhhhh.'"

That's the sound of a band trying to define and defend its identity, while striking a balance between the sounds they hear in their heads and those that end up on the radio. And the making of Weezer's fourth self-produced album, *Maladroit*, contrary to the awkwardness implied by its title, shows a combo that's sure enough of themselves to want to do things their own way and resist market pressures. (The band even took over all of their own publicity for the album, sending out copies to radio stations and journalists.)

Call it the nine-year-old group's coming of age—or a throwback to an earlier, more innocent time—*Maladroit* boldly hearkens back to the '80s hard rock and metal that inspired bandleader, vocalist and guitarist Rivers Cuomo to pick up an instrument in the first place. Crisp with the inexorable, mechanistic rhythms and raunchy cymbal crashes of the finest hair bands, the album kicks off with the metallic guitar crunch and trebly solos of "American Gigolo" and continues it with monster power chords and sing-along choruses, along with a harder attack on "Dope Nose" and "Take Control." Cuomo's and Brian Bell's ever-raging guitars are sutured to the ethereal ballad "Death and Destruction", and to the funky "Time Is Tight"-esque "Burndt Jamb." Beneath it all: A bedrock of Beach Boy-sweet melodies and doo-wop-tinged harmonies on songs such as "Slave" and "December."

All of which intrigued independent L.A. engi-

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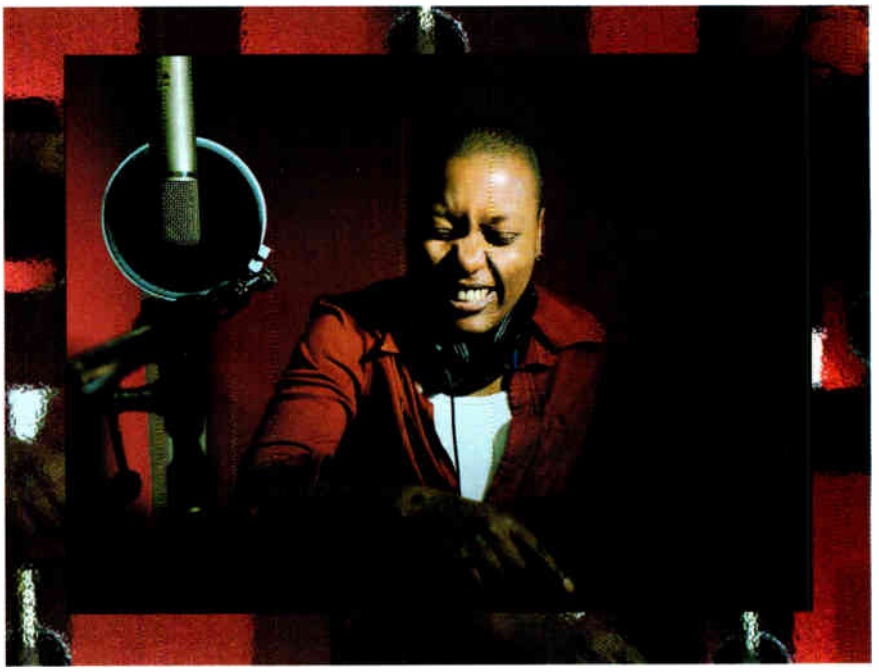
THE MODERN SOUL OF MESHELL NDEGEOCELLO



By Chris J. Walker

Nowadays, funk music comes in a multitude of forms, ranging from ol' skool R&B to rap and hip hop, modern rock, jazz, Latin and even world music. None of those styles, however, seems to aptly pinpoint Meshell Ndegeocello's broad musical explorations. Vocally, she is only a little easier to categorize, for the artist is neither a sexy chanteuse nor a high-energy screecher. Instead, her tones rumble and resonate through biting lyrics, boldly expressing sensuality along with a sophisticated progressive social/political consciousness.

Devoted fans love Ndegeocello's distinctive style and uncompromising attitude. On the other hand, some music retailers and radio/TV outlets are far from enamored with the rebellious musician. From their standpoint, she doesn't generate high-volume sales, and her material isn't conducive to the airwaves. In 1993, she actually had a moderate hit with the single "If That's Your Boyfriend (He Wasn't Last Night)" from her debut CD, *Plantation Lullabies*. Subsequent releases, such as the raucous fusion romp *Peace Beyond Passion* in 1996 and the lush, string-adorned *Bitter* from 1999, weren't top sellers, but they garnered critical raves all over the world.

Unfazed by her chart history, the bassist/singer—who also plays keyboards

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NEIL FINN

AUCKLAND CALLING

By David John Farinella

For his second solo album, *One All*, former Crowded House frontman Neil Finn wanted to take a bit of a different approach to songwriting by working with some new collaborators, such as Wendy Melvoin and Lisa Coleman, as well as with traditional Finn cohorts Mitchell Froom and Tchad Blake. The switch afforded Finn the opportunity to create a handful of new sounds and ideas. "It's got a different characteristic to it, which, to me, is more romantic and warmer than the last [album]," the New Zealand-based artist says. "I think there's a lot of color in the arrangements, along with some styles that I hadn't dipped into before, with Wendy's influences felt on a few things."

For example, Finn points to "Secret God," a song that has Latin leanings. "I've never ventured into that before," he explains. "It's subtle. It's not like I'm touching maracas and wearing a frilly shirt or anything. It's good to be exposed to new things via the people you play with." The balance of the album, he adds, "is traditional songwriting, in the sense that the songs have verses and choruses and bridges, and they're melodic and there are harmonies, but I think the colors and the arrangements are quite full of character and out of the ordinary, really. They are not just simply guitar, bass and drums half the time. There are good colors going on."

The sessions for this album, producer/engineer Blake says, started in Auckland, New Zealand, with Finn and Melvoin working up some ideas. "It was very casual, because Neil has his home

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World Radio History

While Harrison agonized over whether to join the Heads or go to architecture school, the group signed a deal with Sire Records. In December '76, still as a trio, they cut their first single with producers Tony Bongiovi, Lance Quinn and Tommy Ramone (nee Tom Erdelyi), and engineer Ed Stasium: "New Feeling" and "Love Goes To Building on Fire." The following spring, the same team (minus Tommy Ramone) began work in earnest on Talking Heads debut album, *77*, with Harrison joining full-time shortly after tracking began.

Sessions for the Heads' album took place at Sundragon Studios, where The Ramones' *Leave Home* was also cut. "It was a wacky joint," remembers engineer Stasium, a New Jersey native (like Bongiovi) who had been working at Le Studio Morin Heights in Quebec for a year before returning to New York area in August 1976. "I think Tony's the one who found Sundragon. He was working at Media Sound, but he had already started his search for the building that would become Power Station. Sundragon was this odd little place on 20th Street between 5th and 6th Avenues. It was basically a jingle place owned by a fellow named Ned Lieben and his partner, Michael Ewing. It was in a loft and they both lived in the loft, which was on the eighth floor and this building had the slowest elevator in New York City. The elevator was this tiny thing, maybe four-by-four, and the more equipment and more people you tried to cram into it, the slower it went. It was unbelievable! There was this huge locked door right on the other side of the elevator, so you couldn't just zip out of the elevator—you had to ring the bell, wait for someone to answer, and they'd come answer and *then* you could get out of the elevator, holding the elevator door open as you dragged the equipment out.

"Then, as you walked past Michael's bedroom, which was on the left-hand side facing 20th Street, you'd *always* be overwhelmed by the smell of pot smoke. Later, he went into real estate and made millions of bucks. There was a little equipment room with an EMT plate and a few other things, then you'd go through a door and then you were in the studio itself, which was really tiny—probably about 15 feet across and 30 feet wide with maybe a nine or 10-foot ceiling—and it was really dead: carpeted and blanketed, very 1970s. There was a separate, very small control room; you couldn't fit more than two or three people in there. If you walked through the studio, then you were in the kitchen, which is where the tape storage was, and then you'd be in the part where Ned lived, which is where the tape storage was. The other unusual thing about this place is that on one wall, there was this *huge* aquarium—it had to be 10 feet long and four feet wide. So it was kind of strange, but it ended up being a pretty good place to make records.

"The control room had a Roger Mayer custom-made console," Stasium continues. "He's the guy who had built a lot of Hendrix's electronics, including the first phaser ever made. It was a really good-sounding board. It had some compressors built into it; it was transformerless and the clarity was unbelievable on that Talking Heads record—the top end is marvelous. It couldn't have been more than 20 inputs; maybe 3-band EQ, I don't remember exactly. The studio also had a nice-sounding Studer A-80 16-track machine and one of the old Studer remotes. Later, they got a 24-track, but we did The Ramones and Talking Heads on the 16-track.

"I think we cut most of the tracks before Jerry was in the group. We did most of it as a trio, and then all of a sudden, Jerry was there. We cut everything live. We made big boxes for the amplifiers out of these huge pieces of foam rubber and blankets to prevent leakage into the drum mics. Chris [Frantz] was in the corner, on the far side of the room, with his drum kit. David would always do a scratch vocal, but we redid all of the vocals later."

Asked if Byrne's offstage personality was at all similar to his onstage persona, Stasium says, "He was just about the same—a very quirky fella. It's funny, he didn't want Tony Bongiovi in the control room when he was doing his vocals; I'm

Cool Spins

The Mix Staff Members Pick Their Current Favorites

Tom Waits: *Alice* (Anti)

When I think of Waits in the studio, I can't help but recall the question posed in one of the songs on *Mule Variations*: "What's he building in there?" This album comprises the songs Waits and his wife, Kathleen Brennan, wrote in 1992 for an avant-garde opera about author Lewis Carroll's fascination with Alice Liddell (of *Alice in Wonderland* fame). Waits gets out all of his best tools and tricks to create Carroll's inner world of melancholy, longing and madness, so that the music alternates between (or sometimes combines) smoky jazz ballads, insane circus nightmares, sick jokes and dark dreams. *Mix* was told that Waits' engineering team was instructed not to reveal any of the artist's methods, so we can only guess at how all of the powerful vocal sounds and strange moods are achieved. All I know is that the combination of Chet Baker-esque trumpet, pump organ, alto viola, toy glockenspiel, circular violin, piano, train whistle, cello, etc., etc., makes for another Waits/Brennan masterpiece.

Producer: none credited. Recording/mixing engineers: Oz Fritz, Jacquire King. Studio: In the Pocket Studio (Forestville, CA). Mastering: Doug Sax/The Mastering Lab (Hollywood). —*Barbara Schultz*

Solomon Burke: *Don't Give Up on Me* (Fat Possom/Anti)

One of Tom Waits' creations, a gorgeous song called "Diamond in Your Mind," also finds its way onto the miraculous new album by the world's greatest living soul singer, Solomon Burke. On *Don't Give Up on Me*, Burke also covers previously unreleased songs by Van Morrison, Dan Penn, Brian Wilson, Elvis Costello, Bob Dylan and

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WEEZER

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neer Chad Bamford. He spent a month working with the band in Cuomo's garage during pre-production for the band's last CD, *Weezer* ("Green Album"), and found that the group was just his speed. "They're a very interesting group of guys, and they work in a fairly unconventional way, which I actually love, though I think it would drive a lot of people crazy," explains the engineer. He had previously worked with Perry Farrell, in addition to Spiritualized's Jason Pierce on the critically acclaimed *Ladies and Gentlemen We Are Floating in Space*. "[*Maladroit*] was definitely not a traditional method of recording," Bamford says, "meaning it's not 'Okay, we're going to go in for these four days and cut the drums on all the songs, and then we're going to take two days and do bass on all the songs.'

"It's really a constantly evolving process. It involves *everything*. We were literally still cutting drum tracks up to about 12 hours before they had to leave to go mix," he continues with a laugh. "So, basically, everything's always on the table and always up and always ready to go, depending on how they feel and what we feel we need to do. I guess they're just trying to stay flexible."

When Bamford encountered Weezer this time, around Christmas, the band had just come off tour. Using their own money, they jumped straight into the L.A.-based Capitol Studio B with songs Cuomo had stockpiled.

"Actually, we had sort of an anti-focus of, 'Let's not think about anything,'" Wilson says. "'Let's just trust people to let us know when we had a good take.' It's not the type of music that you need a massive production on. It was more or less, 'Let's get the good take, let's get the inspired take.'"

If anything, the band was striving for a more live, powerful sound. The drummer speaks fondly of some "sloppy" but exciting live recordings that the band made when they came back from a two-year break in 2000 to play the Vans Warped Tour. "Then, we made the 'Green Album,' and I think we got away from that a little bit and it was a little stiff and a little cookie-cutter," he says.

The key was to maintain that live feel. Cuomo, Bell and Shriner, for instance, like to sing together. "They play live *so* much. Coming into the studio usually is a little tough for them, because they basically

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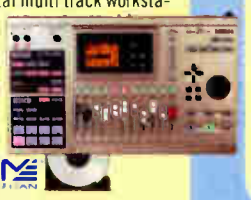

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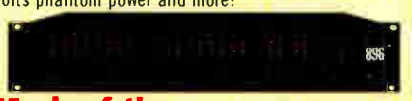

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but he says Weezer consultant Tom Sullivan spoke for his drum parts. "I think if we didn't fight for stuff, it would sound like Creed. And I don't think any of us want that," Wilson says.

After listening to the mix stories and the resulting recording, Wilson believes the band and Lord-Alge finally found a happy medium with *Maladroit*. "He does the best radio mixes; that's all there is to it," he says. "I mean, a program director sees 'Tom Lord-Alge' and they're like, 'Done!' He does a good job at making it sound exciting."

And Bamford was happy to know that the band was pleased with the results. The proof is the fact that as Bamford spoke in April, he was already back in the studio with Weezer recording an album scheduled for release in February 2003. The band is going to try to mix touring and recording every other month while they're feeling productive. He describes the new music as "kind of a shift back toward a little more melody, a little less riff-oriented, and more song- and melody-oriented."

That musical shift is part and parcel of a creatively evolving and technically developing band, able to take its punches—and deliver them, too. "What we want to hear from us is exciting recordings that sound like people who were having a good time, and I don't hear that in a lot of music today," Wilson says. "I think it's because a lot of bands get talked into making these 'perfect-sounding' records because shareholders are demanding it from executives. But it creates these fake acts that can't go out and play, and that's a drag. I mean, God bless 'em if they can go out and make money doing that. But it's just not solid. It's just not a solid scene." ■

MESHELL NDEGEOCELLO

FROM PAGE 145

and guitar—continues to create her highly individualized funk style. Her latest release is titled *Cookie: The Anthropological Mixtape*, which she co-produced with her guitarist Allen Cato. Ndegeocello, while staying at the Chelsea Hotel in New York during a tour, explains the concept of the project: "I grew up with mix tapes that your friends would make for you with all the stuff they wanted you to hear. So I wanted to make [an album] with that kind of feeling. It's just a mix tape that I'm hoping people will share with their friends."

That description understates the power and artistry of the challenging work she and Cato have created. It's definitely a collection of songs, but it also includes spoken-word sound bites from Angela Davis and Talib Kweli. Combined with Ndegeocello's high-powered funk, it's probably a far cry from what the average listener would compile. Then again, there's nothing average about the musician, who's both a monster bassist and impassioned poet herself. "I wanted to deal with being on the porch in Alabama, at the club in New York, on another planet, to being

thrown into the past," she elaborates. "I just wanted it to be a journey, like a quantum leap into wherever you need to go. Musically, it's *Bitches Brew* meets Master P, or A Tribe Called Quest meets Stevie Wonder.

"I don't really compare my work [to other CDs]. This is just the fourth chapter in my memoir," she continues, describing her records. "They're all just chapters, and I want each one to be different and more exciting. The intentions of the music are just to show where I am at this time. My only sonic intention, though, was to make something that you just want to play really loud. Most of my records are like you're sitting in the bed with me while I tell you all my shit. But for this one, I wanted it to feel like you were with me on the journey and not be so introverted or closed."

The place where she embarked on her journey was Hyde Street Studio, an analog facility situated in the gritty Tenderloin district of San Francisco. Ndegeocello, who resides in nearby Berkeley, cites Hyde Street's vibe, rich history and location as prime factors for choosing the studio. "They did a Headhunters record there and also a Hieroglyphics record there," she says. "It was an intense and unusual place and I had a great time there." *Cookie...* was recorded at Hyde Street over the course of a month beginning in June 2001. Sessions included some live tracking, but tracks were primarily stitched together from overdubbed elements.

"Every song is different," Ndegeocello says. "I pretty much play just about everything, so I like to start with a good foundation first, where it's just me and the drummer. I make records like Roger Troutman, and just get the beat up and add everything else. I make loops, but they're like 16 or 32 bars, so they have a little more ebb and flow. Then we put live stuff over that and try to maintain live elements. From there, we piece everything together and work out the colors.

"But on the jazz section for 'Criterion,' we just all played together and then spliced that into the tune. The first song ["Dead Ni**a Blvd. (Pt. 1)"] is my Master P influence, and the second tune ['Hot Night'] is my early Tribe Called Quest influence. I'm kind of referencing everybody in my head and giving respect to them, and yet be myself. Because this album is a mix tape, I wanted everything to be different and bring about a whole other feeling. To me, this is just a Hennesy and Sprite record."

Although the Washington, D.C. native (born Michelle Johnson) has strong links to R&B, pop and even rock, she considers herself a jazz bassist first. Like most players of the improvisational genre, she truly loves to jam with kindred musicians. Yet she refrains from trying to capture the spontaneity of her live shows when recording. Her philosophy, which she says she adopted from the group Steely Dan and from David Gamson, producer of her first two CDs, is: "Making records is different than making music." In other words, she thoroughly enjoys the controlled environment of a studio and its possibilities, whereas live performances, while exciting and beautiful, are fleeting and exist only in those moments.

"Live, with all the incredible players, everyone is pretty much free, and things are kind of allowed to take on a shape of their own," states Cato, who's also been her guitarist for the past five years. *Cookie...* was his first time working in a leadership capacity with Ndegeocello for a full-scale project. Previously, they had worked together on soundtracks, but those activities were not as involved as this endeavor. "It was drastically different," he stresses from his home in Dallas. "I was a filter and buffer sometimes, and she would bounce a lot of her ideas off of me.

"Between the creative and technical aspects, wearing two hats [guitarist and co-

World Radio History

producer] can be confusing. They don't always necessarily mesh. It was little harder for me to be objective, but we found ways to deal with that. We were also under the gun to meet the label's release date, which ended being almost a year later [than originally planned]. We did a little bit of everything in the studio. There was a lot of live playing with her interacting with some of the guys, and also overdubbing and a considerable amount of programming. We pretty much ran the gamut as far as recording methods were concerned." The other players on the album include guitarist Kid Funkadelic, singer Lalah Hathaway, bassist/bass clarinetist Marcus Miller, tenor sax man Jacques Schwarz, drummer Oliver Gene Lake, keyboardist Federico Gonzalez Peña, harmonica player Gregoire Maret and percussionist Alfredo Mojica.

Ndegeocello, Cato and engineer Erik Dyba cut the CD in Hyde Street's "A" room, which is based around a modified Neve 8048 console with Flying Faders automation. The studio also has Studer analog recorders, Panasonic DATs, a fine mic collection and plenty of analog signal processing equipment. Most of the recording was to Logic Audio; though Cato is conversant in Pro Tools, he prefers the Logic format because of its displays and MIDI capabilities. But for some of the crucial sessions, he and Dyba opted to use good ol' 2-inch tape. "I didn't just want to trust everything going to hard disk, especially when you're bringing people across the country," Cato says. "I love hard disk recording and think it's moving the process and industry ahead. But I don't think it's a totally proven medium yet. Like a lot of people out there, I'm familiar with and have experienced 'digital hell.'"

Ndegeocello, who briefly studied audio engineering in Silver Springs, Md., understands the capabilities of hard drive systems but doesn't know how to operate them. Her introduction to digital recording came early in her career through her first two CDs with producer Gamson. She speaks highly of her former producer, who, along with David Frank, she calls, "the fathers of the MIDI R&B sound." "[Gamson] had Pro Tools before the mother****** even worked, and he manipulates it better than anyone I know," she says. "Through him, I grew up on the computer and learned how to make music.

"But Cato crazily works Pro Tools and MIDI programming, too. I call him 'Getron,' because he's ghetto and electronic at the same time." The co-producer, who was born in Kansas City and has worked with Chaka Khan and others, sees himself as more of a facilitator than a visionary. He has a close relationship with Ndegeocello and feels that being flexible is of the utmost importance when working with her. "She really is a free spirit, creative and extremely prolific," Cato says. "The technical aspect of these things can block that sometimes. Being a musician myself, I can understand what that is like. So I tried to create an atmosphere where we could flow and make the technical aspects as much of a non-issue as I could for her."

Final modifications and mixing of *Cookie...* were handed over to veteran engineer/producer/arranger Bob Power, with Ndegeocello and Cato keenly observing and sometimes participating. Power, who has worked with such "modern soul" (as he terms it) innovators as Roots, Q-Tip, Common, D'Angelo and Erykah Badu, operates mostly out of Sony Music Studios' Mix D in the Chelsea district of Manhattan, where they have an 80-input SSL 9000 J board. With the exception of *Bitter*, Power has mixed most of Ndegeocello's tracks through the years, and he considers her a close personal friend.

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many interesting bits and pieces and he's such a consumer of oddball things—effects, strange instruments—lying around the studio and they inevitably get used because you're looking for a sound that is characterful and no that one's heard before. Mitchell's that way, too—old keyboards and wonderful sounds."

After a spell of writing and recording in New Zealand, the team crossed the water and dropped into Blake's favorite Los Angeles room, Studio B at the Sunset Sound Factory. While there, Blake recorded the Lisa Germano parts, as well as drum tracks by Jim Keltner and background vocals by Sheryl Crow. The songs "Rest of the Day Off," "Wherever You Are," "Turn and Run," "Driving Me Mad" and "Last To Know" were recorded in Los Angeles. They then returned to New Zealand to record a couple of songs at Revolver Studios.

Blake's approach to recording Finn and the rest of the instrumentalists can be described as relaxed. Finn's vocals were recorded using a Telefunken 251 almost exclusively. (A Neumann U47 was used sparingly.) "Sometimes I throw it through a Little Labs mic pre, which is one of my favorite mic pre's," Blake explains. "It's made by Jonathan Little. He makes DI boxes, but he made me a mic pre years ago."

Other than that, Blake says, "I'm pretty loose with my miking. A lot of times, it's really what the closest mic to my hands is. I'm really not that fussy, unless something doesn't work. I'm not one of those people that hears that somebody wants to do a part, and I go searching for the right microphone, the right cable, the right mic pre, the right compressor. I'll just choose them on-the-fly and listen. If it works, great; if it's really wrong, change it. It's usually not too far off. I'd rather get the performance. I don't want to completely downplay it, but eight times out of 10, whatever mic I grab and put in front of something works."

Blake takes a decidedly minimalist approach to miking the drums, which were mostly funky practice kits for this album. Typically, Blake would put a mic on the kick drum and a Neumann binaural microphone overhead. "I use these compressors that seem to have gotten pretty popular now, but I've been using them for about 13 years, called a Level Lock, made by Shure," he says. "It's a podium compressor made for speaking. It's a mic-level compressor, so you actually plug the microphone directly into the compressor. It does wonderful things to drums. You're not supposed to put that kind of sound pressure level into them, but I love what they do."

For his part, Finn enjoys the experimentation and the whole recording process; he always has. "I love being in the studio," he says. "It's an opportunity to make something that will stand up for years to come. So there's an element of pressure involved, but I love that. Hopefully that doesn't mean you polish it to the point of sterility. But being able to really get inside and choose exactly the ones you want is a wonderful thing, I think."

And just where does *One All* fit into the Finn cannon that includes classic albums with Split Enz as well as Crowded House? "That's not an easy question for a musician to answer. It's part of the continuum for me, and I think it adds some new colors to what I do and gets me to the next record," he answers with a laugh. "I feel a lot of affection for it, and I think it will really stand up to repeated listenings, because there's a lot of depth in there, I think. But where it fits in, I don't know." ■

Cool Spins, *FROM PAGE 148*

Joe Henry, who also produced the release. Burke's beautiful voice is at its most expressive when he sings the way he does on this album: with as much passion in his restraint as in his scream. His accompaniment is a good old-fashioned Stax-style soul group, recorded live in the studio and augmented by guests such as producer Henry, Daniel Lanois, the Blind Boys of Alabama and Burke's brother Rudy Copeland, who is a church organist. Albums like this hardly ever come along anymore, and if there's any justice in this industry, Burke should receive some long-overdue accolades for this work of art.

Producer: Joe Henry. Engineers: S. Husky Hoskulds, Nathan Burden, Jeff Peters (one song). Studios: Sunset Sound Factory (Hollywood), Sonora Recorders (L.A., one song). Mastering: Doug Sax/The Mastering Lab (Hollywood). *—Barbara Schultz*

David Grisman Quintet: *Dawgnation* (Acoustic Disc)

This edition of Grisman's group has been around for several years now and has shown itself to be perhaps the most versatile band the mandolinist has come up with yet. With flute (Matt Eakle) and Latin guitar (Enrique Corea) joining Grisman on the front line, this music doesn't wander into

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World Radio History

L.A. GRAPEVINE

by Maureen Droney

Burbank-based Ocean Studios' staff is part of an elite group—the intrepid adventurers who've faced the challenge of restoring and enlarging a classic console and lived to tell about it. In Ocean's case, the console is a Neve 8048—originally 32-in—that now encompasses 56 mic inputs (with 1081, 1073 and 1084 modules), plus a 32-in monitor section fitted with 3-band EQ, 16 buses, four linkable Neve 2254E compressor/limiters and a host of other mods, all wired with new original Neve-spec cable. As is the norm with such endeavors, the process required a lot more time, energy, money and decision-making than anticipated. At Ocean, for example, the art of evaluating connector and cable sonics seems to have been raised to new heights. Take that large, wall-mounted TRS patchbay, for example, and the custom cables fabricated for use between guitar amps and speakers.

"We're somewhat nuts about the little details," admits studio manager Bob Breen. "For the speaker cable, we got a bunch of different kinds of wire and did blind listens. I have a Fender Combo amp that pigtails right into the speaker; we finally found a wire that we could use 94 feet of and still, in the tests, confuse with the inches-long pigtail."

An extension of that type of research led to similar tests with wires and connectors used in both the console and the patchbay, built by New Hampshire-based Audio Accessories. The ultimate goal was to make what Breen calls "a real engineers' room." Part of that goal was achieved by avoiding Elco connectors in the console wiring and choosing TRS over TT connectors for the patchbay.

"Straight cable sounded better than the highest-quality Elcos," Breen asserts, "and even the best available TT cables didn't sound as good as ¼-inch TRS. Because of the increased contact area, you really do get more highs, more lows, and more definition and detail with TRS. Not all brands of TRS sound alike, so that was another test.

"Our main concern was sonics," he

—CONTINUED ON PAGE 168

PHOTO: MAUREEN DRONEY

Taking a break from tracking the new Veruca Salt album at Ocean Studios, from left: assistant engineer Dean Nelson, guitarist Stephen Fitzpatrick and producer Rae DiLeo.

NASHVILLE SKYLINE

by Rick Clark

Berry Hill is an incorporated community in the heart of Nashville and Davidson County that is probably no more than a square mile in size. Besides having a vigilant police department known for clamping down on speeding locals, this area is probably best known for its sizable concentration of recording facilities. In fact, "Music Hill" (as it is called by some) is a preferred work location for those who don't want to be right on the Row. Like Music Row, Berry Hill's industry is located in old houses—in this case, an abundance of ranch homes.

One of the earliest facilities in Berry Hill was Treasure Isle, which has been in business for 22 years this month. To me, it is one of the classic Nashville studios, with its large, high-ceilinged tracking room and a great vibe. Over the years, the studio has attracted quite a client list, including Steve Earle, James Taylor, Paul Simon, B.B. King, Lyle Lovett, Linda Ronstadt, John Hiatt, Isaac Hayes, David Crosby, The Byrds, Beach

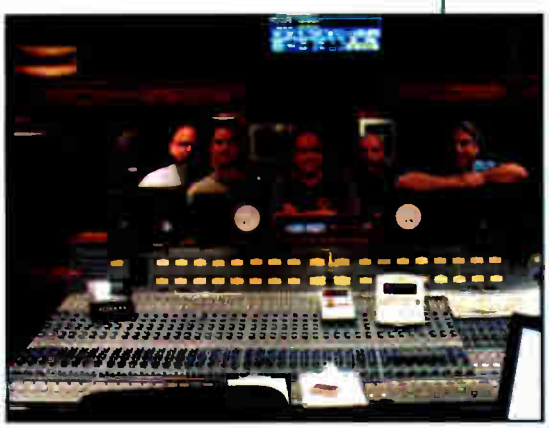
PHOTO: RICK CLARK

Martina McBride inside the iso booth at Blackbird Studio

World Radio History

Boys, Dolly Parton and Alabama.

Treasure Isle recently upgraded its already solid control room with the Trident 80 5.1 console with 48 inputs and Audiomate Flying Fader automation.



From left: Blockbird Studio co-monoger/Pro Tools engineer Vonce Powell, studio ossistant Jeremy Cottrell, studio co-manoger Grohom Lewis, technicol consultant Arthur "Midget" Sloatmon ond owner John McBride.

The console contains nine inputs of ProOram24 mic pre's and EQ, and 39 modules of the traditional 80 Series pre's and EQ. Other new gear includes API (pre's and EQ), SSL stereo compressor, GML EQ, Drawmer 1969, Universal Audio 2-610s, Masterlink, Apogee PXS-100, iZ Radar 24, Pro Tools, Yamaha C7 Grand, Manley Gold Reference mic, BLUE Cactus mic, Tannoy Series 800As, Dynaudio BM 15, and Audio-Technica 4033s and 4051s.

"I love the new console," states producer/engineer Peter Coleman, who has worked at Treasure Isle steadily for 12 years. "It still retains all of the things that I loved about the 80 Series Trident, in that it has a real simple signal path and it sounds really good." Coleman's many producing/engineering and mixing credits include Pat Benatar, Blondie, AC/DC, Echo & The Bunnymen, Steve Earle, Waylon Jennings, The Knack and Icicle Works.

One of Treasure Isle's repeat clients is Rodney Crowell, who just completed

—CONTINUED ON PAGE 170

NEW YORK METRO

by Paul Verna

SENDING OUT AN S.O.S.

After a slow spell from turmoil and consolidation in the record business, a soft economy and the aftermath of the September 11 terrorist attacks, the New York studio industry is picking up steam. All around town, facility owners and clients are reporting increased activity and a brighter outlook.

Sound on Sound, a five-room complex in mid-town Manhattan owned by industry veteran Dave Amlen, is a good barometer of the renewed vigor in the recording industry. "I was looking back over our bookings a year ago," says Sound on Sound COO Chris Bubacz, "and we're doing a little bit better than last year—and last year we did better than the year before. The whole industry seemed to explode in May and June of this year."

The return of business to the New York area comes as a welcome relief to studios like Sound on Sound, which took a huge hit in September of last year and have been reeling ever since. "Things stopped for a while around that time and then picked up again," says Bubacz. "A lot of labels put projects on hold in the fall, either because of September 11 or because they had to push back albums that weren't going to make their deadlines by the end of the year. We had a pretty good January and February doing sessions that were left over from 2001, and now that labels have released more money for other projects, we're feeling the positive effects of that, as well." Def Jam, Loud, J Records, Elektra, Jive, Interscope, Atlantic and Arista are just a few of the labels that have booked major projects at Sound on Sound in the last few months, according to Bubacz.

Another factor in Sound on Sound's recent success has been SOS Management, the company's engineer/producer-management division. Manager/production coordinator Mira Tabasinske reports that SOS has added Chris Trevett to its roster, a London-born engineer who was most recently on staff at Jive Records, where he worked on many of that label's mega-hits for the likes of Britney Spears, Backstreet Boys and Joe. Trevett joins a roster of engineers with similarly strong hip hop/R&B backgrounds: Cortez Farris (Steven Marley, Mary J. Blige, Angie Stone), Richard Furch (Jay-Z, Meshell Ndegeocello, Mya), Steve Hardy (Carlos Santana, Jay-Z, Cassandra Wilson) and Jason Standard (Li'l Kim, Mya, Cam Ron).

Sound on Sound owner Dove Amlen, left, and independent engineer Britt Myers show off Myers' Pro Tools HD rig, which the studio's monogement division, SOS Monogement, is representing.

Besides those five engineers, SOS Management also represents the Pro Tools|HD system owned and operated by up-and-coming engineer Britt Myers. "Britt put together quite an amazing system, with 48 inputs and 72 outputs, five 192 I/Os and five process cards," says Bubacz. "We're representing that system to clients who want to use it, whether it's here at Sound on Sound or at another studio. Right now,

—CONTINUED ON PAGE 172

World Radio History

L.A. GRAPEVINE FROM PAGE 164

continues. "For Freddie Piro, the owner, a producer/engineer himself, as well as a gear collector, it was all about making great-sounding recordings. The philosophy is, 'When you plug in a mic and bring up the fader, it's already going to sound good.'"

The single-studio Ocean had been open for 10 years, when Piro, who owned the nearby Mama Jo's Studio, decided to create his ideal live recording space. Behind an inconspicuous exterior, Ocean is a spacious, split-level structure, with a large studio and control room and extensive collections of outboard gear and microphones. Ocean was a well-kept secret until the refurbished Neve went in. Now, the word is out, and clients have included the likes of producer Jerry Finn and engineer Sean O'Dwyer, producer Jay Baumgardner with engineer James Murray, producer John Shanks and engineer Marc DeSisto, producer Ethan Johns with engineer Steven Rhodes, and engineer/producers Joe Chiccarelli, Neal Avron, Bob Power, Eddie Delena, Johnny K and Rae DiLeo, among others.

Chris Hillman (left) and Tena Clark inside Firehouse Studios

PHOTO: MAUREEN DROONEY

Ocean's loft-style, 6,400-square-foot complex was outfitted with an eye to the comfort of groups; there are numerous office and lounge areas with audio, video and games, as well as a fully equipped kitchen with a catering-ready stove, a shower and plenty of secure parking. A Pro Tools editing suite is also available.

"It's all yours when you come in," comments Breen. "We've tried to make it ergonomically comfortable and well-equipped. Most people don't even make a dent in the mic collection, there's so much! We are also very much into preventative maintenance. We go through a few modules every day to make sure we find problems before the client does."

Meanwhile, Piro's original studio, Mama Jo's, has been seeing resurgence in rock business, something Breen attributes to reasonable rates, solid equipment and a good vibe. Also a private, single-room facility that's hosted such luminaries as T Bone Burnett, Alan Parsons, Mick Guzauski and Jack Joseph Puig, Mama Jo's is equipped with a 56-in Trident Series 80 desk. Outboard includes vintage Neve, UREI, Teletronix, Pultec and dbx, another cool mic selection and a good-sized recording space. Recent clients at Mama Jo's have included Brian Joseph Dobbs, Dave Fortman, Michael Patterson, James Murray and Sean O'Dwyer.

As radio and record labels founder, artists are seeking alternative ways to expose their songs. To that end, a lot of people are hopping on the trend to meld pop music with advertising. Over in Pasadena, Tena Clark's bustling Disc Marketing has the jump on all of them. A music and new-media marketing company founded in 1998, Disc Marketing has rapidly expanded from its core business: providing in-flight audio programs (22 channels for United Airlines, as well as *all* of the in-flight audio programming for Air Force One and Two!). Currently, the company's main focus is enhanced-CD production with numerous marketing applications. Target, Victoria's Secret, Betty Crocker and Toyota are

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Hugh Robjohns, *Sound On Sound*, March 2002

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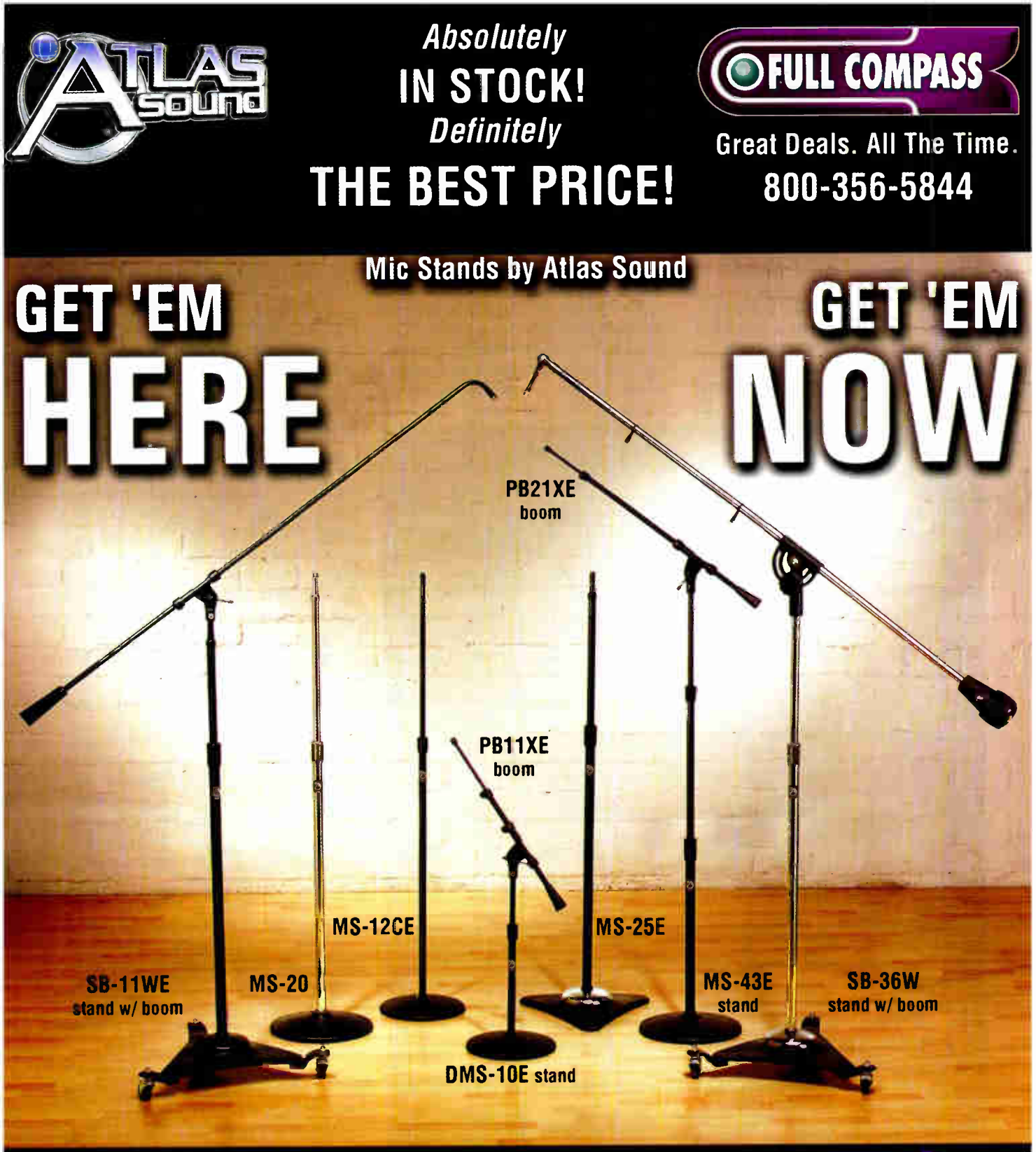

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World Radio History

COAST TO COAST

Anyone who is a fan of The Beatles will love being in Blackbird, which is named after the song from the White Album. There is Fab Four memorabilia throughout the facility, and the opening lyrics of "Blackbird" are inscribed on the floor of the tracking space. Over the weekend, A-list bass-playing session ace Michael Rhodes mentioned Blackbird to me, exclaiming, "Have you seen John McBride's place? I would imagine that John will have a hard time getting to use it, because anyone who goes there is going to want to camp out for a long time with projects."

I mentioned to Rhodes that this stretch of Berry Hill, with Blackbird's arrival and Englishmen Peter Coleman and Richard Dodd working full time on the same block, the British influence has gone up quite a few notches. Rhodes, with his usual off-centered cool, quipped, "They should call it Abbey Row." Not bad, Michael. ■

Send your Nashville news items to mrblurge@aol.com.

NEW YORK METRO FROM PAGE 165

the system is being rented by producer Michael Brauer, who's using it for a long-term project at Quad Studios."

Sound on Sound is in the process of upgrading its own Pro Tools rigs to the new HD system, but Bubacz does not expect any of those in-house setups to have the kind of I/O and processing capacity of Myers'. Accordingly, it made sense for both Sound on Sound and Myers to work together to market his system, according to Bubacz.

When it completes its current phase of construction, renovations and upgrades, Sound on Sound will boast four full-service recording/mixing studios, including a Pro Tools|HD suite equipped with a Pro Control surface. In addition, Sound on Sound operates a small mastering division, run as a joint venture with engineer Eric Enjem.

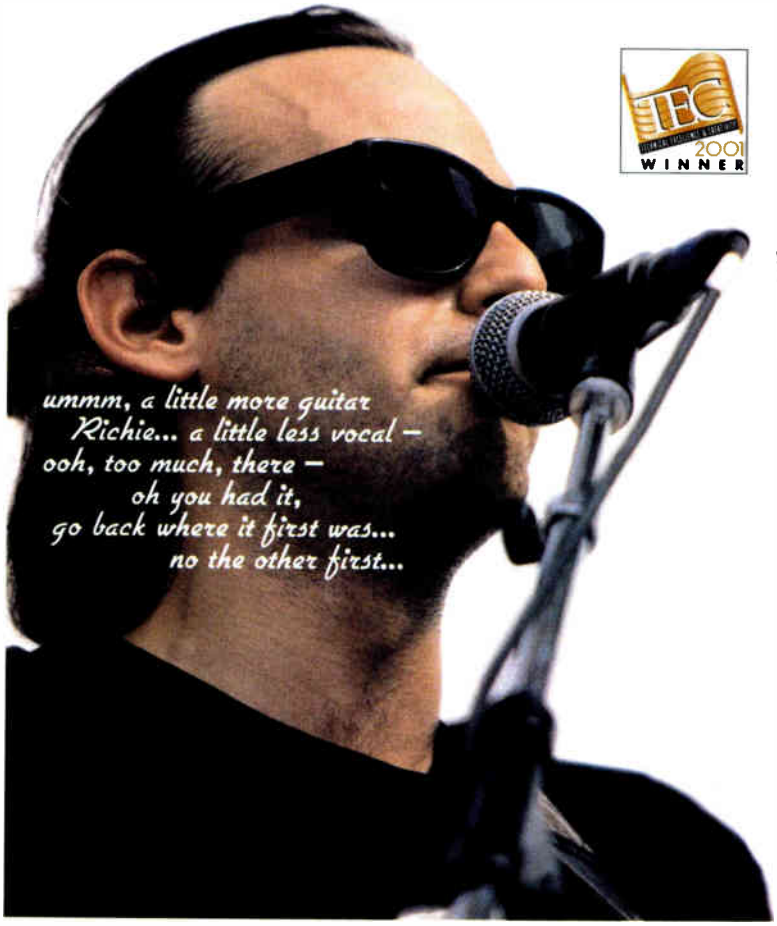
The main rooms feature the current state-of-the-art in analog and digital consoles: two Solid State Logic 9000 J Series boards in Studios A and B (whose control rooms feature virtually identical equipment) and a Sony Oxford digital console in Studio C. Studio D, still under construction, is expected to become Sound on Sound's flagship Pro Tools|HD studio—even though Pro Tools systems reside in the "other" rooms as well and will be upgraded to HD.

As all this activity unfolds at SOS Management and Sound on Sound Studios, the company embraces the era of connectivity with an investment in the Dolby Fax ISDN codec and Rocket Networks' "Internet studio" concept.

"The ISDN and Internet links are big selling points for our clients," says Bubacz. "With so many projects these days moving from studio to studio, engineers can now connect to another facility and have their files quickly imported. There have been times when a producer or engineer goes to open a project here and realizes that he forgot, say, a shaker track at a studio in Atlanta or L.A. With Rocket's new software, we can transfer files back and forth, whether they're Pro Tools format or not."

As far as ISDN is concerned, the system has been used to conduct remote monitoring sessions with the likes of J Records boss Clive Davis, who auditioned a Carlos Santana mix from his office.

"We're doing pretty well at this point," says Bubacz, reflecting on the varied activity at both the studio and management



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World Radio History

Walker Recordings owner George Walker Petit sits at the studio's Amek Media 5.1 console.

company. "We're keeping our eyes and ears open and staying optimistic."

PETIT BUT MIGHTY

Like many in the recording industry, musician/engineer George Walker Petit had a dream and a determination to make that dream come true. Actively a jazz guitarist with his own, self-titled quartet, and seasoned as a studio engineer who has worked on numerous music and advertising sessions, Petit left a safe, lucrative job as the in-house engineer at an ad agency to open his own music studio in Manhattan, Walker Recordings.

As if it weren't risky enough to launch a new commercial studio operation at a time when even longstanding facilities are struggling, Petit's dream was nearly squashed by an accident of timing: his studio opened September 9, 2001. "This is a speculative business to start with, and I opened two days before the World Trade Center got hit," says Petit, noting the irony of the timing, and the fact that his fledgling operation was nearly stillborn as a result. But almost a year later, Petit says that he has survived and is on his way toward fulfilling the original vision for Walker Recordings.

"Since I opened, I've done a lot of advertising work for clients like Alitalia, Cadillac and Sony-Loews Theaters, but I'm trying to push the studio more into doing what I really love, which is recording live jazz," says Petit.

In a short time, Petit has cultivated a strong following among independent but active musicians who operate just under the radar of big labels like Blue Note and Verve. These include Scott Lee, a bass player for Joe Lovano's band, who has brought a few projects to Walker Recordings; and Eric Rasmussen, an up-and-coming alto sax player who has cut one album and plans to do two more at Walker by year's end. Not that Petit's purview is strictly limited to jazz. Recently, the studio hosted a full-length flamenco project by San Francisco-based guitarist Paul Mousazi.

Given the competitive hurdles that any startup has to overcome—competition from other commercial facilities, as well as home and project rooms, tight label budgets, etc.—how has Petit succeeded in attracting a music clientele to Walker Recordings?

For one, the room itself is naturally conducive to recording and mixing in an organic, stress-free environment. The walls are uncharacteristically colorful for a New York studio, with bold splashes of red, blue and yellow animating a space that many might have painted white or gray. The design was done by renowned industry architect Francis Manzella, whom Petit hired to do the in-house studio at his old ad agency.

Located on the top floor of a building on Fifth Avenue between 21st and 22nd Streets, Walker Recordings' control room has an odd but alluring shape, with a ceiling that starts at 18 feet at the front wall of the control and slopes down to five feet at the other end, providing what Petit calls an "instant compression" effect. Because there's nothing above it, the room boasts skylights, which are a rarity in Manhattan. Besides the control room, Walker features two good-sized tracking spaces that are acoustically adaptable via sliding walls.

Equipped with a 64-channel Rupert Neve-designed Amek Media 5.1 console, Dynaudio monitors, a Pro Tools 3 system, and a healthy assortment of hardware and DSP processing, the control room is as technologically advanced as it is open and comfortable. Petit comments, "Everybody who comes in here says, 'What a great vibe!' We have this natural light thing happening, and you get the sense that time stops when you enter the room. There's no hurry in here, no clock ticking all the time."

There's also Petit himself, a fixture on the New York jazz circuit for years, with a reputation as a producer (a Columbia album by the Terence Blanchard-Donald Harrison Quintet in the late 1980s), an engineer, a composer, a sideman and a bandleader.

"Because I've been around for a while and am active on the scene, I'm able to draw people in here," says Petit. "It's a slow building process, but I'm happy that the studio is becoming a center of activity for a lot of jazz players."■

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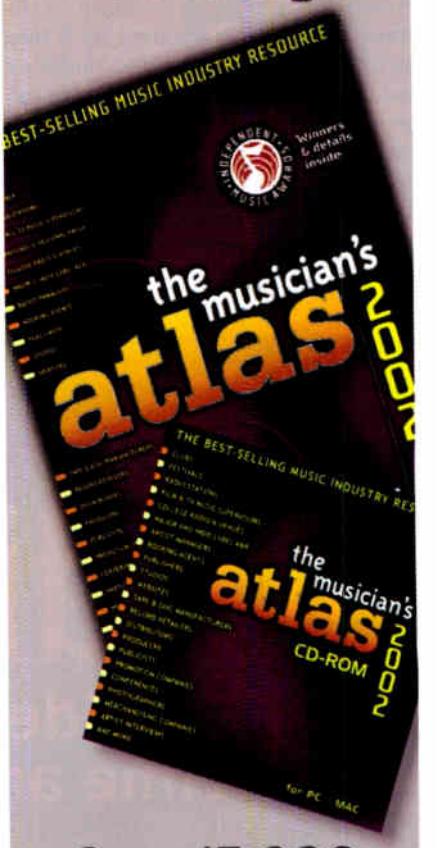

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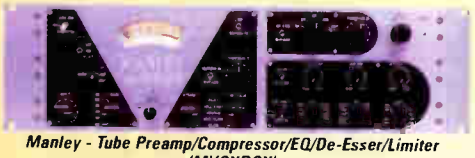

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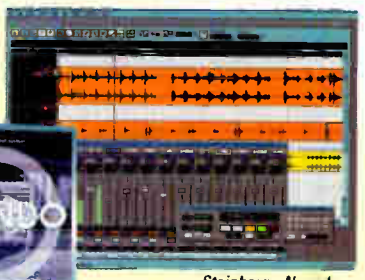

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CDs with music we've paid for, then you know that not only are they going after people who try to "rip" music, they're also going after their computers too. A number of "CDs" (legally speaking, they can't be called that, but they sure look the part) have been released that will actually crash and even cripple a Mac, simply if you put them in the drive. Among these is the new Celine Dion disc from Sony—who you'd think, because they make computers and consumer and professional audio equipment, as well as music and movies, would know better.

According to reports on Apple's Website, inserting one of these discs will crash a Mac in such a way that you can't eject it and the computer won't boot again as long as the disc is in the drive. There are a few ways you can try to force it out, the most effective being to use the "paper clip" hole next to the optical drive, if the Mac has one. But if it doesn't—and a lot of newer models like G4s and iMacs don't—you are, as they say up north, hosed. If you don't want to take the computer apart (and void the warranty), you actually have to take it to an authorized repair shop that will open it up and pop the disc out. Initially, Apple was telling users this "repair" was not covered under their warranty or service plan, but they stopped saying that when a whole lot of people complained.

There is hope among this madness, however. An intrepid team at the Reuters news service got hold of a copy of the disc and blackened out the edge track (where the bogus data is that screws up the computer) with an ordinary felt-tip pen. After that, it both played and ripped perfectly. So much for high-tech security.

Others have also apparently found a way to get into the disc, because tracks from the Dion album can be found on Gnutella and Audiogalaxy. A British newspaper quoted one fan: "There are already hundreds of copies available through file-sharing networks—most at high sampling rates that listeners couldn't tell weren't original recordings. This may become the most ripped CD in history, if only out of spite."

So this brings up a few interesting questions. Will Tower Records now start selling Sharpies next to the blank CD-Rs? Will the record companies demand a "Magic Marker tax" where proceeds go primarily to Michael Jackson and their executive golden-parachute funds, the same way taxes on blank tape do? Remember that the Digital Millennium Copyright Act, possibly the most destructive, anti-creativity measure Congress has ever dreamed up, makes illegal any device or technique that results in "the circumvention of effective technological measures that are used by authors" to protect copyrighted material (the word "authors" is used rather loosely here). So, will this mean possession of felt-tip markers or crayons could be prosecuted as a felony? Will stationery stores have to put up a big sign next to the Marks-a-Lots that says, "Not for illegal use!" or refuse to sell them to minors, the way some cities won't let teenagers buy spray paint? What about sticking your finger in your mouth after you've chewed on some really dark licorice and wiping your spit on the bottom of the CD? If that turns out to be as effective as a black marker, does it mean licorice will have to be outlawed?

The situation is rapidly approaching the level of complete absurdity. The record companies simply have to stop this desperate, reactionary, unconstitutional, money-grubbing nonsense—now. Even if file sharing can be shown to affect their sales (and I still believe, just as blank cassettes never really cut into LP sales, it's way over-exaggerated), their dumb business practices are hurting them a lot more. The more egregiously suffocating parts of the Digital Millennium Copyright Act have to be repealed. The Copyright Office needs to set royalty rates for Internet radio so that independent Webcasters won't be forced out of business before they even start up. Congress has to recognize that there are others who have the right to benefit from music besides Sony and Disney.

If those folks don't figure it out soon, we're going to end up with two completely separate music cultures: One consisting of a handful of paranoid, stagnant, multinational corporations, dedicated to producing insipid pop and manufactured rebellion for 8- to 14-year-olds, propped up by enormous marketing campaigns and obsessed with their stock price; and the other involving many thousands of individual artists and small labels, vital, highly diverse, personal, sometimes offensive, constantly evolving, and supported by live shows, streaming radio, word of mouth, viral marketing and online micro-payment-supported distribution.

Guess which one I want to be part of? ■

Composer, writer, educator and "Insider Audio" columnist Paul Lehrman never got a major-label deal. Not that he hasn't tried, but in 1977, he was told by a senior A&R guy, "Your songs are much too good for us. We're only buying junk." Apparently, little has changed.

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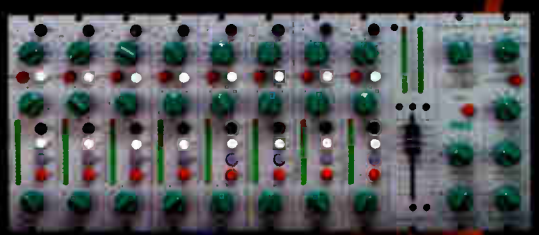

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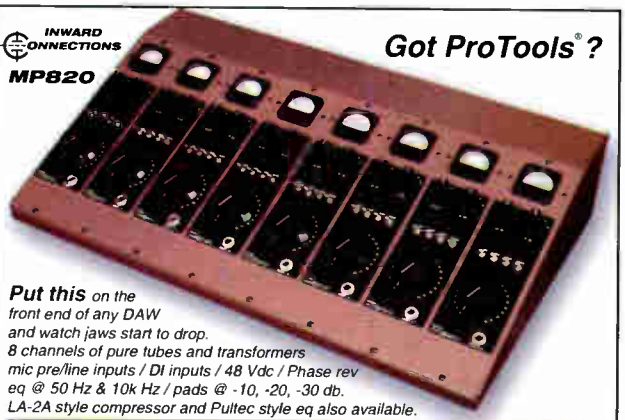

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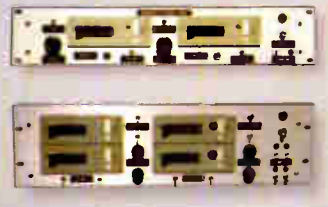

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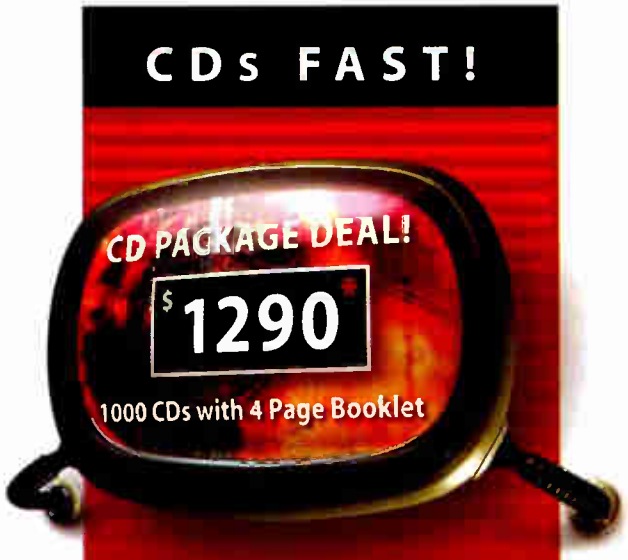

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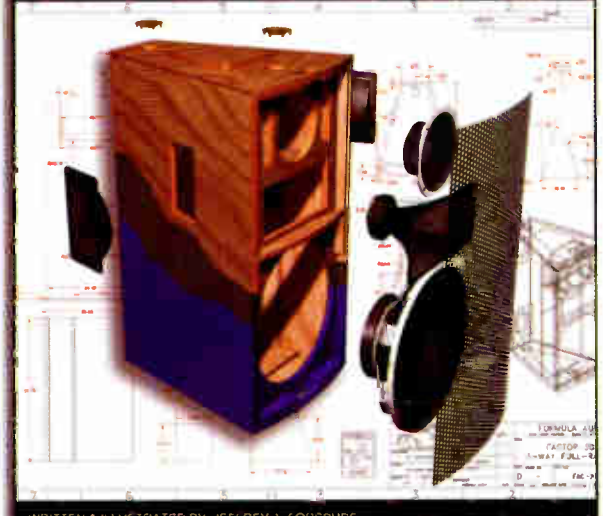

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World Radio History

—FROM PAGE 58, CHRIS STRACHWITZ

for Fred, I just put it in front of him.

I continued with that until the '70s. Now, as much as I collected live music, I collected old records, and by that time, I had built up a warehouse full of duplicates. A Frenchman, a collector, wanted to buy some [78s], and he paid me something like $1,500. I have an uncle who lives in Switzerland, and I had heard that the Nagra company was in Switzerland, and I wrote to him and said, "I'm coming over there, and I'm wondering if you could take me by the Nagra company." If you were a Swiss resident, you got an incredible deal. I bought a Nagra 4S—that's a stereo model they had just come out with—for something like $800 or $900, and I bought two Sennheiser microphones, and I recorded in Austria right after that. That was my first trip of recording some Austrian regional music. I got two Neumanns then, too—two 87s—and then I recorded Michael Doucet and Mark Savoy and a whole lot of cajun people with that Nagra.

A lot of the new music coming from Arhoolie now is Mexican conjunto music. I really want people to hear two of these Mexican records I just did [*Los Pingüinos del Norte* and *Los Alacranes de Durango*], though if they knew how I recorded them, most people would probably be horrified.

Why horrified?

Well, because I recorded them with my videotape machine because I could easily carry it across the border. These guys, none of them could cross over to this side. And somebody told me to try this Audio-Technica microphone; it's a stereo mic, an 8825 or something like that, and I had never really used it. But I recorded two little sessions by both these groups, and I liked the sound I got.

Where did you record?

One was in a bar and the other one was outdoors. I love to record outdoors, but in Mexico that's not easy, because they have constant trucks and cars and things making noises. I recorded The Pingüinos once in a park under a bridge, and the other time was in their backyard. I think it sounds really good.

I realized immediately that there's a strong automatic limiter in that video recorder, but these guys just kicked in, and I thought, "Man, this just sounds like Mexican radio; that presence is all there!"

Next time, I might try to take my DAT recorder, because it doesn't have that heavy limiting, but the heavy limiting may have been what made it sound so good because it really pumps it up, you know? Some fancy studio engineer would probably say it sounds like shit to them, but they'd probably think the music is shit anyway.

Has your style changed much over the years?

No, probably not. I like kicking music. Let's just get it together. If you have to do two or more takes, I say forget the damn thing. ■

Barbara Schultz is the senior associate editor of Mix.

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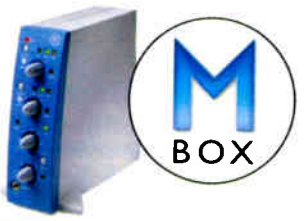

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Mackie UAD-1 Powered Plug-ins

UAD-1 is a PCI card that allows you to run dozens of sophisticated effects plug-ins inside Digital Performer without bringing your Mac to its knees. What's the secret? A custom-built, monster DSP. It's like adding an extra $20,000 worth of effects gear to the dozens of native plug-ins included with DP. UAD-1 ships with this growing list of powered plug-ins:

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BY GEORGE PETERSEN

Tascam US-428 Computer Controller/Interface

Unlocking the Potential

Tascam's US-428 is a multipurpose unit combining onboard 16/24-bit converters (44.1 or 48 kHz), audio-to-USB conversion, a MIDI interface and a mix control surface that works with a number of common studio DAW programs. In the latter mode, the US-428 offers eight hardware faders that can control any number of software faders (via a simple bank-shift switch), along with recorder-style transport keys, a jog wheel, and various dedicated controls for tweaking software plug ins, EQ and more. Its $625 price includes a custom version of Steinberg's Cubasis VST audio recording and sequencing software, and, if desired, users can later upgrade to a full PC/Mac version of Cubase at a discounted price.

LOAD-IN

Before using the US-428, install the appropriate drivers from an included PC/Mac CD-ROM. If you later need to install on another machine and can't find the disc, you can download the software from www.tascam.com. The install is easy, but here's a possible snag to avoid: Make sure the US-428 is powered down when installing drivers. If the unit is on, Windows automatically detects that a USB device is in the chain and will assign a useless generic driver to it; later during your install, the correct Tascam driver may not be installed because another driver is already in place. Avoid the hassle and make sure the unit is off during your first install or later when updating drivers.

ST-ST-ST-STUTTERING AUDIO

Windows users should be aware that a number of USB-related bugs in the operating system could cause glitches and/or stuttering in digital audio. If this occurs with Windows 2000, then users should install Microsoft's Service Pack 2. Windows 98SE users can install the Hotfix bug fix from Tascam's US-428 CD-ROM. If your systems are Windows XP-based and this problem crops up, first make sure that they have the latest Tascam audio drivers and then run the appropriate Messenger update from Microsoft's Website. To determine the correct one, surf to the following URL: http://support.microsoft.com/support/kb/articles/Q310/5/07.ASP?LN=EN-US&SD=gn&FR=0&qry=Q310507&rnk=1&src=DHCS_MSPSS_gn_SRCH&SPR=WIN2000.

PRO TOOLS FREE

With its USB audio interfacing and control functions, the US-428 is ideal to pair with the Freeware version of Digidesign's Pro Tools, available as a free download from Digi's Website (www.digidesign.com/ptfree). At up to 40 MB, PT Free is a *big* download, but hey, the price is right. It offers eight tracks of audio, 48 MIDI tracks, some plug-ins, and many of the same editing and mixing features as the Pro version. If you don't want to sit through the long download, Digi offers a free CD-ROM for a small $9.95 shipping/handling fee. There are a few limitations, such as the US-428's transport lights don't work with PT Free because it follows JLCooper CS-10 emulation, but, again, the price is right. I have a full Pro Tools 5.1 rig in my studio, but I find PT Free to be indispensable, especially on my laptop, forming a DAW-to-go with the US-428.

B4 B3

Whether in VST or native mode, the US-428 makes a slick remote controller for the B4, which is Native Instruments' Hammond B3 organ simulator. Here, the US-428's nine faders are transformed into draw bars 1 through 9 on the upper manual, and switching to bank two or three accesses draw bars on the lower manual and pedals. Meanwhile, other controls (EQ knobs, auxes, pans, etc.) provide fingertip control of parameters such as treble/bass rotor speed, vibrato, key click, percussion, tube overdrive and more.

FREE TUNA!

The US-428 has many functions, but its least-known feature is a chromatic tuner, hidden in the US-428 software in the Tuner tab on the main control panel. Use is straightforward: Select the input channel you want to tune, play a note, turn the US-428's trim knob to avoid clipping and tune the guitar string using the onscreen sharp/flat "LED" indicators. The tuner defaults to an A440 standard, but you can tweak that between 430 and 450 Hz to suit your particular session.

BACK TO THE SOURCE

Tascam's Website offers a wealth of US-428 support info, FAQs, drivers, etc., to support various PC and/or Mac programs, including Steinberg Cubase VST, Digidesign Pro Tools/Pro Tools Free, MOTU Digital Performer, Cakewalk/Sonar, Steinberg Nuendo, EMagic Logic 4.7/5.0, BIAS DeckLE, Native Instruments B4, Propellerhead Reason and Cycling '74 Max/MSP. Go to www.tascam.com/products/us428 for more info. Tascam also sponsors an active online forum at www.tascambbs.com. From there, click on the Computer Audio link; users can read or post their experiences, offer or get help and more. Check it out! ■

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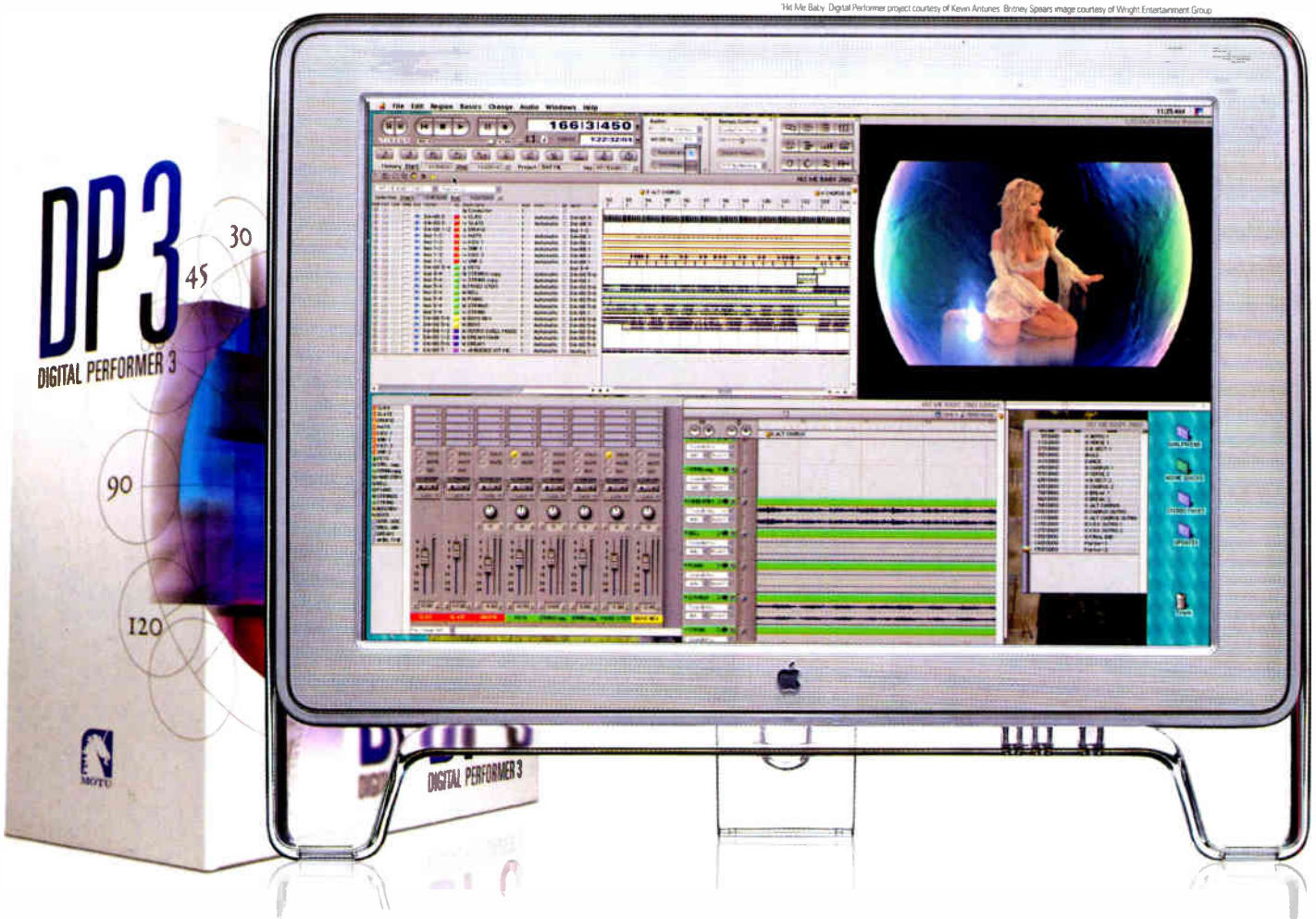

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