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- * NEW CONCERT VENUES
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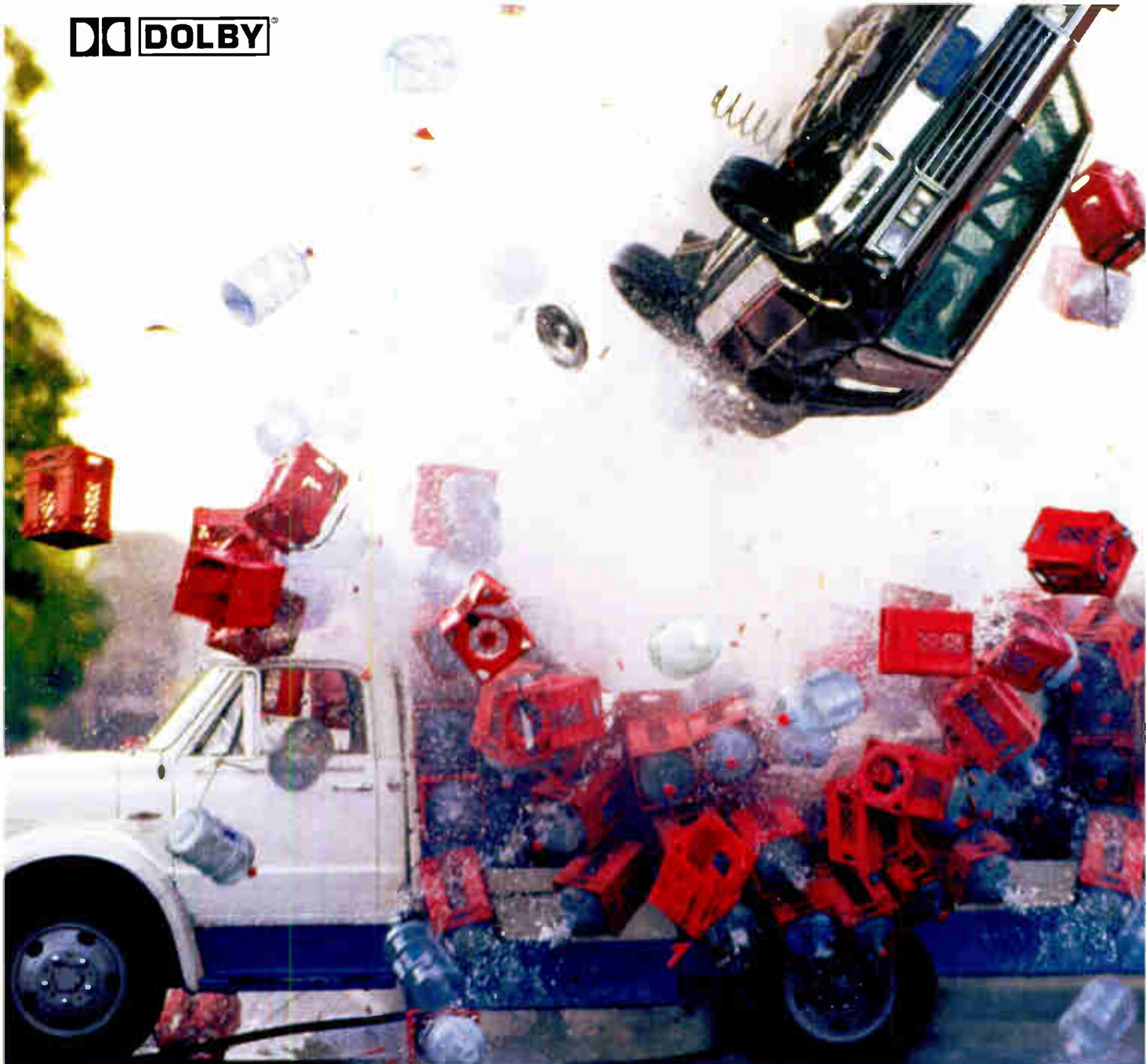
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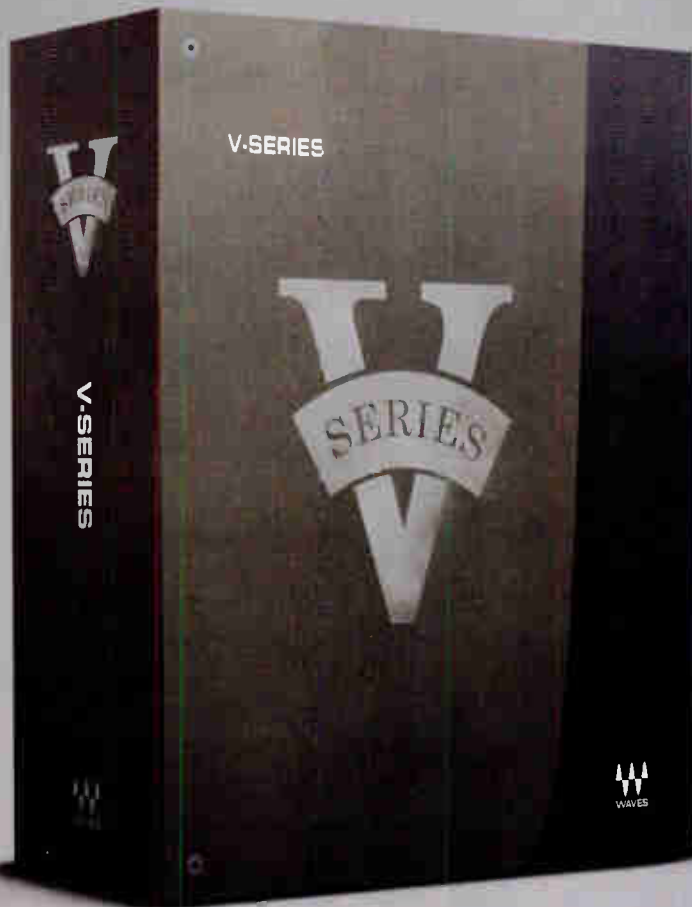
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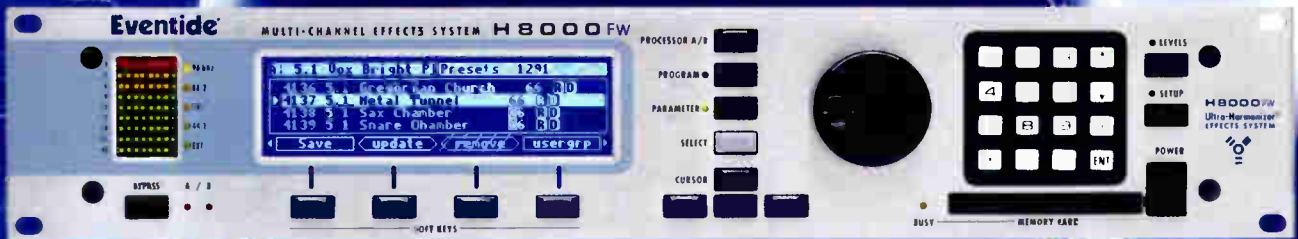
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JUNE 2007, VOLUME 31, NUMBER 6

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New Live Venues Dot the Country

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82 NAB Show Report

HDTV has arrived for the major players, but now consumer demand for high-def product has middle-market stations and producers gearing up. NAB 2007 was the perfect opportunity to check out the latest gear for delivering high-resolution sound-for-picture, and *Mix* editors have brought back highlights from the show.



On the Cover: Pilchner Schoustal International designed Great Divide Studios (Aspen, Colo.) for owner Jamie Rosenberg. The control room centers around a Digi HD4 Accel system and ATC 5.1 monitoring. For more about the design, see "Class of 2007" on page 26. **Photo:** Rick Schoustal.



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TALKBACK

You're too far back. Why can't I just hang the PA? I just want to mix—why are they making me pack the truck, too!? What's the worst situation you've been in while on tour? Let us know: mixeditorial@mixonline.com.

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Designers Are Your Friends

David Schwartz, co-founder of *Mix* and the original author of this space, used to say, "If you want to know where the industry is headed, talk to the designers." He meant, of course, that studio designers get the first call (okay, perhaps after the bank) when someone wants to build out their audio future, and as such are in a unique position to forecast coming trends.

That initial surge of "project studios" some 15 years ago was prefaced by increased demand for consultations with designers rather than full builds. The boom in new Nashville studios of the mid-'90s was foretold in some circles, accompanied by cautionary tales of overbuilding. The mad scramble for high-end home theaters during the past five years even enticed many of the top acousticians and architects from our industry, long before plasmas became the hot item at Best Buy.

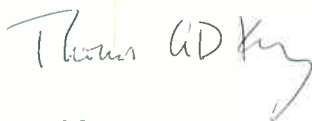
So where do we stand today? Who's building studios and for what purposes?

There's really no easy answer. What we do know is that people are building, across all markets and in all regions of the country. Just when it seemed big studios were falling, we see Record Plant installing an SSL 9000 and redoing a main room to accommodate a recent flood of activity. The Newman Scoring Stage at Fox just bought a Neve 88R and reworked the cabling/wiring infrastructure. Just when we thought every producer-owned facility was being built into a home, Jay-Z goes and opens Roc the Mic in Manhattan.

And, yes, there are high-high-end producer-owned facilities being built into homes, too, but these are hardly the project studios of yore. Game sound facilities are being built out like mini-lots. New remote trucks are hitting the road. Mastering facilities are going private. Universities are putting in new performance spaces and control rooms. And corporate? In-house facilities may have gone dormant following 9/11, but ask any studio designer, and he or she will tell you that corporate production is back in a very big way.

This wide range of facilities is what struck us most with this year's submissions to the "Class of 2007." Before putting together this special studio design issue, it would have been easy for us to name this the year of the producer-owned hideaway. After receiving the photos and stories, and then pulling tips from designers about optimizing existing spaces, it seems more like the first year of the next 10 years. The beginning of growth. The beginning of a new type of production model for the audio industry—a model that includes private/public, personal/commercial, linear/interactive.

So why not start the next 10 years by looking at your studio today? After all, if there's one thing that all rooms have in common, it's that they are designed to produce accurate and true sound. Measure your room, tune your room, listen in your room. And if you don't like what you hear, call a designer. They seem to know what's going on.



Thomas A.D. Kenny
 Editorial Director

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Letters to Mix



BACK IN THE DAY

I appreciated Gary Eskow's nice piece on Booker T and The MG's' "Time Is Tight" ("Classic Track," April 2007). There didn't seem to be much confusion about the origin of the group's name back in 1965, when the singles from the second LP, *Soul Dressing*, were riding high on the charts. The liner notes for that LP read: "MG stands for Memphis Group. That's the city where the group met and where their records are made. If the full name of the popular combo was used—Booker T. Jones and the Memphis Group—they would certainly have space problems on the marquees of the theaters they play."

Here's an interesting aside to that story that illustrates how different the music business was in the 1960s. Back in those years, you could literally ring up Stax on the phone and ask to speak with Duck Dunn or Steve Cropper. If they weren't in session, they would answer the call and just chat. My closest friends at the time were aspiring white R&B musicians in Baltimore. They would frequently call Stax to talk with the musicians about their latest records, instrumental techniques, arrangements, etc.

I called Dunn several times just to talk about anything related to music. He was invariably generous with his time and encouragement. When my friends' group, the New Apocalypse, cut their first record (around 1970), they called Cropper to talk about it and he invited them down to Memphis to visit the studio. A memorable trip followed. I didn't make the trip with the band, but the engineer from the studio where they recorded did. He went on to

achieve more than a bit of success in years to come: George Massenburg. Back in those simpler and more innocent days, there was very little distance between young professionals just starting out and the successful musicians they idolized.

Lew Frisch

Gotham Audio LLC

HEAR, HEAR!

Just read Frank Filipetti's short article about sagging music sales ("Current," April 2007). We need to hear more of these ideas from leading music industry people. And hopefully, they themselves will sit down and discuss these issues, make proposals, do what needs to be done to bring us to the next level. It may be a difficult and long battle, but if they don't start, nothing will happen.

Jimmy Almario

HALFTIME SHOW BRINGS THE MUSIC BACK

This is in response to the "Letter to Mix" titled "Not So Super Super Bowl" in the March '07 issue submitted by Bob Spangler, wherein he bemoaned the lack of audio quality of the mix for Prince during the halftime show. I, too, often feel let down by the audio in live performances on television, but the Prince set was an exception. In recent years, more often than not, live mixes usually comprise a huge kick, a huge snare and a dry vocal all the way up front, with the melodic- and chord-producing instruments barely audible, buzzing somewhere off in the distance. Okay, so you can feel the beat, but any chance at raising some goose bumps is totally out the window.

In contrast with Prince, we were treated to strong echo-laden guitar and vocals with a little bit of dirt thrown in to pump up the energy level. Ahhh, it made the hairs on the back of my neck stand up and nearly restored my faith in humanity—just the way a big rock show is supposed to. I congratulate whoever was responsible for that mix. My guess is that Prince had some input about what he wanted prior to the performance and that he was thrilled with the result. I hope that some of the young sound engineers out there will take a hint from that mix and begin to restore some of the "music" into their mixes.

Ray J. Kozora II

Incidental Sounds Co.

TALKBACK: HEARING HEALTH

The past few months, we have been asking you, our readers, to give us your stories—whether interesting ways of recording or videogame audio highlights. Here is one letter we received with regard to our latest "Talkback": hearing health.—Eds.

In my studio, I handle fatigue in various ways. First, if I have been at it for a while, say an hour, I make sure I rest my ears for the same amount of time by reducing main speaker volume to a bare minimum. Even 15-minute intervals will do justice. This theory works best when you're alone in the studio, of course, but can be used with others around you cautiously as you can get gripes from a client or singer who is with you.

Secondly, for many years I recorded the singer in the control room with me as I have a personal studio that doesn't have a separate room for recording purposes. I became accustomed to lowering the main volume to "nothing" so I wouldn't get any monitor leakage through the mic. At the beginning, I used headphones, but then I got used to nothing at all. Turning off the volume when recording became a norm. I actually felt physically better after a session. When the time comes, you always have to play back your material to check it.

Lastly, for those gigging out there, test this theory: On one night, use a pair of earplugs and see how you feel the next morning. Then the next day, don't put them on and see if there is a difference.

Elvis Cabrera

CLARIFICATION

Our March article on native processing included information on various native DAW programs, but omitted Pro Tools LE. While Pro Tools LE (and its M-Powered cousin) use native processing, these only function using Digidesign or M-Audio hardware. The article's intent was to spotlight software having no proprietary hardware requirements and this should have been made more clear in the text. We regret any confusion this may have caused.

—Eds.

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Songwriters David Porter (left) and Isaac Hayes help kick off the celebration.

phus soul from almost the beginning, and as the story continues, I am proud to help honor Memphis' many remarkable achievements and those yet to come."

"Memphis has stood at the crossroads of popular music, merging influences from blues to rock and soul," said songwriter/producer/guitarist Steve Cropper. "No student of contemporary music can ignore the influence and importance of this city and its unique sound."

The city of Memphis has launched a national campaign to help celebrate 50 years of soul music. The events (www.MemphisSoul50.com) turn the spotlight on the founding of Stax Records and Royal Studio, home to Hi Records. In honor of the anniversary year, the Concord Music Group will issue deluxe reissues from the Stax Records vault and reactivate the label.

The celebration also showcases music-related landmarks in Memphis, including the Stax Museum of American Soul Music, Sun Studios, Graceland, Ardent Studios, the Rock 'n' Soul Museum and the Gibson Guitar Factory.

"I am thrilled to be celebrating this important milestone," said Isaac Hayes. "I was part of Memphis' many remarkable achievements and those yet to come."

"I am proud to help honor Memphis' many remarkable achievements and those yet to come."

FOX HOSTS BASH NEVE STARS

PHOTO: JUSTIN MARX/AUDIO AGENT



More than 400 party-goers attended the Neve 88R inauguration party at 20th Century Fox Studios' Newman Scoring Stage.

On March 29, Neve and Audio Agent threw a party at the Newman Scoring Stage on the 20th Century Fox lot in Century City, Calif., celebrating the installation of Neve's top-of-the-line 88R console. The event was also in honor of Neve's partnership with Audio Agent, a new sales and marketing company headed by David Christenson, with former Neve U.S. president John Hart as VP of marketing.

The spacious control room resembled the flight deck of the Starship Enterprise, and a good many attendees ogled the gleaming, Robin Porter-designed board. On the other side of the glass, the immense recording space was abuzz with cocktail-fueled networking involving members of the recording and movie businesses. They rapped it down amid a veritable forest of mic stands that remained in place following a Hans Zimmer orchestral session that afternoon. The great old room has a palpable vibe to it.

—Bud Scoppa

WSDG EN ESPAÑOL

The Walters-Storky Design Group has opened a full-service office in Mexico City. Developed under the guidance of Sergio Molho (CEO), long-time head of Buenos Aires-based WSDG SA, the new branch is headed by executive producer/engineer Mike Moreno, engineer/sound designer Martin Garcia "El Oso" Castillo and musician/producer/composer Nacho Rettally Galaz. Silvia Molho has been named director of marketing.



From left: Silvia Molho, Equiscola Studio CFO Alex Arzate, Martin Garcia "El Oso" Castillo, Mike Moreno, Nacho Rettally, Sergio Molho; not pictured: company principals Beth Walters and John Storky.

MUSIC ON THE DELTA



Jimbo Mathus, producer, songwriter and multi-instrumentalist, has reopened his Delta Recording Service (www.deltarecordingservice.com) in Como, Miss. The studio, previously located in Clarksdale, Miss., produced more than 70 projects in just over a year, including Grammy and Handy Award winners and nominees Elvis Costello, Big George Brock and Duwayne Burnside.

"It's a one-stop studio for clients," Mathus said. "When clients walk through the door and need it, we've got it." The 30x12 main recording room offers an 8-foot iso booth, configured much like the old Sun Studios in Memphis. Other gear of note includes circa-1940s ribbon mics, Event Electronics speakers, a Mackie board, and vintage amps, guitars and other instruments.

Delta Recording Service also offers a full spectrum of services for D.I.Y. artists, including CD art, manufacturing and national distribution via 219 Records.



PHOTOS: JACQUELINE TELFORD

From left, Jimbo Mathus, Daren Dortin and Davis Coen

HELLO, CLEVELAND

The Cleveland Institute of Music cut the tape on its new state-of-the-art control room (a recital hall is still in the works), designed by Dr. Peter D'Antonio, adjunct professor of acoustics at the institute, while the installed system was developed by Bruce Egge, head of the conservatory's audio recording degree program. The two new rooms were added to one of the school's existing buildings, with the recital hall on the front and the control room in the back. Tielines from the concert hall, a small overdub room and the soon-to-be-completed recital hall feed into the control room.

According to D'Antonio, "The first challenge was to orient the room in the available space to provide a symmetrical listening environment. Following this, we used our Room Sizer program to determine the optimal dimensional ratios for uniform modal response. We also had to take into account the fact that it is an educational space and needs to accommodate more people than a typical control room. This meant that we had to be very sensitive to the amount of real estate we used for low-frequency control."

To achieve a flat and extended LF response, Modex Plate resonators were



installed in all of the available dihedral wall intersections where the pressure is high; broadband absorption is also provided with a variant of the Modex Plates, which were used in the rear of the room and on the upper-front wall areas, and then the broadband version was used directly behind the ATC SCM150 ASL L/C/R loudspeakers.

NOTES FROM THE NET

JAM WITH STRANGERS

eJamming AUDii0 beta, a real-time Internet collaboration technology and service for musicians, and eJamming AUDii0 portal—a community where musicians can connect, showcase their music, find teacher/students, buy and sell gear, and more—allow musicians to make music and collaborate with others online. The software and service are available for free during beta testing at www.ejamming.com.

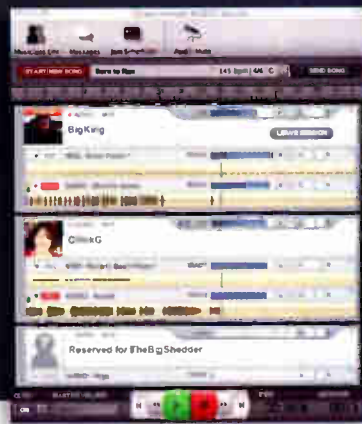
With eJamming AUDii0, musicians need access to a computer, a broadband connection, audio interface device and microphone.

Proprietary data-thinning schemes and patented Internet delay-management algorithms enable eJamming AUDii0 to achieve the real-time collaboration. The eJamming AUDii0 software also includes a host of other features such as CD-quality recording capability, searchable profiles, JamVite instant messaging, an automated calendar and full MIDI capability.

MOBILE AUDIO STUDY FROM THE USER'S POV

Arbitron and Telephia recently completed a study that examines the evolving market for mobile audio services from the consumer point of view in terms of current usage patterns, attitudes and preferences.

Key findings include one in 16 mobile phone subscribers (6 percent) report using one or more mobile audio features in the past 30 days, and downloading music over-the-air has the highest awareness among the general mobile population. Listening to music transferred from another device is the most commonly used way of accessing mobile audio. The complete study can be downloaded free of charge at www.arbitron.com/study_h/mobile_audio_study.asp.



INDUSTRY NEWS

Jon Tropea Jr. joined Ear Goo Inc. (NYC) as creative director, where he will compose, sound design and mix, as well as oversee the creative and production staff...Panamax/Furman (Petaluma, CA) promoted Chris Swan to VP of operations...In other promotion news, Oliver Baumann is Sennheiser's (Old Lyme, CN) VP of export for Latin America...CEDAR Audio (Cambridge, UK) appointed Uwe Seyfert as sales manager for CEDAR Deutschland...Kenneth M. Scott and Gary Stratton joined Advanced Broadcast Solutions (Seattle) as director of broadcast engineering and business development sales executive, respectively...New East Coast regional sales manager for Symetrix (Mountlake

Terrace, WA) is Chris Jones...Jake Jacoby is handling sales and marketing for Montana, the Dakotas, Wyoming, Nebraska, Minnesota, Iowa and Missouri for Yamaha Commercial Audio Systems (Buena Park, CA)...New face at Metric Halo (Hopewell Junction, NY) is Brian Peters, field application engineer...Programmer/engineers Yelena Akhramkov, Brian Flinn and Tim Gohl joined Sound Devices (Reedsburg, WI)...Jumping from PRG to EAW (Whitinsville, MA) is Martyn "Ferrit" Rowe, product specialist...Steve Hopia is now production manager at Radial Engineering (Port Coquitlam, BC)...New product application specialist at Biamp (Beaverton, OR) is Claudio Berstein...Distribution deals: HME (San Diego, CA) named Grupo Audio Diseno (Mexico City) as its Mexico distributor; and Crowley and Tripp (Ashland, MA) teamed with Digital Audio Service (Hamburg) for distribution in Germany.



Chris Swan

LISTEN...PLAY

Go beyond the printed page and log on to www.mixonline.com to get extra photos, text and sounds on these select articles—plus much more online:



WATCH: "Class of 2007"

There seems to be many great studios opening up recently. Unfortunately, space restrictions do not allow us to spotlight all of this year's contestants. Peruse this year's honorable mentions.



READ: "Mavericks"

Get a full audio equipment list from this New York City project studio.



LISTEN: "Recording Notes"

Check out audio clips from Bryan Ferry, Kings of Leon, Journey's "Don't Stop Believin'" and Cool Spins.

PLAY: TALKBACK!

You're too far back. Why can't I just hang the P.A., for goodness sake? Does the vocalist *really* need to cup the mic? I just want to mix—why are they making me pack the truck, too!? Hey, front-of-house engineers: What's the worst situation you've been in while on tour and how did you overcome it? Let us know by e-mailing mixeditorial@mixonline.com.



TALKBACK

CURRENT

NOTES FROM THE P&E WING

CREATORS PROVIDE INSIGHT INTO DIGITAL DISTRIBUTION

While The Recording Academy® is best known for presenting the Grammy® Awards (the industry's only peer-to-peer awards, by the way), it's also a busy membership organization that presents professional development programming around the country. A good example is the lively panel on digital distribution recently organized by producer Mike Clink, chairman of the Los Angeles P&E Wing committee, who comments, "I work with a lot of independent artists these days, and the Number One question they ask is, 'How do I get my music on iTunes?' This panel provided insight into the process, as well as direct access to the companies that provide distribution services."

PHOTO: JORDAN ALTHOFF/WIREIMAGE.COM



From left: Eric Garland, BigChampagne; Kevin Arnold, IODA; Derek Sivers, CD Baby; Bruce Taylor, SNOCAP; Jeff Price, TuneCore

"Navigating Digital Distribution: Mysteries Revealed," held at the Los Angeles headquarters of The Recording Academy on April 24th, saw panelists Derek Sivers, founder and president of Web-based indie-music seller CD Baby; Kevin Arnold, founder and CEO of comprehensive digital music service IODA; Jeff Price, founder and CEO of digital distribution company TuneCore; and Bruce Taylor, VP of marketing and PR for SNOCAP Inc., a service that allows artists to set up their own Web-based stores. Handling moderator chores was Eric Garland, CEO of BigChampagne Media Measurement, which provides analysis on issues involving the intersection of entertainment and technology.

Garland assumed the role of an artist seeking distribution and asked panelists to delineate the services each company offers and what artists or labels they might be right for. Arnold described IODA as a service occupying the position of a traditional distribution and marketing company tailored to the digital realm, interested in signing on more established artists and labels. CD Baby works on the model of an indie distributor and is more open to artists taking their first step into the marketplace. TuneCore's Price explained that he would embrace the model of a completely non-musical company and described his company as a musician's delivery service: While IODA and CD Baby receive a percentage of sales for their work, TuneCore charges an up-front flat fee to make an artist's music available for download. While all three services act as pipelines to digital music stores such as iTunes, an artist who wants to establish his own store on a band Website or MySpace page could turn to the services of SNOCAP.

Panelists discussed filtering processes they've put in place as a form of A&R: CD Baby's staff physically listens to everything submitted and frequently culls out copyright-violating mix-tapes, while SNOCAP has a digital fingerprinting system. Panelists were in agreement that the retail element of the digital world would not move toward pro-level audio formats any time soon, and they spoke to a strange wrinkle in digital music stores that actually encourages less originality: Because consumers often search for music by title, a new artist may have their best chance of getting heard by posting cover versions.

Taylor made one of the strongest points of the night: From an artist's point of view, digital distribution shouldn't be seen as a cold system of dollar-a-tune sales. "You still need to think of making a connection with fans. Direct connection is crucial, and it doesn't always happen through music store downloads." Moderator Garland brought the evening to a close by posing the question: Five years from now, what would the same panel be discussing? "If anyone says anything other than I don't know, don't trust them," Price said with a laugh.

Thanks to writer Chuck Crisafulli for his work on this story. Find out more about The Recording Academy's Producers and Engineers Wing at www.producersandengineers.com.

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World Radio History

What Makes a Great Space?

Designing a Concert Hall for Performing and Recording

“When Symphony Hall in Boston opened in 1900,” says Tony Hoover, an acoustician and principal with the firm Cavanaugh Tocci, “it got terrible reviews. The conductors at the time, even though many of them had never seen it, just couldn’t believe that a hall designed using engineering principles could sound good. Thankfully, the audiences eventually caught on, and now it’s considered among the three finest-sounding halls in the world.” This is the reason why Hoover, who has some 1,600 projects on his resume, used Symphony Hall as a reference point when he designed Tufts University’s new Distler Recital Hall.

Distler is just one part—albeit a major one—of the \$28 million Granoff Music Center at Tufts, which opened in January of this year. It’s the first building that the school’s music department has ever been able to call its own, and it’s a huge leap forward. There are five state-of-the-art classrooms with computer-controlled audio/visual systems, double-wall-insulated practice rooms where the loudest groups can play without disturbing others, a large rehearsal space that doubles as a second performance venue and a multimedia lab with 13 music/recording workstations—all linked with audio, video and Ethernet.

SOUND DESIGN

Symphony Hall’s architects—McKim, Mead and White—were among the very first to enlist the aid of an acoustics specialist, in their case a young Harvard physics professor named Wallace Sabine. Sabine is the inventor of the concept of RT60 and the standard unit of sound absorption, the sabin, is named after him. Similarly, when tasked with designing Tufts’ new building, architectural firm Perkins & Will called on Tocci to handle the sonic aspects.

Seating only 300 and designed for recitals and chamber music, Distler is hardly on the scale of Symphony Hall, but its stage is large enough for a good-sized orchestra, a big band or an 80-voice choir. And having attended some four-dozen events there, I can attest that its sound is glorious. The reverb seems to last forever (actually, the RT60 is almost exactly two seconds), and it’s remarkably even, anywhere in the hall. There are no slaps or flutter echoes, yet even with all the richness, the sound is



PHOTO: JOANNE TUBIN/TUFTS UNIVERSITY PHOTO

crystal-clear—although I’ve noticed it’s sometimes hard to understand conversation-level speech from more than a few feet away.

“What was old is becoming new again,” says Hoover, explaining the design philosophy behind the hall. “We used very significant upper-volume. The hall is four stories high and the seats only go halfway up. It’s the same in Symphony Hall: There are two balconies, but the whole upper-half is open for blooming of reverb. It makes for a much more lush reverberation—not just a longer time, but a smoother sound.

“And while you’re up there, you want to make that volume very diffusive,” Hoover continues. “At Symphony, there are nine different-sized coffers [sunken panels] in the ceiling, and there are niches above the balconies, which break up the sound. In Distler, we used convex shapes that wrap around the hall, all the way up to the ceiling. There are curved overhead reflectors above the stage and angled panels over the audience area.”

There are no absorptive materials on the walls at all. “I went out on a limb with that decision,” says Hoover. “It’s almost a given that you put sound absorption on the rear wall to prevent echoes and anomalies, but I decided to rely entirely on the seating for that.” Eight rows of seats are on the floor, raked gradually, and then there are five more rows that rise sharply to where they meet the rear wall about halfway up. The seats are upholstered. “Acousticians love upholstered seats,” he notes. “Not only are they comfortable, but they are great absorbers and then the sound doesn’t change as much when you have a full audience. The rear wall is

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diffusive and bumpy, just like the sides.”

Another idea borrowed from Symphony is that there is no proscenium. “A proscenium de-couples the stage house and the audience house,” Hoover explains, “and that arch cuts down on the sound going into the audience more dramatically than you would ever think. This way, the performers and the audience are in the same room.

“The side walls of the stage are angled 10 degrees, and with the reflectors above the stage, the effect is that of a band shell. Now a band shell has three purposes: to assist the propagation of the sound to the audience, to promote blending of the sound and to propagate sound from one side of the stage to the other for cueing”—in other

words, making sure the performers can hear each other. For the musicians at Tufts, who are used to playing in low-ceilinged parlors, acoustically dead lecture halls and boomy chapels where hearing the other instruments, or even themselves, has been a major issue—just this aspect of the new hall is cause to jump for joy.

Speaking of jumping, the stage floor is floated on resilient mounts. “It’s mostly to loosen it up a little so the basses and cellos and low end of the piano can get more resonance,” says Hoover. “But it also means that if someone wants to have a concert with a dance component, the stage will work for the dancers.”

One of Hoover’s basic philosophies is

that halls designed for Western classical music need to be rectangular, which Distler is. “The starting point is the culture that the music comes out of,” he explains. “Cultures that are more outdoors-oriented tend to have music that’s more rhythmic and percussive because that lends itself to outdoor performance. Cultures more oriented toward being indoors use more melody and harmony and counterpoint. The music follows the acoustic. Organ music is designed for churches. As for chamber music—well, why do you think they call it that?”

“There are many reasons why rectangular rooms work so well, as opposed to fan-shaped rooms, none of which I’ve ever been satisfied with. It has to do with the lateral reflections and the accumulations of reflections that build up to make the reverb. It’s more even in a rectangular space. It sounds more ‘real,’ no matter where you sit. Obviously, the relationship between the direct and reflected sound is going to change depending on whether you’re sitting close to the stage or against a side wall or the back wall, but the sense of space doesn’t change. The most important rule is that the length, width and height are all different by a significant amount, at least several feet. And it’s best to have the stage against a narrow wall.”

DON'T FORGET ISOLATION

In addition to the shape, the other critical criteria for a successful concert hall are sound isolation and low ambient noise. Especially in an academic music building, where several concerts, rehearsals and high-SPL classes may be going on at once, isolating the concert hall from exterior sounds is crucial. Distler achieves this by being a box within a box. The side walls have two layers of 8-inch-thick concrete blocks separated by a 2-inch air space. The ceiling is made up of several layers of drywall hung on springs from the building’s roof. The floor is on grade or above unoccupied space, so direct transmission through the floor isn’t an issue, but structure-borne sound might still get in. “There’s a lovely atrium right outside the hall, and what if a jazz combo was playing in there?” asks Hoover. To deal with that, the side walls are stepped where they go under the floor, with four or five small steps that go down about two feet. “With each bend or fold in the floor,” Hoover explains, “you lose about 3 to 4 dB of transmission.”

As for ambient noise, the primary goal was making the ventilation system as quiet as possible. “The HVAC mechanical equipment is not on top of the space, the way

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you often see it," notes Hoover, "but it's adjacent to it, outside of the two rows of concrete. To make sure the air velocities are very slow, we used large ducts, but that meant poking big holes through the wall, which might have hurt the isolation. So we used a 'housed' system: a double duct with one inside the other. I can't hear it operating, even when I stand in the hall and ask them to turn the system on and off. We haven't had the opportunity to formally measure the ambient level in the hall, but I'm confident that it will be below the noise floor of the instrumentation—and we've got some really good instrumentation."

THE MULTIPURPOSE FACILITY

The university mandated that Distler be usable as both a lecture hall and concert space, requiring sound reinforcement and visual-projection systems. Designed by Cavanugh Tocci A/V systems specialist Matt Moore, the sound system has three ceiling-hung EAW clusters, two side clusters and a subwoofer—all QSC-powered. A Lectrosomics automated mixer and Shure mic mixer handle small P.A. chores, with source-switching via Crestron touchscreen panels at the lectern, stage manager's post or tech booth. For more complex reinforcement, a Soundcraft GB4-24 console can be used in the booth or the house, along with several EAW wedges for stage monitoring or sidefills and some small EAW boxes for front-fill.

And what about recording? "The most important things for recording are sound isolation and background noise," says Hoover. "If you're doing any distant miking, you have to have those. The surfaces come third. Adding stuff onto the walls will not achieve isolation or quiet. You'd be amazed at how many clients don't realize this. They read the articles and the ads, and put fuzzy stuff all over the walls, but because they have loud ventilation sound and no isolation, it's not going to help. It goes back to the same fundamentals: Maintain the sound integrity first, then worry about the finishes."

When the Tufts building committee saw Distler's potential for recordings, they asked Moore for a spec. His system design covered a wide range of situations, yet had to be geared toward live recording as opposed to studio-style overdubs.

It starts with eight small-capsule AKG mics hung permanently from the ceiling on monofilament lines; servo motors allow these to be moved vertically and horizontally. In the corners are four omnis, and above the first and the sixth rows of the



PHOTO: JOANNE CORNLIFFS UNIVERSITY PHOTO

audience are matched pairs of C451B cardioids on stereo mounts. For close-miking, the school has a collection of Neumann, AKG, RØDE, Shure and Audio-Technica models.

The recording mics are fed through a Yamaha DMI1000 mixer into a 16-input Pro Tools HD system, as well as a second Pro Tools system (Digi 003/Pro Tools LE) and a Tascam CD recorder. Near-fields include five Event TR6s and a Tannoy TS10 sub. Yet another Pro Tools rig lives on a portable cart, with a Yamaha 01V96 mixer, an Apple MacBook Pro and an Mbox 2 Pro interface. This can be used anywhere in the building, especially the downstairs Fisher rehearsal/performance space, which has tielines to Distler's tech booth.

Video gear includes a fixed Sony EVID-70 camera with remote pan/tilt/zoom (controlled from the touchscreen panels), a Sony DVD recorder, three Sony DVCAM decks and two Canon Elura 100 cameras that can be used either free-running or with their outputs piped to the tech booth, and blackburst is available for high-end multicamera shoots.

How does Distler sound for recordings? It's unbelievable. While Hoover and his colleagues didn't set out to make a great recording space, that's exactly what they've done. The facility's new, hand-selected 9-foot Steinway concert grand doesn't hurt, either. So far, we've recorded piano soloists and duets, gospel and chamber choruses, jazz combos, string quartets, antiphonal brass choirs, African drum ensembles, and a whole evening of a cappella singing. We're still experimenting, but our initial recordings have everyone very excited about both the hall's potential and the flexibility we have just by trying different mic placements and balance.

In case you noticed the subtle "we" shifting of pronouns in the last paragraph, that was no accident: It's my way of telling you that this wonderful new building

It's almost a given that you put sound absorption on the rear wall to prevent echoes and anomalies, but I decided to rely entirely on the seating for that.

—Tony Hoover

is where I now work. I've been teaching courses at Tufts since 2000 and was a consultant on the new building. However, when it opened this year, they created a new full-time coordinator of music technology position to oversee all of this stuff, and I'm it. I'm in charge of running the recording and SR systems, as well as the computer and A/V systems in the classrooms, and teaching their operation and maintenance to other faculty and students. And I'm still teaching my classes.

It's an exciting and incredibly hectic time. As with any new facility, there were plenty of kinks to work out, along with some 55 events that needed tech support in the first 14 weeks, so I've been working a lot of long hours. That's not unusual for me, but what is unusual is that I have to go out of my house to do it. This is the first full-time job I've had that requires my physical presence (as opposed to things like product support or Web design that I can do at home) since 1979. It's a big change.

And it means that I have to make sacrifices in other parts of my life. One of those sacrifices will be yours, dear readers: After this issue, you won't see me in these pages every month. In an effort to keep what's left of my sanity, I'm going to be writing "Insider Audio" in alternate months.

Meanwhile, if you are in the Boston area and want to come by and see what Hoover and Moore and the rest of the very talented team that built this place have wrought, feel free to get in touch with me at paul.lehrman@tufts.edu. I'll be glad to show off the building, the hall and all the new toys. Let me just find my keys. ■

Paul Lehrman is a composer, producer, writer and filmmaker, but at the moment doesn't have time to be any of these. His "Insider Audio" columns from the past 10 years have been collected in The Insider Audio Bathroom Reader, available from mixbooks.com.

"We Switched"



Grandmaster Flash

Producer / DJ / Recording Artist



Francis Buckley

Multi-Platinum Grammy-Winning
Engineer / Producer



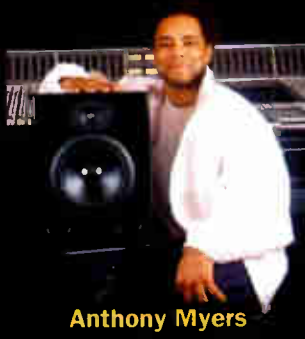
John Rodd

Orchestral Scoring Recordist
Music Scoring Mixer



"Prince Charles" Alexander

Multi-Platinum Grammy-Winning
Engineer / Producer



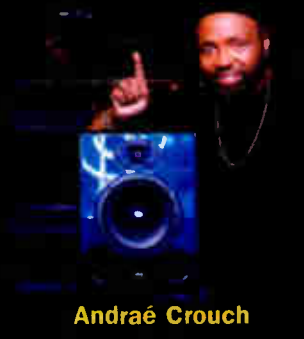
Anthony Myers

Engineer / Producer
Sound Designer



Gerhard Joost

Multi-Platinum Engineer
Mixer / Producer



Andraé Crouch

Multiple Grammy-Winning
Gospel Singer / Producer / Pastor



Lionel Jarvis

Multi-Platinum Musician
Musical Director



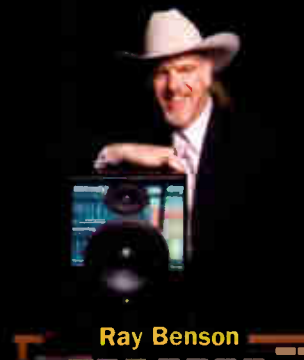
DJ Ron G

Remixer / DJ



Steve Pageot

Grammy-Winning Producer
Musician / Composer / Engineer



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CLASS OF 2007

THIS YEAR'S HOTTEST NEW ROOMS



PHOTO: RICK SCHOUSTAL

ON THE COVER

GREAT DIVIDE STUDIOS

Jamie Rosenberg's Great Divide Studios in Aspen, Colo., is the fourth facility to bear the Great Divide name, and it's a huge upgrade since the little room Rosenberg started with, built into the Great Divide Music Store. The room on this month's cover was purpose-built as part of the new home Rosenberg shares with his wife, Carole, whose architectural design firm built the house and studio.

The studio design was done by Martin Pilchner of Pilchner Schoustal International. "We wanted to get the control room in the best physical location and orientation to optimize both room size and geometry, which placed it approximately in the middle and sideways," Pilchner explains. "We placed the live room to the right of the control room and a large iso booth to the left. You have a direct sight line from the left iso booth through the control room and then through the studio proper to the second iso booth at the far end of the studio. A third iso booth also doubles as a reverb chamber.

The goal for the 2,200-square-foot studio with 16-foot ceilings was to create a high-tech space with a relaxed, living room ambience. Consequently, the design incorporates fabric ceiling and wall treatments, custom cabinetry and equipment racks, hand-blown glass lighting, and antique oak floors. A leather sofa, suede chairs and an antique coffee table add to the homey atmosphere.

The 5.1 surround sound control room is fitted with soffitted ATC 150s and an automated 7-foot projection screen. Working with a world-class assortment of microphones, outboard gear, Digidesign Pro Tools and a 32-fader Icon D-Control, Rosenberg tracks and mixes out-of-town clients such as Hall and Oates, Jonathan McEuen and Beyonce, who finished tracking for *B'Day* while in Aspen on a photo shoot. "Aspen also has a fantastic local music scene," Rosenberg says. "There is a great pool of talent here that I really enjoy working with."

Another enticing aspect of Great Divide Studios is the impressive collection of musical instruments that Rosenberg, a guitarist as well as a producer/engineer, makes available to clients. He's got an army of guitars, a Steinway B, a 1957 Hammond B-3, and a first-rate assortment of drums, amps and unusual instruments. "We often have bands come in and just bring their sticks and picks," Rosenberg says. "Between Martin, Carole and myself, we definitely accomplished our goals. The studio sounds and functions beautifully, the vibe is relaxed and inspiring, and clients just love working here."

ROC THE MIC

Jay-Z's new home base is the 4,500-square-foot Roc the Mic. Owned by Juan Perez and designed by the Walters-Storyk Design Group, RTM went online in Manhattan this past January. Pictured is Studio A, housing a classic SSL 9080 J, which was carefully refurbished by Dave Malekpour's Professional Audio Design. WSDG and PAD worked with George Augspurger on the custom monitor installation. Both this control room and its "twin" feature custom split-island producer's desks, plenty of room, and plenty of privacy.

PHOTO: WES BENDER © MOJO WORKING INT. 2007

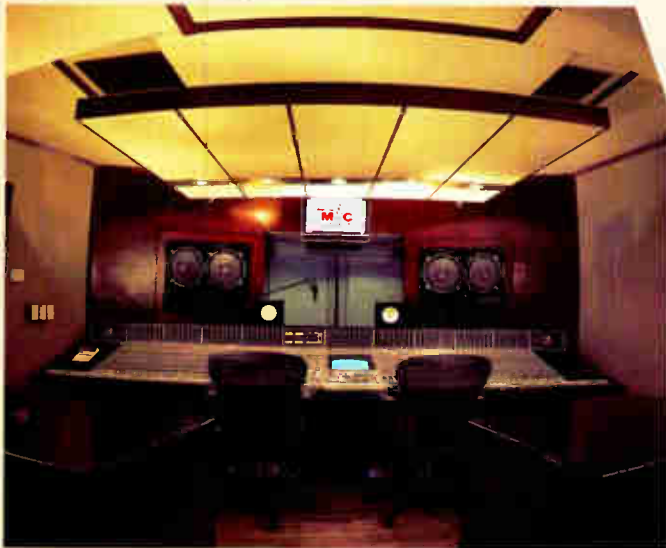




PHOTO: TOBY HOOGS

ISLAND VORTEX

The island in question is the Big Island of Hawaii. This facility, designed by Larry Swist of Lawrence P. Swist Designs, is in Kailua-Kona and features Swist's custom panels, built by his Evenfall Acoustics manufacturing company. Featured equipment includes a 32-channel Tonelux console. Barefoot MM27 monitors, Pro Tools HD2, and Mytek and Lynx Aurora converters.

PHOTO: MICHAEL ROSENBERG



PHOTO: CHRIS PELONIS

AJA PRODUCTIONS

On the northeastern shore of Long Island, in the village of Port Jefferson, N.Y., is Aja Productions, owned by Antonio Corcella. This personal facility was designed and built by James W. Grady and is treated with Auralex acoustical panels and oak hardwood floors. Corcella works in Pro Tools, employing numerous Universal Audio plug-ins.



THE GRIP

Nashville-based designer Carl Tatz created this personal studio for Rascal Flatts bassist/songwriter Jay DeMarcus. Also in Nashville, The Grip went online in April 2006 and includes two Pro Tools HD Accel 7.3 systems and two Phantom Focus monitoring systems—one setup in the spacious control room pictured above, and one in a smaller editing suite known as The Cockpit. There are also three iso booths, a lounge, and a host of musical instruments, plug-ins, outboard and mics.

PHOTO: LOU JOHNSON



THE RECORD PLANT

Vincent Van Haaff of Waterland Design redesigned the Record Plant's SSL 1 room (Los Angeles). Re-opened for business in January of this year, the studio was refurbished with the replacement of midrange diffuser elements on the back wall with wide Q absorption. In addition, a center baffle was added in front of the wall to improve the center image and subwoofer correlation. New gear includes an SSL 9000 J console and Pro Tools HD3.

PHOTO: ED COLVER



ARCHON STUDIOS

Chris Pelonis of Pelonis Sound and Acoustics designed owner Aris Archontis' private facility situated in Sherman Oaks, Calif. The studio is centered around an SSL Duality console and features a diverse selection of boutique and classic outboard gear. Custom Pelonis Signature main monitors were installed and tuned by the designer. The live room boasts a 22-foot ceiling treated with a variety of natural materials. System integration was performed by Vertigo Recording Services, and acoustical construction provided by Sound Waves Acoustical Technologies.

CLASS OF 2007

FONOGENIC RECORDING

Musicians and brothers Ran and Tal Pink celebrated the completion of their new studio, Fonogenic Recording, in Van Nuys, Calif., this April. Designer Carl Yanchar of Wave:Space designed the facility to serve as a creative space for artists who are on the brothers' online Fonogenic label to record and perform live streams. Included are a stylish lounge and large soundstage. The 410-square-foot control room is centered around a Trident Series 80B console and Barefoot MicroMain 27 monitoring. Also on hand are Pro Tools HD and Logic, and some of the owners' "favorite toys," such as a Shadow Hills Gama 8-channel mic pre, Smart Research C1 compressor and a pair of Empirical Lab Distressors.

PHOTO: RAN PINK



PHOTO: ED COLVER

20TH CENTURY FOX, NEWMAN SCORING STAGE

Designer/acoustician Peter Gruenisen—then a partner in studio bau:ton—designed this renowned facility in 1996 and was asked to update the room this year to meet more current technical requirements. Gruenisen's nonzero\ architecture firm added a patchbay to the left side wall as well as a complete subterranean reworking of the trough system and wiring. New equipment in the facility includes a 96-channel Neve 88RSP console and Neve remote Air Mänserraat and 1081 mic preamps. This venerable L.A. studio re-opened for business in February '07.

PHOTO: HANSON HSU



SLAPPO MUSIC AND SOUND

Hanson Hsu of Delta H Design developed this creative space for composer Neil Uchitel. The facility design incorporates Hsu's patent-pending ZR (zero-reflection) acoustics. (For more about ZR, see Coast to Coast in the November 2006 issue of *Mix*.) The facility went online last June and features Pro Tools HD2 and a Yamaha DM2000 digital console.

STAR CITY RECORDING COMPANY

Pitchner Schoustal International redesigned part of the StarCity Recording complex for owner/producer Jeff Glixman this year, with particular attention to this multipurpose performance stage. The control room was upgraded with a Quedsted 5.1 monitoring system and an SSL Axiom MT Plus console. StarCity provides recording/production/label services and rehearsal space to new and established artists.

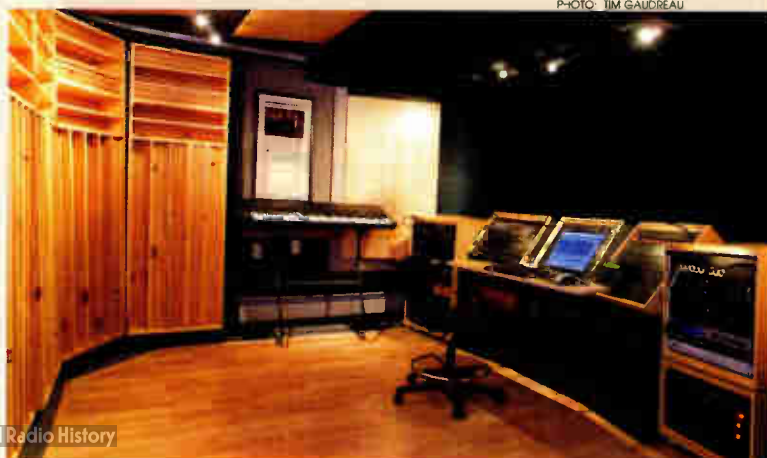
PHOTO: RICK SCHOUSTAL



LITTLE RIVER SOUNDS

This studio in Haverhill, Mass., was designed as a singer/songwriter production space for owner James Deveau. Lou Clark designed the one-room studio with custom diffuser boxes hung from a ceiling track, allowing the diffusers to be moved back and forth between the critical listening position and another position that creates a "vocal booth." In general, the acoustical treatments can be removed and arranged to create different characteristics within the room. Key equipment includes Nuendo, RME Multiface and Digiface, Cubase 4 and SLS Pro Studio S8R speakers.

PHOTO: TIM GAUDREAU



GAVIN LURSSEN MASTERING

Former Mastering Lab staffer Gavin Lurssen opened his own facility a few months ago, and he's been extremely busy, having already completed mastering projects for producer/artists T Bone Burnett and Jøe Henry, artists including Loudon Wainwright, John Doe and Randy Newman, the score of videogame *God of War*, and many others. Lurssen designed the studio with colleague Dan Garcia, and room tuning was done by Charlie Bolois of Vertigo Recording Services. Lurssen says he made a point of retaining the natural brick walls of the building, but added acoustic treatments to help the room "resonate." Lurssen uses Sonic Studio and Pro Tools, ATC monitoring and a complement of his own modified gear.

PHOTO: DAN GARCIA



PHOTO: TONY BERG

SHA STUDIO

This studio, designed by Tony Berg, is a recording facility within the Malibu Performing Arts Center (Malibu, Calif.). It was established to record artists performing at the live venue, but can also serve as a stand-alone recording environment. Owned by Gene Shively and Mary Devine Scott, the studio opened in August 2006 and was quickly pressed into service to record a Tom Petty concert at the Center. Equipment includes custom Genelec 1034B monitors and a Pro Tools HD3 system with 48 channels of Apogee I/O.

PHOTO: © RUSS BERGER DESIGN GROUP



THIRD EAR MUSIC STUDIOS

The Russ Berger Design Group designed this 1,000-square-foot addition to the More Church in Amarillo, Texas. Included in the project were a new control room, booth and support space. RBDG employed SpaceArray diffusers from pArtScience and incorporated a collection of African art pieces and Wenge and Padauk wood finishes into the design. Major equipment includes two Sony DMX R100 24-channel consoles, two Radar Adrenaline Plus 24-channel multitracks and a pair of Mastering Lab-customized Tannoy speakers with modified Yamaha Natural Sound amp.



PHOTO: TED COLVER

LEVELS AUDIO POST

Brian Riordan's Levels Audio Post (profiled in *Coast to Coast*, Feb. '07 issue) is a high-design, fast-paced facility that provides post-production services for *American Idol* as well as numerous other film and TV clients. Incorporated into the design by Peter Grueneisen of nonzero\architecture are Tessaract LMH-1 three-way screen channel speakers (designed by Tomlinson Holman), a 32-channel Digi ICON D-Control console, Pro Tools HD5 Accel system and JBL 8340 surround monitoring.

MASON HALL RECORDING STUDIO

The State University of New York at Fredonia opened this new studio for student use in January 2007. The room was designed by Larry Swist of Lawrence P. Swist Designs and includes a 56-input SSL G+ console, Dynaudio M3A main monitors and Genelec near-fields. Recording gear comprises Pro Tools HD3 and an Otari MTR-90 24-track analog machine.

PHOTO: LARRY SWIST



CLASS OF 2007

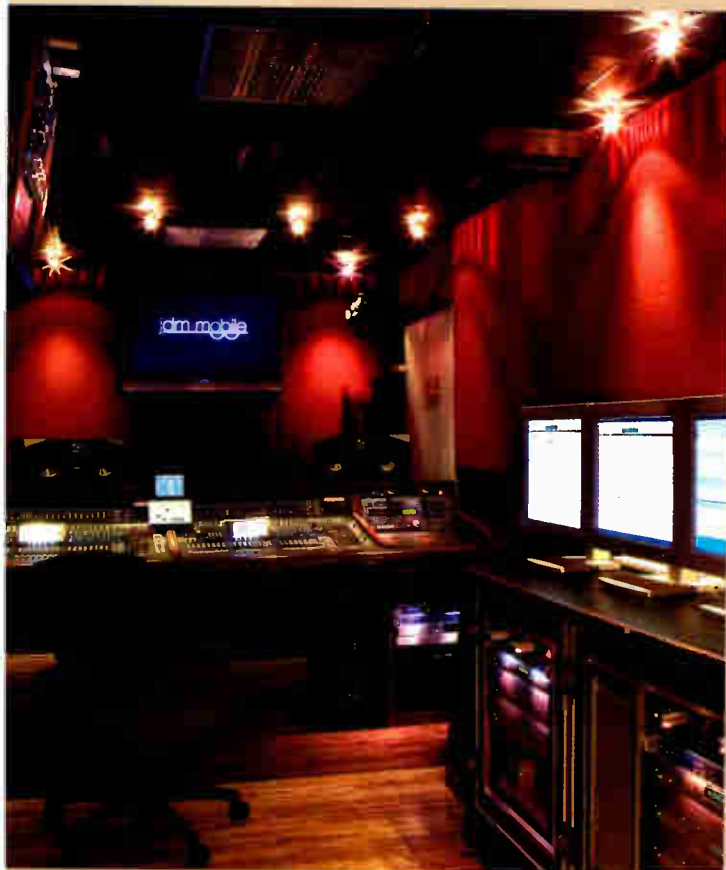


PHOTO: TIM SONG

JDM MOBILE BELUGA TRUCK

Company founder Jimmy Daniel designed his new Beluga Truck as part of the JDM Mobile fleet based in Peachtree City, Ga. It's a 40-foot studio on wheels equipped with dual Yamaha DM2000 V2s and Pro Tools HD3 rigs (gotta have two of everything when you're remote-recording live), and Adam S3A 5.1 surround monitoring. Since its completion in April last year, the Beluga has been used to capture performances by the likes of Justin Timberlake, The Killers, Nickelback, Snoop Dogg, Ludacris and many others.

CHICAGO MASTERING SERVICE

Bob Alach of Alacronics designed this new facility in Chicago for high-res, low-distortion stereo and 5.1 surround mastering of CDs and LPs. Alach reports that the monitoring and room response are flat within 1.5 dB from 10 to 40k Hz. Custom furniture was also designed to minimize acoustic interference. The design includes SLS/Bag End monitoring, an Alacronics-modified Ampex ATR-102 and a custom-built transfer console from Shea Ako.



PHOTO: JASON WARD



PHOTO: MICHAEL COLLAVITO

PILOT RECORDING STUDIOS

The redesign of Pilot Recording Studios (New York City) was done by Justin Colletti and includes the installation of a Neve VR console and Pro Tools HD system, as well as an RPG Flutter Free diffusion system. Construction and installation was completed by Wilbur Systems Ltd.



PHOTOS: DONALD TIPTON



COLUMBUS RECORDING STUDIO

Jesse Deese's Columbus Recording (Columbus, Ga.) opened in January 2007. Designed by Deese, it features a large (25x22-foot), tiered control room with Red Oak Art diffusers on the back wall, a granite-topped producer's desk and soffited Dynaudio 5.1 surround monitoring. The drum booth and iso booth include white oak flooring, and Colorado River rock is used along with cedar planking for diffusion. ■



Nelly Furtado

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THE OTHER CLASS OF 2007

NEW LIVE VENUES DOT THE COUNTRY

By Sarah Benzuly

While it may seem our industry's main source of revenue is being jam-packed into a three- or four-month touring season, more venues are opening, attracting top-tiered local, national and international artists year round.



SEARS CENTRE

Westbury National Show Systems spec'd a JBL PD and AE Series loudspeakers for Sears Centre, the Midwest's newest multipurpose arena, 30 miles northwest of Chicago in Hoffman Estates, Ill. The 11,000-seat venue is arranged in a horseshoe pattern. Four clusters of three JBL PD5212/64 loudspeakers were placed along the north and south sides, while two clusters of two were hung in the northwest and southwest corners. Additionally, two clusters of three PD5212/64s are located on the west end. Two clusters of four PD5212/95 loudspeakers cover the ice surface. Four pairs of JBL ASB6128V subs arranged on the sides. Crown I-Tech and CTs Series amps power the system, with processing handled by BSS Soundweb London.



BLISS LOUNGE

Even though the trendy clubs of New York City are just a hop, skip and jump away, Bliss Lounge (Clifton, N.J.) is attracting top DJs and rock/Latin/dance music artists. The 1,000-person-capacity space was renovated prior to its reopening earlier this year. Joe Lodi, owner and chief designer of Advanced Audio Technology, and his partner and head of installation, Angelo Poulos, designed and installed the new system, which includes an AAT custom DJ console, three-way loudspeakers and subs alongside an Allen & Heath X:one 92 mixer in the DJ booth. Lodi positioned four Turbosound TA-500s on each side of the dancefloor across its length, about 12 feet off the ground and pitched down 30 degrees. Four custom EAW slot tweeter arrays are positioned slightly in front of the TA-500s and correspondingly delayed; all are powered by MC² amplifiers.

WK KELLOGG AUDITORIUM

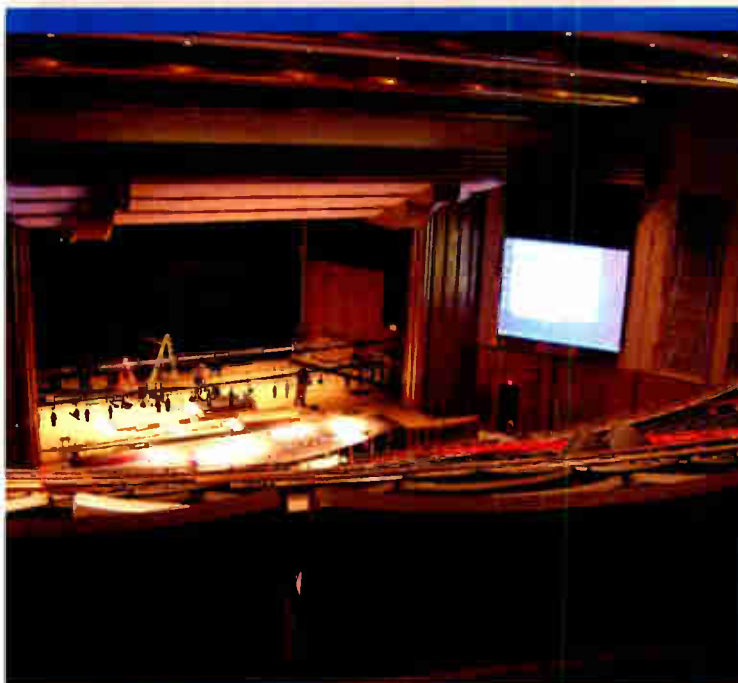
The WK Kellogg Auditorium in Battle Creek, Mich., celebrated the Kellogg Company's 100th anniversary with a complete renovation, spec'd by Austin, Texas-based BAI, LLC. The original building seated 2,000 and was used for numerous events, such as concerts by the Battle Creek Symphony Orchestra and the Battle Creek Brass Band. Today, the venue hosts a new orchestra shell and redesigned acoustics, lighting, audio and video systems. Working with Architects Inc. and theatrical consultants Jones & Phillips Associates, BAI incorporated JBL VRX932LA loudspeakers, two new side-projection screens—all eyebrowed so the loudspeakers could be heard but not seen. With no space to hang subwoofers, two JBL 4893 subs were placed in organ chambers on each side of the stage. Additionally, portable JBL AM6215 loudspeakers are used as sidefills, while JBL Control28T wall-mount loudspeakers were installed in the under-balcony areas.



HENDERSON PAVILION

Just southeast of Las Vegas, Henderson Pavilion received a full audio redesign/install, thanks to OSA International's national design/build Integrated Solutions division. The Henderson Pavilion at Liberty Point is a semi-enclosed concert venue. While much consideration was given to use existing equipment, the FOH system now comprises 18 JBL VT4888 VerTec boxes and 12 VT4882 subs; VRX932LAs cover front-fill, while the seating grass area is covered by AM4212s that have been weatherized. Three dbx DriveRack 4800s provide processing for the FOH and lawn P.A.; system control is via Crown CTs 3000 amps. Visiting engineers can mix on a Yamaha M7CL board and make use of a full stock of outboard and Audix mics.

OSA account executive Greg Snyder oversaw the project, while VP/systems engineer Jim Risgin commissioned and provided tuning using JBL's Array Calculation software. The city's Shawn McDermott oversaw the project.



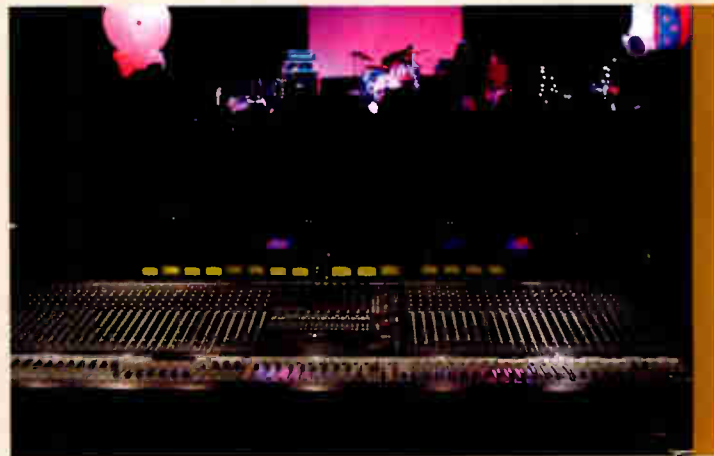
GLASS CACTUS

Built on the grounds of the Gaylord Texan Resort and Convention Center in Lake Grapevine, Texas, the \$16 million Glass Cactus covers a total of 39,000 square feet and accommodates 1,500 people. The new audio system was installed by Clair Bros. Systems and designed by WJHW. To counteract the hard surfaces (including the hardwood and concrete floors—and much glass), WJHW performed extensive computer modeling to balance the presence of the natural finishes with the concealed acoustical treatment. WJHW spec'd a JBL VerTec line array (six VT4888s, three VT887s, six ASB6128V subs, AM6212 for delay fills for the first floor/under-balcony area and 15 Control 29AV1 in the outdoor patio area).



IN THE VENUE

Salt Lake City's In the Venue, a three-floor, 1,600-capacity live music club, features a new system, which includes two Soundcraft consoles: a 48-channel Series FIVE at front of house and 48-channel SM12 running monitors. Local contractor/dealer Sonolux LLC installed the system under the direction of its principal, Rolando "Rolo" Casos, who also serves as the club's head engineer. Casos also flew twin six-box arrays of JBL VerTec VT4887 enclosures with six EAW BH760 subs per side ground-stacked below, all powered by nine Crown CDi 1000 and 2000 power amplifiers. BSS and dbx processing round out the new gear. ■



THE TAMING OF THE ROOM



STUDIO DESIGNERS

SHARE FIXES FOR COMMON

ACOUSTIC PROBLEMS

By Robert Hanson

In an ideal world, all audio would be produced in purpose-built studios that would allow for perfect isolation and accurate monitoring across the entire frequency spectrum. Unfortunately, the economics of the music industry have long made this scenario all but impossible for the studio masses. In fact, a great many audio professionals work remotely in rented spaces or private homes that were never designed with music production in mind. So what can be done to turn a less-than-ideal space into an accurate recording environment?

To answer this question, *Mix* tapped five studio designers who have worked on a wide variety of projects, ranging from complete remodels to semi-permanent improvements of existing spaces. Our experts—George Hallowell of Studio Pacifica, Chris Pelonis of Pelonis Sound and Acoustics, Richard Schrag of Russ Berger Design Group, Larry Swist of Lawrence P. Swist Designs and Carl Yanchar of Wave:Space—talk about many of the obvious and not-so-obvious acoustic problems that plague the average project studio and share which commonly available surface-treatment products can best mitigate these issues.

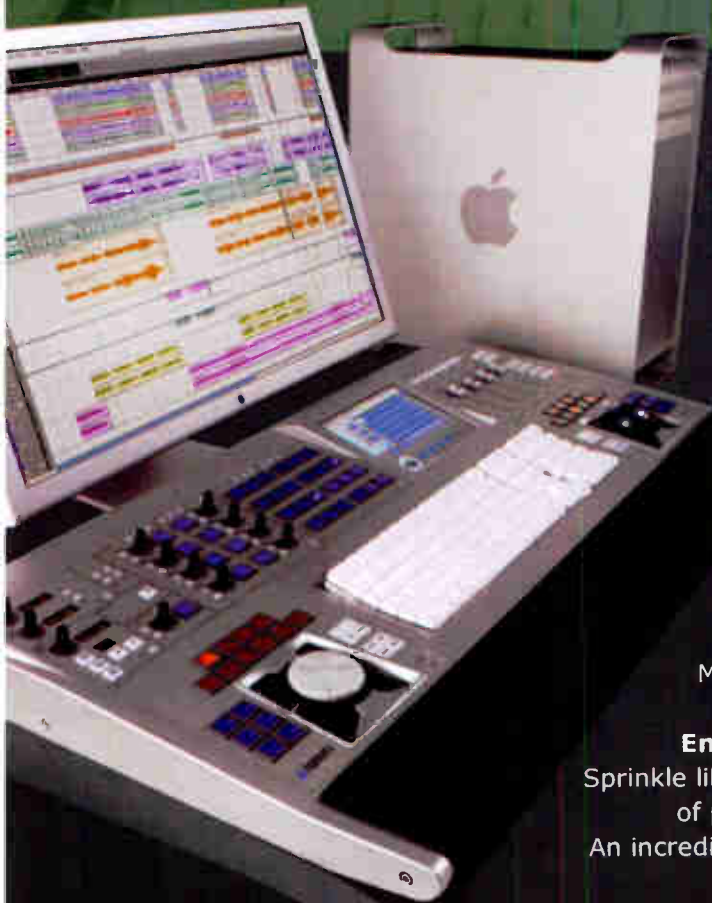
FASHION OVER FUNCTION

It probably doesn't come as a shock that some of the biggest acoustic problems in the average project studio stem from a lack of physical isolation and poor low-frequency management. Many project studio owners also fail to solicit reputable advice and embark on ill-conceived improvement projects that often end up doing more harm than good.

"Noise intrusion is one of the biggest issues," explains Swist. "Eventually, even the most

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sample-oriented productions need a vocal or some live recording, which usually ends up being the most dominant element in a production. Historically, the goal in studio design has been to achieve a recommended NC, or noise criteria value, between 15 to 20 in both the control room and the live room. If you own a sound-level meter, this is equivalent to an A-weighted sound pressure level measurement between 23 and 28 dBA. Most project studios don't have the luxury or budget to have sufficient isolation systems incorporated into their design, and consequently the operators have to contend with all the gear and drive noise, air-conditioner noise, birds, dogs, traffic and the unfortunate occasional event within the plumbing system."

"One common error in the treatment of a cost-effective project studio is to cover the walls with 1-inch-thick foam and carpet the floor to reduce the reverb time and to hide or reduce any parallel wall reflections," Hallowell adds. "Most small rooms, in fact, need only relatively small amounts of absorption to attain satisfactory reverb

times. The absorption needs to be placed in the right positions and be of the correct type and thickness to keep the absorption relatively equal at all frequencies. Carpet and thin foam absorb high frequencies quite effectively, but it is very difficult to absorb low frequency with foam or Fiberglas unless it is quite thick or spaced far away from the wall—both difficult [to achieve] in a small room. There are corner foam products that are eight inches thick or so, but at very low frequencies, the air particle velocity nears zero as the wave approaches the wall, so products that work by slowing the air particle velocity, like foam or Fiberglas, will not be very effective. Low-frequency [energy] is more effectively absorbed, especially in small rooms, with membrane, panel or Helmholtz absorption, such as RPG's Modex unit.

"A third common problem is the lack of diffusion in project studios," Hallowell continues. "The goal in the treatment of the room is not to make the room acoustically disappear. Some of the 'sound' of the room is both necessary and unavoidable.

Remember that the goal of any well-treated room is to make the recording or mix in the room relatively flat and reproducible. That is to say, whatever you record in that room should sound the same no matter where it is played back. As it is necessary to absorb the right amount at the right frequencies, it is also necessary to provide the right amount of diffusion in the correct places."

"Another problem I see is the pouring of money into projects at the direction of Websites, news groups and blogs," Pelonis adds. "It takes an extremely rare and gifted individual who can wade through [all of that] and somehow glean the correct information to create a thriving, true and functional design. Please don't take this the wrong way; I am a huge fan of shared information on the Web. I occasionally browse through the discussions, and there is quite a bit of correct information out there and some very well-intentioned, qualified people providing it. The problem is that there is also a lot of BS. Acoustics is a very deep subject."

MANUFACTURERS OF ACOUSTIC MATERIALS

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Acoustical Solutions Inc.	foam, panels, isolation products	www.acousticalsolutions.com
Acoustics First	foam, panels, diffusers	www.acousticsfirst.com
Auralex Acoustics	foam, bass traps, diffusers, isolation products	www.auralex.com
Bag End Loudspeakers	isolation products	www.bagend.com
ClearSonic Manufacturing	panels, isolation products	www.clearsonic.com
ESR	panels, diffusers	www.zainea.com
Golden Acoustics	panels, diffusers	www.goldenacoustics.com
Gretch-Ken Industries	foam, fire-retardant panels	www.soundsuckers.com
Illbruck Acoustic	foam, panels, isolation products	www.illbruck-acoustic.com
Intelligent Acoustics	foam, panels, doors	www.iacoustics.com
Markertek	foam, bass traps	www.markertek.com
MSR	panels, diffusers, isolation products	www.msr-inc.com
Primacoustic	foam, panels, diffusers, isolation products	www.primacoustic.com
RealTraps	foam, bass traps, panels, diffusers, isolation products	www.realtraps.com
RPG	foam, bass traps, panels, diffusers, isolation products	www.rpginc.com/proaudio
Silent Source	foam, fire-retardant panels	www.silentsource.com
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Taytrix Productions	isolation products	www.taytrix.com

THE NEAR-FIELD MYTH

With the availability of so many self-powered stereo and multichannel monitoring systems, as well as the deluge of accompanying marketing hype, many users have been lulled into a false sense of security when it comes to the accuracy of their studio. "The use of near-field monitors does reduce the sound of the room, but it can also create other potential concerns," Hollowell says. "First of all, the use of near-field monitors does not remove the room sound. If it did, you would be mixing in an anechoic chamber. The room still has an effect."

"Even with near-fields, if the monitors are loud enough for you to hear them, they're loud enough to interact with the room," says Schrag. "For all the reasons that people find mixing on headphones to be unreliable, if the room doesn't play a part in what you hear, then it will be difficult to judge how imaging and panning and any spatial feel will be experienced by listeners who do play the music in real rooms."

Speaker placement and orientation are also extremely critical issues that can create a whole host of other problems if not properly addressed. "Case in point: I was setting up a studio that we had just completed, and the owner had these MTM configuration monitors, with the tweeters in the middle and the mids on either side," says Yanchar. "And they had oriented the speakers horizontally, and, of course, there were horrendous phase cancellations because of that. So even the orientation of the speaker is critical when you're that close."

Thankfully, there are some very easy ways to check for proper speaker placement and make corrections for issues such as boundary effect, a common problem for speakers that are not soffit-mounted. Both Pelonis and Hollowell recommend using some widely available software applications that are designed to tackle these exact problems. "RPG has a very cool program called Room Optimizer," explains Pelonis. "It will display a simulation of the effect of boundary interference with varying speaker/listener positions that are user-definable. I think it's worth the cost of admission just so people can understand the truth of what they're up against from a scientific standpoint. Subtle changes can have not-so-subtle results."

"Near-field monitors should also be located far enough away from the listener so that the soundfield from both, or all of the speakers in the case of 5.1, has time to

Step by Step: D.I.Y. Acoustics

Although it's impossible to account for the myriad variables that come into play when attempting to treat the acoustics of a project studio or production environment, designer Larry Swist has broken the process down into four basic steps that can serve as a rough guide for anyone who is interested in improving the sound of their workspace.

1. Start by eliminating as much noise intrusion as possible. Place CPUs and hard drives in a separate room or closet, or purchase or fabricate some sort of soundproof enclosure. This is especially important for users who record live tracks within the control room.

2. Create a wide-bandwidth absorptive surface in the front of the control room, right behind the monitor system. Special emphasis should be placed on creating a cavity in the corners that can be packed with high-density Fiberglas to obtain some bass-trapping effect. This usually has a profound effect on accuracy and imaging quality.

3. Create a back wall in the control room with as many random surfaces and varying depths as possible. This will help create a more diffuse reflective condition. Many QRD-type diffusers are available on the market, but it's possible to approximate this effect with bookcases, CD racks and shelving. This approach does not conform to a specific number theory, and thus it does not have a predictable effect as with real QRD diffusers. And as with the front of the control room, it is extremely beneficial to try to provide some form of bass trapping in the back corners, as well. This can be done with a number of approaches, including framing and panels.

4. If you have the luxury of enough ceiling height, it is beneficial to install an absorbent cloud system that hangs from the ceiling (at least over the console and mix position). These can be made from 2-inch, fabric-wrapped, high-density panels suspended on hooks and wire. Be sure your ceiling can take the added weight and that you mount these panels securely.

—Robert Hanson

blend," Hollowell adds. "Also, remember that all speakers should be the same distance from the listener and the correct angle in plain view. It is also a good idea to not mount the monitors on the table or console so that you do not get immediate reflections off the console or furniture."

FINDING THE FIX

Even after identifying the chief problem areas within a studio, there is still the task of determining which materials will solve certain problems and how much of a given acoustic surface treatment is needed. And to further complicate things, each material has its own inherent strengths, weaknesses and special mounting needs.

"For absorption at midrange and high frequencies, there are myriad possible materials that can be used," explains Hollowell. "We have used a number of products, including compressed Fiberglas, commonly available as Owens-Corning 703 or 705 insulation board, which is inexpensive, easy to work, but sheds fibers in the air. We've used acoustical cotton, which is similar to Owens-Corning 703 but produces fewer fibers. There is acoustical foam such as Sonex, sintered or foamed aluminum, Fiberglas duct liner, carpet,

drapery and many other products. When using products that can release particles into the air, like Fiberglas, it is a good idea to cover the Fiberglas with an acoustically transparent material like panel fabric. For any product you have in the room with you, you should also be aware of how flammable it is.

"The above types of absorptive treatment can vary dramatically as to how much they absorb and at what frequencies," he continues. "Most of that information is available online at the manufacturer's Website. Once you know how much is absorbed and at what frequency, you should calculate a rough idea of the final reverberation time for the room using manual calculation or a software calculator. Each product you select can also be adjusted in terms of the frequencies absorbed by using thicker versions or leaving a gap of various dimensions behind the absorber to increase low-frequency absorption."

"These products absorb energy by means of friction, which means that they are only effective when placed in the area of a wave's maximum particle velocity and not its maximum sound pressure," adds Swist. "Any frequency's energy that is not transferred through a boundary will have

a particle velocity of zero at that boundary and a maximum particle velocity at a distance of one-quarter of its wavelength from that boundary. So in practice, if someone mounts a 1-inch-thick Fiberglass panel directly on a wall, the effective bandwidth of the absorbed frequencies will only be 4 kHz and higher. So one can ascertain that the use of this type of direct wall mounting would severely color the reverberant characteristics of a room by absorbing only high frequencies and allowing the lower bands to remain uncontrolled."

Swist explains that this problem is solved by mounting the panels away from the wall with frames or other mounting systems. "One can then calculate the effective absorption bandwidth of the panel by using the one-quarter wavelength measurement and incorporating that into the overall reverberant field design goal. Obviously, there is a limit to the distance one can mount these panels to obtain lower-frequency performance, and therefore other means are needed to control the low-frequency energy."

Dealing with a buildup of low-frequency energy is never an easy task. The problem becomes all the more difficult to treat when dealing with the often-cramped dimensions of a spare bedroom or den that is being converted into a studio. "Low-frequency absorption treatment is a bit more specific," explains Hallowell, who adds that there are many off-the-shelf products designed to absorb low frequencies. "Some are targeted for specific frequency ranges, such as RPG Modex, and some are more broadband, such as RPG Modex Broadband." Hallowell stresses that whatever absorption products are installed, one should calculate the predicted quantities and types of absorption needed *before* installing. You can adjust the quantities and placement of the products, as needed, as you complete the installation.

"You should also consider where and how much diffusion you need in the room," he continues. "There are a number of off-the-shelf diffusion products available, depending on your needs. A good option are quadratic residue diffusers, such as RPG Omnifusors and Diffractals, or the Auralex SpaceArray. You could also try mixed absorption/diffusion products such as RPG BAD [Binary Amplitude Diffractor] panels or Kinetics' TAD [Tuned Absorber/Diffuser Panel]. You commonly see an area of diffusion at the rear of the room behind the engineer in stereo mixing rooms to get a smooth return from the back wall."

GUESS AND CHECK?

Estimating the type and quantity of acoustic material necessary to treat a room is only one part of the equation. To make the most of any potential improvements, users must develop an understanding of where and how to apply surface treatments, as well as how to check their work and make adjustments.

"You don't want to overuse the Fiberglass or foam because they don't absorb low frequencies," says Yanchar. "So the more of that that you have in a room, the more you're boosting the low frequencies as a default. You have to balance that, which usually requires you to cover 50 to 60 percent of the room with materials like that. As far as placement, the corners are the most efficient place for countering both high and low frequencies. And then as far as reflections on the side and ceiling, the common way of optimizing the position of those materials is to have someone hold up a mirror and place surface treatment



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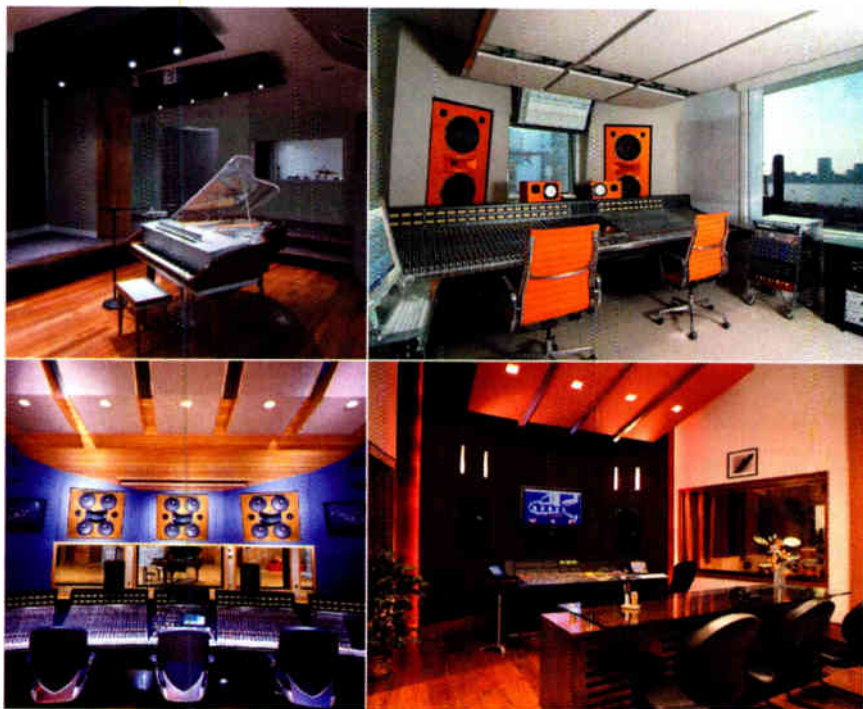


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wherever you see monitors reflected in the mirror.”

“The only quantitative way I know of checking your work is to do a real-time analysis of the room,” says Hollowell. “Whatever type of analysis you do, it can be relatively expensive and requires a certain amount of knowledge about how to test and what to do with the results. Recent years have seen more and more lower-cost test units, such as the NTI AL1 Acoustilyzer and the Sencore SP495, but there is still a cost and a learning curve. The ears of an experienced engineer are also a valuable qualitative testing tool.” Hollowell also recommends taking a recording done in your room to other familiar rooms to see how it translates. “If your mix has less bass or high end than you thought when you mixed it in your room, you may need some renovation.”

BEST-CASE SCENARIO

While owning a purpose-built, professional project studio may be out of the reach of most working professionals, treating an existing room can yield some surprisingly good acoustic results. “Some rooms were designed well in the first place, whether by luck or good planning, so the best-case scenario might be only minor tweaking to get your desired sound,” Hollowell says. “If the room has good mode characteristics and sufficient noise isolation, then it may only need minor tweaking of the surface treatments or re-arrangement of the near-field monitor placement.”

“You can actually do a fairly decent job and get pretty good results,” adds Yanchar. “Basically, it all falls apart at some low frequency because of the space available. We’ve done some rooms in some very tight spaces that actually perform as well as or close to the biggest rooms we’ve done.”

“The best-case scenario is staggeringly good,” concludes Pelonis. “I have been custom-designing prefab, modular acoustical systems for decades. I have several projects every year that fit this description. If there is one thing I’d like to impress upon your readers it is the value of talking to a professional designer to help them with the treatment specifications, whether it’s custom-designed or off-the-shelf. I think that many designers are open to working with situations that, for whatever reason, don’t have the option of a complete build-out.”

Robert Hanson is a former editor at Mix and Remix.

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In the heart of New York City's Chinatown you'll find a comfortable and well-appointed studio called Mavericks (www.mavericksrecording.com). Named after the legendary Northern California surf spot that was a favorite hangout for ex-San Franciscan (and Mavericks proprietor) Bobby Lurie, the studio was designed to function chiefly as the recording facility and "hideout" for Lurie and other participants in his various musical ventures.

Lurie, the drummer for longtime cult band Billy Nayer Show, has found time to work on a variety of other projects, including scoring the award-winning documentary *The God Squad and the Case of the Northern Spotted Owl*, and helping to realize Billy Nayer Show's feature-length film musical, *The American Astronaut*, a highlight at the 2001 Sundance Film Festival. While he sometimes engineers at the studio, he also employs the talents of seasoned staff engineers Randy Funke (McCoy Tyner, Tom Tom Club, John Scofield) and Allen Farnelo (Wu Tang Clan, Ian Gillan).

Since Lurie finished construction of Mavericks in 2002, many outside projects have also found their way into the studio. Last summer, Mavericks hosted avant-garde guitar guru Marc Ribot, who dropped in for overdub sessions destined for Tom Waits' latest release, the three-CD *Orphans*. (The sessions were engineered by Karl Derfler.) Tony Levin and David Torn have booked time there, as well as guitarist/composer Robbie Aceto and saxophonist Matt Cowan.

Mavericks occupies a 1,200-square-foot ground floor suite in a commercial building. The custom-built, 900-square-foot main room (used for tracking and mixing) is fully floated to avoid sound transmission to neighboring businesses. (Other rooms include an iso booth, machine room and storage room with kitchenette.) The tracking end of the main room, designed for a more live feel, sports custom-built wood diffusers featuring a "skyline" design that resemble a randomized version of a popular acoustic diffuser product. Wood-slat diffusers and patterns of angled wood squares line the ceiling to break up floor-to-ceiling standing waves. Bowed wood panels on the walls also help to offset potential standing-wave issues due to the room's rectangular shape.

At the other end of the room is a somewhat deadened mix area, with a 32-channel Neotek Élan II at its center. The Élan features full mute automation and a modified master bus by Purple Audio. Clients can track analog to an Otari MTR-90 mkIII (with a choice of 16- and 24-track headstacks) or digitally using a Pro Tools HD system with two 192 I/O interfaces; a Studer A810 ¼-inch 2-track is also available.

Mavericks boasts two Coles 4038 and Royer SF-12



Mavericks owner Bobby Lurie (inset) and the studio's 900-square-foot main room

and R-121 ribbon mics; Neumann condensers including a U67, two U87s modified by Bill Bradley and two KM84s; two Soundelux ELUX 251s; vintage Beyer 160 ribbons; and an assortment of great dynamics. Outboard mic preamps range from Brent Averill 1073s and API 512s to Purple and Chandler preamps and somewhat more esoteric units: Dredge Tone preamp/EQ and a Ridge Farm Gas Cooker mic pre. Clients can switch between ProAc Studio 100s, Yamaha NS-10s and the new Barefoot Sound MicroMain27 monitors, which have quickly become a favorite of Lurie's.

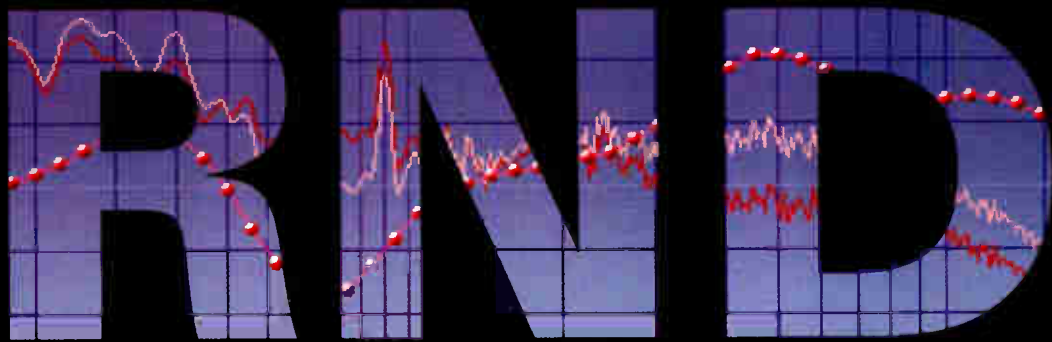
According to Lurie, part of the allure of recording at Mavericks is its one-room design. "While working on a Billy Nayer Show record, we noticed that when we got to the mix stage, the sounds were holding together and sitting in the mix really well without much effort," he says. "We found this was a result of the overdubs being done in the same room as basics. The room seems to be just the right size, where you can place a singer or amp in various spots to get variations in sound and not have to gobo the hell out of everything. And the tracks still share the beautiful room characteristics. Plus, being in one main room is so much faster and easier for communication."

Lurie also appreciates the versatility the room provides for drum sounds. "Depending on how we mike and gobo the drums, we can get huge variations in sound for a tight '70s kit sound or a huge, thunderous room sound—all without changing the position of the kit in the room."

But a vital aspect of Mavericks' success is the change of environment the studio provides as compared to the neighborhood (and city) surrounding it. Says Lurie, "Mavericks has an almost beach house kind of vibe to it, which is really bizarre walking off the street in Chinatown, New York City. Artists, engineers and producers can hang out in the control room to do everything from guitar and keyboard overdubs to final vocals. Musicians really relax when working here, and that's 90 percent of the battle." ■

Rich Wells is a musician and freelance writer based in Portland, Ore.

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THREE-QUEL SPRING



By Blair Jackson

Cb-cbing! The bean-counters will doubtless be happy with the box-office returns from the third installments of these four franchises: *Spider-Man 3*, *Ocean's Thirteen*, *Shrek the Third* and *Pirates of the Caribbean: At World's End*. But we're here to talk about audio.

FRESH SOUNDS FOR SPIDER-MAN 3

The last time we checked in with supervising sound editor and sound designer Paul Ottosson three years ago, he was finishing up work on *Spider-Man 2* (July 2004), for which he would receive an Oscar nomination. When we speak again in April 2007, Ottosson reveals that he's worked on and off for the past two years on *Spider-Man 3*, which, it turns out, was even more taxing than the previous one—ain't that always the case!

With most of the same team coming back (director Sam Raimi, editor Bob Murawski and much of the sound crew—production mixer Joseph Geisinger, supervising ADR and dialog editor Susan Dudeck, re-recording mixers Gregg Russell and Kevin O'Connell, et al), the machine was in place for a smooth entry into the complex new world of *Spider-Man 3*, which in addition to introducing us to the evil villains Sandman and Hobgoblin, also features Spidey's evil alter-ego, dark Spider-Man, who morphs into Venom. For Ottosson, the work on *3* began before the script was even in place.

"Sam storyboards the whole movie," he says. "Then, with certain scenes, he wanted to see how they would play, so I cut some sound effects for *Spider-Man 3* way before they were done writing it. We'd look at it with the producers and go back and forth about what we might need. There are a couple of moments that are identical [to the original concept]. We kept going for more sounds, hopefully bigger and better sounds with more detail, but the idea of how things worked is very close to what we worked on two years ago."

Ottosson says that he and Raimi and Murawski talked extensively about the complexities of the Spidey-Venom relationship and how it could be reflected sonically. "With regular Spider-Man, he's almost like a ballet dancer in the air, so you want it to sound somewhat delicate," Ottosson says. "You can hear a lot of small subtle

Now Playing at Your Local Multiplex: Four Inescapable Mega-films

movements of the feet and the hands. Venom is more of a brute—when he punches, and his web is a different kind of web—it's almost like gnarled barb wire versus Spider-Man, whose web is silky and smooth. When Venom's web fires and it's covering over the city, we wanted to get across a certain tonal quality, like hitting piano strings on the inside. We strung some ropes across stages here and sort of played them like a huge cello of some kind; very strange. It was a lot of work. The web itself when it fires is a bunch of different recordings—creaks, little animals snuck in there, rope to give it a gnarled, leathery, creaky sound. It's got to be an evil, dirty sound compared to Spider-Man.

"The web is almost alive with this goo that becomes the suit for black Spidey and Venom, and there are other layers of sound in that, like flank steaks and meats I would semi-freeze, and then cut them with a knife and kind of tore them off to get a tearing sound. We also recorded some meat stuff with the Foley guys; they gave me a batch of sounds—they had turkeys, ribs and chickens on this huge cart. There's also some liquid-y wetness in there, too. Even though what's happening is the goo attaching itself, I wondered, 'What if it were more like he was being ripped apart instead? So it's almost the opposite of what you see on the screen. It think it's pretty effective.'

Ottosson's main recording rig is a Sound Devices 722, which he likes for its portability, stock battery, clean sound, menu structure and acceptance of an SAS FireWire hard disk, which gives him plenty of

PHOTO COURTESY WARNER BROS. PICTURES



PHOTO COURTESY SONY PICTURES



Spring's three-quels. Opposite page: Shrek the Third (left) and Pirates of the Caribbean: At World's End. This page: Ocean's Thirteen (left), Spider-Man 3.

space even when recording at 24-bit/192kHz. After tagging the files, they get loaded into Pro Tools.

For this film, one of Ottosson's greatest challenges was coming up with sounds for the ever-changing Sandman character. Actual sand, it turns out, is a tough medium to record.

"The sound of sand falling or moving is almost like white noise—ssssbbbbb—and that's something you usually try not to get in your recordings," Ottosson says. "So part of what we used was the sound of big rocks breaking and hitting. If you just hit two rocks together, that's a pretty thin sound; in fact, it's almost like metal in that way. It's not a sound you want to listen to too many times. I knew that east of L.A., out by Palm Springs, they have a different kind of rock—it's like a sandstone. If you smash two together, you can get them to break and you'll get a thicker sound. So way early on, even before the movie got started, I went with my wife and we bought a bunch of different sledgehammers and pick-axes. I'd take these rocks, as heavy as I could carry, and drop them down 10 or 15 feet, and they'd break and shatter and some would almost explode. I'd record that and I'd also get the resonating part from the ground itself. I'd use one dynamic mic and one condenser mic up close; two monos.

Spider-Man 3's sound designer/editor Paul Ottosson in his studio



So I used some of those sounds for movement for Sandman when he's walking. I did a little bit of EQ'ing and compression with these McDSP plug-ins—I compressed the heck out of the low end.

"You also have sand sheathing off every time Sandman moves," Ottosson continues. "We needed something to represent what you see on the screen. So I bought these huge restaurant-sized bags of salt and sugar, Rice Krispies, coarse salt, beans, herbs—different things like that. I recorded something like 20 different foods to get the sheathing sound. Depending on what was happening onscreen, I would pour some onto a flat concrete surface, but also I might pour sugar on top of the rice. Some I would pour through a pipe so I'd get some 'whoosh' movement through the pipe. I would also sometimes move the mic toward the source and by it as I poured it, and I would get a weird sort of Doppler effect.

"The other thing we had to deal with is that Sandman is a regular-sized guy in the beginning, made out of compact sand, and he's got to sound different from when he's the giant sandman later, so there's this progression in the sounds. In the end, he needs to be as big as he can."

Working on a film that's full of big, loud action scenes, Ottosson and the rest of the sound team were kept extremely busy for months on end, and as is usually the case with heavy-CGI films, were still fine-tuning and filling in holes up to the very last second as final FX came in and the mix was in full-swing at Sony. (For more on specific scenes, see mixonline.com). "This isn't like a war movie or a car chase movie," Ottosson says. "A movie like this has everything; all this incredible action. You have [Hobgoblin's] sky stick flying around and they're fighting on that; different swords that have laser electricity; fighting with 'razor bats,' these bombs that have their own life and personality. There's fighting over subways, with trains going back and forth; car chases; just so much. I do love it, but when it's over you feel punished. My first thought when I walked off the lot was, 'I never want to do another one like this.' It absorbs everything in my life. It's been six to seven days a week for 10 months."

Okay, but how about those rumors that there might be a fourth Spider-Man film up the road? "Oh, I'd love to do it, of course!" he says with a laugh.

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DEMANDING DIALOG FOR OCEAN'S THIRTEEN

Though director Steven Soderbergh's three *Ocean's* films are visually arresting (he is the director of photography, too; Stephen Mirrione edited them), they are driven more



Ocean's Thirteen crew, from left: mixer Paul Ledford; David Katz, video assist; Ross Levy, utility sound; and boom operator Randy Johnson

by dialog than by action. The intricacies of the story are usually revealed through often-subtle character interactions instead of by big visual payoffs, so getting crisp, clear production recordings is essential.

Paul Ledford has been the production sound mixer for nearly all of Soderbergh's films, all the way back to the director's breakthrough, *sex, lies, and videotape*. In fact, Ledford and Soderbergh go back even further—Ledford was a student at LSU when he befriended the 14-year-old Soderbergh. "We got to go down the road together with our passions," Ledford says during a break from scouting locations for Bertrand Tavernier's upcoming film, *In the Electric Mist*. "I got lucky that Stephen that he was able to bring a few of us along as crew." (Supervising sound editor/re-recording mixer Larry Blake has also been a fixture of Soderbergh's productions and worked on all three *Ocean's*.)

Because the *Ocean's* films are ensemble pieces that often have many important speaking roles within a scene, capturing the production dialog can be a complicated affair requiring multiple radio mics in addition to deft overhead work by Ledford's regular boom operator, Randy Johnson. "Any time we had all of them there, all of them talking, those were big challenges," Ledford notes. "There are so many people to deal with, to get all the [track] assignments and everything hooked up and ready to go isn't easy. And Steven's often happy to shoot available light, so you really have to be nimble and ready to go. Waiting on power is not something he's

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into. So I run all my cart on DC power.”

Ledford has used a different recorder for each of the *Ocean's* films: “*Eleven* was DAT through an Apogee A/D going 20-bit and then down to DAT [16-bit]. *Ocean's Twelve* was a [Zaxcom] Deva II [4-track hard drive, 24-bit] and now we've got the Deva V [10-track]. For this show, we used Lectrosonics 400 Series [RFs], with mostly Sanken COS-11 lavaliers, along with the Countryman B6, which has a low impact on wardrobe because it's such a small microphone. The Sankens match the Schoeps overheads very well.” He uses a Cooper 208D mixer after many years of relying on a Cooper 106.

“I do the A-to-D conversion in the Cooper and feed that AES to the Deva, and then we feed the isolated tracks analog,” he says. “We did a test and we didn't find any timing issues. The great benefit of working with Larry [Blake] all these years is together we've stepped through a lot of issues that you might not deal with on other films because you don't have access to the post sound people so early on. He's taught me a lot about doing the homework ahead of time.”

Still, Soderbergh can continue to surprise his colleagues. For *Thirteen*, he wanted to keep backgrounds going and alive on the sets, primarily to motivate the action through playback. “In one scene, we were running sound effects of helicopters, which weren't actually running—they were on a crane and gimbel,” Ledford explains. “Ordinarily, you would say, ‘We'll run the sound effect up to the dialog,’ but Steven said, ‘No, I want to run everything together and you'll get the dialog.’ I thought, ‘Really? Okay, fine, let's see what happens.’ That's a place where using well-placed lavaliers is crucial. There were also scenes doing dialog with the 500-plus extras going at it in the casino and sound effects going through massive speakers.

“There were slot machines brought onto the set that were built for *Thirteen*, and while they were installing them we'd turn the normal noises off. But the people in the casino and the dice and the card-playing and the chips and all that play in the background and all make noise. Larry tells me that on *Thirteen* there's only a handful of lines that were changed or added for story purposes, but the production dialog is pretty much intact.”

KEEPING IT REAL (SORT OF) FOR SHREK THE THIRD

When I reach *Shrek the Third* co-supervising sound editors Thomas Jones and Richard Anderson on the Howard Hawks soundstage at Fox, they're working on an M&E mix of *Shrek the Third*. “making it safe for foreign

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people," Anderson quips. "I've noticed that with foreign versions of animated films I've worked on, including languages that are totally different than ours, like Chinese, how well it syncs. It's probably because there's exaggerated movements of the mouth."

No question about it, working on animated features brings its own demands and challenges, but these two guys are masters of the genre. Together they've worked on such animated films as *Flushed Away*, *Over the Hedge*, *Madagascar* and *Shrek Tale*, and Anderson's earlier resume includes *Antz*, *The Lion King*, *The Nightmare Before Christmas*, *Anastasia* and others. "Actually, we started out doing live-action films together," Jones says. "I'd take care of the dialog and he'd take care of the effects, and eventually it carried over into the animated realm."

"Working with dialog in animation is a little different because when I record the group vocals, it's treated more as an effect than as real dialog—as opposed to a live-action movie where you're seeing people and you're filling them in and blending in ADR with production dialog. In terms of the dialog, and this carries over into the effects, because it's so clean and we have nothing we

have to match into, you get to focus more on creating the emotion of the scene rather than trying to step around what already exists, like a live-action production track."

This is the first *Shrek* film the duo has worked on, and from the outset they learned from producer Aaron Warner that there were a few ground rules for the sound. "Their approach is, as much as possible, to play the sound realistically," Anderson says. "They don't go for the traditional exaggerated comedy sounds. They play it like a live-action film more often than not. Of course, there are exceptions to that. They'll sneak in a cartoon-y effect here and there—like Pinocchio's nose growing."

"In films like *Over the Hedge* and *Flushed Away*, you had this sound scale where you're dealing with the world as experienced by small creatures where normal human objects appear huge, so they had to sound big yet what the normal object would sound like. In this movie, even though it's a fantasy world, it looks very realistic, other than being a world with dragons and talking cats and the rest of it. There's also a wizard in there and that was a lot of fun because what does magic sound like?"

Although there were some carryovers in FX from previous *Shrek* films, including some of the dragon vocalizations and Pinocchio's nose, there was still plenty of new work to be done by Anderson and his FX team, such as various medieval mechanical machines "that were supposed to be fun and rickety but at the same time they had to be big enough that you believe them," he says. "So we went through the library and found a bunch of wooden ratchety things and gears and squeaks and put them together in interesting ways."

"Tom and I both work for Technicolor Sound Services right now and we have *quite* a library at our disposal. And it became bigger when we became part of Technicolor. I had my own company, Weddington, and we had a library there that we'd had for years, and that got incorporated into the Technicolor library, so it's huge. Still, we love to record stuff. No matter how big your library is, there's always something you don't have."

Jones got into the FX game designing sounds for the "dronkeys"—the half-donkey, half-dragon offspring of Eddie Murphy's donkey character and the dragon who hooked up in *Shrek 2*. "What the hell does a

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donkey-dragon baby sound like?" Jones asks with a chuckle. "I used lion cubs, various birds, camel; we had some turkey in there." Anderson: "That didn't make it into the final." Jones: "They needed to sound like they're trying to communicate as opposed to just making noises. And they had to be cute."

Meanwhile, on the dialog end, Jones had to deal with a perennial issue of animated films—dialog parts that are recorded years apart in different places. "They probably did the original recordings for this three years ago, and they've added things until very recently." Anderson elaborates, "Or, as likely, they get a new idea, a new line, a new joke or whatever, they go back and get the actor, but now he's on location in Mongolia shooting a movie, so they have to find a studio there and they record him there, and maybe he has a bit of a cold that day, so you have all these pieces of dialog that were often recorded years apart and now at the final you're trying to mix it so it sounds like a coherent thing. Every animated film I've ever worked on has this problem."

The film was mixed at Fox by the team of Anna Behlmer and Andy Nelson, who worked on the first two *Shrek* films, as well, "so we knew whatever we did we'd be in good hands," Anderson says. "They *always* do good work."

ON THE HIGH SEAS WITH PIRATES 3

Like its immensely successful progenitors, *Pirates of the Caribbean: At World's End* is the quintessential "popcorn" movie—big and loud, full of incredible action sequences and exotic sets. But these are far from pedestrian entertainments. They have been hits in part because they are so well-crafted from top to bottom, including the sound. Indeed, the first two installments of the series each earned Oscar nominations for Best Sound Editing (Christopher Boyes and George Waters II) and Best Sound Mixing (Boyes, Lee Orloff, David Parker and David Campbell on *P1*; Paul Massey on *P2*). And no doubt *P3* will also be hailed for its imaginative audio.

Much of the same team is in place, including co-supervising sound editors Watters and Boyes (who's also lead sound designer and a re-recording mixer) and mixer Massey, all working under the inspired direction of Gore Verbinski, who certainly isn't afraid to think *big* and encourage everyone he works with to be as creative as they can be.

Boyes manages to fit in a short interview during a much-needed break in the final mix at the Henry Ford dub stage at Fox in April. The final for a film this big is usually brutal, I remark. "Well, it's

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Christopher Boyes, Skywalker Sound sound designer/re-recording mixer, worked on Pirates 3.

definitely long hours." Boyes replies, "but I wouldn't attach 'brutal' to it. It's going really well. Everybody's really happy and, most importantly, Gore, the director, is really happy. We have enough time on this mix to do some experimentation, which is not always the case, and really dial it in to exactly where he wants it to be. Things like whether we want to make a scene really spare and let the music carry it, or let the dialog carry it, or how much we want to complicate it.

"If we're in the brig of the Flying Dutchman, how much do we let the groaning and creaking and drone of the ship itself be a character, and how much do we pull that back so you can lean into the dialog? It's that give and take that is so key to a track. We're diving in and out, not just of different environments, but within the same environment hitting different emotional places, which is a lot of fun and a wise way to use sound."

The *Pirates* stories have become increasingly complex, with *P3* the most intense of the lot. Not only does it feature various completely different competing war ships, squid-faced Davy Jones and his motley crustacean-oid crew (one of the big sound challenges of *P2*—Boyes and his assistant Dee Selby did a lot of fish and crab squishing and smashing at Fantasy Studios' Foley pit), and sea battles aplenty, but there is the promise of the title: world's end.

"It's not *quite* literal," Boyes teases, "but you know there is a massive waterfall and you have to make the assumption that someone is going over that waterfall, and that really required a lot [from the sound

—CONTINUED ON PAGE 60

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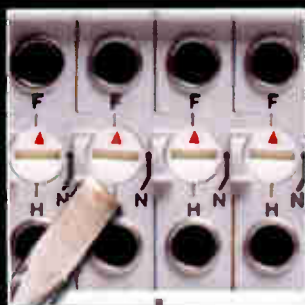
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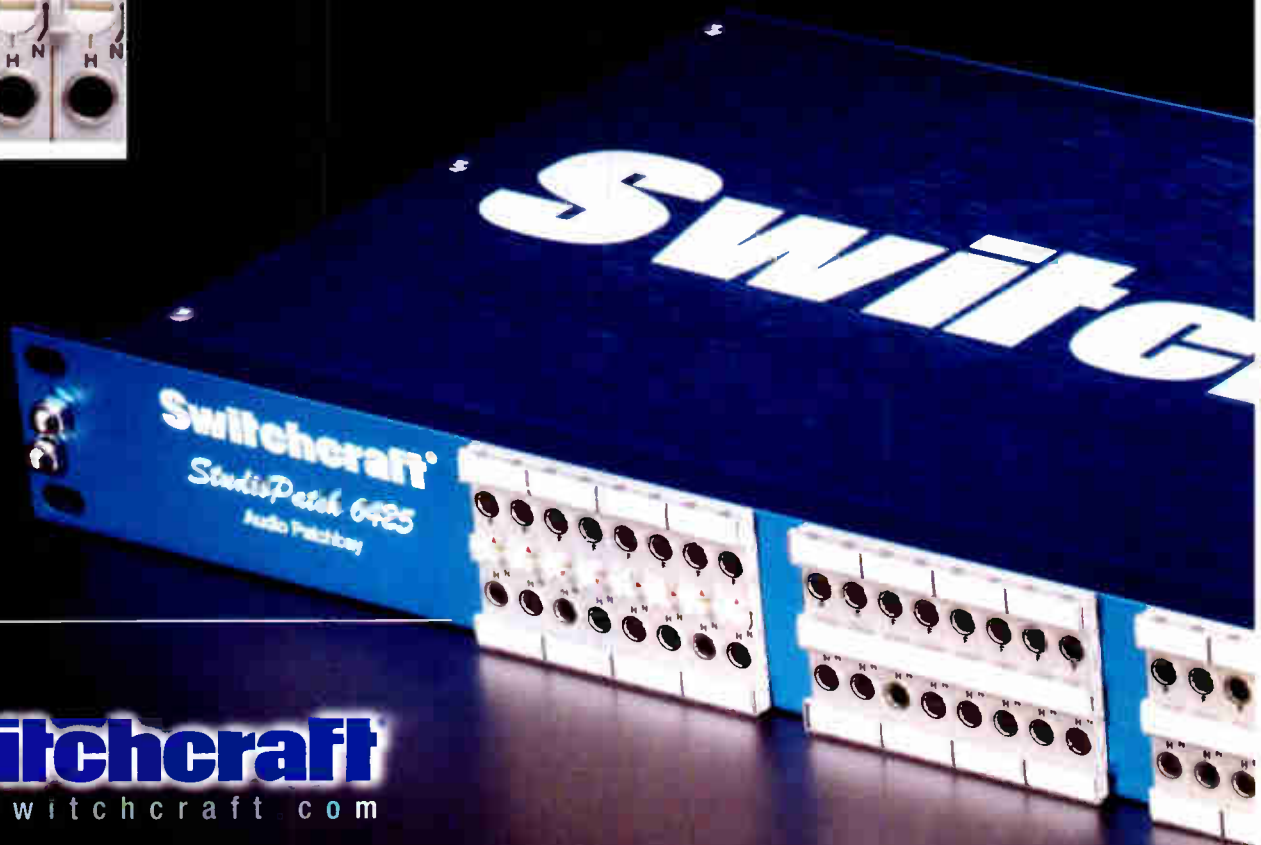
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World Radio History

BBC/Discovery Channel's Planet Earth Series

A Worldwide Sound Palette for MVI Post's Frank Scheuring

By Mark R. Smith

Planet Earth is a production that can surely be called "majestic": Five years in the making, it was shot on more than 200 locations worldwide by 40 specialist film crews. And the early returns show that the years spent lensing the production (catch a glimpse at [www.](http://www.planet-earth.com)

ceive the re-edited stems of the separate sounds, including the voice-over, music, effects, split-out and ambient sounds from Discovery production group editor Steven March (via the BBC) so he could get busy with his remix for the 5.1 and stereo mixes. "The BBC did such a great job that it made everything go faster on my end," he notes.

March and Thom Sulek at Discovery provided Scheuring with OMF and/or AAF files for each of the 11 programs. He received separate files for the "Capturing the Moment" behind-the-scenes shorts from Mary Clare Baquet, producer for those segments. The programs came with full-level stems for music, ambience and effects, along with a track of Weaver's edited narration.

"The stems that the BBC provided were excellent," Scheuring says from his 25x28-foot audio

ronment with these awesome sounds that I was given. I always began with Sigourney's narration track. For Discovery, it was most important that she was out in front and, of course, within their specs for dialog level. After some EQ, compression and a general level setting for her voice, I would move on to the main effects tracks. Since most of these sounds were kept in the front for perspective, I really only had to deal with levels. After that, I would go on to the ambience tracks to fill the room and then move on to the music. The key for the music levels was to accentuate the mood of the score and scene with some movement in the room. The soundtrack to this series is awesome, and it could really affect how you felt about what you were seeing.

The behind-the-scenes short films came with some new music and some effects, but required a lot of sound design prior to mix. "Thankfully, I had Chip Sovek at MVI to help me tackle those," Scheuring says. "With 11 shorts on top of the 11 episodes, it was a lot of work. The deadline for these was much quicker than for the programs, so we were in high gear. Luckily for us, the shorts only required stereo mixes so that helped with the timeframe.

"If I averaged it out, I probably spent one-and-a-half to two days per episode, both surround and stereo," he continues. "I



MVI Post's Frank Scheuring at the Fairlight Constellation-XT board

planet-earth.com) in some of the globe's most diverse, expansive and demanding environs were worth the effort and the wait. The joint production of this 11-part documentary by The Discovery Channel (TDC) and the BBC is every bit as visually stunning as viewers could want.

At MVI Post in Falls Church, Va., Frank Scheuring is feeling fortunate to have had the opportunity to lend his talents to the mega-show. The senior mixer replaced the original HD audio mix from the BBC's UK version of the series for the U.S. market to deliver on what was probably the biggest challenge of his young career. Scheuring employed the Fairlight Constellation-XT to replace the original narration track of Sir Richard Attenborough with the voice of actress Sigourney Weaver for domestic air; he also sweetened the rest of the package, which included bonus video for broadcast on Discovery HD Theater channel.

The first step for Scheuring was to re-

suite at MVI, which includes a Tannoy System 800 Series monitoring system. "Really, it was a matter of creating the surround envi-

PHOTO: FREDERIQUE OLIVIER



Cameraman Wade Fairley films Emperor penguins in Antarctica.

spent most of the time on the 5.1 mixes since I could take advantage of the fold-down features in the console. With the Fairlight Constellation XT, I'm able to get a really nice-sounding fold-down from the 5.1 to stereo. After doing the 5.1 mixes and making sure that the LM100 measurements met Discovery's specs for dialnorm, peak and average levels, I would move on to the stereo side. With the Faders To function on the Constellation, I can select which of my sub-buses I want to tweak and do so without affecting the other buses. Since most of the work had been done while mixing the 5.1, it became a task of meeting guidelines in the stereo world and making sure that Sigourney's read cut through well enough. Because of the strict specs at Discovery, you really have to watch your meters and be conscious of the ups and downs of the program to keep it as dynamic as possible.

Scheuring says that the Fairlight Constellation-XT, which MVI acquired this past summer to replace its FAME 2 system, was a crucial element in being able to juggle all the tasks required of him on the project. "It's superfast and super-user-friendly," he comments, "but it's the functionality and the sound of the console that I like. On this project, I used only one piece of out-board gear, the Drawmer MX-50 de-esser, on Sigourney's voice. I didn't really use reverb except for some of the behind-the-scenes shorts, but I did use Fairlight's inline EQ with a compressor plug-in. It's much easier than using a mouse, which I just don't like the feel of."

Another reason Scheuring and MVI are bullish on the Fairlight is the increasing amount of HD work they find on the log. "A lot of what we do is in the HD 720p 59.94 format, which Pro Tools does not support," he says.

Scheuring is quick to point out that Discovery Channel executive producer Maureen Lemire and producer Shannon Malone both simply "let me do my job." In this case, that encompassed delivering a full stereo mix and a stereo mix-minus of Weaver's narration from the HDCam



Underwater cameraman Doug Allan films mother and baby humpback whales off Tonga in the South Pacific.

1080i edit master; then two DA-88 tapes, one with a full 5.1 mix and the other with the new stereo stems. "The 5.1 mix gave me more space to work with in my effort to bring the viewer into that sonic landscape," Scheuring says.

That landscape was as vast as the Earth itself, often viewed from satellite. One clip from the show's bonus content depicts a cinematographer hiding in the plains just before dawn with his infrared camera. After whispering to his producer that there do not seem to be any lions in the area, his eyebrows suddenly shoot up



Cameraman Paul Stewart with Huli tribes people in Papua, New Guinea

to his hairline when the rumble of "one of the locals" catches his attention.

The bonus content was an important component of the project for Scheuring as it "offered more of an opportunity for me to be creative. I had to design the sound in that case, not just use the stems that had been sent by TDC. It's always best for the mixer when he can have that creative input."

The shows were re-edited once they left the BBC, more in some cases than others, March says, noting that he was cutting from the DA-88s the BBC sent to TDC, "so Frank had the Open Media files to work with on his end." March says he only added "a few embellishments and a few stingers in certain places, like every time we went to the Earth shots throughout the series to establish locations. We would add the generic space sound effect, a rumble. That was silent for the BBC's version."

Though Scheuring was well aware of how important his work on *Planet Earth* would be to his budding career, he was again reminded of the magnitude of this particular assignment when he got his first look at the footage. "This is the most incredible footage that I've ever seen in a nature documentary," he says, "especially considering what the cinematographers had to go through to get it. It made me want to do my very best job." ■

Frank R. Smith is freelance writer in the Washington, D.C., area.

Technicolor Interactive

Post Studio Makes Big Commitment to Videogames

There are many great houses of game audio production that deserve attention, and in due course I'll cover all of them. The first of these has the gusto to include "interactive" as part of its name: Technicolor Interactive—the same Technicolor you've come to know and love at the end of movie credits for film color processing. (It was the second company to use it way back in the 1920s.)

Nestled in downtown Burbank, Calif., Technicolor has created a great new set of studios that you might think would be used exclusively for film and television. But while its voice-over studios provide recording and editing services for gaming's linear cousins, Technicolor Interactive provides voice-over, sound effects and music for games, along with a complete set of services ranging from user interface design to art to localization, and, of course, all manner of audio assets.

Michael Gollom started Technicolor Interactive in 2005 after having racked up significant credits working on such titles as *Spyro*, *Jack and Dexter* and *Crash Bandicoot*, and after a short two years, he has rounded up some of the biggest names in the industry to work on top-notch games. This house is busy!

Technicolor had already provided a good chunk of sound effects for the original hit *God of War*. "We're currently doing in-game creatures and weapon sounds for Hellgate London," says audio director Tom Hays. "We did the voice casting and recording for *Gears of War* with Chris Borders directing; our animators also did a phenomenal job on their work on the cinematics. On *Legend of Spyro*, we did the casting and recording and handed the voice tracks to our animators. They then created cinematics from the ground up and handed the scenes back to us for complete audio post and mix.

"We just finished about 40 days of ADR for a Japanese Xbox 360 title called *Blue Dragon*, created by the gentleman who made *Final Fantasy*," he continues. "We also did all of the voice editing and supplied the director for casting and recording. We've done casting and recording on a bunch of games, some of them very large, such as *Scarface*, *Jade Empire* and *Mass Effect*."



The Technicolor Interactive team. Front, from left: Lydion Tone, sound designer/supervisor; Mork Josper, sound designer/re-recording mixer; and Tom Hoys, director of audio services. Rear, from left: Mork Lewer, technical engineer; Morgan Gerhord, ADR recordist; and Michael Gollom, VP interactive services. Not pictured: sound designer Frank Szick and assistants David Fisk and Jake Worthington.

Remember those key words "integration" and "real-time mixing"? Technicolor is jumping in with both feet, with all its rooms set up for work in Wwise, FMOD, SCREAM (a Sony audio tool) and XACT, and being asked to create sound *banks* for studios, not just deliver a batch of WAVs, AIFFs or OMFs. Just as predicted, big publishers and studios are seeing the value of a post-production cycle at the end of development, and in the interest of contiguous post engineering, it doesn't hurt that all of these rooms have calibrated surround monitoring and metering.

"We have three ADR stages of various sizes," Hays says. "Our mic of choice is usually a Neumann TLM 103, a very precise mic that matches well with our Avalon VT-737SP tube preamps. Naturally, we have other standard mics on hand such as Sennheiser 416s and [Neumann] U87s. For mixers, we're running the Yamaha 02R96, which we connect digitally into Pro Tools. Our video is all Quicktime-based, using Black Magic Decklink cards, though we do have Technicolor rooms down the street with pretty much every video deck imaginable.

"We've also been using Source Connect, which lets clients with a Pro Tools system and a good Internet connection have real-time, two-way communication with our studio at MP3 quality, just like ISDN. This is important for game developers since so many of them are in locations far away from L.A.'s voice talent pool. For actor facial capture, we use an Avid Mojo, and we have a home-brewed teleprompter system when

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the talent needs to look directly into the camera.

"Our three main edit rooms and the mix room are all equipped with Pro Tools HD3, mostly on G5s, with a good set of sound design tools and plug-ins," Hays says. "We went with JBLs, though we have some Blue Sky systems, as well." The edit rooms are all 5.1, with LSR 4328s in front, LSR 4326s for surrounds and 4312 subs. The ProControl-based mix room has 6332s in front and a 6212 sub, and is wired up for 7.1 surround with 4326s. System controllers are StudioComm 69As and Tascam DSM-7.1s. For video in the mix room, there is an InFocus IN76 video projector.

The building is wired for gigabit Ethernet, as is the connection to the outside world. The facility has about 10 TB of space in a SAN. Game editors and mixers also have access to a sound effects server at Technicolor Theatrical Services—which includes the former Weddington Sound—with close to 2 TB of material.

In the case of licensed properties, Technicolor is in a unique position. Because it has a very active role in film duplication, it can provide localization services that can



PHOTO: JIM GENTRY

ADR 1, one of Technicolor's three voice recording stages, featuring a Yamaha O2R96 board, a pair of Avalon VT-7375P preamps and a custom teleprompter in the spacious booth. The three main edit rooms and mix room are all equipped with Pro Tools HD3.

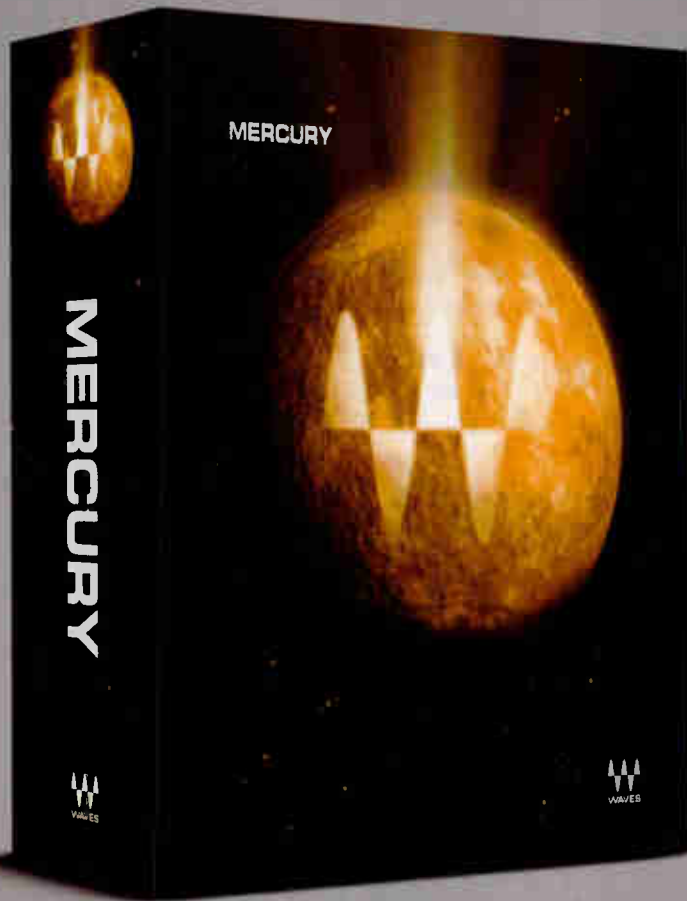
use the same actors in, say, the French version of *Happy Feet* as were used in the film. Hays initially worked with Technicolor when supervising the *Spider-Man 2*

videogame at Treyarch. "I came over here to finish and mix the cut scenes, and was impressed enough that I joined the team when the opportunity came along."

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Hays is passionate about more streamlined tools and uses engineers as much as possible to get there. "We have a technical staff to help with things like client game engines and complex secure connections," Hays says. "Also, those of us who've spent years at game companies know how to deal with a good bit of this solo."

Another advantage Technicolor has is its worldwide reach. With a total of five stages in Burbank, in addition to stages in Hollywood, Rome, London, Canada and Thailand, three to five ongoing voice projects in a single building is commonplace.

"We're set up to do a large volume of great work," Hays says.

Technicolor is the only film studio I know of to dedicate a bona fide arm toward games. Combine that with the company's roster of talent, experience with major feature films and studios set up to record voice-over worldwide, as well as its non-audio related services, and you can't help but be impressed. ■

Alexander Brandon is the audio director at Obsidian Entertainment (Santa Ana, Calif.).

—FROM PAGE 58

team]. It's a massive amount of water, which we have to convey the power and majesty of, at the same time as sitting [the FX] with a choir and Hans Zimmer's score. The sound comes from a number of components—heavy rushing water mixed with some ice movement and things of that nature. It's really the intent of the track there to play the mass and power without having to be really loud, and it's quite effective in that way.

"Sailing is a big part of this film," he continues, "and the climax takes place in very rough waters, with boats doing very intense things and cannon shots flying all over the place, so that's a lot of fun. Dee Selby and I went back to Ohio and recorded new cannons and muskets outside of Toledo with a Civil War re-enactment group. They shot these cannons into a massive quarry that must go 200 feet down and be the size of several football fields. So we were able to get all kinds of wild echoes as these cannons blasted in and out of there. We took everything we had in our war chest on that trip, including 11 mics, two 2-track Sound Devices [recorders], a 4-track and a DAT.

"Dee and I also got on a Tall Ship and sailed down from Oregon to the Golden Gate Bridge, and we did a lot of recording because this film takes place on various vessels—each with its own characteristics. We really wanted to sell, 'Are we on the Endeavor or the Black Pearl or the Dutchman or The Empress, this Chinese junk where Chow Yun-Fat has his lair?' There's an intimate scene in his captain's quarters that was really fun to work on: We've got Asian/Tibetan chimes and bowls playing in the ambient track, as well as these very emotional creaks and groans that are really intended to weave in and out of emotional moments within the dialog and the music. I recorded those creaks in a little triangular room at the very bow of the ship as it was plowing through waves, and there were all sorts of big paint cans and other things rubbing up against this wood, and the sound of the water rushing against the hull. I ended up playing with those sounds and coming up with these descending and ascending groans."

Of course that barely scratches the surface of this huge FX job. Besides a frozen sea and Davy Jones' locker, listen for some of the little touches—like the "nine pieces-of-eight," each with its own signature tonality, devised by Boyes. *Yaarr!* ■

Blair Jackson is Mix's senior editor.

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World Radio History

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Artists Take Center Stage



By Bud Scoppa

SOCAL REHEARSAL FACILITY BREAKS THE MOLD IN AUDIO/VIDEO

he sprawling layout of CenterStaging, Burbank, Calif.'s largest rehearsal facility, boasting 11 rehearsal studios, a massive equipment warehouse and a hangar-sized soundstage, might be mistaken for a series of outbuildings of the Burbank Airport, which is on the other side of Hollywood Way. Winona Avenue, running perpendicular to the main drag, dissects the company's spread. On the north side are the spartan executive offices, along with five conventional rehearsal rooms, one of which was recently occupied by Guns N' Roses, who are following on the heels of The Killers.

But it's the setup on the south side of the street that is becoming CenterStaging's big ticket. Each of the six newer rehearsal spaces is wired for sound and HD video so that the creative processes of willing bands and artists can be captured on the fly and edited into documentaries for airing on the company's year-old site, rehearsals.com, and an ever-growing assortment of digital platforms. Thus far, more than 100 acts have been given this behind-the-scenes treatment, which the Website provides in exchange for the rights to use and derive revenue from the edited footage online and elsewhere.

We're getting a guided tour from head of business development Tommy Nast, who pitches the service to the music biz people he's interacted with during his 20 years at now-defunct music trade mag *Album Network*. Nast, who more recently spent two years at concert production company AEG, came to CenterStaging last year. Nast ushers us into Studio 10, a roomy 60x38 feet with 18-foot ceilings. Several cameras are mounted on sliders that are fitted on all four sides a couple of feet below the ceiling.

"Michael Bublé was here last week," says Nast. "He's a good example of an artist who was booked to rehearse here, and Warner Bros. and management said, 'We want to shoot Michael rehearsing for a day so we can have footage for future use, and you have all the infrastructure and equipment to do what we want. This stuff is the ultimate EPK or B-roll, and content for the artist's Website or MySpace page. It would typically cost a label 100 grand a day for the audio and visuals we're providing.'"

Nast introduces us to rehearsals.com supervising producer David Plakos, who oversaw the execution of the concept after company co-founder Johnny Caswell came up with it four-and-a-half years ago.


"Johnny provides the best facility, the best



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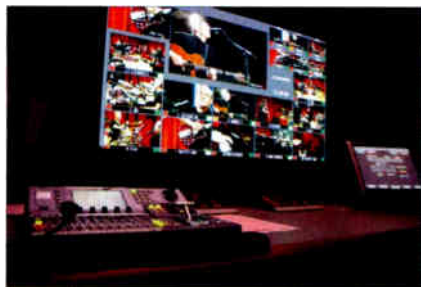


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Artists Take Center Stage

equipment and the best experience to help artists further their craft, so they trust him," Plakos enthuses. "One day, we were on the stage at the Shrine Auditorium, and John said, 'Y'know, I founded these studios; I should put some cameras in there.' And I went, 'Robotic cameras,' and he said, 'Yeah, fly on the wall.' My life changed in that second. I drew it out on a napkin that day and gave it to Dave Canning, who's our chief science officer, and Dave proceeded to build these world-class high-definition facilities."

We enter Studio 11, the largest of the spaces, which recently hosted John Mellen-camp in a 12-camera shoot. A few months back, filmmaker Peter Bogdanovich used rehearsals.com's robotically controlled Panasonic 720p HD cameras fitted with Fujinon zoom lenses and the AMX PT-30 PosiTrack pan/tilt camera controllers for full coverage of what are expected to be key scenes in the filmmaker's feature-length documentary on



Inside one of the Final Cut-based edit bays

Tom Petty & The Heartbreakers.

"Every camera was iso'd, and we shot for six hours," says Plakos. "They walked out with 60 tapes, and Bogdanovich was just blown away. He said, 'I've been following this guy for three months, and every time somebody walks up to him with a handheld camera, he just turns away. Petty walked in that room and, after five minutes, he forgot the cameras were there because we're not in the room.' We had 10 cameras in that room, all shooting close-ups wherever he turned."

Plakos unlocks the security door that takes us into the control center, which houses five Final Cut edit bays, in which operators can control up to three cameras using a joystick, three dedicated control rooms outfitted with Panasonic DVCPRO HD machines and an Apple-based secure area network with 155 terabytes of storage. "There are no lines going in and out," says Plakos. "The content lives here. These are our jewels, and we safeguard them."

In one of the control rooms, they show us a promo piece created to hook prospective clients. The ultra-crisp, hi-def images on

the 65-inch plasma display are matched in quality by the sound, even through the Harmon/Kardon Soundsticks II computer speakers. "As much as this is a hi-def video facility, artists care about what they sound like," says Plakos. "The experience the end-user has of their music is why they're in it, so that's one of our priorities."

Audio mixes are primarily done on-site, with selected outside mixers handling the overflow. The company recently started mixing in 5.1 surround and stereo to be delivered in Dolby Pro Logic for new destinations, including movie theaters. "Every instrument, amp and vocalist is miked during the performance," rehearsals.com audio supervisor Eric White explains later. "We attach Sennheiser lavalier mics to every bandmember, and we hang up to 24 custom-modified Shure MX-202 condenser microphones from the lighting grids to capture dialog and room ambience."

All mics and DIs are fed into two 56-channel racks of Yamaha AD8HRs; these are remotely controlled by head of broadcast audio Brent Dannen from a pair of Yamaha DM1000 consoles. The mic pre's have AES outputs, which get converted to MADI streams through Euphonix FC726s. The signals are then split and sent to the DM1000s and to the multitrack audio recording stations. Recording is done with custom-built PC Audio Labs computers running Steinberg Nuendo 3.2 to SATA RAIDs installed on the PCs. "Since we can't stop the action until the band wants to take a break," Wright points out, "one PC serves as a master record and the other as a safety. Once the shoot is over, we convert the Nuendo projects to AAF files and then mix them in Pro Tools." Plug-ins include McDSP, Sound Toys, URS, Sony Oxford, George Massenburg EQ, Bomb Factory, Line 6, Joe Meek, Blue Tubes, Trilium Labs TL Space, Drumagog and various Waves gear, including the Maxx BCL for mastering.

The final mixes are created only after the footage is edited into smaller pieces and scripted out with talking heads and B-roll, and uploaded onto a secure FTP site for the act and management. After receiving their comments, the audio and video fixes are carried out and approved. The finished piece is then ready for distribution. The typical



From left: Howard Livingstan (CFO, CenterStaging), Roger Paglia (CEO, CenterStaging), Johnny Caswell (founder and chairman, CenterStaging), Felix Cavaliere, Tommy Nast (executive VP, CenterStaging)

turnaround time is just three weeks, thanks to state-of-the-art technology and a staff of 40 specialized full-timers and freelancers.

"I don't want to say we're a record company in the traditional sense," says Nast, "but we can help emerging artists and unsigned bands at every level. More and more artists and managers are realizing that the more rights they can control, the better position they're gonna be in, and we provide them with an opportunity for one-stop shopping. There's no telling what you can do with the distribution platforms we can share our content with."

These platforms now include the iTunes Music Store, for which CenterStaging is the first entity to provide HD videos, radio stations like K-RTH and Indie 103.1 in L.A., and, in the latest strategic alliance, a rehearsals.com video-on-demand channel that launched in May on Comcast and Cox Cable.

We end our tour in the office of Paul "Schmidt" Schmidman, a veteran in the business side of technology, who came over from AOL this past fall, taking the post of president and COO. "Our model is very simple," says Schmidman. "We're not charging anything. All we want from labels and managers are the rights to promote their acts. We explain to them that we're their partner, and we are actually going to make money with them and their artists—and as we get more scale with distribution channels and VOD, the story is beginning to get even more big-time. In terms of the struggles of the music industry today, they should look into any new idea that comes along. And you don't have to be a genius to see that this one is a win-win." ■

Bud Scoppa is Mix's L.A. editor.

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World Radio History

Iggy Pop & The Stooges



Photos and Text by Steve Jennings

It's been more than 30 years, but they're back: Iggy Pop & The Stooges played two sold-out shows at San Francisco's Warfield Theater in mid-April. Audiences were not only excited to see the band back on tour, but they were also treated to Iggy's seemingly random stage-diving and some members were even invited onstage for a tune. *Mix* checks in with front-of-house engineer Rik Hart, who has been mixing for Iggy since 2000.

"When I was first given the opportunity to do FOH for him seven years ago, I couldn't believe my lucky stars," Hart recalls. "He's a very interesting and experienced character, and one of the greatest things about Iggy is that he still loves doing live shows and loves going to places to play that aren't on the usual international gig circuit. We're using local production for all of these shows, which can be a little hit-and-miss sometimes. My FOH system of choice is the d&b J Series; it's truly amazing. Unfortunately, there isn't very much of it in the U.S. yet. My other choice is the JBL VerTec system, which

as far as line array systems go does rock 'n' roll very well." Hart's preferred board is a Midas XL4.

All mics onstage are Shure, including Iggy's vocal mic: "Iggy has a tendency to throw things—other than himself—around the stage from time to time," Hart says. "The only mod we do is to replace the standard grille with one from the Beta 58 as it's much stronger. As for a mixing style, Hart says, "EQ the system well and do what you can to ensure that the audience is hearing the same mix by making sure you have enough speakers and that they're covering all the places they need to. Democracy for listeners."



Front-of-house engineer
Rik Hart

FixIt

Grammy Award-winning engineer Tom Young is currently working with Tony Bennett; he was also the longtime live mixer for Frank Sinatra.

One of the most powerful—yet underused—tools in mixing with digital consoles is the use of delays. From the setup, delaying the P.A. to stage monitors or to the backline tightens the mix. Also, for effect 1 sometimes mult various inputs within the band and use 2 to 3 milliseconds of delay on various instruments during solos to bring out the instrument and pan the delayed signal. With the ease of setting up scenes for solos and multing inputs in the scene—say three inputs for a rack tom or overhead on a drum kit—this will make the instrument jump out without bringing up the fader.



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News



Tech-Tronics (Fort Myers, Fla.) deployed a Dynacord Cobra system, a Midas XL3 desk and Klark-Teknik outboard for a recent Charlie Daniels gig at the Celebrate Bonita festival.

Aerial Enterprises' (Whitmore Lake, MI) Jim Lillie and Jeff Jones spec'd an Electro-Voice P.A. for recent concerts (Lincoln Jazz Center Orchestra with Wynton Marsalis, Gilberto Gil) at Ann Arbor, MI's Hill Auditorium... Comprising the iDR-10 stage rack and iLive-144 control surface, Temple Bar (Santa Monica, CA) is using 40 channels of an Allen & Heath system, manned by music director/chief mixing engineer Swan... FOH engineer Jon Lemon used a Midas XL8 live production system supplied by Britannia Row Productions (London) for Noel Gallagher and Friends, who performed at The Teenage Cancer Trust concerts at Royal Albert Hall, and for Manchester Versus Cancer at the MEN Arena. Also performing at the Teenage Cancer Trust concerts were The Who; FOH engineer Paul Ramsay mixed on a DiGiCo D5 Live board... Pro Stage Productions (Canastota, NY) upped its D.A.S. Audio inventory with four Aero 218A and four CA-215A subwoofers, 12 CA-28A line array modules and a DSP-26 loudspeaker-management processor... A Digidesign VENUE board can be seen on the current Tragically Hip tour, where FOH engineer Mark LeCorre (of Audio Image Canada, which is working with Jasonaudio on this tour) is using the system's (D-Show, FOH Rack, Stage Rack, HDx card and ECx card) onboard effects.


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On the Road

The Smithereens

Currently out promoting their latest album, *Meet the Smithereens*—a nod to The Beatles' first album—The Smithereens are juicing up each show with fan favorites from past rock 'n' roll albums. Handling this wall of sound is front-of-house engineer John Kennedy.

How much gear are you carrying?

Most of our dates are weekend or short legs—at most 10 days. In addition to our backline rider, I advance each show and find most of the gear to be fine. A lot of the venues or local sound contractors are providing digital consoles and line arrays; I think the new stuff sounds great. I've been mixing FOH for more than 30 years and have seen a lot of changes, and I still love every minute of it.

Do you have a mixing technique for this band?

The Smithereens are a great true-to-form rock 'n' roll band and present this huge wall of guitar backed by solid drums and roaring bass. Once I lay a foundation with the drums and bass, the guitars come in. If you listen closely to the live mix, you'll hear three guitars even though there's only two guitar players. Pat Dinizio's Stratocaster has a Fishman pickup in the tailpiece that allows for an acoustic sound, along with his electric, which I blend accordingly for each song.

What's your biggest challenge on this tour?

The toughest thing from a mixing standpoint is probably the size of the venues and the band's volume, but the guys are really good at working with me, and as long as I'm not competing with an overzealous monitor guy, we're just fine.

Where can we find you when you're not on the road?

I'm back in New Jersey running my own company, Kennedy Event Services. We provide sound, lighting and stageline services for the New York/New Jersey area.

Now Playing

Mercy Me

Sound Company: Pro Audio Group Inc. (Ooltewah, Tenn.)

FOH Engineer/Board: Ryan Rettler/Digidesign VENUE

Monitor Engineer/Board: Bobby George (also audio chief)/Yamaha PM1D

P.A./Amps: d&b C Series, B2 subs, Q10, P1200, D12/EAW SB1000

Monitors: Sennheiser G2 IEMs

Outboard Gear: Dolby Lake processor, Lucid word clock, Tube-Tech MMC1A, TC Electronic M-One

Microphones: Shure

Additional Crew: Joel Bench, tour manager; Wes Amick, production manager; Dustin Reynolds, audio tech/stage manager; Kyle Sheppard, FOH tech; Charlie Klein, monitor tech; Sam Shiffley, Jared Byers, Brian McSweeney, backline techs

Static-X

Sound Company: Delicate Productions (Camarillo, Calif.)

FOH Engineer/Board: Bruce Reiter/Yamaha M7CL

Monitor Engineer/Board: Johnny B./Crest XRM

P.A./Amps: local stacks and racks

Monitors: Shure PSM600



Outboard Gear: Electro-Voice Square One
Microphones: Electro-Voice

Rehearsal Space Gets New Board

Sunderland, UK-based High Fidelity Studios' (www.hifistudios.net) new, fully equipped pre-touring rehearsal suite features an Allen & Heath GL2800M monitor board, complementing the existing GL2400 FOH desk.

According to High Fidelity Studios' managing director, David Dorn, "The suite offers bands the experience of

a full-blown gig, providing quality equipment they would find at a top-line event. The space is set up like a venue, with a fully furnished stage, including drum risers, a valve backline and 32-channel monitor and FOH desks."

Other gear available include a selection of mics from Sennheiser Evolution and Shure SM/Beta, and playback through MiniDisc, CD or MP3. Bands can have their session recorded to multitrack (up to 24 channels) and bounced to DVD; the facility can also take that recording and mix it.



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MUSE

PHOTOS AND TEXT BY STEVE JENNINGS

With a recent nomination for Best Rock Group at the Brit Awards (the UK's version of the Grammys) and a sold-out international tour for their latest release, *Absolution*, UK trio Muse (Matt Bellamy, lead vocals/guitar/keyboards; Dominic Howard, drums; and Chris Wolstenholme, bass/backing vocals) finally wound their way through the U.S., hitting arenas and larger-sized theaters. *Mix* caught up with the Britpopers in early April at San Francisco's Bill Graham Civic Auditorium.



Lead vocalist/guitarist/
keyboardist Matt Bellamy



Guitar/keyboard programmer tech Des Broadbery (right) is responsible for maintaining and operating Bellamy's onstage guitar and keyboard systems; he also works the backup switching of effects and amps. "I also have Novation Remote Zero that enables me to control Matthew's piano onstage, recalling presets and so on," he adds, "and a Yamaha O1V to monitor both guitar and keys."



Matt Bellamy's axes include custom-made Hugh Mansons: seven electric and two seven-string pick-up acoustics. Guitar tech Paul Spencer (left) maintains all of these guitars, including tuning and backup switching of effects and amps. As for amps, Bellamy's arsenal includes two Diezel VH 4 heads (one onstage), Marshall 1959HW 100-watt head and a Vox AC30 head; speakers comprise two 4x12 onstage and two Marshall 4x12 offstage miked for FOH, as well as a Skrydstrup AS 4 amp switcher.

In addition, the tour is carrying two guitar effects rigs; highlights include a Shure UR 4D four-way wireless system, Skrydstrup four-way amp-switching unit, Kenton wireless MIDI receiver, Avalon VT 737SP preamp/compressor for vocals, Muse Research Receptor, ETA Systems PD11 Power Conditioner, TC Electronic TC 2290 Dynamic Digital Delay and Nord Modular G2 synth.





Bassist Chris Wolstenholme uses Fender Jazz basses and a Rickenbacker. The system is based around the Sound Sculpture Switchblade GL rackmount switching system and Rocktron All Access pedal, which allows the bassist to change several pedals with one switch. Bass tech Shane Goodwin (below, left) explains that this is extremely helpful as the band will go "from the heaviest riffs down to a piano interlude. Without this setup, Chris or myself would have to be a good dancer to turn off all the pedals at the same time. To this day, I have not seen and or heard anyone play like he does.



"Chris uses four Marshall DBS bass heads, which are not made anymore; we own eight," he continues. "With the show being as hectic as it is, I have been fortunate to help Chris and Matt by doing most of their pedal changing, which has freed them to be able to put on an amazing rock show and not be tied down to a pedal board."



Drummer Dominic Howard's kit is miked with a Beyer M88 and Shure 91 (kick), Shure SM57 and Neumann KMS 105 (snare), AKG C 451 (hi-hat/ride), Shure Beta 98 (toms) and AKG C 414 (overheads). "For 'Supermassive Black Hole,'" drum tech Stuart Quinell (right) adds, "we are using a Roland TMC-6 trigger to MIDI converter on the snare and kick drum to a Roland SPD-S."



Front-of-house engineer Marc Carolan (who also works as a producer/engineer in his Dublin-based Suite Studios) first used a Digidesign board while mixing for The Cure. "It was a natural progression to use it on Muse's global tour," Carolan explains. "Even with the Digidesign Show console, there are still things I love to have by nature of the specific sound they give me, such as Midas XL42 preamps for that classic Midas sound." Alongside his digital board, Carolan is carrying racks of Empirical Labs Distressors and BSS Audio 901 multiband compressors for vocals; dbx 160s on kick and snare; Tube-Tech LCA-2B on bass and guitars; Eventide H3000 for vocal processing; and Yamaha SPX2000s for drum effects.

For the West Coast leg of the tour, Rat Sound is providing P.A. with Kevin McKenzie acting as system engineer. The main system comprises L-Acoustics V-DOSC, 12 per side; dV-DOSC, three per side; Rat subs, 12 per side; and V-DOSC (six per side) and dV-DOSC (three per side) for sidefills.

"I use Neumann KSM 104s on vocals due to Matt's 'extreme' mic technique," Carolan says. "I also use a single mic on guitars: a Royer V122 on the cab with an SE Electronics Reflexion filter. My mixing approach for this band is to truly reflect what they are performing. Sometimes that may be a very 'live' or stripped-back approach; sometimes it is a much denser and layered approach,

especially in some of the newer material. Muse is always a very inspiring band to mix. They give you so much to work with."



Front-of-house engineer Marc Carolan



Monitor engineer Adam Taylor

Monitor engineer Adam Taylor is also manning a Digidesign D-Show console; he first used one this past April and mastered it quickly and easily. "I find the console well-laid-out and easy to use in its configuration as a monitor console using fader flip," he says. "The plug-in feature is a valuable tool for me, although not the sole reason why I'm using the console. The extensive automation possibilities are also a great help in doing what I need to do for the band."

Unlike Carolan, Taylor is not carrying much in the way of outboard gear, relying mostly on onboard inserts except for three dbx 160A comps used on male vocals. "Matt and Chris are both using Neumann KMS 104s for vocal mics," Taylor adds, "and for their in-ear monitors, we're using Shure PSM 700 systems."

Bauder Audio Systems

All Audio, All the Time

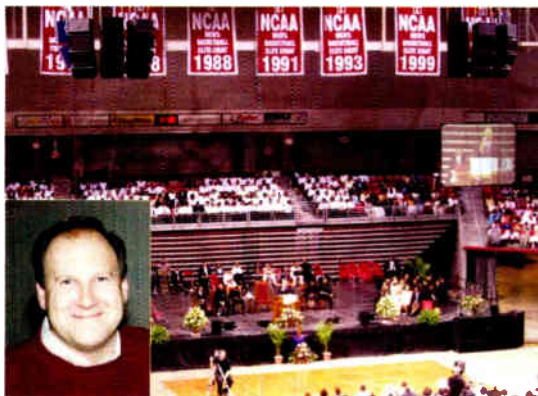
To maintain a competitive edge against larger touring companies, local sound providers must often look beyond just audio—spec'ing backline, lighting, video, staging, etc., to be a one-stop service shop. But for Bauder Audio Systems (Horsham, Pa., www.bauderaudio.com), the past 25 successful years have seen the company primarily focusing on just audio—providing gear for touring musicians (local, national and international) and local venues.

Bauder Audio Systems' owner, Rick Bauder, started in the field. His musical career began in 1969 as a roadie with local band Catch, which led to a playing gig with the band while keeping his sound duties. "As I amassed more gear," Bauder recalls, "my hobby slowly turned into a career as other bands asked me to work with them. In 1980, after graduating from college, I formally started Bauder Audio Systems.

"Initially," he continues, "the company did installs and service work to support the sporadic rental market. As the rental market improved, I phased out of the other areas to concentrate on sound and backline. My vision to be a sound company took an interesting turn in 1982, when local theater Shubert Theater [now Merriam Theater] called looking to rent what was then a new product—a Yamaha DX—for a play. I agreed to rent it to them and purchased one from a local music store. When other customers found out that I rented instruments, as well as sound equipment, a 'backline' need emerged." Today, the company is split between sound and backline rentals.

Bauder says that this approach can be hairy business, as he is often required to don a referee's outfit and whistle. "As a production company, being stuck in the middle between these warring factions [a person paying for the gear vs. the musician requesting the gear] puts us in a precarious position of alienating either the band or the promoter, or both," he explains. "The musicians want what they want for audio and backline needs. The promoter wants to pay as little as possible to put the show on. This is where the shirt and whistle come in handy. Oftentimes, the promoter wants us to negotiate with the band on their behalf to cut production. We are in the equipment rental business and don't want the band thinking we don't want to service their needs by refusing them their requested gear."

Fortunately, these sticky situations don't seem to have a lasting affect on business, as Bauder is servicing a wide variety of clients (concert promoters, festivals, casinos, TV/radio stations, theaters, churches, schools, arenas, record labels, etc.). In addition, traveling musicians not carrying gear are often regular customers, including Dennis DeYoung, Tower of Power, Average White Band and others. "Bands like the Beach Boys may use our services



Rick Bauder's (inset) Bauder Audio Systems recently handled SR for Temple University's graduation ceremonies.

10 to 12 times a year or more," he says, "and that comfort factor for them of having a reliable production company in a region is very important to their performance."

Bauder also points out a very real benefit to focusing on rental gear. "Security in the post-9/11 environment, along with increased transportation costs associated with international and coast-to-coast travel, has caused customers who used to travel with instruments and production to rely on companies like ours to provide a turnkey rental package. [For] musicians flying in from other countries to perform in the U.S., clearing customs with anything other than personal items can be very difficult."

Handling these events is a core crew of three office/shop and seven audio/backline personnel; in addition, the company maintains a list of qualified subcontractors. "Of special mention is my production manager, Brian Naab," Bauder points out. "Brian left a successful Nashville-based touring sound company as one of its road engineers to move back to the Philadelphia area to be closer to family and friends. A production manager with his audio background and event-management skills helps us to understand customers' needs, and his gear knowledge allows us to design the right equipment package."

In addition to the contracted gigs, this staff must maintain a sizable inventory, including Crest, Mackie, Midas and Yamaha rider-friendly boards; a full complement of Turbosound speakers, along with models from Electro-Voice and JBL; and an array of mics, amps, processing and DJ gear, in addition to its extensive list of backline and instruments. "With continuous investment in technology and embracing the digital age head-on," Bauder says, "I look to refine system design and improve the packaging of our systems." ■

Sarah Benzuly is Mix's managing editor.

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New Sound Reinforcement Products



AKG IVM 4 IEM SYSTEM

Using the same expansion components as its WMS 400/WMS 4000 products, the IVM 4 system from AKG (www.akg.com) offers an all-in-one pro solution for in-ear monitoring. The IVM 4 set includes the half-rack SST 4 stereo transmitter, an SPR 4 stereo bodypack receiver and a pair of IP 2 earphones. The SST 4 transmitter accommodates up to 14 channels and has an integrated dbx compressor, various equalization presets and in-ear-optimized binaural room simulations for a natural listening experience. The magnesium-case SPR 4 bodypack features Auto-Setup and Environmental Scan features to easily find clean, intermod-free frequencies, as well as an operating time of up to seven hours. Options include several antenna choices.



MEYER UPJUNIOR

Meyer Sound (www.meyersound.com) has expanded its UltraSeries with the new UPJunior VariO™ loudspeaker, bringing the sonic signature, flexible mounting/rigging options and high power-to-size ratio of the company's UPJ-IP to a smaller package. The 28-pound, self-powered, two-way UPJunior VariO is capable of 126dB peak SPLs from its 8-inch neodymium magnet woofer and 0.75-inch exit 2-inch-diaphragm HF compression driver, providing a frequency response of 65 to 20k Hz.

RENKUS-HEINZ RHAON LOUDSPEAKER NETWORK

RHAON (Renkus-Heinz Audio Operations Network) is the new loudspeaker network from Renkus-Heinz (www.renkus-heinz.com). Available for every R-H powered speaker, RHAON (pronounced "rayon") provides network control with onboard DSP for crossover, parametric EQ, driver alignment and overdrive protection, along with digital audio distribution, DSP and system monitoring via standard Ethernet hardware. RHAON PC software provides drag-and-drop signal routing/network management. Using the CobraNet standard for digital audio distribution, RHAON allows 64 channels of 24-bit audio at up to 96 kHz.

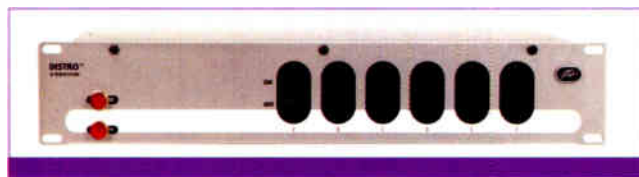
FUTURE SONICS ATRIO PRO EARPHONES

Hear Technologies (www.hear-technologies.com) is now distributing Future Sonics' (www.futuresonics.com) Atrio Series™ universal-fit earphones for pro monitoring and IEM applications. The new m5 and m8 models bring Future Sonics' audio signature and dynamic driver designs to the market without using armature (hearing aid-type) drivers.



CERWIN-VEGA CV SERIES AMPS

Available in three models—the CV-900 (\$499), CV-1800 (\$679) and CV-2800 (\$899)—the new CV Series power amps from Cerwin-Vega (www.cerwin-vega.com) are two-rack-space amplifiers that support stereo and bridged-mono operation. Features include a highly efficient tunnel-cooling system, 21-position detented level controls, signal and clip indicators, and six-segment LED level meters. The rear panel has combo XLR/TRS inputs, five-way binding post and Speakon outputs, and switches for selecting the onboard limiting or highpass filters.



PEAVEY DISTRO POWER TRANSPORT SYSTEM

Distro (\$599.99) from Peavey Electronics (www.peavey.com) makes delivering energy to multi-amplifier sound reinforcement systems as easy as inserting a plug into a socket. This two-rack-space unit provides up to 100 amps at 120 volts from a NEMA 14-50 plug. By dividing the current into six 15/20-amp services, each with a heavy-duty Edison socket and magnetic circuit breaker, Distro lets users permanently wire their amplifiers and outboard gear while providing plenty of power to run backline and front of house. ■

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Vintage Mic Repair Never Really Ends

Pull Back the Body to Reveal the Cables

I wasn't planning to write three articles about vintage AKG mics before summer kicked in, but what's on the bench trickles down. This month, the problems are less electronic and more organic. To cut to the chase, when a stereo tube mic has cable issues, it's not a quick trip to the audio store.

THE TOUR BEGINS

After servicing a mic, I usually record a test vocal alongside a "reference" mic, and if time permits, I'll also use it during a session. Even without the comparative analysis, classic mics have an instantly recognizable quality. On room tone, there's a low-frequency extension that makes you feel at one with the space, and then there are those in-your-face vocals that sound thunderous at three feet. There are simply too many things I want to know more about, and having two or more of the same mic helps quantify the primary characteristics, such as output level, "tone" and noise. Of course, with any vintage gear there will always be variables, whether due to production changes, factory-customized options, user mods, age or the result of repairs made over the course of several decades.

To recap (no pun intended) my own Austrian Mystery Tour, it began with a troublesome, somewhat abused solid-state AKG C 414 EB-P48 and the observation that tube mics are easier to service because their circuitry is far less complex. Typically, elderly capacitors are suspect. But unless a failure is obvious, I'm inclined to test first before attempting a wholesale replacement. Some of the capacitor choices in the AKG C 24 were made for me

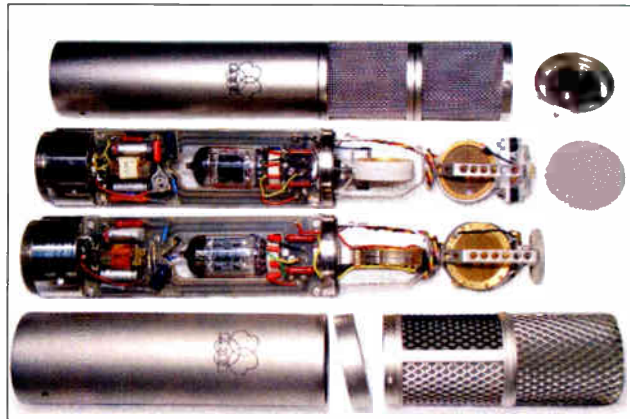


Figure 1: two versions of the AKG C 24—serial number 443 (bottom) with the original brass CK-12 capsules and serial number 986 with the "newer" nylon capsules

due to space limitations in the mic, but I also replaced the electronics' carbon resistors with low-noise, metal-film types to minimize the variables when it came time to evaluate tubes.

Of the three C 24s I'd seen so far, two were Mk-2 versions like the one at the top of Fig. 1. One came with a modified N24A (Mk-1) power supply and a nonstandard (but factory-looking) multipin connector at the base of the mic. The C 24 at the bottom of Fig. 1 is an Mk-1; both mics in that photo came with the newer N24S power supply. (I found schematics for three power supplies, two of which had an external box for pattern control.)

BALANCING ACT

My first C 24 encounter was with an Mk-2 with a bad cathode-bias capacitor that caused the channels to be unbalanced. The older C 24 also had a balance issue that was not resolved by changing the bypass caps—surprise. Fortunately, I had a "compatible" Mk-2 for comparison. Both mics and supplies were swapped until the cable revealed a problem at the power supply end.

I expected to be back in business after finding the break and cutting back past the damage. The results were better but not fabulous, so I used an ohm meter while massaging the cable from end to end. There was no "smoking gun"; two of the conductors had higher resistance than the others, and I was unable to localize the troubled area. I didn't want to whittle the 35-foot cable down to a stub.

Even though years of abuse had eventually taken their toll, the inherent cable quality was still obvious—very similar to what Neumann supplied back in the '60s and '70s. The shield was double spiral-wrapped copper and easy to work with. (See Fig. 2a.) The other mic had a 70-foot cable with a copper-braided shield and loosely fitting,

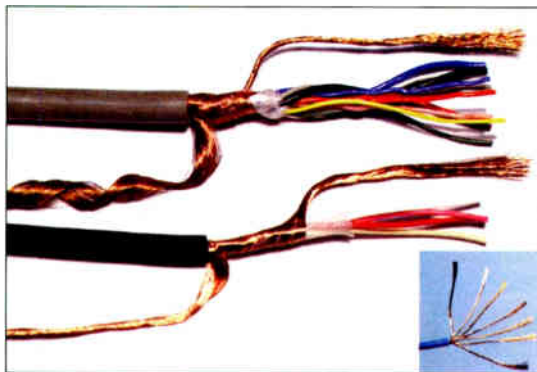
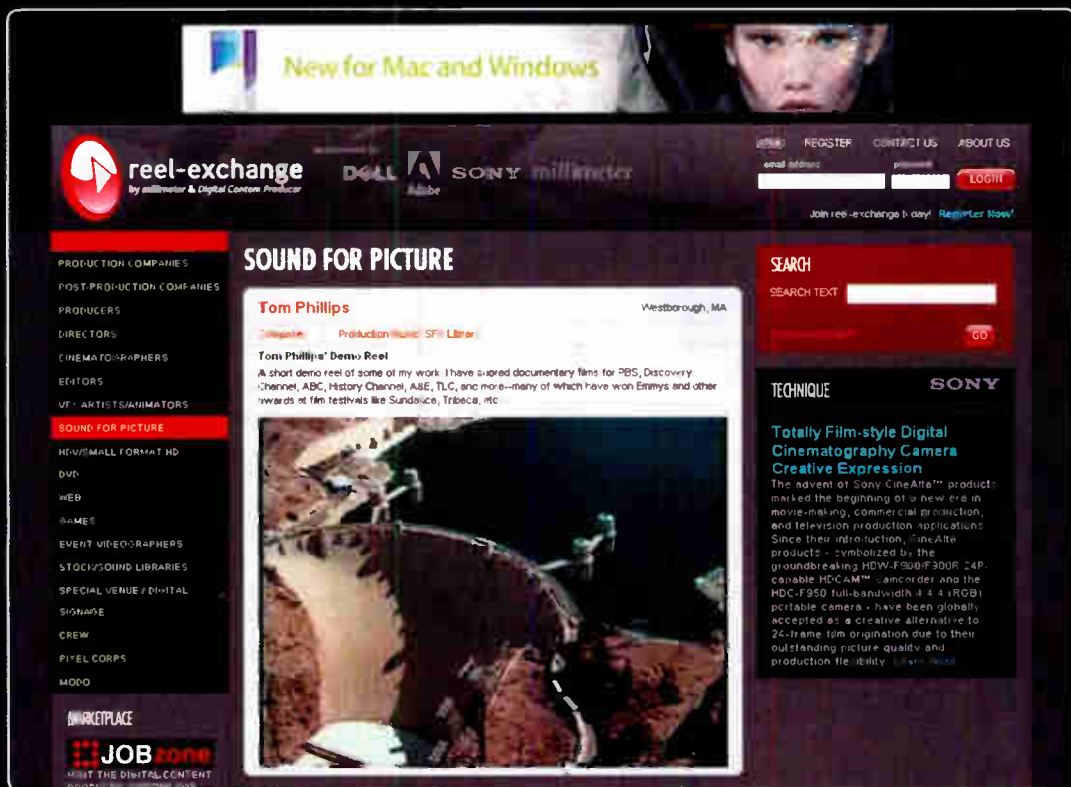


Figure 2a: The damaged cable (above) included a dual spiral-wrapped copper shield, three heavy-gauge wires for high current (inset) and eight thinner conductors for audio, pattern, B+ and spare. Below, Gotham Audio's standard mic cable (GAC-4/1) shows a similar construction style.



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color-coded, cloth-over-plastic insulation. It was equally beautiful in its execution, but as you may know, braided shields can be hard to work with (although you'll find a tip in Fig. 2b).

orchestra and reach the control room. The search was on for a replacement cable.

Gotham Audio manufactures GAC-7, a 7-conductor cable for mono tube mics that's similar in construction to the original.

cable has two pairs each of 22 AWG, 26 AWG and 28 AWG for filament, audio and high voltage for the plate and polarizing voltages, respectively.

The C 24 requires a minimum of nine conductors and a shield. Belden had three grades of computer-data cables, each with six twisted pairs (for noise immunity). The extra wires could be paralleled to handle the extra current required by the filament.

At this point, I really wasn't in the position to be picky; in addition to being technically suitable, the new cable would have to fit into the connectors. I also knew the data cables would not have the "feel" that we've come to associate with a fine mic cable—that less-than-technical audio requirement of "cable amnesia," a lack of memory that makes cables easy to wind and unwind.

Thinking there was no alternative, I was ready to buy without samples when I called Kelly Kay at Josephson Engineering to ask for advice. He provided a short Mogami "mono" sample and suggested I call Marshall, Mogami's U.S. distributor that also markets MXL mics. Phil Tennison at Marshall had an 8-pair cable with a braided shield—not quite as sexy as the double-spiral shield, but I was back in business.



Figure 2b: How to prep a braided shield. **Step 1:** Compress the shield as far back as it will go. **Step 2:** Slowly bend the cable while poking through and stretching the shield until the underlying layer is exposed and a loop is created. **Step 3:** Poke through the loop with a rounded, blunt tool until the wires can be pulled through. **Step 4:** Separate and prep the wires for soldering.

GIMME CABLE

At first, I hoped the long cable could be cut in half, but the customer needed the full 70 feet so that the mic could be flown over an

Five of the conductors are 26-gauge (AWG), each comprising 72 strands, while the other two filament conductors are 20 AWG with 252 strands. Mogami's W3172 6-conductor

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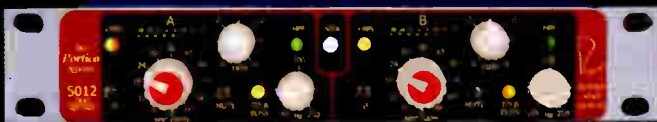
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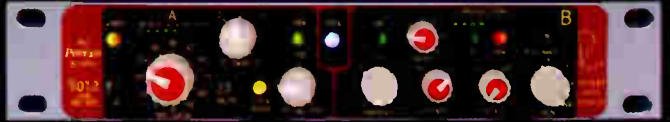
5014: Stereo Field Editor



5016: Mic Pre/Variable Phase DI



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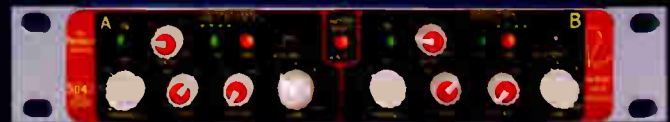
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SNAKE EYES

At each end of the cable is a 12-pin connector, of which nine pins are essential; the tenth "connection" parallels the shield via the metal shells. I am not sure that any of these mics had its original cable—the style didn't match the mic's vintage—but work had obviously been done: Screws were mismatched, threads were stripped and an entire strain relief was missing. (Compare Figs. 3a and 3b.)

The male end of the cable mates with the power supply, and as I pondered how to do a nice clean job, it became evident that one strain relief was "lost." There was almost no clearance between the strain relief and the solder cups. Figure 3a shows the newly installed Mogami cable with the original strain relief. To make what little room there is, it was necessary to trim 1/8-inch off the solder side of the male plug (plastic and solder cups).

Figure 3b shows a strain relief fabricated from an inverted rubber boot from an XLR combined with a soft piece of red plastic. Screwing the end cap onto the clamshell/metal housing provides enough pressure to secure the cable. I wired each connector twice because my first attempts

weren't very pretty and there was some stress when trying to make everything fit into place.

STAY ON TARGET

You might think I'm out of my mind, but this is what it takes to establish consistency, and the job wasn't done yet. The connectors were defluxed, the silver contacts deoxidized and treated with Caig ProGold. There was a polarity issue on one channel (the power supply had been converted from Tüchel to dual-XLR connectors) and a funky polarity switch.

Although the tubes that came with the mics were acceptable, I checked these for noise over a two-day burn-in period and auditioned several other tubes. The biggest challenge with dual-triode tubes is finding equally "quiet" sections, particularly avoiding "shot noise," a rocky, low-frequency sputtering sound that's more annoying than steady hiss. Several of my NOS tubes tested well in a C 12 (where only half the tube is used), but suffered from this disappointing ailment. One surprise was an Electro-Harmonix 6072/12AY7; there were no rocks and the hiss seemed a bit darker and less obvious.

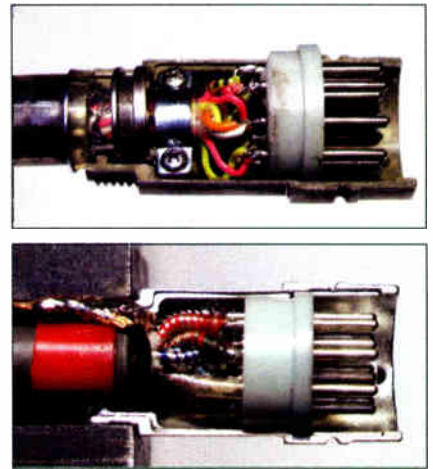


Figure 3a (top): male C-24 plug with original strain relief. Figure 3b: male C-24 plug with home-brew strain relief.

So this repair chapter is over—almost. After each repair and restoration, I anxiously await customer response. I sometimes call months later to see how things are going. But sometimes, no news is good news. ■

Audio files for this comparison can be found at mixonline.com and www.tangible-technology.com/music/mtcs/c24.html.

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- 2004 SurroundBridge introduced for using stereo FX in surround
- 2003 1st DAW with advanced multi-processor support, Universal Bussing Architecture introduced
- 2002 MIDI Groove Clips introduced, 1st DAW to support both ASIO & WDM
- 2001 SONAR introduced: 1st DAW to combine MIDI & audio, ACID style looping, & virtual instruments
- 1999 WavePipe technology for low latency audio streaming
- 1998 1st DAW with synchronized host-based playback of MIDI, audio, & video, MIDI FX introduced
- 1997 1st native DAW for Windows NT, 1st with real-time DirectX FX; StudioWare introduced
- 1995 Cakewalk Pro Audio: 1st native 32-bit MIDI & digital audio workstation for Windows 95
- 1993 Real-time MIDI editing introduced
- 1991 Cakewalk Professional for Windows: 1st sequencer for Windows 3.1, CAL (Cakewalk Application Language)
- 1987 Cakewalk for DOS introduced, 256 tracks

NAB REPORT

By the Mix Staff

GOT HDTV?

PHOTO: LAS VEGAS NEWS BUREAU



HDTV is surely the longest-running overnight sensation in the history of broadcasting. Cries of "HD's here!" have been echoing through NAB's exhibit halls for more than a decade, but this time, the show's 100,000-plus attendees were *very* serious about gearing up for high-definition production and broadcast. Part of this stems from awareness about the February 2009 mandate when the FCC will pull the plug on analog TV and usher in the new age of 100-percent DTV broadcasting. Another factor? Consumers seem willing to upgrade to 720p and 1080i/1080p systems, especially with prices falling on large, flat-panel LCD and plasma TVs—laying the groundwork for a substantial market of HD-hungry viewers.

Major broadcasters and content providers have been gearing up for this for years, but the *real* revolution comes when the mid-market stations and producers get onboard. Or as one observer put it, "Think about how many college football games are going to want to be in HD over the next three years."

CONSOLES: LEAN AND MEAN

A popular item on everyone's NAB 2007 shopping list was digital surround consoles, but in a buyer's market, the emphasis was on more power, more inputs and more surround program outs—but in increasingly compact frames and at half the price, naturally.

Calrec (www.calrec.com) unveiled Omega, a new mid-level console that uses its award-winning, FPGA-based Bluefin high-density signal processing technology and features 160 mono DSP paths packaged as 48 stereo and 64 mono channels, and up to 24 full 5.1 surround channels.

Keeping with the theme, SSL (www.solid-state-logic.com) renamed its C Series to C100 HD and C300 HD, doubling the inputs to 512, adding MORSE routing capabilities, updating Centuri processing and incorporating the workstation control from its AWS Series. Harrison (www.harrisonconsoles.com) countered with the under-\$150k, 1k1k-powered Trion. During the past few months, the company has sold four in Germany and a few more in Taipei.

Derived from the System 5 Series, the Euphonix (www.euphonix.com) S5 Fusion digital console combines on-



SSL C100 HD doubles the inputs to 512.

board DSP processing channels and extensive DAW control with 24 channel strips and optional motor joysticks. Each channel strip has a multiformat moving fader; touch-sensitive knobs for EQ, filters, compressor, expander/gate, aux and pan; and DAW plug-in control for TDM, VST and Audio Units. The high-res screens show metering, track info and routing display.

Studer (www.studer.ch) unveiled an optional I/O card that brings onboard Dolby Digital and Dolby E decoding to its Vista and OnAir 3000 digital consoles. Soundcraft's (www.soundcraftdigital.com) Vi4 console includes all of the capabilities of its Vi6, but in a compact package. Less than five feet long, the Vi4 offers 48 inputs on 24 faders with a total of 27 output buses and inherits the Vi6's Vistonics II touch-screen interface and FaderGlow features.

Merging Technologies (www.merging.com) gave us a sneak peek of Pyramix 6—the first 48-channel DSD recording system. Merging also showed the new sharp-looking Ramses controller with its Oasis I/O boxes that offer DSD and DXD recording with optional mic preamps in the box. It all speaks back to Pyramix via MADI.



Apple Soundtrack Pro 2, part of Final Cut Pro 6

DAW Wish List

1. Ultra-high sample rates
2. Real-time Fade editor
3. Source / Destination editing
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THE OTHER SIDE

Throughout NAB, you couldn't escape the "workflow" catchphrases: "server-based workflow," "integrated workflow," "paperless workflow," etc. It's not just better technology, it's easier. Avid, Apple, Adobe and Sony lead the way, but there are plenty of other contenders in this area, from workstation manufacturers such as BIAS and MOTU to SSL with its MediaWAN.

The big talk at NAB was the \$1,299 Final Cut Pro Studio 2 production bundle from Apple (www.apple.com/finalcutstudio). Highlights include Final Cut Pro 6, which introduces Apple's ProRes 422 format for un-

compressed HD quality at SD file sizes, and Soundtrack Pro 2, a complete revamping of this audio editor/creator with new tools for multitrack editing, surround mixing and conforming sound to picture.

Digidesign's (www.digidesign.com) Pro Tools Version 7.3 adds support for high-def video workflows, including a secondary timecode ruler that displays HD frame rates for viewing positions in both HD and SD timebases, and nudging in half-frame increments. Also shipping this summer, BIAS' (www.bias-inc.com) Peak Pro 6 features a redesign of the GUI and enhancements to the playlist, including new crossfades and

the ability to tweak volume envelopes.

NAB had no end of software apps designed to increase efficiency in the production and broadcast environments. Virtual Katy's (www.virtualkaty.com) VK Connect bridges the gap between the sequence-oriented picture editing and session-structured audio post. The company also unveiled VK V. 2.5, now with expanded format support. Dolby (www.dolby.com) is now shipping its Dolby Media Producer suite of encode/decode/media tools. DMP supports all Dolby audio technologies for disc-based media formats, such as HD-DVD and Blu-ray, as well as standard DVD-Video and DVD-Audio formats. Minnetonka's (www.minnetonkaaudio.com) Audio Tools Batch Pro offers an automated processing environment for many audio-related tasks, including editing, encoding and plug-in processing. Studio Network Solutions (www.studionetworksolutions.com) showed Postmap, a Mac/Win search/management app that helps users instantly locate files on their entire storage systems: SAN, LAN, CD/DVD and FireWire drives. The company also showed Evo, a shared video-storage system that incorporates Fibre Channel, iSCSI and NAS.

WIRELESS WORLD

With as-yet-unresolved FCC frequency allocation changes in the wind (see the April 2007 *Mix*), NAB attendees were interested in new wireless developments. Sony Pro Audio (www.sony.com/proaudio) showed its digital wireless system featuring a digital modulator and encryption scheme. A Sony codec chip helps the system deliver 24-bit/48kHz digital transmission quality. Mipro (dist. by Avlex, www.avlex.com) is shipping its single-channel ACT-81 and dual ACT-82 digital wireless systems. Both use a sub-band ADPCM algorithm that's said to eliminate compander noise.

Ideal for use with shotgun mics, the plug-on Zaxcom (www.zaxcom.com) TRX700 recording transmitter stores up to 12 hours of timecode-referenced audio on a removable miniSD card. Offering some safety in these days of crowded airwaves, this patent-pending feature provides automatic backup of the system's RF transmission.

Audio-Technica (www.audio-technica.com) touted its 1800 Series dual-channel UHF wireless system featuring a camera-mount receiver with a built-in mixer that lets users mix two input sources in the field. Some 996 UHF frequencies are available and single-channel systems are also offered. Sennheiser (www.sennheiserusa.com) showed its EK3241 camera-mount portable receiver with 32MHz switching bandwidth and 7,200 available frequencies.

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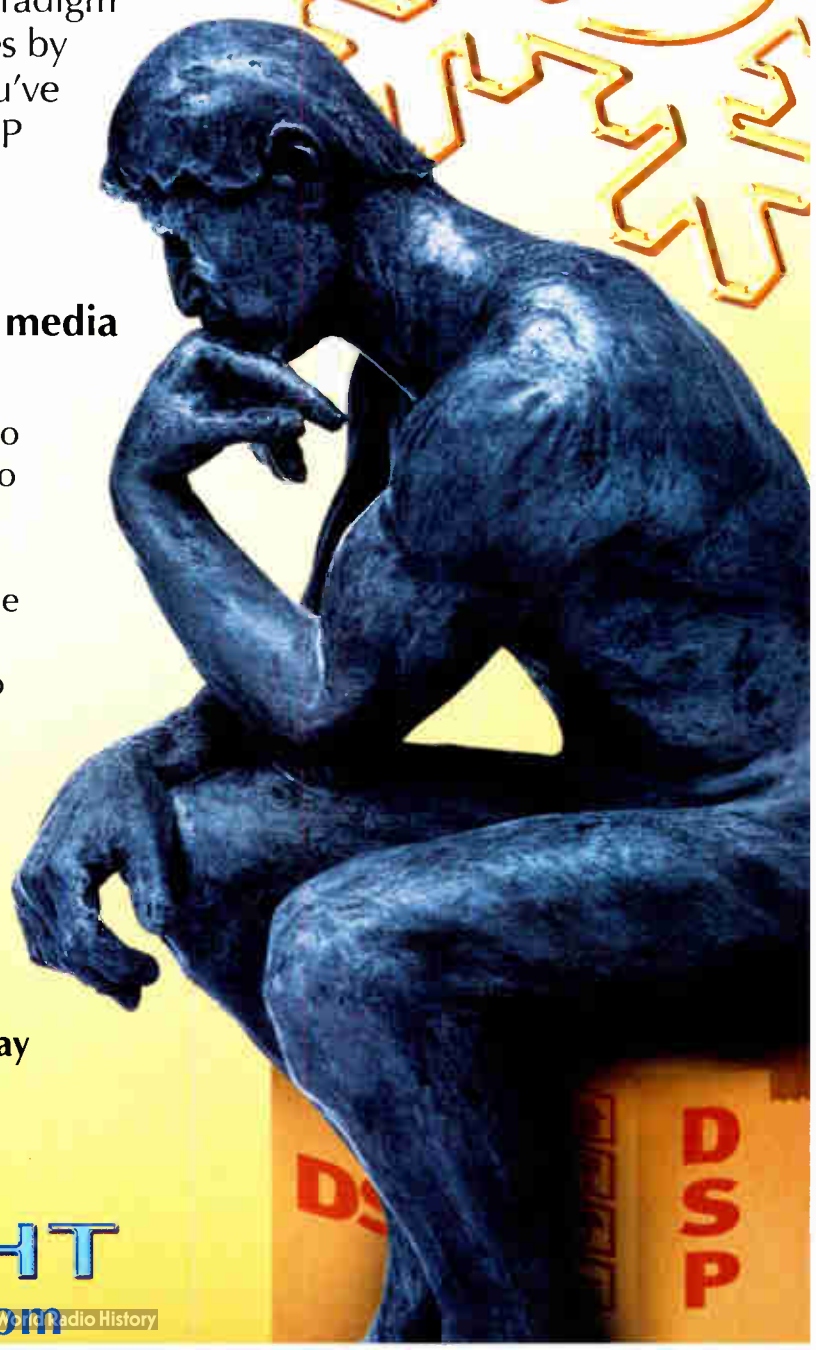
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FAIRLIGHT

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World Radio History





MICS, MICS, MICS!

NAB featured a multitude of new mics for high-res and multichannel production. DPA (www.dpamicrophones.com) displayed its first shotgun: the 4017, an 8.3-inch, 2.6-ounce unit with 130dB SPL handling, built-in 50Hz roll-off and switches for a 300Hz roll-off, and a 5k to 8k boost. HHB (www.hhbusa.com) showed its DRM85-C FlashMic in a new cardioid pattern. Both FlashMic models offer IGB Flash memory, USB audio data transfer. Sony unveiled the

feather-light ECM-680S, which can function as a shotgun, stereo or mono mic. If one side of the stereo feed goes out, then the mic adjusts and sends the output as dual-mono for worry-free field recording.

A new, affordable model from SoundField (www.soundfield.com), the SPS200 can produce simultaneous phase-coherent stereo and 5.1, decoding its output to the required formats via two cross-platform plugins. The mic also features remote control over pickup pattern and orientation. Sanken's (www.sanken-mic.com) WMS-5 delivers phase-coherent surround sound with five discrete outputs (L/C/R/Ls/Rs) from one compact 9.25-inch/8.3-ounce body.

The MCE 72 PV CAM from Beyerdynamic (www.beyerdynamic.com) is a camera-mountable stereo mic. Based on the consumer MCE 72, the new MCE 72 PV CAM runs on 11 to 52-volt phantom power for a hotter output signal.

MONITORS GALORE

Developed with PMC, Digidesign's RMS Series active monitors are offered as 5.5-inch two-way (RM1) and 6.7-inch two-way (RM2) ver-

sions, both with DSP-based digital crossovers and XLR analog and AES/EBU digital inputs. The RM1s are \$1,249 each; the RM2s are \$1,749 each.

Now available for PC and Mac is Genelec's (www.genelec.com) speaker-management software for its DSP-driven monitors. The software lets users run Genelec's AutoCal room correction and control up to 25 8200 speakers and five 7200 Series subs via standard Cat-5 cabling.

A "different" kind of monitor, DK-Technologies' (www.dk-technologies.com) new Starfish display for its MSD600M audio meters shows levels for each of the surround channels, along with the correlation between neighboring audio channels, making unwanted effects easy to track down.

MORE TO COME

We'll provide more coverage of new products from NAB in future issues and online at www.mixonline.com. Stay tuned! ■



Digidesign RMS active monitors

MIX CERTIFIED HITS

It wasn't easy, but listed alphabetically, here are our choices for the Top 10 audio products at NAB.



- Apple Soundtrack Pro 2
- BIAS Peak Pro 6
- Calrec Omega
- Digidesign RMS Active Monitors
- DK-Technologies MSD600M Starfish Display
- DPA 4017 Shotgun Microphone
- Euphonix S5 Fusion Digital Console
- HHB DRM85-C FlashMic Cardioid Mic
- Merging Technologies Pyramix 6
- SSL C100 HD/C300 HD



THERE'S A NEW SHERIFF IN TOWN

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To audition and purchase Sony Sound Series loops or locate a dealer near you, go to www.sony.com/loops



Tools of the Trade



STUDER 42-FADER VISTA 5

Studer (www.studer.ch) has released a larger version of its Vista 5 console (\$150k to \$200k). An additional bay of 10 input faders lets an operator control 42 input channels simultaneously and permits true two-user operation of the surface. The bucket is situated to the right of the output master section and can be isolated from any global adjustments made on the left side of the desk using the Lock mode. The right fader section features its own control panel to switch the EQ and processing in/out, so two operators always have direct access within their own sections without having to do any unnecessary moves across the console. Two new options for the D21m I/O systems that function with the Vista 5-42 include a Dolby E card for directly decoding an AES/EBU stream into eight discrete channels and the SDI card, which can de-embed the audio stream from an SDI signal connected to the card via coaxial cable.

AKG PERCEPTION 150

The first front-address model in AKG's (www.akg.com) Perception Series, the all-metal Perception 150 (\$279) offers a cardioid polar pattern and a switchable -10dB pad for handling SPLs of up to 145 dB. This externally biased condenser mic has a 1/2-inch diaphragm providing a 20-20k Hz frequency range, and it ships with a mic clip.



PRISM SOUND ORPHEUS

Named after the musician of Greek mythology whose songs were so beautiful that they could charm wild beasts, the Orpheus (\$4,995) high-end interface from Prism Sound (www.prismsound.com) has eight analog I/Os and S/PDIF (co-ax and optical)

digital I/O. The optical ports can also be used as 8-channel ADAT I/O, giving Orpheus a maximum capacity of 18 concurrent input/output channels. It comes with controller software with a digital mixer and drivers for Windows XP or Vista while Mac OS 10.4 interfaces through

Core Audio. The unit also features four digitally controlled preamps and two instrument inputs. There is also a large assignable rotary control for monitoring or output level con-



control that can be applied to one channel, a pair of channels or a larger selection. Dual headphone outputs are included, each with its own volume control.

TC-HELICON HARMONY4 PLUG-IN

TC-Helicon's (www.tc-helicon.com) Harmony4 (\$995) plug-in for Pro Tools HD can be used to generate up to four-part harmonies, fatten existing harmony tracks and design special vocal effects. Users can create up to four virtual singers with individual gender, vibrato

and levels, and various humanization controls can be created from a single vocal track. The interface offers several schemes to simplify the choice of harmony, from automatic scale-based harmony that intelligently follows melismatic singing to MIDI note control, allowing any possible melody to complement the lead vocal.

The Pro Tools HD version supports Universal Binary and Windows XP, and runs seamlessly on Digidesign's VENUE live sound console.

BRAUNER PHANTERA

Dirk Brauner Microphones (www.brauner-microphones.com) are now distributed in North America by Network Pro Marketing (www.networkpromktg.com), including the affordable new Phantera



(\$2,129). This solid-state (FET), German-made studio condenser has a cardioid response, low 11dBA noise spec and a max SPL handling of 142 dB.

MOREVOX ELEKTROMORPH

This out-of-the-ordinary collection of drum samples from MoReVoX (www.morevox.com) bridges the world between loops and real drums by providing both. Elektromorph (\$149) offers 32 kicks, 44 snares, 14 tom sets, 94 cymbals, and several other multilayer percussion and effects. The 24-bit samples span styles from pop to hard rock, hip hop to extreme and electronica.



SOLID STATE LOGIC C100 HD-S

Designed specifically to fit in tight spots, SSL's (www.solid-state-logic.com) C100 HD-S (priced per configuration) digital broadcast console promises an enhanced feature set and a significant boost in processing power. The "S" and its larger brother, the C100 HD, also feature the Centuri HD-S, a new, smaller front-loading processor option. The C100 HD-S supports direct control of a DAW via HUI protocol, and features a new low-cost MAD1 interface and up to 512 fader inputs. The new Version 4 software package supports a high-density processing engine and control surfaces, with access to up to 256 fully featured input channels with full processing capabilities and up to 256 additional short-channel "premix" inputs



powered mic preamps (¼-inch XLR combo inputs), ¼-inch TRS outputs, ¼-inch headphone jack and a 6.5-inch TFT LCD monitor. It operates at up to 24-bit/96kHz, and offers a touch pad-type mouse, four hours of battery life (recording at 24-bit/44.1kHz), a 20GB hard drive, integrated 802.11b/g WiFi and onscreen alpha keyboard.

KRK VXT MONITORS

The new VXT Series monitors from KRK (www.krksys.com) feature proprietary drivers; a curved faceplate; low-resonance, ABS structural foam cabinet designs; extended low end; and slotted ports to reduce port turbulence. All are two-way designs with a 1-inch silk-dome tweeter. Weighing in at 28 pounds, the VXT8 (\$799) has an 8-inch Kevlar woofer and 180-watt amp; the VXT6 (25 pounds, \$599) features a 6-inch Kevlar woofer and 120W amp, while the VXT4 (11 pounds, \$399) has a 4-inch Kevlar woofer and 90W amp. Standard are integrated Omni Mount supports for wall mounting, XLR TRS combo inputs, shielded cabinets, and high- and low-frequency adjust switches on the VXT6 and VXT8.



with fader control, pan capabilities, and access to mono, stereo and 5.1 submix (utility) buses. The C100 HD-S comes in 24+8 fader to 6+8 fader sizes that are expandable in 8-fader increments.

TRINITY AUDIO RECORDER

The Linux-based, fanless Trinity (\$999) field recorder from Trinity Audio (www.trinityaudiogroup.com/home.html) features a 520MHz ARM9 CPU, 128 MB of RAM, two phantom-



recorded where a typical multitrack recorder is not feasible. voXover lets users write or import a written script and rapidly automate the recording of that script. The script can be displayed on voXover's teleprompter to the voice talent via a wired or wireless network. Features include the ability to allow users to specify any number of takes per line, create takes based on silence, export takes based on ratings and automatically trim and pad takes when exporting. Supported export formats include AIFF, WAV, Wave Editor, SDII or CAF.

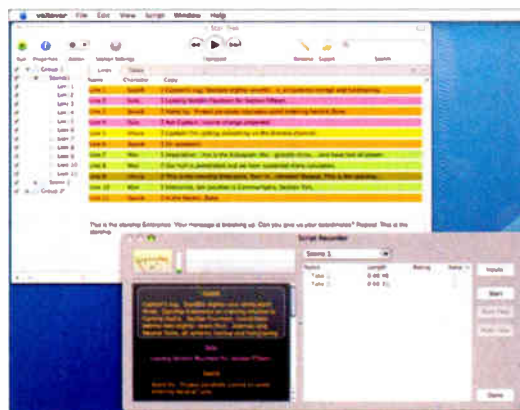
MXL 190

The MXL 190 (\$149) cardioid condenser microphone from MXL (www.mxlmicro.com) features a 6-micron condenser, pressure-gradient capsule; switchable -10dB pad; 20-20k Hz frequency response; and a champagne-colored finish. It ships with a high-isolation shock-mount and protective metal case. It is available exclusively through Musician's Friend.



AUDIOFILE ENGINEERING VOXOVER

voXover (\$375) is a new voice-over automation tool and batch recorder for Mac OS X from Audiofile Engineering (www.audiofile-engineering.com). It's designed for projects such as videogames, speaking dictionary and broadcast work that require a lot of individual audio files to be



EZQUEST THUNDER PRO RAID TRIPLE INTERFACE

With a name that never stops, the EZQuest (www.ezq.com) Thunder Pro RAID Triple Interface external drive is the latest large-capacity storage solution for A/V pros. Ports include two FireWire 800s, one USB 2 and a front-access FireWire 400. It uses the latest Oxford 924 chip set and has three high-performance, 7,200 rpm SATA II drives with up to 16MB cache buffer. It comes pre-configured as RAID 0 and supports multistream video playback with real-time effects and audio. Also standard are a MegLev Smart Fan and thermostat to regulate drive temperature, as well as a smart on/off power



switch that automatically turns the drive on/off when it is plugged or unplugged. There's also a warning buzzer for overheating or fan failure. Drives range from 640GB capacity up to 2 terabytes.

LIGHTVIPER VIM-MY32 INTERFACE

Yamaha digital console owners will want to check out this new mini-YDGA1 interface from FiberPlex (www.lightviper.com). A pair of VIM-MY32 (\$1,550) mini-YDGA1 interfaces lets users connect directly via

fiber to the LightViper fiber-optic audio snake system with 32 audio sends and eight returns (24-bit/48kHz). Various combinations of LightViper MY-32 cards can be used with Yamaha's PM5D, M7CL, DM2000, DM1000 and LS9. Yamaha's control protocol for its AD8HR remote mic preamplifiers is provided through a LightViper "MY card-enabled" fiber connection. The VIM-MY32 interface card modules are available in four configurations: TAC-4FR military-style connectors, non-tactical LC connectors, non-tactical ST connectors and Neutrik OptiCon connectors.

NOVATION NIO 2|4

The nio 2|4 interface from Novation (www.novationmusic.com) offers four inputs (XLR mic input, instrument and two RCA line), four RCA outputs, MIDI I/O and a low-latency environment, allowing its effects to be used in real time. The effects include a guitar amp simulator, filters, delay, chorus, phaser, flanger, distortion, EQ, reverb, tremolo and more. The unit connects to any PC or Mac (OS X) via USB, and features two headphone outs and dual 7-segment LED meters.

VOCALBOOTH.COM 14 CARAT DIAMOND SERIES

Named for its acoustically sensible shape that reduces standing waves, VocalBooth.com's new 14 Carat Diamond Series booth is a five-sided enclosure engineered to fit in the corner of a room. The largest booth has the approximate volume of a square 7x7-foot room and comes in single- or double-wall design. Designed with por-



table in mind, the booth can be assembled and taken down an unlimited number of times, and offers active ventilation, lighting, windows and cable passage. Custom options include a choice in colors, foams, fabrics, windows, wood floors and more. Standard and custom sizes range from 4x4 up to 16x16 feet, with pricing starting at \$2,799 (shipping included).



ZAOLLA ICR RCA CABLES

Zaolla (www.zaolla.com), Hosa's high-end cable line, now features a single and dual ICR RCA-to-RCA audio interconnect (\$80/ five feet) using the company's solid-silver center conductor. If you've ever had a problem with RCA cables losing their grip on your gear, the ICR can help because there is a turnable ring at each tip that contracts the ring, making for a tighter grip on any RCA connection. ■



SOFT SYNTHS vs. HARD SYNTHS



THE DEBATE ENDS HERE.

Plug-ins give you endless virtual instruments and effects, but they punish your CPU, and playing live with a computer is risky.

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Why choose? Receptor is a reliable hardware unit that lets you store, mix and play plug-ins with or without a connected computer.

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Plug in a MIDI or USB keyboard, or plug a guitar into the instrument input, connect Receptor to a mixer or amplifier and you're good to go. Use Receptor's 16-channel mixer to sculpt your plug-ins into patches you can recall instantly using the front panel controls.

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Connect to your computer's DAW via MIDI, analog, S/PDIF, and/or ADAT, and your plug-ins are available on 10 outputs and 4 inputs. Or use UniWire™ to get 16 channels of I/O using

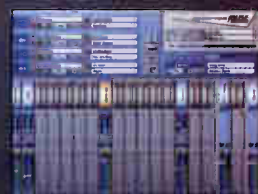
a single Ethernet connection, which lets you open plug-ins right inside your DAW. Either way, your computer breathes easy while Receptor does the heavy lifting.

Plays pro plug-ins like Ivory, Atmosphere, EWQLSO Platinum, and Komplete 4*

Every Receptor comes with \$400 worth of plug-ins free, and you can also order your Receptor loaded with Native Instruments Komplete 4. Receptor runs plug-ins from Applied Acoustics, Spectrasonics, Synthogy, East West, Toontrack, IK Multimedia, FXpansion, Big Fish Audio, and Garritan* to name a few.

Hardware or software control—your choice

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World Radio History

Tannoy Precision 6 iDP Monitors, TS112 Sub

Active 2.1 Near-Fields With Room Correction and Networking

With studios, broadcasters and post houses hungry for “intelligent” speaker designs that can help tame an angry acoustical space and provide network ability, a range of manufacturers have jumped into the arena. Tannoy has always been a company with interesting ideas. Their Dual Concentric, phase-aligned design bowed in 1947 and is still at the center of their line. The focus of this test is the re-engineered Precision 6 iDP (Interactive Digital Programming), which offers a range of features including DSP, networking intelligence and Class D amps.

The new Precision 6 iDP is a three-way, active design with a 6-inch Dual Concentric (coaxial) driver combined with a 1-inch titanium-dome, neodymium-magnet SuperTweeter™ that extends response to 51 kHz, ± 2 dB. TC Electronic teamed with Tannoy to provide the amplification and networking technology. Onboard are two 200-watt Class-D amps: one for the bass/midrange driver while the other provides powering for the tweeter (crossed at 1.9 kHz) and SuperTweeter (16kHz passive crossover). Max output is 117dB SPL at 1m.

Inputs are analog XLRs or 32 to 96k Hz AES/EBU digital, both routed to one “master” speaker and then distributed through the Cat-5/RJ45 networking system. The analog inputs can be replaced with an optional AES/EBU dual-input card, extending the sample rate to 192 kHz and providing

enough inputs for a fully digital 7.1 system. A BNC word clock input is standard. The speakers are magnetically shielded for use near standard CRTs, and the enclosures are rear-ported, which could be an issue if installed too close to a boundary.

Two optional subs are available. I tested the 12-inch, 750W powered TS112 iDP, with 118dB max output. For more thump-de-thump, the dual-12 model, TS212 iDP, kicks out 124 dB. Bass management is configurable from 2.1 to 7.1, with facilities for multiple subs. LFE can be boosted up to 14 dB, polarity-reversed and phase-shifted in 5-degree increments from 0 to 180 degrees for room/placement compensation.

WANT CONTROL?

Networked speakers offer control, flexibility and the ability to make acoustic tweaks (gain/EQ/crossover) at the mix position. All parameters can be addressed from optional software or a 2x16 display (with associated Enter/Exit and cursor keys) on the master's front baffle. The front panel keys were slightly inconvenient, as you must be near the speaker rather than at the listening position. Make sure you have the menu navigation chart nearby or you might turn on the pink noise with your ear next to the cone.

The remote software is much easier to use than the baffle controls; however, certain utility functions are only available from the front panel. Several remote software and hardware control options are offered. The iDP-SOFT and Precision iDP PC-iP™ software are PC-only, with the latter intended for “advanced installations,” providing even more bass management and parametric filter possibilities. The subwoofer settings for phase, gain, lowpass and polarity must be offered with the PC-iP software; they are not found in the iDP-SOFT version nor on the front panel. An optional iDP hardware remote can be used stand-alone—without the software—allowing fast access to three reference levels, four presets (out of 15 user and 17 factory presets), solo/mute and master volume for up to a 5.1 system.

Setup parameters are available from the front panel or remote software. Tannoy does not provide a calibration mic or any “sweep parameters” or “auto-calibra-



tion via pink noise” to analyze your particular acoustical space. “Room position” is set at the menu to apply boundary compensation for installation on a console, against a wall, in a corner, etc., but no graphs are included to tell you what’s actually happening at these settings. There’s an onboard pink-noise generator with a ± 6 dB range, but no explanation is given about how to calibrate your reference levels in SPL. A “relative level” adjustment range of 0 to -40 dB allows for a preset relative to the calibrated global level, but again, at what reference? Using an analog Radio Shack SPL meter, I measured 85dBA SPL at 1m with the generator set at the default, 0.0 dB. Bass and treble can be adjusted by ± 6 dB, but no curves or shelving characteristics are described beyond that.

Using an RTA showed that bass is a low shelf, starting around 160 Hz. Treble is a high shelf with the knee somewhere between 3.5 and 4 kHz. Both filters sounded good, adding a little more low-end body and a nice sheen on the top. In my room, these were unnecessary—running flat was just fine. It would be nice to have this data close by without jumping through hoops to get it. If you are mixing for film, ANSI and SMPTE 222M variations of the X-Curve are included, along with charts for both.



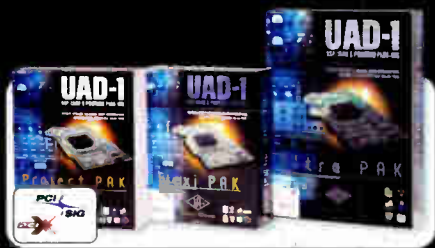
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-Mike Clute, Pro Sound News



UAD-Xpander

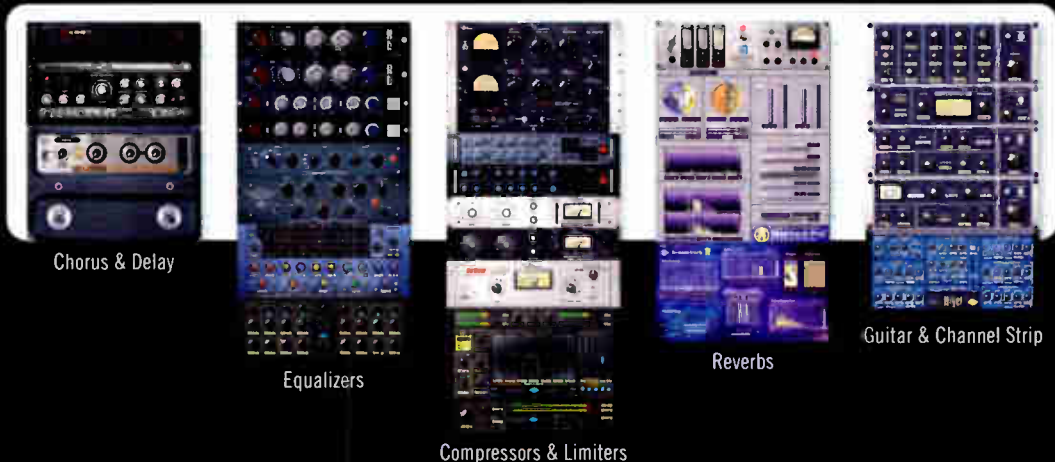


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World Radio History

DIGITALLY YOURS

The AES digital inputs are selectable via software or the front panel switches. Input selection and speaker setup (including reference levels) are not saved with presets, so switching between inputs and matching levels can be cumbersome and definitely not immediate enough for making A/B comparisons. I found the converters (24-bit, dual-bit delta sigma) slightly lacking in depth and soundstage as compared to other converters in a similar or even lesser price range. The imaging became somewhat flat. There was a par-

ticular emphasis of the upper harmonics in the vocal range, making vocal tracks slightly edgy.

Heavy midrange material, such as metal guitars, were not well-defined. I used my Alesis Masterlink's converters for reference by sending the converted analog output to the Tannoys while simultaneously sending the digital AES output signal to the Tannoy AES inputs, and A/B'd the two sources. For another test, I sent S/PDIF from a Digidesign 002 Rack to the Masterlink (to "convert" to a balanced AES signal), again taking the AES output to the Tannoys, with the an-

alog input coming from the analog output of the 002. After a great deal of listening, I always returned to the outboard converters, which reproduced more separation between the instruments and less brilliance on vocal tracks.

PUMP UP THE VOLUME

On first listen using the Masterlink's converters, the speakers sounded great. I tested the Tannoy Precision 8Ds last year (February 2006 issue) and felt they had too much top end and not enough punch. That's all changed, thanks to the redesign of the SuperTweeter and the added subwoofer. The imaging is stellar, with a wide sweet spot. The top end is beautifully smooth and accurate. The low end fills out nicely, with compressed, master references sounding truly exceptional.

On raw tracks coming out of the 002, everything I threw at the Precision 6 iDPs had a deep, 3-D quality. Acoustic guitars, piano, male/female vocals, drums/percussion, electric rhythm guitar, lead guitar, bass, sax, violins and trumpets were all reproduced with subtle details and a solid soundstage. One particular nylon-string acoustic guitar track was extremely detailed. You could easily hear the nuances and variations of tone from the pad of the fingers to the bite and percussion of the nail. Articulation is very up front without becoming edgy or exhibiting splatter. There's a pronounced forward midrange, between 800 and 1.25k Hz, with the associated first harmonics also emphasized, bringing vocals forward in the mix. This was in comparison to my main reference speakers (JBL LSR6328P/6312P) and verified with a RTA. And even after using these speakers for a prolonged period of time, I didn't notice any ear fatigue—another great feature.

AND IN THE END

What these speakers lack in auto-room calibration and basic calibration documentation, they certainly make up for with exceptional reproduction. Those with the dough should give these a listen, but all this technology comes with a fairly hefty price tag: \$7,066 for a 2.1 system; a 5.1 surround rig lists at \$12,870 with software, remote and digital card. Prices: Precision 6D iDP master, \$2,185; slave, \$1,696; TS112 iDP subwoofer, \$3,185; iDP-SOFT, \$171; iDP remote, \$295; AES digital input card, \$250.

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Bobby Frasier is a pro audio consultant and educator in Phoenix.

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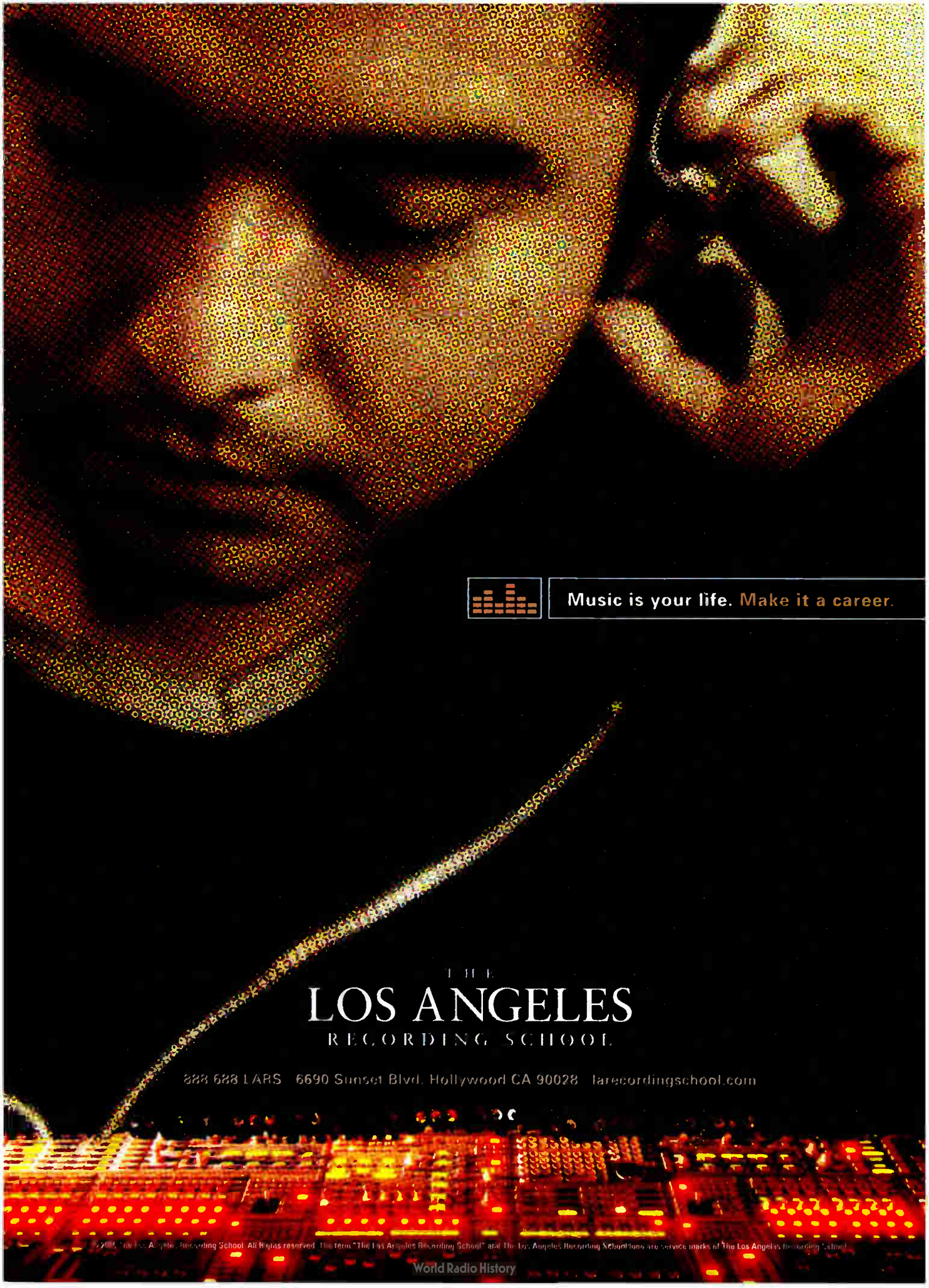
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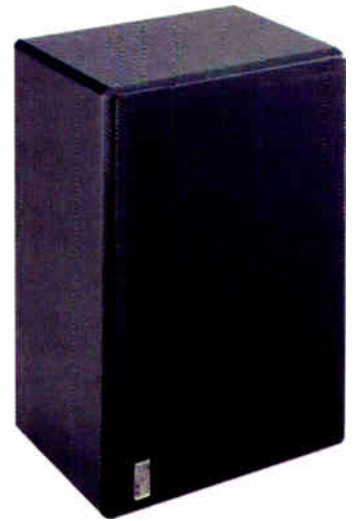
Bag End E-Trap Electronic Bass Trap

One Box to Help Fix the Holes

With more than 1,000 room tunings under my belt, I've developed a wish list of tools to help me do a better job. For years, a tunable bass trap has been at the top of that list. It would be nice to measure a room, apply the fix and walk away knowing that the problem is solved. Two situations cry out for this type of tool. First is a completed control room that still has some existing low-frequency issues, and the prospect of tearing the room apart is undesirable and beyond the budget. The second is a small control room (often a home studio) where the use of traditional bass traps is not possible due to a lack of space. Bag End's E-Trap™ has the possibility

of addressing both these scenarios.

The E-Trap acts as an acoustical absorber in electronic form. By using feedback into a built-in loudspeaker, the transducer behaves with the same dynamics as a membrane absorber. The unit can attack high-Q resonances that are destructive to the room response—both at the offending frequency, but also because these tend to mask other frequencies around them. Holes in the frequency response can be caused by frequencies bouncing off boundaries and returning out of phase to the mix position. The E-Trap can reduce the resonance amplitude and ringing (Fig. 1), as well as reduce a reflection that could cause cancellation at the mix position.



GRAPH COURTESY BAG END

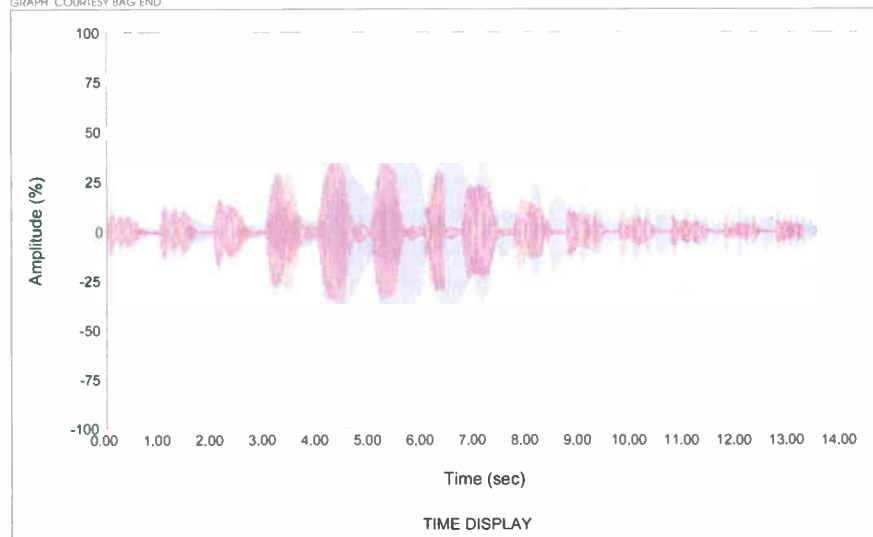


Fig. 1: A test signal of alternating on/off sine wave tones (starting at 27 Hz and raising 1 Hz each time it turns on to 40 Hz) was played in a room. The blue trace is the undamped response in the room. The red trace is the response with the E-Trap enabled.

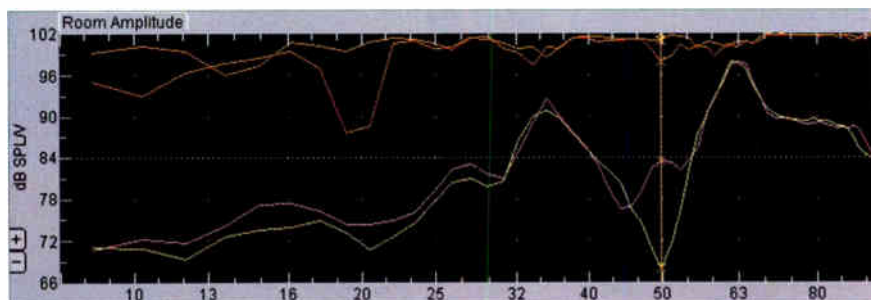


Fig. 2: Small mix room before use of E-Trap (yellow trace) compared to after E-Trap placement and adjustment (maroon trace)

E-Trap's enclosure is a compact 18x13x10 inches, allowing placement in the most effective position without significantly impacting room aesthetics. The E-Trap is designed to address two separate problem frequencies simultaneously (as long as the box position is in the high-pressure location for both). Four rotary pots let users set desired frequency (coarse and fine controls), contour (think of this as Q plus feedback) and the amount of feedback (damping) for each offending resonance. A switch selects whichever of two sampling microphones (front or back of the cabinet) you find most effective, and another switch turns on/off the two channels. A mini-plug for the E-Trap mic's output is also provided, but this was not tested.

While E-Trap includes Windows PC measurement software, it was not tested in this review. If you don't use that software, Bag End recommends using an FFT analyzer with 0.5Hz resolution. I used the Meyer SIM 3 system, a dual-channel FFT that operates at 1/3rd-octave resolution.

IN THE FIELD

I tested the E-Trap in two completely different rooms and learned that achieving proper results requires several hours. This box is not simple to adjust because the problem you're trying to solve is not simple. The first step is finding the high-pressure points in the room for the frequency you're trying to tame. This involves measuring the room in corners, along walls and along the floor and ceiling to identify the E-Trap's optimal placement. By placing your measurement mic in another high-pressure zone, you can see the same basic adjustment results. In symmetri-

cal rooms, this is generally on an opposite boundary, but in odd-shaped rooms the mix position is a reasonable spot. The problems I was trying to control weren't subtle, so I could easily hear the E-Trap's effect at the mix position. I wasn't going after the resonance-causing frequency peaks, but was trying to fill in holes in the speaker response at the listening position in both rooms.

Once the E-Trap is placed, the tuning process is difficult and, on occasion, counterintuitive. (Sometimes more damping can be achieved by actually turning *down* the amount of feedback.) Bag End recommends a starting point for the controls, but then it's open season for experimentation. Starting with the recommended settings, I narrowed in on the offending frequency with the Coarse control pot and zeroed in with the Fine pot. If you go over the top with your adjustments, the box howls with unstable feedback. I don't think of this as a negative—more of a less-than-subtle warning.

My first room was probably an unfair test—frankly, the room needed some kind of miracle, with its deep and very wide hole in the low end. I believe the problem was due to room dimensions, but there may be other issues behind the room's false ceiling.

Still, I was able to identify the problem area. I could correct a few dB at the offending frequency, although not enough to justify installing the E-Trap.

The next room I tackled was an oddly shaped home studio garage conversion with a huge hole at 50 Hz and a peak at 63 Hz. After much experimentation, the E-Trap ended up mounted against the front wall about halfway up and a few feet out from the corner. Some considerable knob-turning yielded dramatic results. In Fig. 2, the yellow trace shows the room response prior to setting the E-Trap and the maroon trace shows the tuned result. I restored a massive 13 dB of energy at 50 Hz. I also went after the 63 Hz peak, but found that I could not maintain the great results at 50 Hz if I pulled down the 63 Hz peak. This may be due to the problem areas' center frequencies being too close together (as Bag End states in the literature) or due to the fact that the physical placement of the trap was not optimized for the higher frequency.

Once you have the box tuned, the settings can be protected by carefully pushing the pots into the panel. But what happens if there is a failure in the electronics? If the pots were stepped, then you could duplicate the settings on another unit. But at this

time, the only alternative is repeating the tuning process. The pots' settings are critical, and I don't think you could eyeball the pots into place on a replacement unit.

At a retail of \$1,598, E-Trap is not intended to replace conventional bass traps in traditionally designed studios. However, in those rooms with low-end problems where it is impractical to do a renovation, it may prove to be a good cost-effective acoustic fix. It's also a good choice where the space limitations restrict the use of large passive absorbers. The fact that it allows experimentation makes it a flexible tool for taking the guesswork out of some nasty room solutions. As a word of caution to the D.I.Y.er: I strongly feel that this box will be most effectively set up by someone who knows how to use sophisticated measurement tools and has some understanding of room acoustics.

Bag End, 847/382-4550, www.bagend.com. ■

Bob Hodas tunes studios around the world, from Sony in Tokyo to Abbey Road in London and all parts in between. His Website is woefully behind, but it can be found at www.bobhodas.com.

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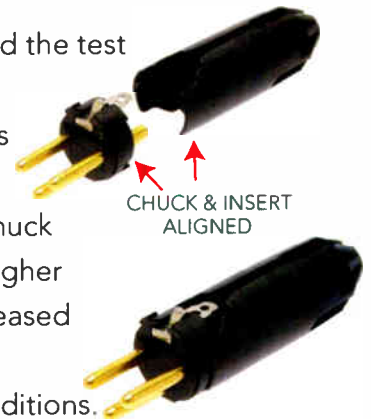


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Studio Projects T3 Microphone

Nine-Pattern Tube Condenser Delivers Warm, Transparent Tone

Since PMI Audio Group acquired Studio Projects, they have worked at improving upon the low-cost condenser lines being made by 797 Audio in Beijing from PMI's designs. For starters, the 797 moniker is no longer on the body of the mic. The mics are manufactured abroad, but are designed from the ground up by PMI's Brent Casey in PMI's HQ in Gardena, Calif. Admittedly, I've become jaded through my experience with the older mics and ignorantly never really gave the SP logo much respect, until now.

EXTREME T3 MAKEOVER

The T3 (\$839) has been around for some time, but recently underwent a significant aesthetic and technical update, starting with a capacitor change in the high-impedance section. Its sleek 9x2-inch, matte-silver body now has a redesigned headstock, with sweeping curves and a heavier mesh grille that delivers an understated look reminiscent of the AKG C 12, after which the T3 is modeled. At 26.9 ounces, the T3's craftsmanship, elegant visage and rugged feel scream "classic."

The mic uses a 1.35-inch, gold-sputtered Mylar foil capsule with an externally polarized and balanced transformer output. Its dual 6-micron diaphragms are coupled through a minimalist tube circuit designed around a hand-selected 12AY7 (6072) "dual-triode" tube, chosen for its traditional warm sonic character and low noise. Pattern control is variable between omni, wide cardioid, cardioid, supercardioid, hypercardioid and figure-8, as well as all intermediate settings, via a 9-position switch on the remote 110/220VAC power supply.

There are no switches on the mic, nor a pad or low-cut filters on the supply. Frequency response is listed as 20 to 20k Hz, and its 18dBA self-noise equates to a signal-to-noise ratio of 76 dB, which is typical for modern, large-diaphragm condensers. Sensitivity is also good at 14 mV/Pa = -37 dB +0 dB = 1V/Pa), with a 125dB max SPL. The T3 ships in a rugged aluminum case, with a lengthy gold-plated 7-pin cable, suspension shockmount and foam windscreen.

UP TO THE CHALLENGE

I ran the T3 and an AKG C 12VR, for comparison, through a Millennia HV-3C preamp and an Apogee Rosetta 800 converter, recording both simultaneously to Pro Tools HD at 48kHz/24-bit. After allowing seven days of "burn-in" before listening critically, I detected that the T3 was about 4 to 5 dB hotter than the C 12, so I matched levels using the HV-3C's 1.5dB gain steps.

With both mics set to cardioid and pointing up the neck at the classic 12th-fret position, a Martin OM-28 Vintage Reissue was up first. Immediately detectable as sweet and round without any boxy resonance, the T3's highly controlled character, exquisitely smooth top end, and minimal off-axis coloration performed admirably, similar to much pricier small-diaphragm condensers often used in these recording situations. Unlike the C 12 with its prominent low end, the T3 was easier to place with almost instantly gratifying results—capable of getting in tight for strong room isolation. Even when directed toward the sound hole for warmer body tones, it never became boomy. I could achieve any sound I wanted simply by maneuvering the mic, without resorting to EQ. The tonal balance was remarkably even. The mic was also considerably quieter than the C 12. Indeed, the T3's circuit design uses as few components as necessary to minimize self-induced noise and coloration.

When tossed into a room with several different styles of guitar amps, the T3 stood up to their assault, handling each very well. In the past, I'd often mike dual speaker



cabinets with a dynamic and a condenser, blending or choosing between sources at mixdown, yet the T3 delivered a surprisingly well-integrated and modern tone, offering a nice balance of crunch and warmth.

Not having a matched pair to test with, I proceeded to the drum kit by spot-miking pieces individually and later positioning the T3 with the C 12 in a stereo overhead configuration, strictly for clone-comparison sake. Used direct, the mic solidly captured mid- and floor toms when mounted face-down about two to three inches from the top heads, though it didn't fare so well inside the kick drum, blowing out when I went for a more clicky sound and aimed it two inches from the batter head. Bottom-snare and hi-hat miking delivered crisp attacks with strong, smooth presence in the decay, with none of the brittle behavior you might expect with mics in this price range. When compared as overheads, the two played very close matches, except that

the T3 had a slightly more emphatic 6 to 10kHz range, albeit an extremely smooth one.

The T3 imparts a little more sibilance on vocals than the C 12, but this can also directly equate to increased clarity for some vocalists, such as louder and more powerful singers. In particular, female pop vocals shined on the T3, while quiet and "noisy" vocalists may not benefit from the exaggeration. The slight bump also tends to make the T3 more present and impressive-sounding than the C 12, though not artificially so. There are no "specialized

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On male vocals, the AKG's famous lows aren't as pronounced with the T3, which may need some EQ. I've always found the sweet spot for vocals on the C 12 to be rather small, tending to sit somewhere between eight to 10 inches from the capsule, which seems to lessen the trademark thickness in its bottom end. On the T3, however, you can be anywhere from three or four inches to well past a foot and still sound like a million bucks.

MY CUP OF T

I love this mic. Is it a spot-on C 12 clone? Not really. Although it's certainly of the same ilk, I believe that the T3 is actually better-sounding in most cases. With a cleaner signal path, flatter response, extended bottom, much more forgiving proximity effect and off-axis response, plus admirable tolerance for high SPLs, the T3 will surely be put to work in many traditional and untraditional scenarios, including those where you wouldn't dare place a \$7,000 to \$10,000 microphone.

Knowing its street price is closer to six bills, I'd never have expected this to be a first-class vocal mic. However, I wouldn't hesitate for a moment to use the T3 on a crucial lead, having switched out the AKG at many points during my review in favor of the T3's more present and flattering handling of a powerful female R&B vocalist. Highly animated on her toes, even when she'd "test" the sweet spot, her performance remained extremely even and upfront—a feat nearly impossible when tethered to the C 12. On any vocal or instrument, the T3's tube circuitry imparts a wonderfully warm, transparent yet naturally defining character, without sounding hyped or colored-to-purpose in any way. This, together with its nine switchable pickup patterns, lends to its extraordinary versatility in tackling the soup-to-nuts of any studio session.

Whether you already own a mega-bucks mic and are looking to complement it with a different personality and something you can be more adventurous with, or you're searching out a primary mic with vast potential, the T3 probably represents one of the best microphone values on the market.

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Jason Scott Alexander is a producer/mixer/remixer in Ontario, Canada.

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Apogee Symphony Native Recording System

Low-Latency, Mac-Based Operation

Considering the recent advent of affordable, fast and powerful multi-processor computers hitting the market, and DAW applications with drivers that can take advantage of this power, there is no arguing that native recording is coming on strong. This newfound power gives engineers and production houses more options than ever to get their work done. The hitch in this new way of working doesn't lie with mixing, where latency isn't a factor, but with live recording, where delays from input to output can kill a groove. Apogee Electronics conceptualized, engineered and designed a system that takes advantage of Apple's new multiple processors and PCIe architecture to get in and out of the box with minimal latency.

WE'VE GOT A SYSTEM

The Symphony System combines Apogee X Series or Rosetta Series converters fitted with Apogee's optional X-Symphony card and a Symphony Express PCIe card. The new Mac Pro tower or a MacBook Pro laptop fitted with the Symphony Mobile card (see "Symphony Mobile System" on page 105) can act as the center of your studio universe. The tower allows up to 96 total channels while the laptop gets you 32. Both need a separate

drive for the DAW software and a lightning-quick storage drive to kill the latency beast. Symphony is compatible with any Core Audio-based application; however, for this test I used Logic Pro Version 7.2.3.

The Symphony system comes with Apogee's Maestro management and mixing software, which I never used during this test because Logic Pro is able to adjust the sample buffer precisely for a session's needs and has advanced routing capabilities. On top of that, I wanted to be able to maintain real-world workflow by building cues, routing and mixes completely within Logic Pro to see how it would work in this situation. (See "Maestro Software" for more information.)

My test setup included an Apple Mac Pro quad-core computer featuring two quad-core 3GHz processors and four drives total—three 500GB drives striped as RAID 0 for storage and a 500GB system drive. All digital conversion was handled through two Apogee AD-16Xs and two DA-16Xs. The digital I/O was



ported to and from the computer via Apogee's proprietary PC32 digital cable through the first converter, then daisy-chained through the other units, which were fitted with Symphony-X cards. This system lets users configure a total of 32 I/Os through a single PCIe card; I had 32 channels available and used 19 inputs and 28 outputs. All of the converters were clocked from the first unit and then down the chain using BNC connectors. Analog I/O and controller duties were handled via an SSL AWS 900+. The analog inputs were fed into the converters through Mogami Gold ¼-inch TRS to DB-25 from the AWS 900+.

STRIKE UP THE BAND

For this test, I combined tracking and MIDI sequencing. My mission was to replace some sampled tracks with live drums, guitar and bass. The mix comprised a MIDI track that was originally built in GarageBand and then opened in Logic Pro using multiple virtual instruments representing drums, bass, keys and guitar. The song ran virtual instrument emulations of a B3, Rhodes and Clav, as well as a virtual drum kit, bass track and Apple Loop that took up bandwidth but were not monitored. The session also carried a previously recorded live sax track. My tracked drum kit was recorded using 17 mics into the AWS 900+; the guitar and bass were taken direct into the AWS. All instruments were sent to Logic Pro via Symphony.

Because the AWS 900+ has only 24 inputs for mixing, all virtual tracks were brought back in a stereo stem out of Logic, while the live tracks were brought back to their own inputs. In addition, the live tracks and stem were sent to the 5.1 output and the headphone cue for the drummer. My session

Maestro Software

Included with Symphony, Maestro software lets you handle some essential tasks, including the ability to control hardware ins and outs from the computer to Symphony (or Symphony Mobile), route audio between—or even within—DAW apps via Apogee's VBus, and adjust settings for low latency with its Performance Tuning feature. There's also a mixer that blends the hardware inputs with your DAW's returns and sends this to the hardware outputs. This is all performed while your DAW is running.

On the practical side, Maestro can take over when your app does a poor job with latency or offers insufficiently low buffer set-

tings, such as in GarageBand; it could also be used for low-latency cue sends. Logic Pro users will love the fact that Maestro lets you take advantage of Apogee's VBus. Before, you couldn't perform bounces back to an audio track and record them in Logic, but with the VBus, you can send it out of your source tracks and invite it into your target tracks, all on VBuses (up to 32).

Maestro is a nice friend to have around in the studio for a number of critical jobs, should your setup need the help. However, if you're using major DAWs such as SONAR, Digital Performer, Nuendo, BIAS Peak and Logic Pro, you should not need it.

—Kevin Becka

was held in the Conservatory of Recording Arts' D Room, which houses five M&K MPS 2510PK speakers and an MPS 5410 sub.

TAKING THE TEST

The first test was to try to max out the system and then backtrack using various buffer settings and sample rates to see how latency and system behavior modified workflow. I started with the system at 24-bit/192kHz and a buffer setting of 256 samples, and proceeded by getting guitar sounds. The player was going directly through the instrument input on the AWS 900+ into Logic Pro. On the guitar's Logic channel strip, I ran amp emulator, compressor, reverb, rotary speaker and limiter plug-ins. The bass was also taken direct into the AWS instrument input, and I used an EQ plug-in on its channel in Logic. I experimented in this mode assessing latency, which was inaudible, according to the players. However, there was considerable snatting and some drive performance errors at this sample rate, so I opted to knock it down to 24-bit/88.2kHz, with the buffer set to 128 samples (the latency equivalent of 44.1 kHz at 64 samples). At this rate, I experienced no problems.

I was excited and impressed that I could get this level of performance without dedicated DSP or a card cage (the computer and Symphony ably handled those tasks), as well as with a low buffer setting. Keep in mind that I wasn't simply putting the 19 tracks into record. While recording, I used system-hogging virtual instruments and plug-ins on the guitar and bass tracks, and played back

prerecorded audio. I was feeling cocky at this point, so I decided to take the session setting up to 24-bit/176.4kHz and a buffer of 256 samples. The take came off without a hitch, with none of the snatting or drive errors that I saw at 192 kHz earlier.

WORKFLOW IN LOGIC

This isn't a Logic Pro review per se; however, in reference to native recording, there was some inherent clunkiness in Logic that kept session flow difficult. For instance, whenever I stopped recording to reset levels or do another take, a dialog popped up in Logic telling me that the app was recalculating the waveforms. The time that it takes Logic to do this depends on the session's sample rate, with higher rates requiring more time. Another feature notifies you of possible audio clipping, with one message for each track that has to be cleared individually. You could ignore these messages and record again, but the AWS 900+ still carried messages on its scribble strips announcing the presence of screen dialog, which prevented me from seeing the track names.

I found a preference to defeat this, but that resulted in having blank regions. The most obvious glitch was that at any sample rate, there was a slight drop-out when punching out—but not punching into—a track. This was only evident during the recording, not after, so it wasn't going to the drive. Apogee's view is that it was a Logic issue due to a lack of available voices, but I had plenty of punch on the fly, so I'm not sure if this is a Logic or a Symphony flaw, but it is notable.

IS SYMPHONY A MASTERPIECE?

To be blunt, I got away with murder, considering what I asked this system to perform. I didn't go crazy with plug-ins, but did use five during tracking. I also used some DSP-intensive VIs and, remarkably, didn't have to freeze tracks during the session. As detailed in the "Symphony Mobile System" sidebar, I was able to port over to the laptop system easily without a reboot, run the session and record another take without a hitch. The key point here is that the system had enough muscle to pull off a 32-track session on a native system without a card expander or external DSP, while carrying some serious plug-in and VI baggage in tow.

Recording natively saves some considerable cash over other established alternatives, giving the user a great degree of freedom. Plug-ins are cheaper by a long shot, and you can use most any DAW software you'd like. Symphony is certainly a contender for the native crown: This all-in-one system finally provides the horsepower necessary to get the job done, whether you're mixing or tracking. Prices: X-Symphony Card, \$200; Symphony PCI card, \$795; Symphony Mobile \$595; and AD-16X or DA-16X, \$3,495.

Apogee Electronics, 310/584-9394, www.apogeedigital.com. ■

Kevin Becka would like to thank Logic guru Robert Brock, Ryan Baumann from GC Pro, Dave Casey from Apogee, Tony Kinchion (guitar), Rob Wagener (bass), John Lewis (drums) and a cast of Conservatory of Recording Arts interns for their help.

Symphony Mobile System

If you want to take your native Apogee system on the road, then the Symphony Mobile System might just be the ticket. Compatible with any Apple MacBook Pro, the system features 32 channels of 24-bit/192kHz digital I/O boasting 1.6 milliseconds of latency at 96k. It connects to the laptop's Symphony Mobile card (which has the same bandwidth as the X-Symphony card) via a single PCI-32 cable and then to Apogee's Rosetta 800, Rosetta 200, and AD-16X and DA-16X converters via the optional X-Symphony card. It is compatible with any Core Audio software application and includes Apogee's Maestro software for controlling, routing and accessing Core Audio's VBus for virtual routing between

or within applications.

To port this test over to the Symphony Mobile System, Dave Casey from Apogee provided an Apple MacBook Pro with Intel Core 2 Duo processors running at 2.33 GHz and fitted with a Symphony Mobile card. I could hot-plug the cable from the X-Symphony card to the Symphony Mobile card without a reboot. I then re-booted the Mac Pro tower in Target mode so I was tapping off the tower's RAID to the laptop through the FireWire 800 port. I brought the session to 24-bit/88.2kHz with a buffer size of 128 samples and ran a take playing back all virtual tracks and recording the live band. Impressively, it came off without a hitch with no drive errors or noises.

According to the performance meter, I was on the edge of CPU power, but it had no effect on the recording. Of course, had I run into a glitch, I could have frozen the virtual tracks making the load even easier on the laptop's processor, yet this wasn't necessary at this sample rate and buffer setting.

I also tried recording all 32 tracks at once without plug-ins or VIs, and the system pulled it off like a champ. This bodes well for those looking for a dual-duty recording solution that could be taken into the field and then brought back to the studio and simply plugged into a tower for mixing or sweetening. This review was a winner all the way around.

—Kevin Becka

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RECORDING



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Music Instruments & Pro Audio

Buzz Audio essence Opto Compressor

Full-Featured Performance From a Compact Modular Unit

Buzz Audio's essence is a single-channel opto compressor module with many custom features usually found on larger, rackmounted compressors. One essence module fits into API's 500 Series rack—either the newer 4- or 6-slot Lunchboxes, or the 10-slot 500VPR unit. The unit occupies two slot spaces: Slot one's XLRs are for audio I/O; slot two's XLRs provide I/Os for a sidechain insert.

Like the Buzz Audio SOC 1.1 Stereo Optical Compressor (see the review in March 2004), the optical gain-change element uses a Hewlett-Packard Quad LED light block and four specially selected, light-dependent resistor elements. The light block is driven differentially so that two LDRs control the positive audio peaks and the other two control the negative. The main audio path uses Buzz's BE40 and BE50 discrete Class-A amps and Lundahl I/O transformers.

NOT A LIGHTWEIGHT UNIT

The densely packed front panel has a large 10-segment LED VU meter, seven toggle switches and five human-sized control knobs that are larger and feel better than the typical knobs used on API modules. Essence's operational precision is evident by the complete set of clearly marked front panel control knobs, including drive (threshold), ratio, output gain, attack and release.

There are switches for hardware bypass, stereo or surround linking, sidechain insert I/O, sidechain monitor select, high- and/or lowpass filter insert to the sidechain path, and input/output/gain-reduction source select for the level VU meter. The VU can be internally set to read either standard +4 dBu or +14 dBu, with the latter better suited for use with a DAW.

The high- and lowpass sidechain filters have a "B" (boost) position and a "C" (cut) position. These are shelving filters with 8 dB of maximum boost/cut at 100 Hz and 10 kHz, with their corner frequencies both starting at 600 Hz, which is the classic Baxandall topology used in many EQ circuits.

A HARDWARE PLUG-IN

Essence went to work as soon as I plugged it into the studio's API rack. It went right in with no problems; you will have to secure

it with screws so that the rear-edge connectors stay firmly seated. Essence pulls a total of 120 mA—60 mA for each slot—which is well within spec for modern API racks.

My first tests were on individual drum tracks recorded flat into Pro Tools. Normally, I would not use an opto compressor on percussion because usually the attack times (if they are available) are too slow. Essence has a 1ms attack time that was actually too fast! At 1 ms with a 20:1 ratio and the drive control set halfway or higher, the snare hit's "stick" portion was completely removed. This type of special effect is usually associated with compressors that use VCAs or FETs.

The 15ms attack position was more realistic-sounding, producing a nice "pop" with each strike on the drum. Between the drive control setting and the excellent range of release times, you can dial in as much drum ring out as you want. I used the 200, 400 or 800ms positions, depending on tempo and whether the drummer played grace notes or fills between back beats.

On vocals, cleanliness is important, especially if you use a lot of compression. Essence's sound sparkles even using a 10:1 ratio and 10 dB or more of gain reduction. No compressor is transparent, but when I selected proper attack and release times, there were no noticeable bad-sounding artifacts. I used the "C" position on the sidechain's LPF to lessen the amount of compression caused by intermittent plosives and the subsonic low frequencies from my male singer.

Electric guitars sounded good when compressed by essence. I'm not generally into "auto" positions, but the auto-release time position worked fabulously on a funky rhythm guitar track. With the attack time set to 15 ms, there is very little dulling, even under about 6 dB of gain reduction. On guitars, primarily a midrange instrument, I used the "C" positions on both the low and high sidechain filters to narrow the frequency bandwidth available to essence's opto element. This setup produced a dense guitar sound without sounding overly clamped.



For bass guitars, I switched to the "B" mode in the sidechain's lowpass filter to make the unit more sensitive to low frequencies. The result was increased precision: You can fine-tune essence to exactly meet the needs of a bass guitar. Using a 2:1 ratio, 70ms attack and 800ms release, the ultraclean opto sound kept the Fender P bass sounding full and natural.

THE ESSENCE OF UTILITY

Essence packs a lot of easy-to-control power into just two API 500 slot spaces. At first, I had two immediate impressions: It is very clean-sounding and extremely fast for an opto-based compressor. I also liked the solid feel of the switches and knobs, along with the large VU meter that always indicates level and gain reduction, even in bypass. It functions cleanly for smooth and fast compression, making this \$1,200 (MSRP) unit a first choice for any dynamic processing—from subtle to severe.

Buzz Audio, dist. by Atlas Pro Audio, 813/746-4058, www.buzzaudio.com. ■

Barry Rudolph is an L.A.-based recording engineer. Visit his Website at www.barryrudolph.com

"Acoustic music has never sounded so good"

~ Jerry Douglas

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Korby KAT RED, KAT BLUE Tube Mics

Compact, Large-Diaphragm Models Add Color to Your Session

Korby Audio Technologies is a Nashville-based boutique mic shop whose practice of doing all the work in-house and by hand sets the company above the crowd. Part of that procedure is a painstaking process of listening to each product exhaustively after burn-in and tuning each capsule with the intention of getting it just right.

Korby also offers a unique custom-tuning service that lets customers return the purchased mic for another round of tweaking if the product does not live up to their expectations. Korby makes a number of FET and tube mics, including the KAT System convertible mic with interchangeable capsules (reviewed in October 2006 issue). For this test, I had one of each of the new KAT RED and KAT BLUE mics, both having an under-grille LED that speaks its name in color when the mic is powered up.

NEW KATS ON THE BLOCK

The KAT RED and KAT BLUE are both fixed-pattern, cardioid tube condensers, each using an NOS Philips 6111 dual triode. The bodies and long swing arms that hold the mics are brass, and the entire rig is covered in a brushed-nickel finish. The feel is solid, and the bodies are considerably smaller than you'd expect from a 1-inch diaphragm, making it easy to swing and place the mic in tight spots. The difference between the two arises in the capsules. The RED is a free-floating, side-terminated, custom-tuned capsule tuned with an AKG C 12 backplate, while the BLUE is a center-terminated, custom-tuned capsule with a Neumann U67 backplate.

IT'S STUDIO TIME

I first heard the KAT RED placed seven inches back from an acoustic guitar, just above the sound hole. This mic is more dependent on placement than any other mic I've reviewed. It would be easy to give up at first listen and move on, but it's worth the extra effort to place it properly. At first, it was not

flattering, but then I pulled it back another two to three inches and it sounded bright—but not overly so—and true to the guitar's tone. It was not boomy in the least, but this particular guitar tends to be hot in the upper-mids. The true test was in the track: It sounded great with no need for EQ to make it cut through. The attack of the pick against the strings was clearly defined and the overall tone was round with plenty of top but without being harsh.

The KAT BLUE was next up as a center overhead on a drum kit, positioned about two feet above the tops of the cymbals. The top end was clean and the bottom was full, with no hint of harshness in the cymbals. When the snare was hit, the mic produced a slightly compressed sound that gave the snare a nice, natural roundness. I next heard the mic on the outside of a kick drum, pulled back about eight inches. At first, the kick sounded slightly overdriven, but moving the mic back another foot was just the ticket, providing plenty of great low-end thump.

When capturing a Leslie cabinet, the KAT BLUE exhibited a nice warmth and fullness, even though it was used at the top of the cabinet on the rotating horn. As a secondary option, a Royer SF-24 stereo ribbon mic filled out the middle nicely; both mics worked well in tandem in this application. The RED sounded fantastic on a guitar cabinet. The player switched between clean and distorted sounds, and the mic provided great pick detail and ample top for the clean sound, and covered the top end of the distorted sound, as well. As another option, a Shure SM57 nicely filled in the mid-range, making this combination a winner.

I next heard the BLUE on a male lead vocal. This particular vocalist makes for a tough session, as he has a strident edge to his voice. I often use him as a bellwether on how a mic tames transients and handles harsh vocals. I often use an SM7 on him because it does a good job at rounding out his



dynamics and frequency peaks. The BLUE did a great job, offering top end with great detail while providing warmth and a nice roundness to the transient peaks. It was a clear winner over the SM7, which sounded tubby by comparison.

I SEE THE LIGHT

These mics are special. Although tailored after vintage Euro stock, putting the RED and BLUE in that box would be a disservice. Each has its own personality and is eminently usable in nearly every situation. The mics' small size is a plus, making them easy to place accurately and position in tight spots.

If I had one complaint it would be that there's a lack of identity when the mics aren't plugged in. It's easy to tell them apart when the LED is on, but when they're in the dark, so am I. I found myself having to look at the capsule to see if it was terminated in the center to identify the mic as RED or BLUE.

That aside, the performance of both was stellar. The RED had a nice silky top end that wasn't overblown, and the BLUE exhibited a warmth that worked great on male lead vocals and outside a kick drum. Korby has released more mics that are a dream to use and listen to. Price: \$3,495 each, including power supply, cable, yoke mount and case.

Korby Audio, dist. by Vintage King, 248/591-9276, www.vintageking.com, www.korbyaudio.com. ■



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BRYAN FERRY

MAKING BOB DYLAN'S SONGS HIS OWN

By Bryan Reesman

Cover albums are a dime a dozen these days, often providing an artist an excuse to fulfill an album contract or a break between studio albums when he or she runs dry of ideas. But for solo artist and Roxy Music frontman Bryan Ferry, his career has long been a balancing act between unique originals and clever interpretations of other people's songs. When the elegant crooner tackles something like Screaming Jay Hawkins' "I Put a Spell on You," subverts its angry intensity and twists it into a call of seduction, you get a song that is quirkier and often far removed from the original. So it should be no surprise that Ferry's latest effort, the 11-song *Dylanesque*, transforms a collection of classic Bob Dylan songs into a new animal.

In the past, Ferry has taken on many different tunes and has done so purely from instinct. "They're just songs you have a feeling for," he muses. "When you hear them, you just like them, and as years go by you still like them.

With the Dylan songs, it's such a huge catalog of good work, especially those songs in the '60s when they were blatantly poetic."

What is most unusual is that the songs Ferry chose

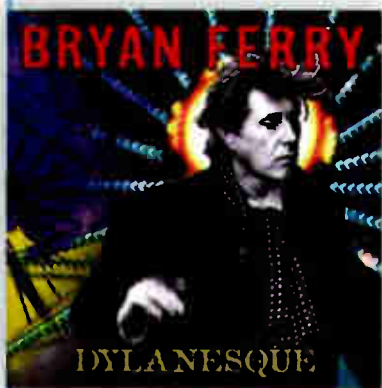
to cover share an overtly political tone that is usually absent from his own work. "A few of the songs were inspired by the Vietnam War, but I think they still apply if you look at them in a more general sense," Ferry observes. "They still seem appropriate today, so I don't think they necessarily have to be sung with what inspired them in mind."

"I've been reading some of the customer reviews on iTunes and Amazon," notes *Dylanesque* co-producer Rhett Davies, who has worked with Ferry and Roxy Music on several albums. "A lot of people said they've always liked the Dylan songs, but have never been a big fan of his voice. But to hear Bryan doing the songs brings them to life for them."

"All Along the Watchtower," the most charged track that the crooner has done in ages, lies halfway between Dylan's original and Jimi Hendrix's rocked-out interpretation, particularly at its guitar-driven coda. And "All I Really Want to Do" owes a little to The Byrds' version. Unlike Dylan's work, however, there are no solo acoustic tracks or beefy organ sounds on these renditions.

The inspiration for *Dylanesque* was simple. Ferry and Davies were bogged down by production on the new Roxy Music album (the band's first in 25 years) and they decided to take a holiday and perhaps give the singer some inspiration to conjure new lyrics. "We did have some Dylan songs on the back burner from the *Frantic* [Ferry's most recent solo album] recordings, which we'd been looking at, thinking that one of these days we should do a complete Dylan album," recalls Davies. "So we put the band together and cut 15 songs in three days, which was pretty phenom-

—CONTINUED ON PAGE 116



KINGS OF LEON

THESE ARE THEIR TIMES

By Bud Scoppa

"We're willing to take risks—playing it safe hasn't done anything for us," says Kings of Leon frontman/rhythm guitarist/lyricist Caleb Followill about his band's third full-length album, *Because of the Times*. Working once again with co-producers Ethan Johns (who has subsequently produced projects with the reunited Crowded House, Joe Cocker and Turin Brakes) and their mentor, Angelo Petraglia, the band wanted "to really take it someplace new," says Johns.

The result is a righteously old-school yet envelope-pushing album whose highlights include the irresistible seven-minute opener "Knocked Up," with its hell-bent groove and defiantly yearning vocal; first single "On Call," of which Johns notes, "It's got that great little bass part, it's relatively easy to swallow, but it's still got bags of attitude"; and the blazing "My Party," which stands as the analog equivalent to Trent Reznor at his most intense.

The three Followill brothers (Caleb; Jared, bass; and Nathan, drums), who grew up barnstorming the South with their Pentecostal preacher father, formed Kings of Leon in 2001 with their guitarist cousin, Matthew Followill, and were signed by RCA A&R man Steve Ralbovsky (The Strokes, My Morning Jacket, Ray LaMontagne), who decided to allow the youngsters, who then ranged in age from 14 to 21, to grow at their own pace. Ralbovsky put them together with producer Johns, who immediately recognized their potential.

"The noise they made together as a



Kings of Leon, from left: Jared Followill, Matthew Followill, Nathan Followill and Caleb Followill

band was there right off the bat," says Johns. "They were a stunning unit within two months. The level of commitment to mastering their instruments and putting their emotions into their playing—they were just complete naturals."

Immediately after jelling as a unit, they recorded the *Holy Roller Novocaine* EP and set off for the U.K., where they were readily embraced. Their first two albums, the 2003 *Youth and Young Manhood* and *Aha Shake Heartbreak* in 2005, became hits in Britain, but the group failed to make much of an impression back home, where the latter sold 182,000 copies—enough for the young band to be viewed as "promising" by critics, but hardly enough to meet present-day major-label criteria.

"So now it's that challenging third album, and musically they've taken it further than anybody thought they were capable of five years ago," says Ralbovsky, who shifted to cousin label Columbia last year. "Some of it stems from the musical inspiration of the people they've been around lately [the Kings have toured with U2, Pearl Jam and Bob Dylan, all of whom are fans], some of it's their own instincts and they've gotten much more confidence and prowess as musicians, so they're not afraid to stretch out a bit."

Adds Johns, "The biggest thing that's influenced the material on this album is the fact that they'd been writing a lot of it

during soundchecks in arenas—big sound, the tempos are slower, things thematically are bigger."

After making their first two albums in L.A., the Kings recorded back home in Nashville for the first time. They fell in love with Studio D at Blackbird, owned and run by John McBride. McBride is a self-described Beatles nut (hence the studio name); consequently, the facility is well-stocked with vintage gear, all of it thoroughly familiar to Johns, who grew up watching his legendary father, Glyn Johns, make now-classic records. The board in D was right up Johns' alley: a Trident Series 80B with Neve Flying Faders.

"We walked in—it looked like a beautiful hotel," Caleb Followill says of the studio. "Went in the room, opened the ceiling up; you could make the room whatever color you wanted with the lights for every mood, every vibe. We all knew we had written the record, and all we had to do was relax and let it come out. It was like no matter what had been goin' on, we'd play a song two or three times, and it was like, 'We got it!'"

At the very beginning, like a kid who stands up to dad for the first time, the Kings issued a challenge to Johns and Petraglia. As Caleb Followill recalls, "I said, 'Look, we're not the same band that made *Youth and Young Manhood*; Jared's not 14 years old and I'm not 18 years old. We will never

—CONTINUED ON PAGE 117

JOURNEY'S "DON'T STOP BELIEVIN'"

By Robyn Flans

In 1981, Journey was coming into its own. Although the Northern California unit had been together since 1973, it wasn't until a couple of years after hiring lead vocalist Steve Perry in '77 that the band had its first Top 20 hit with "Lovin', Touchin', Squeezin'." By 1981, the perfect combination of musicians and writers was finally in place, with Perry, founding guitarist Neal Schon, Steve Smith on drums, Ross Valory on bass and newest member, keyboardist/songwriter Jonathan Cain (replacing the recently departed Gregg Rolie). The album they were about to embark upon, *Escape*, would garner them great success, with three Top 10 hits: "Who's Crying Now," "Don't Stop Believin'" and "Open Arms." The first and last of those were beautiful ballads, but "Don't Stop Believin'" became an anthem of sorts, with its signature piano intro, the escalating locomotive guitar part and the pounding drum track with a searing vocal on top. It would become one of the group's signature tunes and helped make *Escape* the band's true break-out album.

Before tracking that album, Journey worked 11-to-6, five days a week in an Oakland, Calif., warehouse, writing and then rehearsing the new material. "It was a great time with me and Steve Perry," Cain says. "He could have said, 'Screw you, I'm going to write this, you're the new guy, get out of here,' but he didn't. It was the wonderful thing of 'What can we do together to make this better?' It was probably the third or fourth song I wrote with them.

"I brought in the chorus, the last out-chorus—'Don't stop believin', hold on to that feelin', and I think I had 'streetlights people.' I showed it to Steve [Perry] and I believe Neal [Schon] came up with the bass line. It was Steve Perry's idea that, since it was my chorus, I should chime in with some sort of piano thing that sounded like we were going somewhere. I put that [strident intro] on top of Neal's bass [motif] line, and then Steve started scatting on that. Steve looked at Neal, and said, 'Okay, now you have to sound like a train' and he did that guitar in between the verses—the 16th arpeggio.

"From that point," Cain continues, "we wanted to build different sections and we felt the song should have two choruses, so we did a sub-chorus, if you will. Our goal was sort of to build the song backward to get to the 'Don't Stop Believin',' which were the only lyrics we had. Then came the [other] lyrics. Once we got the shape of the song, Steve and I took cassettes home, with Steve just singing syllables. When



The classic early '80s line-up from left: Ross Valory (bass), Steve Perry (vocals), Neal Schon (guitar), Jonathan Cain (keyboards) and Steve Smith (drums)

PHOTO: CHRIS WALTER/PHOTOFESTURES

we heard Neil's train thing, we said, 'What if two people were trying to get away from the place they grew up and they were taking a midnight train going anywhere.' I always loved that Gladys Knight song, 'Midnight Train to Georgia.' Steve and I thought it would be really charming if we had just a small-town girl and then a city boy. I told Steve about living on Sunset Boulevard, so the middle section, which I'll call the pre-chorus—'strangers waiting up and down the boulevard, their shadows searching in the night'—was about Sunset Boulevard back in the '70s. I got that from seeing that every night in Hollywood—people coming to L.A. looking for their dream. That's the premise of the song. We felt that every young person has a dream and sometimes where you grow up isn't where you're destined to be. We really felt that we had nailed something fun, and Steve had fun singing it."

However, the day they were set to record it at Fantasy Studios in Berkeley, Calif., Perry had a cold, so he couldn't record live in the studio with the other musicians as he usually did, and he opted to go home. The others proceeded without him, but found the song's tempos and various sections difficult. "It was a tricky song because it was my tempo matching the band's tempo when they came in," explains Cain. "They couldn't be faster than me or slower than me, and when I came in on the second verse, I had to nail the similar tempo that was just happening, all by myself. Ross [Valory] and I had to play in sync because we were playing the bass lines together, so we couldn't rush each other or slow down on each other. So they turned on one of those verbal click tracks. We did find that it helped us gather ourselves together, so we played with it for about 20 minutes. Then I looked at [co-producer/engineer] Mike Stone, and said, 'Turn that thing off,' and when the click track went off, we got it on the first take. Perry sang it pretty quickly the next week."

Cain still remembers one of the effects that was employed on Perry's vocal, a trick he learned from producer Keith Olsen: "We had an old 2-track Dolby processor, which we pulled cards seven and three out of. This gave a sort of high-end

sheen. We brought the output of the vocal back to another fader and summed the compressed signal with the Dolby signal about 60/40 to a track. We printed it that way. Risky stuff—but it became Steve Perry's sound."

Kevin Elson, who teamed with Mike Stone (of Queen fame) to produce and engineer *Escape* (Wally Buck also engineered), recalls working on a Neve 8108 console with a Studer A800 24-track tape machine. "The only thing digital we had was a Prophet [synth]," remembers Elson, who still mixes Journey's live sound. "All the keyboard parts were on a Roland Jupiter and Prophet. The album was recorded live. If you listen to guitar solos on Journey records, you never hear rhythm guitars blasting under it. Neal always does his solos when we're tracking. He goes right from his rhythm guitar parts into the solos, just like he would play live. Jonathan played his piano live. And even vocals, there would be complete vocal takes we'd keep a

We could put a mic on there and not have to think about gating and tweaking. That big sound was really so much of how he tuned his drums and very little of what we did.

—Kevin Elson

lot of. Perry would always make things better, but there were some that were so good that we'd keep it."

As for the song's instantly identifiable percussion track, "Steve Smith created that incredible drum beat," says Cain. "In the pre-chorus—the strangers waiting—there's this lovely thing he does with a little splash cymbal that has a china bell on it. He ended up coming up with the syncopated beat with the toms that was brilliant."

Smith worked all that up at home. "I played a very straight rock drum beat," he says. "I would take the recordings home and listen to them in my head. Sometimes it sounded correct to keep it simple, but on that tune, I started hearing melodic tom-tom additions, the bell of the ride cymbal—the sort of drum melody that would be a foundation for the song, but also add structure to the tune. Technically, in the drumming sense, to play what I was hearing, I had to play that particular tune open-handed: my left hand

on the hi-hat and my right hand playing the backbeats on the snare drum. Normally, I don't play that way, but I did on that particular tune, so it freed up my right hand to play melody between the snare and the tom and the bell of the ride cymbal. I developed the part like the tune evolved. My drum part had four parts to it. In the early part of the tune, it was pretty basic, then I added a little more, and by the end of the tune, I had a very complex snare drum, tom-tom, bell of the cymbal melody, while the bass drum and hi-hat were pretty straight-ahead, playing four on the floor with the bass drum and eighth notes on the hi-hat with my left hand."

Smith recorded his part in a drum booth in the corner of the studio with an AKG 414 (snare), a Shure 57 (top and bottom), an AKG 451 (hi-hat), Sennheiser 421s (toms), and a Neumann U87 and U47 (bass). "It was a tight drum sound with certain plates and things on it," recalls Elson. "We used a lot of EMT 250, and Fantasy had a couple of natural chambers and probably four different EMT plates, and we used a combination of those. A lot of that sound was the EMT 250. Steve would come in, tune his kit up, we'd get the mics up, and within three hours we'd be ready with the sounds and ready to go with him. We could put a mic on there and not have to think about gating and tweaking and do this and do that. That big sound was really so much of how he tuned his drums and very little of what we did."

Cain says he's pretty sure that Schon used a Les Paul and a Strat through Marshall amps on the cut, while Cain played a Steinway and an ARP Omni: "A little cheesy keyboard I had from The Babys, which I played those little stabs with." Elson says piano mics were a U47 on the low end and a 414 on the top. For Perry's vocals, he recalls using a U47, although he says Perry's main mic was a Neumann M49. "The 47 had a little more edge on his louder vocals," Elson says. "It would take a bit more of the sound pressure he was delivering. The 49 had more of that airy, crisp, almost throat distortion sound."

The album was completed in four or five weeks and "Don't Stop Believin'" made it up to Number 9. ("Open Arms" became Journey's highest-charting single at Number 2.) Today, Elson says of the song, "Hearing it now, I have the same feeling I had when I first heard it in the studio—wow! The best memories I'll ever have of that band is that group of guys. Everybody was so funny and quick. We all laughed a lot, there was a lot of teasing and joking. Steve Perry's favorite saying was, 'Let's roll, let's roll, time's money, time's money.'" Incredibly, that multi-Platinum album cost about \$85,000 to make. ■



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BRYAN FERRY

FROM PAGE 112

enal. By the end of that week, we'd done most of the overdubs and put the backing vocals on. Then we started working on the album in earnest. We got to Bryan's studio and started working on lead vocals. Virtually all the vocals are the live vocals from those three days of recording. It sounds just incredible. Once the band got the feel, Bryan got the tracks."

"We did it very fast," confirms Ferry. "Over the next few weeks, we did some finishing touches to it with string quartets and things like that, but there was really no fuss. It was the easiest album I remember making apart from the first [solo] one [the 1973 *These Foolish Things*], which was also done in the same spirit."

Preparations for the album were simple. Ferry selected songs he liked with Davies, then sat down with Colin Good, who worked on *Frantic*, and worked out the best keys for Ferry to sing the songs. "If I could play a bit of keyboard, I would work out which tempo was best and maybe the feel," says Ferry. "Colin is such a brilliant piano player that he did the piano on the album. We just did everything live, which meant that I could lead from the microphone rather than the mixing desk. It was really refreshing. It was just like being onstage playing live."

The band included guitarists Chris Spedding, David Williams and Oliver Thompson; atmospheric guitarist Leo Abrahams; bassist Guy Pratt; organist Paul Carrack; drummer Andy Newmark; and pianist Colin Good. Abrahams and Spedding played the rhythm tracks live, while Williams and teenage axeman Thompson (who solos on "Watchtower") added their parts during overdubs.

Dylanesque was primarily tracked at the Town House Studios (London) using Pro Tools HD2 through an SSL E Series 56-channel console. Ferry's vocals were miked with a Neumann U47 through an API 3124 mic preamp with UREI 1176 compression. For the seven different female backup singers, it was a Neumann U87 through a Neve 1073 mic pre and the 1176. Electric guitars were recorded with Shure 57s, Sennheiser 421s and FET 47s. The bass was DI'd through a Gas Cooker with a Neve 1073 mic pre and UREI 1176 compression. Piano was cut via a B&K 4011 pair, Neve 1073 and API 550A EQ. The Hammond B3 and Leslie cabinet were captured with two Sennheiser 421s and a FET 47. Other textural elements included a Kurzweil and Spectrasonics' Atmosphere.

Drums took a selection of Neumann,

AKG, Shure and Sennheiser models, with outboard comprising 1073s, SSL and API pre's, and a Distressor for compression. Strings, keyboards and effects were overdubbed in Ferry's Studio One using a number of mics, including a FET 47, two Sennheiser 421s, a Neumann U87 and a B&K 4011 pair for the room. Farfisa and Wurlitzer were DI'd and augmented with an Avalon U5. Effects included the Korg Kaoss Pad and Roland Chorus Echo 301. Ferry played most of the Farfisa and Vox Continental; Good most of the Wurlitzer parts and string pads; and Carrack all the Hammond and most of the atmospheric pads. Other parts for the

We just did everything live, which meant that I could lead from the microphone rather than the mixing desk. It was really refreshing. It was just like being onstage playing live.

—Bryan Ferry

album were recorded at RAK Studios in London with engineer Neil Broadbank and 4th Street Recording in Santa Monica, Calif., with engineer Chris Mullings.

"Each song was tracked over about 22 tracks," reports engineer Tim Roe, who worked on the Town House and Studio One sessions. "With overdubbing, this figure would be raised to between 24 and 50. The exceptions to this would be the acoustic track/ballads, which usually took up significantly fewer tracks at the tracking stage, but many have been overdubbed to include about 24 tracks."

Perhaps the most interesting track in terms of construction was "All Along the Watchtower," which began in a demo stage approximately seven years ago with Ferry on vocals and keyboards and Robin Trower on acoustic guitar. "We started working on it and weren't sure of where it was going," Davies recalls of the original "Watchtower" demo. "We were really scared of doing that track, for obvious reasons. We were working on that song before we cut the tracks last year [for *Dylanesque*], and Leo Abrahams came in and came up with a really good guitar part, which is the main



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guitar part in the instrumental sections. Then Oliver Thompson came in and did the lead guitar on there. The original acoustic guitar on the backing track is Robin Trower. Once we finished the track and mixed it, we still couldn't decide whether or not to put it on the record. We actually had two other songs on the record that we took off in the end because everybody who heard 'Watchtower' thought it was great."

Former Roxy Music member and U2 producer Brian Eno added some of his patented treatments to "If Not For You," but in general, Ferry and Davies did not want to use a lot of processing. Of course, Bob Clearmountain used "his box of tricks," as Davies call it, to tweak the final mixes, which took place over the course of a week at Clearmountain's Mix This! facility in Los Angeles.

"We had to mix it in two stages because we were waiting to work with David Williams on the record," Davies says. "Bryan really wanted to add him as the final guitar part on the record. There was a holdup in getting that together, and Clearmountain only had one window to mix the record, so we were still stuck in London and Bob was mixing in L.A. We would download the mixes every evening and make comments. The final process was Bryan and I flying out to L.A. and recording all the mixes quickly and making the final adjustments." The album was mastered by Bob Ludwig at Gateway Mastering in Portland, Maine.

Ferry says he works so well with Davies "because he's very calm. I think he has a very good karma about him. I tend to be the turbulent one, and he's very steady. I find him very comfortable to work with." Davies acknowledges that Ferry can be challenging to work with, but he knows what he's doing. "I'm his straight man," remarks the producer. "He knows that if he can get it past me, then it's going to work. And he knows I can deliver it for him." ■

KINGS OF LEON

FROM PAGE 113

again be talked down to or treated like we're not here to do our absolute best.' And as opposed to being defensive, everyone was like, 'Nice—I was hoping you would say that.' Ethan got to sit back and relax, and we would go in there and we would just work it out. And we'd hear him on the talkback, saying, 'All right, I think you're ready. Let's give it a go.' We'd give it a go, and before you know it, we'd all be smiling."



Caleb Followill sang into a Shure SM57.

"Our style definitely departed from Ethan's on this record," says bass player Jared Followill. "We ended up meeting on this middle ground, which made it a great record, but [originally] we heard something *huge*—not produced in any way. I want people to hear what I hear when I'm onstage playing with these guys. And it ended up that Ethan knows a lot more about that stuff than anybody we've ever been around."

"I apprenticed in the '80s," Johns confirms. "so I saw a lot of what you could do with the minutiae. I know how to use 12 microphones on a drum kit, as well as two—that sort of thing. The heyday of A&M Studios in the '80s, where people would spend four days getting a bass drum sound—of course, we didn't go that far, but [we had] that sort of attitude toward recording."

Johns used the modified Trident to track and mix. He recorded to a Studer 24-track aligned at +6 for 499 running at 30 ips, and mixed to a Studer 2-track. He went with Helios mic pre's and Fairchild compression for the guitars, EMI mic pre's for the drums and Universal Audio 610 pre's for the bass mic (a Neumann U67) and the vocals. As on the bard's previous recordings, Caleb Followill sang into a Shure SM7 live during tracking.

A multi-instrumentalist who has played on just about every project up to now—drums, keyboards and guitars for the most part—Johns saw no need to do so on this album. "What I thought might be fun," he says, "was to try and create keyboard sounds with outboard equipment. So a lot

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David Bryson - Counting Crows

"The MA-200 did a fine job on a male vocal, imparting throaty warmth, a bit of transient crunch and an evenness that made the 'ears' in the room smile at the results."

Mix - December 2006

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of the stuff you think is keyboards is actually stuff that I've taken from guitar parts and vocal parts and run through lots of equipment, and fiddled with, harmonized, filtered and just gone bananas with. That was really fun for me, getting into a different creative space, seeing what I could do with what was there."

For these effects, which can be heard most vividly on the panoramic closer "Arizona," Johns made use of a Cooper Time Cube, spring reverbs, chambers, a Yamaha REV 7, Eventide DSP4000 and AMS 1580 delays.

The CD's not-so-secret weapon is Jared Followill's strikingly original bass playing, which is prominently featured in the mix. This is one band in which bass and drums are very much lead instruments—Jared Followill and drummer Nathan Followill make a glorious brotherly racket together, as hyperactive bass lines bounce off of pummeling snare and kick; it's the rock 'n' roll equivalent of Muhammad Ali's mantra to "float like a butterfly and sting like a bee."



Jared Followill makes a bass-heavy statement on the band's latest album, *Because of the Times*.

"On a lot of records, you can't hear the bass at all, and the bass on this record is different," says Jared Followill with obvious pride. "One song, I was like, 'I just

need a little bit more bass,' and you could tell that Ethan was pissed, and he told the assistant, 'All right, turn it up 1.5 dBs' to teach us a lesson, 'cause it was obviously gonna be way too loud. And he did it, and everybody listened to it, and everybody was like, 'Yep, it's great—that's it,' and we kept it there."

Johns, who describes Jared Followill as an "absolute monster" on his axe, acknowledges that pushing the bass beyond conventional levels paid off. "I don't think bass is ever gonna be loud enough for Jared," says the producer, "but if he's happy with it, then he was definitely right. He's a force to be reckoned with, but it's great energy to have in the studio—it's full-on. One of the most special things about them is their ability to allow a spiritual elevation to occur during a performance—getting something

going and feeling it and creating that elation of spirit. That's what I'm going for in a take with them; it's when they hit that, that it all makes sense." ■



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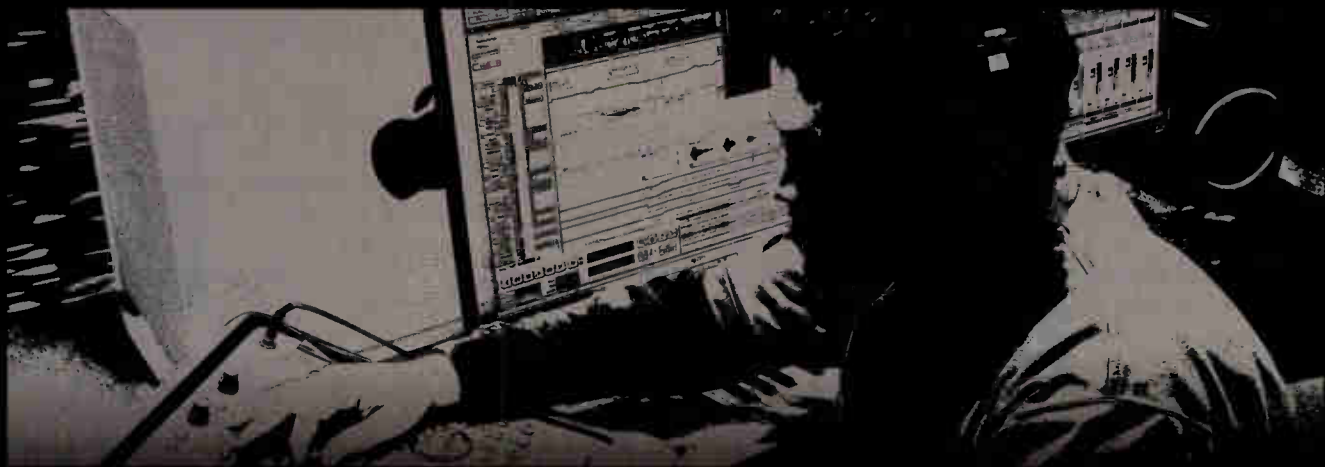
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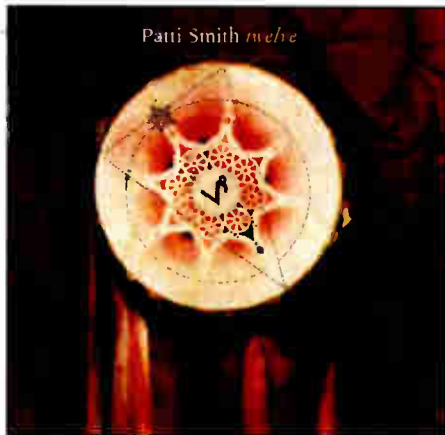
Patti Smith

twelve

(Columbia)

Ever since she fearlessly deconstructed "Gloria" on the opening track of her 1975 debut album, Patti Smith has brought her utterly unique sensibility to a small number of very well-chosen cover tunes. If you liked those, you're going to love *twelve*, which is my favorite album of 2007 so far. Smith, her excellent three-piece band (still led by guitarist Lenny Kaye, who has never sounded better) and guests ranging from Flea to Tom Verlaine, to Jack Petruzzelli, to her own children master and at times completely re-invent a dozen songs that span 1967 to 1991. It's no surprise that she's chosen songs by the likes of Jimi Hendrix, The Beatles, The Doors, Bob Dylan and the Stones. But the choices are often so unexpected, and in every case just about perfect: George Harrison's "Within You, Without You" loses its Indian trappings and becomes a sort of psychedelic waltz; she boldly chooses Dylan's latter-day gem "Changing of the Guards"; she uncovers the contemporary power of "Gimme Shelter." Imaginative touches abound, from the sprinkling of Lewis Carroll at the beginning and end of her powerhouse "White Rabbit" to the intermingling of verse from Hendrix's "1983" amidst the sonic squall of "Are You Experienced?," and a surprisingly effective arrangement of Nirvana's "Smells Like Teen Spirit" that sounds like Smith's own "Kimberly" played by a vintage string band. Paul Simon's "Boy in the Bubble" jumps off the CD with appropriate urgency, while Neil Young's "Helpless" remains beautifully opaque. Smith has never sung better. A wondrous achievement!

Producers: Patti Smith, Lenny Kaye, Tony Shanahan and Jay Dee Daugherty. Recorded and mixed by Emery Dobyns. Studios: Electric Lady and Loho (both in New York City); one track at Effigy (Ferndale, Mich.). Mastering: Greg Calbi/Sterling Sound (New York City). —Blair Jackson



The Stooges

The Weirdness

(Virgin)

You know the reunion albums wherein "mature" rock acts wax poetic about growing up, learning about love, raising beautiful children and embracing the sober life? This isn't one of those. After 30 years, Iggy and band prove that they can still pound out some big punk noise, churning through songs about the evils of chicks, drugs and rotten suckies with the ferocity of guys half their age. Tracks like "Free and Freaky" and "The End of Christianity" only reinforce the sad truth that there will never be an "Iggy Pop" night on *American Idol*. And while there's certainly a place for the slick, richly layered production that often defines reunion albums, for the most part, these tracks were put down live, and thanks to the legendary no-frills skills of analog authority Steve Albini, preserve a raw, dirty vibe. It's kind of like a kick in the face—you know, in a good way.

Producer/engineer: Steve Albini. Studio: Electrical Audio Studios, Chicago. —Sarah Jones



Rainman

Bigga Than Life

(Chime

Entertainment)

I'm not the biggest hip hop or rap fan. I grew

up in the suburbs listening to Metallica, I don't understand the appeal of thumping-and-bumping car audio systems, I usually don't understand the lyrics—the list goes on. But then I popped in Rainman's first real LP, I couldn't stop playing it. I still don't really understand all of the lyrics, but that doesn't bother me—I love the way it flows from one track to another without skipping a beat, in spite of the fact that this album features numerous producers. The rhythms pulse. The bass grinds each note out with a sharp clarity. Rainman's deep voice interweaves throughout, providing the street cred of gangsta rap. And most surprising to me is that these are the same attributes I look for in a great metal album.

Producers: DAP, Co-Stars for NVP Productions Inc., DJ Speedy, David Banner, Marco G., Spencer Nezey. Mixer: Ethan Willoughby at Interscope (Santa Monica, Calif.). Studios: Paid 4 Life Studios (Jackson, Miss.), Gin House (Hollywood).

—Sarah Benzuly



Amy LaVere

anchors & anvils

(Archer)

The tip-off that Memphis-based Amy LaVere's new

CD is going to be pretty interesting comes in the chorus of the first song: "Killing him didn't make her love go away." Yep, here's a sweet-voiced gal with a slightly twisted world view, playing music rooted in old-school honky-tonk (upright bass, which she plays herself, steel, fiddle, crackin' drums, etc.) singing about revenge and redemption, but also regular stuff—dirty dishes, piles of laundry and broken hearts. Drummer/band leader Paul Taylor wrote two of the best tunes, "Pointless Drinking" and "People Get Mad," and Kristi Witt two other strong ones. There's a bit of gypsy tango, some funky-tonk and breezy-jazz inflections, but mostly this is barroom country played with heart and soul. Definitely an artist to watch.

Producer: Jim Dickinson. Engineer: Kevin Houston. Studio: Zebra Ranch (Dickinson's place). Mastering: Brad Blackwood.

—Blair Jackson



Skillet

Comatose

(Lava Records)

It's strange to me when a second-stage act pops off another unbelievable

rock record and still doesn't get the radio time the band rightfully deserves. Skillet is one such band who continually push their musical muscle with soaring guitar work interspersed with their take on '80s hair-metal ballads—and then right back into wielding the axe. Skillet's latest effort finds the group once again hitting a home-run: head-banging hooks, thundering drum lines, melodic bass work—all enveloped by John Cooper's incredibly powerful vocal cords. The introduction of sweet string orchestration at the beginning of some songs provides a soothing element for about five seconds.

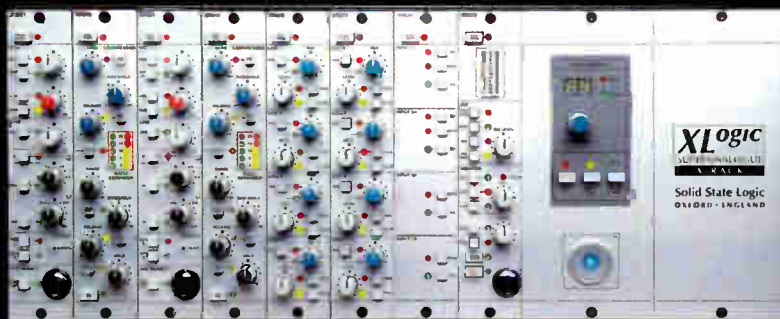
Producers: Brian Howes, John L. Cooper, Zachary Kelm (executive). Engineer: Jay Van Poederoyen. Mixers: David Bottrill, Chris Lord-Alge. Studios: Resonate Studios (Burbank, Calif.), Metalworks Studios (Mississauga, Ontario), Chicago Recording Company. Mastering: Andy Vandette/Masterdisk (New York City).

—Sarah Benzuly



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L.A. GRAPEVINE

by Bud Scoppa

Since taking over this column 14 months ago, I've been from Tucson to Tucumcari, Te-hachapi to Tonopah. Okay, I'm quoting a Lowell George lyric, but I've put a lot of miles on the odometer of the old Explorer, heading as far north as Chatsworth and as far south as Irvine, but for the most part bouncing back and forth between Hollywood and the Valley from my home base in Studio City.

During my travels, one name kept popping up: Studio owners, producers and engineers alike expressed their respect and fondness for Jeff Greenberg, who's now in his 13th year running the Village Recorder,



Jeff Greenberg (center) poses with Pumpkins Billy Corgan (left) and Jimmy Chamberlin.

now called The Village, and finding the time to give advice and counsel to novice studio operators while bonding with his fellow veterans. If there is a SoCal studio community—and I've accumulated plenty of evidence that one exists—then Greenberg and the Record Plant's Rose Mann Cheney—who are themselves pals first and competitors second—are its touchstones.

I met Greenberg back in 1975 on the old A&M lot where I worked while he managed the late Felix Pappalardi. He then did stints as an agent at ICM and a concert promoter at Nederlander, restoring much-needed cred to the Greek Theatre when he booked the emerging Talking Heads and Blondie as co-headliners—at my suggestion, he claims. I'll take his word for it because, as the saying goes, if you remember the '70s, you weren't there. Or was that the '60s?

Greenberg is one of the great charac-

ters of the L.A. music scene. He moves fast and talks faster—rattling out a torrent of info, free association—style, sprinkled with affectionate hyperbole and punctuated by his trademark self-effacing asides.

Here's a verbatim sample of his freestyle flow: "So listen, we've got a whole bunch of cool stuff happening here. We just finished the Smashing Pumpkins. They started at the Village and then came back and fully mixed with Roy Thomas Baker in A and D. I even have a picture. You don't run photos, though, do you? Oh, you do. I don't photograph very well, and the sad thing about that is it's probably the way I look in real life. We had the Pumpkins in A and D, and then we had the Rolling Stones of Russia, a band called Mumiy Troll in B—I'll have to get the spelling for you. The bottom line is, so we were running six Studers, 800s and 827s, around the clock for close to two months. So that was kinda fun. And Roy Thomas Baker had more shit than I've ever seen in my life in Studio D. We've got Ben Lee, who I love, working with John Alagia. You should come by and meet him. Saturday night, actually, there's a little party, if you wanna come by. Laura, I'm sorry, I dropped these checks here—I don't know where they came from. Brooke, how do you spell 'Mumiy Troll?'" And so on.

As Greenberg never tires of pointing out, The Village—which was built as a Masonic Temple in 1922 and was the Maharishi's Transcendental Center during the '60s before being converted into a recording studio in 1968—is a rock Mecca, its walls lined with Gold and Platinum album plaques from the likes of Fleetwood Mac, Pink Floyd, the Stones, Frank Zappa, Steely Dan, Bob Dylan, Supertramp and Eric Clapton. When Greenberg took over in 1995, the Village was in disrepair, and he undertook a major renovation, which was supervised by the great engineer Al Schmitt, while he attempted to lure contemporary bands by pitching its glorious past.

"We would call bands, and say, 'Do

—CONTINUED ON PAGE 126

NASHVILLE SKYLINE

by Rick Clark

I was in Santa Monica, Calif., awhile back, visiting with producer/manager Jim Phelan—someone I consider to be one of the good guys in the industry, someone who really cares about his clients. He pointed out that one of his clients was Jacquire King, a very cool up-and-coming engineer/mixer/producer whose credits include Tom Waits, Kings of Leon, Modest Mouse, Mute Math, Chuck Prophet, Smash Mouth, Jars of Clay, Guster, Third Eye Blind and many others. King has earned an impressive amount of professional recognition, including 13 Grammy nominations, two Grammy Awards, and Gold and Platinum awards. His work with the Archie Bronson Outfit made many Best of 2006 lists.

What I didn't know before talking with Phelan was that King lives in Nashville. This was the beginning of a few months of communications between King and myself, leading to a meeting at his studio, which takes up the whole bottom floor of his Williamson County home.

At that time, he was producing, engineering and mixing Seabird, mixing Josh Ritter and Sea Wolf, and had just finished engineering Absentstar with producer Dan Wilson. Among the multitude of other projects he's recently handled are 67 Special, Archie Bronson Outfit, The Colour (all three as producer/engineer/mixer), and mixing for Langhorne Slim, Dappled Cities, Natalie Grant, the Jane Shermans and Nichole Nordeman. Confirmed projects coming up this summer are mixing Mike Doughty, then Anathallo and Mother Father—also producing/engineering/mixing projects.

King feels that Nashville is unique, not just because there are so many studios and creative people in the community, but because "the atmosphere is not so competitive or dog-eat-dog," he says. "Some aspects that are amazing about Nashville are that so much songwriting happens here and that the level of musicianship is incredibly high among the players. There are lots of bands making great music here and lots of great venues. It's a very musically motivated atmosphere, and everyone benefits.

NEW YORK METRO

by David Weiss

I've always felt the best things about studios are the people who work there."

On the subject of Nashville's studios, King is particularly enthusiastic about Blackbird. "It's the biggest and best, and probably the best facility in the world these days, so it's great to have that as part of the landscape here," he says. Other studios King likes are East Iris, the "B" Room at Quad, Alex the Great and Paradox.

As a method of working, King prefers to set up a recording situation where all the players are as close together as possible and in one space: "You get a better-feeling result that has more spirit, and any technical hurdles become part of the personality of the recording; I see that as a plus. It makes the recording more time- and space-specific to what's going on when it comes together. I love recording to tape in that situation, as well, not only because of what you get sonically, but as it also puts a different emphasis on recording that has been lost due to the computer mindset. Outside of that being the overall goal, my only other rule of thumb is to do whatever it takes to have it sound exciting, even if it's 'wrong.'"

That said, King says he also enjoys the flexibility that digital offers in other parts of the process. Among King's favorite analog tools are his Neve mic pre's and a pair of

—CONTINUED ON PAGE 128

New York City presents...A Tale of Two Albums. The setting is Stratosphere Sound, a low-key studio in West Chelsea where two of this year's future-classic candidates, America's *Here & Now* and Fountains of Wayne's *Traffic and Weather* (see April 2007 *Mix*), were recorded in the same time span.

The central figure in this drama is Adam Schlesinger, one of the most unassuming pop master craftsmen you could ever hope to meet. Schlesinger first proved his chops to the world by writing the Oscar-nominated title track to the 1996 *That Thing You Do* and has been going strong ever since. In addition to being a driving force behind two rock groups, Fountains of Wayne (FOW) and Ivy, he's an in-demand TV/film contributor and a partner in Stratosphere, a Neve 8068-endowed room that happens to be one of the few facilities in New York City to nail the financial sweet spot and stay extremely busy.

Back in 2005, Schlesinger found out he could add another line to his resume: object of admiration by Gerry Beckley, co-founder of the band America and loving provider, along with fellow America mainstay Dewey Bunnell, of iconic songs like "A Horse With No Name" and "Sister Golden Hair." A friendly e-mail from Beckley to Schlesinger started a working relationship that would eventually lead to their recording two songs together and seeing what happened next.

"I think we hit it off," Schlesinger says from the comforts of Stratosphere's Studio A. "Gerry and I realized we had similar tastes. He's very current, and we both like melodic pop music with harmonic choruses and catchy vocals. We also had a bond because we're both in these bands that are centered around two-man writing partnerships, and we traded a lot of stories about what that's like: Two different writers with two different personalities trying to



Adam Schlesinger and Gerry Beckley collaborated on songs for *Fountains of Wayne* and *America at Stratosphere Sound* (New York City).

find common ground."

Following the success of the initial two-song experiment, the common ground was Stratosphere Studios, where Schlesinger and partner James Iha teamed to begin co-producing *Here & Now*, a two-CD collection of 12 new America songs and a live performance that has been rightly lauded for its pristinely transparent production, addictive next-level songwriting and overall deeply moving gorgeousness.

At the same time, Schlesinger and his FOW bandmates knew they had to begin producing the follow-up to the 2003 outstanding rock collection *Welcome Interstate Managers* ("Stacy's Mom," "All Kinds of Time"). Not surprisingly, as the two projects formed a checkerboard across Stratosphere's calendar, they began to blur happily together. "America is a band that plays a minimum of 120 shows a year," explains Schlesinger. "We knew from the start we weren't going to be able to block out two months and make a record from start to finish, so we worked on and off for a few days. Whenever they came to New York City, we'd do a little tracking, writing, arranging with America. I was able to keep writing stuff for the FOW record, and when Gerry and Dewey were available again, we'd go back into the studio with them."

—CONTINUED ON PAGE 128

PHOTO: BRADEN KING



Jacquire King (right) working on Josh Ritter's next release with producer/bandmember Sam Kassirer

PRISM PRODUCTIONS HAND-MADE IN THE BRONX

In our annual design issue, *Mix* focuses a lot of attention on big-budget, big-name studio installations, but we'd be remiss if we didn't acknowledge D.I.Y.'ers like John Calamari. A year ago, Calamari and his partner, —they go by "Kest" and "Zent Keyz," respectively—opened Prism Productions (www.prismproductions.net) in Calamari's Bronx, N.Y., house to record and mix small-run hip hop projects for local musicians such as Smif & Wesson and Xela, and (their main bread-and-butter) to sell beats they create with an ever-growing collection of synths and instruments. Recording to Pro Tools HD and LE, and monitoring on ADAM S2s, they also provide composing and video editing services. Recently, they scored and mixed the soundtrack for low-budget video documentary *Graffiti is Dead*, which sets footage of graffiti artists at work to techno music. Calamari says *Graffiti* has sold 5,000 copies and counting.

Calamari spoke with *Mix* while sheetrocking his living room—just one of his nonstop home- and studio-improvement projects. "I've been playing drums since I was 5 years old," he says, "in military marching bands, and then making my own music just went from there." Calamari designed the studio and built it with Keyz; they got some help with wiring from their friend (and *Mix*'s live sound editor), Steve LaCerra. "It's not walls within walls, but we have acoustical doors, bass traps, diffusers. It never stops and it's never enough. I



Just a year ago, composer/mixers Kest and Zent Keyz opened their project studio, Prism Productions.

still have a part-time job; I used to clean houses, which was better than digging ditches, which I also used to do. But making beats and music has been there all along since I was playing snare in parades" ■

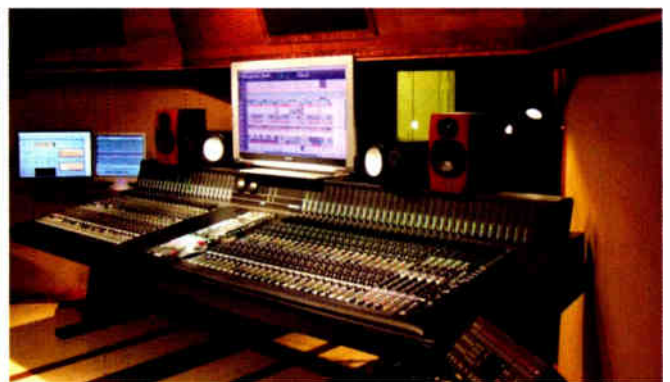
STUDIO DESIGNS

DOWN TO EARTH YOUNGS UPGRADES



Just after putting together our "Class of 2007" design feature, we learned of more refurbished studios such as musician/engineer Drew Youngs' Earthwire facility in Mill Valley, Calif. This studio was upgraded this past October with a Digidesign ICON/D Control, Pro Tools HD Accel 7 system and Genelec 5.1 surround monitoring. Earthwire offers Hear Back individual mixers and a wide variety of outboard gear, new and vintage mics, and MIDI modules.

END OF AUTUMN NEW ROOM FOR GEORGIA INDIES



Josh Payne and Paul Gasparro designed new studio End of Autumn (Marietta, Ga.) to cater to local and indie artists such as Lil Flip, Big Moe, East Side Boyz and others. The studio has a 250-square-foot floated control room, 350-square-foot tracking room and an iso booth. Acoustically treated with Guliford of Maine fabrics, End of Autumn features a Pro Tools HD3 Accel system, Sony APR 2-inch tape machine with remote, a variety of mics from Neumann, Gefell and Sennheiser, and custom main monitoring.

BEHIND THE GLASS

BRUBECK GOES SOLO ALBUM SESSIONS AT AVATAR



From left: Avatar Studios president Kirk Imamuro with Dave Brubeck and engineer Dave Renner

Jazz piano legend Dave Brubeck was in Avatar Studios (New York City) recording a new solo piano album for Telarc. The sessions took place in Studio A with producer Russell Gloyd, engineer Jack Renner and assistant engineer Brian Montgomery.

'HELLO' SESSIONS VIA AT CATALYST



From left: engineer Rob Tavaglione, drummer Zach Irvin, guitarist Craig Friday, bassist Chris Pierce and guitarist Andre Francois

Indie rockers Via recorded their latest EP, *Hello Operator*, at Catalyst Recording (Charlotte, N.C.). Studio owner Rob Tavaglione, who engineered the project, says, "Standout tracks include the ironically perky 'Funeral' and their nearly epic masterwork 'Walkie Talkie.'"

SOUTHEAST

Producer Phil Ramone brought five-sister group *The Hastings* to Saint Claire Recording Company (Lexington, KY). The session was engineered by BJ Ramone with assistance from Zach McNees and Rosco Weber...Jeff Carroll at Bluefield Mastering (Raleigh, NC) recently completed mastering *Army Jacket Winter* by Jon Shain, *Guns & Butter* by Bull Cit. and Stryper's *The Raxx Regime Demos*, which Carroll says was mastered from a cassette...In addition to the Via session at right, Catalyst Recording (Charlotte, NC) owner Rob Tavaglione produced and engineered an album for *Bums Lie* (*Why Lie? It's for Beer*) and the debut CD by *Steel Standing*...Sound designer Nick Palladino and engineer Brian Straka of NPALL Audio (Nashville) are working on sound design for the four DVD menus of the upcoming *Rolling Stones* box set.

NORTHEAST

Producer Henry Golis and saxophone player Chasey Dean were at Tiki Recording Studios (Glen Cover, NY) recording overdubs for a new CD. Fred Guarino engineered... Just a few more recent sessions at Avatar: *Boz Scaggs* was in Studio A recording with producer Gil Goldstein, engineer Jay Newland and assistant engineer Justin Gerrish. *Nickelodeon Kid's Choice Awards'* music composed by *Katreese Barnes* was recorded and mixed in Studio B. The session was produced by Barnes and Justin Timberlake. Overdubs and mixing were done by engineer *Anthony Ruotolo* assisted by *David Tolomei* and *Aki Nishimura*. *Debbie Harry* was in Studio B overdubbing with engineer *Hugo Dwyer*. The session was produced by Harry and assisted by *Brian Montgomery*...*Celine Dion* was back recording in Studio C with engineer/producer *Humberto Gatica*, assisted by *Ruotolo*. The *Roots* with *Fallout Boy's Patrick Stumpf* recorded in Studio C with engineer *Russ Elevado*. The *Roots* produced the session; the assistant engineer was *Gerrish*...*Bear Creek Studios* (Woodinville, WA) owner/engineer *Ryan Hadlock* added two new *Crowley* and *Tripp Naked Eye* ribbon microphones to his microphone collection.

MIDWEST

Americana rocker *Ted Wulfers* and his band tracked new tunes for an upcoming CD at the *Chicago Recording Company* (Chicago). *Chris Sheppard* engineered and *Dave Rieley* assisted.

SOUTHWEST

Producer/engineer *Eric McKinney* has been working at *Wonderland Studios* (Austin) on tracks with *Colin Gilmore* (*Jimmie Dale Gilmore's* son). *McKinney* is also recording and producing the debut CD from *Kristen Kissing*, one of the Top 12 finalists from the first season of *Nashville Star*.

SOUTHERN CALIFORNIA

At *House of Blues Studios* (Encino, CA), staffer *Doug Tyo* is engineering another collaboration between Bra-



Standing: drummer *Morko Marcinko*. Seated: engineer *Kent Heckman* and artist *Trisha O'Keefe*.

O'KEEFE TRACKS AT RED ROCK

At *Red Rock Recording Studio* (Poconos Mountains, Pa.), *Kent Heckman* recorded and mixed 17 songs for singer/songwriter *Trisha O'Keefe*. The tracks will be used on an album released on the *Maggie Sez* label.

zilian legend *Sergio Mendes* and *Black Eyed Peas'* will. i.am.

NORTHWEST

At *Blue Seven Audio* (Fremont, CA), studio owner *Christopher Scott Cooper* finished mixing and mastering Scotsman *Peter Daldry's* debut Celtic CD, *Familiar Roads*. The release was recorded by *Gus Fjellstrom*. *Cooper* also recorded and mixed prog rockers *Metaphor's* third CD *The Sparrow*...Producer/engineer *Justin Phelps* recently completed album projects for the *Mother Hips*, *Estradasphere*, *Sean Hayes*, *Eric McFadden*, *All Ages*, *Kathleen Haskard* and *Chuck Prophet* at *Hyde Street Studio C* (San Francisco). In addition, engineer *Scott McDowell* completed a new album by *Liz Pappademjas*, and singer/songwriter *Josh Fish* finished his new album with engineer *Jaimeson Durr*...*Kalara Recording Studios'* (Seattle, WA) *Mark Miller* recorded *Third Eye Blind* live at the *Fillmore* in March; a DVD is in the works, with a planned late-summer release date. ■

Please send your "Track Sheet" news to bschultz@mixonline.com.

you want to come record here?" Greenberg recalls, "and they would say, 'No, I don't wanna record where my parents' idols recorded—no way.' People had a lot of bad experiences here, and the building was literally full of trash. So we started cleaning it up, room by room. The first break we got was Billy Corgan from the Smashing Pumpkins requested a picture of the studios, and the inside of the building looked so shitty that I walked outside and took a Polaroid of the exterior and sent it to him. He came here with Flood and recorded *Mellon Collie and the Infinite Sadness*, which really got us movin', and he's been back for every record since. This new record, *Buddy*, is one of the most exciting records I've heard in years."

Thanks to Greenberg's efforts, the Village is once again a hub of rockin' activity, with Neve boards in each of the main rooms—a vintage 8048 in A, a VR-L in B and an 88R in D (which was originally built for Fleetwood Mac's *Tusk* sessions). "We paid a lot of attention to making each room sound superb and that has really paid off," says Greenberg.

There are also a number of high-profile producers in residence working out of the three-story, 30,000-square-foot building, including Robbie Robertson (longtime oc-

cupant of C), John Mayer (who recorded *The Village Sessions* EP in his space), Alagia (Mayer's *Room for Squares*, Dave Matthews, Mandy Moore), Danny Elfman and Andrea Morricone (son of Ennio, the legendary Italian film composer). They'll soon be joined, Greenberg reveals, by producer/mixer Ed Cherney, Rose Mann Cherney's husband, who for the past few years has been working out of his personal studio in Venice, Calif. L.A. is a close-knit musical community.

Greenberg reels off a litany of acts who've been working at the Village since my last visit a year ago: Lucinda Williams with Hal Willner for her critically acclaimed new album *West*; Kelly Clarkson with David Kahne; Alanis Morissette with Guy Sigsworth; The BoDeans with T Bone Burnett; The Scorpions; Perry Farrell; and Nuno Bettencourt's new Satellite Party project. He's especially proud of the fact that the Dixie Chicks not only recorded much of their runaway Grammy winner *Taking the Long Way* at the Village with Rick Rubin, but also spent six months writing the material with Dan Wilson, Gary Louis and Keb' Mo' in the game room.

The studio continues to be the site of studio concerts for NPR tastemaker KCRW, hosted by *Morning Becomes Eclectic's* Nic Harcourt; recent performers have included

The Shins, Peter Bjorn & John, Air and Rodrigo y Gabriela, and many others. Apart from rock projects, the Village does quite a bit of movie, TV and spoken-word business. Among those recent projects were the Showtime series *The Tudors*, and upcoming films *Hairspray*, *The Concert to End Slavery* and the Beatles-themed *Across the Universe* (its soundtrack produced by Burnett).

In a nod to digital technology, Greenberg last year installed a Digidesign ICON controller in Studio F. "Pretty much everything in the building happens in Pro Tools," he explains, "and I saw this as a need for people doing film work, and also as a way of integrating with the other rooms in the building. So it's a nice addition to all the analog consoles. And, as more and more people are getting used to this surface, they're starting to request it. We're doing film mixes and surround up there, and we're also doing a Donna Summer record there right now."

When I note that it sounds like Greenberg has all the business he can handle, he responds, "I think we're doing some cool stuff here. But the bottom line, I think, is the magic of the building—maybe the Maharishi left some of his good karma here."

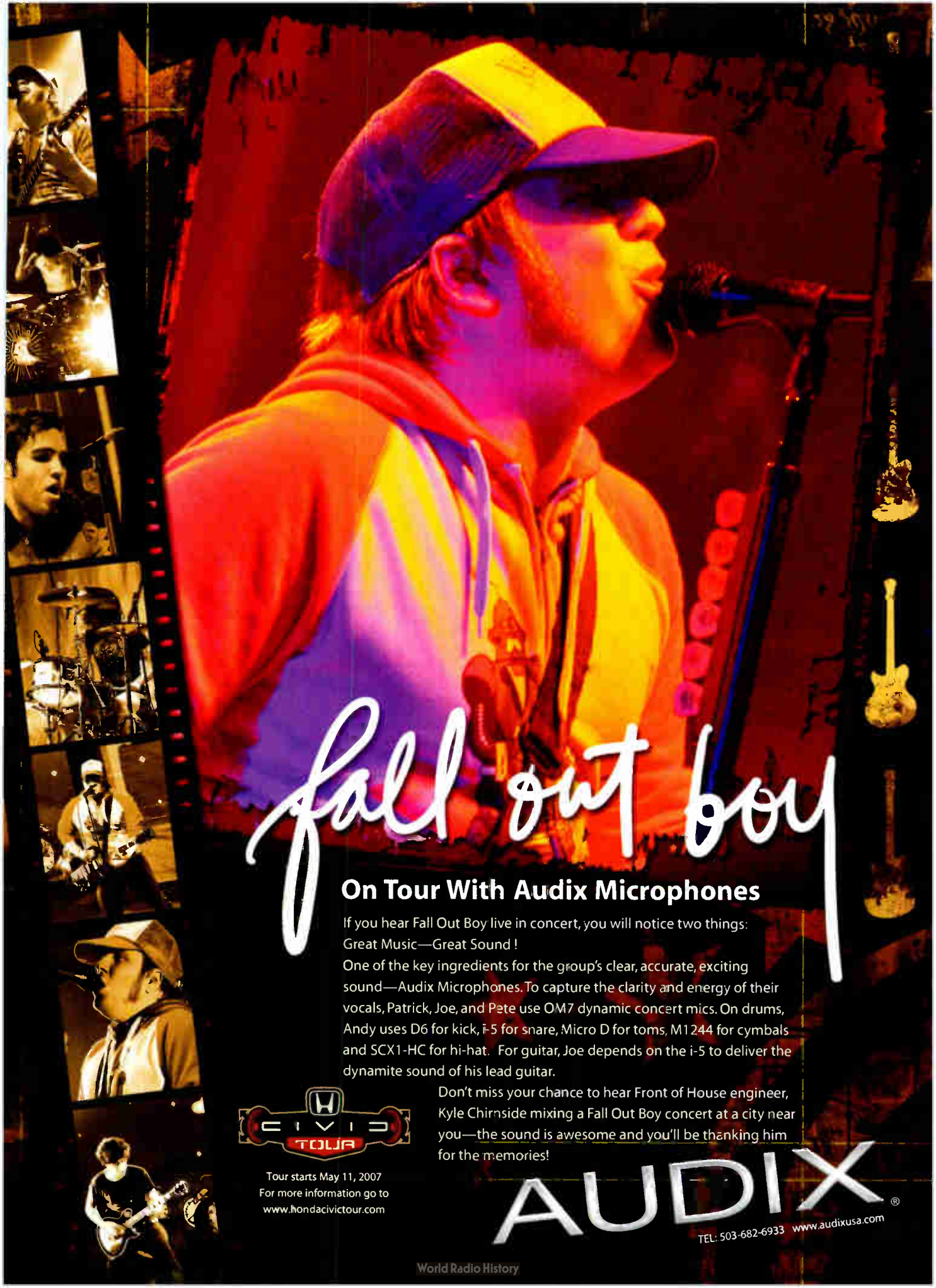
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original Helios Type 69 mic pre/EQs. Currently, King has a 40-channel Quad Eight console that is in the midst of being broken down into a couple of sidecars. King also loves his Chandler TG-1, which he uses for drum compression and vocals.

"I recently went back to using an old Altec mono tube mixer for recording drums," King notes. "I put up a few very old mics and make a blend through a dbx compressor and print it to one track. It sounds slightly Motown, slightly vinyl-sample, and just has great attitude to put in the drum mix with the more basic drum tracks. I got the re-inspiration from reading my copy of *Recording the Beatles* and how Geoff Emerick miked and balanced drums on a little sub-mixer through a Fairchild."

For mics, King feels John Peluso is "making great mics these days, and I love the U47 copies he has. I love to put it in front of a bass amp, and it's great on vocals, too."

One local band that I've followed for the past few years is also one that King is especially dedicated to as a producer—The Features. "My interest in The Features has been long-term," he says. "They're one of the first local bands I saw after I moved to Nashville. After that, they evolved and had some lineup changes. I heard their *Exhibit A* album and could really feel the brilliance coming on, and I was further convinced by spending time with Kings of Leon and them being such huge fans. I then had the great fortune to be asked to produce The Features' second album, and we made all the preparations to go into the studio and do that. Then, a week before we were to start, the band made an artistic choice about some music that the label wanted them to record, and that resulted in the band being let go from their label. It was quite a blow for a few days, and there was also some serious fall-out, but I felt like, 'The obvious thing to do here is just record this great music that we had worked so hard on.' I went to the band and shared my feelings, and they were just as inspired to carry on as I was so we pulled together and made an EP called *Contrast*. We're currently in the middle of making a full-length album on our own, and it's going to be amazing."

The Archie Bronson Outfit, a production of King's that has earned so much acclaim, came to him via some song demos the band had recorded in a bedroom with one microphone. "I thought it was shocking, and the more I listened the more I knew I had to make a record with them. The music was stark and menacing, full of singular-mindedness, and I loved the sound of two guitars and drums making this Captain Beefheart-

like, angular, psychedelic, folk garage-rock."

King points out that the thing he most looks for in an artist is true conviction for what they're doing and a sense of individuality. "After all, that's what I want to help them represent in their art. I don't feel like I have an overriding aesthetic to what I do. I just want the listener to feel the heart of the song, get a sense of the artist's spirit and be able to listen into the sonic landscape of that experience." ■

Send Nashville news to MrBlurge@aol.com.

NEW YORK METRO FROM PAGE 123

The projects began to feed off of each other technically and creatively, as Schlesinger soaked up lessons from his heroes and applied them to the songs that would become the irresistibly catchy, constantly clever *Traffic and Weather*. "There were several cases of one album influencing the other," Schlesinger recalls. "One of America's signatures is these vocal pads that they do. They almost sound like keyboards, but they're human voices—Gerry is a brilliant vocal arranger, and I was so blown away watching him put a vocal arrangement together and listening to how it transformed a song from something ordinary to something enormous. There are definitely different places on the FOW record where we also did these lush vocal pads, like on the song 'I-95' where this breathy 'aaaaah' comes in, and on 'This Better Be Good.'"

"Also, in terms of tempo and feels, I tend to always cut things too fast and then regret it later. Watching Gerry and Dewey with this relaxed vibe—how they find the sweet spot for a tempo was something I learned from. Sometimes in the studio, messing around with a snare sound for 45 minutes, you can lose perspective of the groove of the song, and then you come in the next day and realize you were way off on the tempo."

Another constant was veteran audio pro John Holbrook who engineered and mixed *Here & Now*, and mixed several cuts on *Traffic and Weather*, as did superstar mixer Michael Brauer. "The typical vocal signal path for America was a Neumann U47 into a mic pre on the Neve 8068," says Holbrook. "Depending on what I'm doing, I'll run one or two compressors, a UREI LA-2 and maybe an Empirical Labs Distressor. The LA-2 evens out vocals without being too obvious, and then we add the Distressor if we want it to sound a bit more accentuated—punchy but a bit compressed in the mix."

"On a given tune, we could often be looking at 24 tracks or more of background vocals, but there's also a law of diminishing

returns once you get more than four voices on one given note," Holbrook continues. "With these vocal pads, when you stack up that many tracks of the same guys' voices, sometimes there's a frequency in the lower-mids that starts to build up, so we might take out a little bit of lower-mid to clean it up and make it a little more airy."

Don't think that all this talk about dreamy vocal pads meant Schlesinger went soft, however. In his universe, subtleties generally take a back seat—just view his philosophy on the humble tambourine, which can be clearly heard shaking out in song after song. "Tambourine can be as important as the drum kit," he says. "It's a rhythmic element that's very bright, and it really changes the feel of a section if you throw it in there. I was always into Beatles mixes, where things would be hard-panned and pop into the mix really loudly. I try to make things really noticeable when they come in and stay away from a mushy wall of stuff so that if a tambourine appears, it's a big deal, not just part of a soup. You shouldn't have to be an audio engineer to notice it either—the average person should say, 'Oh, there's a tambourine!'"

"The other thing that I learned from America is that space is very important. Their biggest hits are very minimalist records—they barely had drums on a lot of them. A lot of times, it was just acoustic guitar, percussion, harmonies and a lot of vocals. Even though that's not always what FOW does, it made me focus on what people listen to when they listen to a record."

Although old-school sensibilities may have abounded elsewhere in the projects, all recordings went straight to hard drive via Pro Tools HD. "There are still certain projects where I feel like tape is the appropriate thing, but these two were not those," Schlesinger notes. "We still bounce the 2-track mixes down to tape, but also have a digital version available as an option. Then when we're in mastering, we'll A/B the two to see if there's something you get from one or the other that you like. There are certain songs where the tape provides glue, but there are also some songs where you're missing some bite and presence, and the digital mix makes it a little snappier."

All the better to bring out the essential elements of 26 total cuts from two bands and a resident virtuoso with a very firm grasp on the meaning of the word *song*. "The core of a song is rhythm, its melody, it's the sound of the lead vocal—those are the three main things," Schlesinger says simply. "You kind of have to build everything else around that." ■

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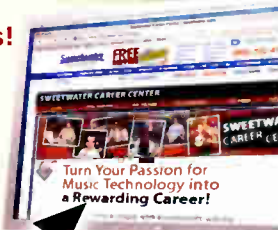
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Senior Sound Designer, In-Game San Diego & Santa Monica, CA (Jobcode: GR10861 & GR10862)

We seek a Sr. Sound Designer to join a dynamic team of creative professionals. We emphasize creativity and value a healthy work/life balance. The right candidate will have at least 5 years of game audio experience and the drive to create award winning game audio. **Please note: There is no music composition involved in this position.**

Responsibilities: Ownership of Audio Design documents and collaboration with Project Managers. Create and implant sound assets using digital audio tools (commercial and proprietary). Record new sound effects in the studio using various recording techniques and props. Use digital audio workstations to record, edit, synchronize and mix audio for full-motion-video content in various multi-channel formats. Field record real-world sounds for products. Perform sound format conversion, EQ-ing, looping, mixing, adding DSP effects, normalization and sound balancing for in-game assets on multiple PlayStation® platforms. Manage audio content creation to synch with project schedules. Review contracted assets for creativity, adherence to technical specs, and general quality standards. **Qualifications:** Work with game teams to deliver audio assets. Communicate ideas and issues clearly in corporate environment: 1 on 1, group meetings, etc. Solid understanding of audio production, editing and mastering is required. Imaginative use of studio production tools, props, recording techniques, etc. to create high quality original content. Experience and knowledge regarding field recording techniques. A clear understanding of EQ, dynamic range, compression techniques and multi-channel audio formats. Experience with professional audio editing tools like (but not limited to) ProTools, SoundForge, Bias Peak, Waves Plugins, sequencers, etc. Experience with PC and Mac computers. Experience with version control software- Perforce, Alien Brain, etc.

Senior Sound Designer, Post Production San Diego, CA (Jobcode: RR11003)

We have an opening in our San Diego Audio Post Production Group. We emphasize creativity and value a healthy work/life balance. The right candidate will have at least 3-5 years of audio post production experience and the drive to create award winning game audio.

Responsibilities: Audio post production for all cinematics/movies in our SCEA projects. (Sound Design, Dialog Editing, Foley Editing, Music Editing, Surround Mixing, and Dolby Encoding). Localization of Dialog assets for these SCEA projects into multiple foreign languages for different territories. (Primarily French, Italian, German, and Spanish). Provide support to our in-game SFX designers by creating and/or recording sound effects when available. Coordinate, prepare, and attend Foley recording sessions for our SCEA projects, as well as Field recording sessions, as needed. **Qualifications:** Minimum 3-5 years of audio post production experience (working in commercials/TV/ or Film). Minimum 2 years working in surround mixing environment (Dolby Pro Logic II or discrete). Must know Pro Tools software (plug-ins) and hardware, timecode synchronization, and surround mixing techniques. Must be a very strong sound designer with some major project titles to their direct credit. Well versed in dialog, sound effect, foley and music editing. Must work well under pressure and tight deadlines. Requires working with clients and possess very strong "people skills". Must be eager to join a member of a dynamic and collaborative creative team. Self-motivating and have an inner passion for doing great work and open to new techniques and processes.



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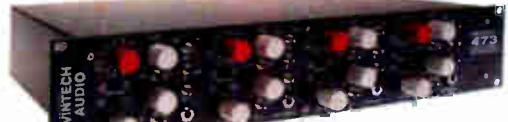
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The RECEPTOR PRO from Muse Research is the ideal way to run your favorite plug-ins live, and when in the studio it integrates seamlessly with Digital Performer and adds additional horsepower to your host Mac. Available with 400GB or 750GB drives, you'll love the way RECEPTOR PRO hosts your favorite plug-ins, making it easy to create or find any sound, then playing that sound with world-class sonic quality. Whether you play keyboards, guitar, electronic drums, or use effects plug-ins for mixing, Receptor gives you a stable, convenient, and easy way to run your plug-ins.



Komplete control

For DP5 users who want it all: Reaktor5, Kontakt2, GuitarRig 2 software, Absynth4, Battery3, FM8, B4II, Akoustik Piano, Elektrik Piano, Vokator, Spektral Delay and Pro-53 in a unified interface with hands-on control — Native Instruments KOMplete 4 and KORE put an infinite universe of sound at your finger tips. Every preset included in NI KOMplete 4, more than 8,500 in total, has been preconfigured and categorized in KORE with searchable musical attributes and hands-on controller assignments. This seamless integration of software and hardware turns Native Instrument's award winning synthesizers and samplers into tactile instruments.



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Music Instruments & Pro Audio

The MOTU Studio: 1,000 plug-ins and counting



Keystation Pro 88 features

- 88-key hammer-action, velocity-sensitive keyboard
- Powered via USB bus (cable included) or optional 9V power supply
- 24 MIDI-assignable rotary controllers
- 22 MIDI-assignable buttons
- 9 MIDI-assignable Alps faders
- MIDI-assignable pitch bend and modulation wheels

88 Weighted Hammer-Action Keys

Digital Performer 5 gives you unprecedented control over your MIDI and audio tracks. And what better way to take advantage of this hands-on control than the **M-Audio Keystation Pro 88**. Regardless of whether you're a seasoned pro or just ready to take your music to the next level, these hammer action keys are so expressive

that you just won't want to stop playing! The Pro 88 could easily become your sole keyboard in the studio or onstage. Yet the Keystation Pro 88 weighs only 47 lbs. — half of most weighted-action keyboards! And the Pro 88's extensive features make it the most comprehensive and competitive product of its kind!



Control room monitoring

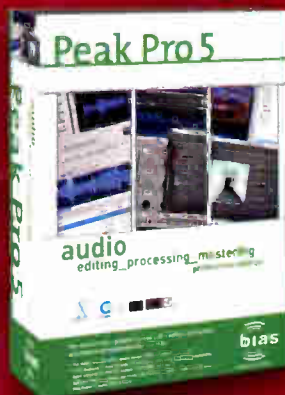
The PreSonus **Central Station** is the missing link between your MOTU recording interface, studio monitors, input sources and the artist. Featuring 5 sets of stereo inputs (3 analog and 2 digital with 192kHz D/A conversion), the Central Station allows you to switch between 3 different sets of studio monitor outputs while maintaining a purely passive signal path. The main audio path uses no amplifier stages including op amps, active IC's or chips. This eliminates coloration, noise and distortion, enabling you to hear your mixes more clearly and minimize ear fatigue. In addition, the Central

Station features a complete studio communication solution with built-in condenser talkback microphone, MUTE, DIM, two separate headphone outputs plus a cue output to enhance the creative process. A fast-acting 30 segment LED is also supplied for flawless visual metering of levels both in dBu and dBfs mode. Communicate with the artist via talkback. Send a headphone mix to the artist while listening to the main mix in the control room and more. The Central Station brings all of your inputs and outputs together to work in harmony to enhance the creative music production process.



Advanced waveform editing

Your DP mastering and processing lab awaits you: **BIAS Peak Pro 5** delivers award winning editing and sound design tools, plus the world's very best native mastering solution for Mac OS X. With advanced playlisting. Superb final-stage processing. Disc burning. Plus PQ subcodes, DDP export (optional add on), and other 100% Redbook-compliant features. Need even more power? Check out our Peak Pro XT 5 bundle with over \$1,000 worth of additional tools, including our acclaimed SoundSoap Pro, SoundSoap 2 (noise reduction and restoration), Sqweez-3 & 5 (linear phase multiband compression/limiter/upward expander), Reveal (precision analysis suite), PitchCraft (super natural pitch correction/transformation), Repli-Q (linear phase EQ matching), SuperFreq (4, 6, 8, & 10 band parametric EQ) and GateEx (advanced noise gate with downward expander) — all at an amazing price. So, when you're ready to master, Peak Pro 5 has everything you need. It's the perfect complement — and finishing touch — to Digital Performer 5.



Professional pad controller

The Akai Professional **MPD24** is the velocity sensitive pad controller for musicians and DJs working with sampled sounds. The MPD24 features 16 MPC-style velocity and pressure sensitive pads plus transport controls for interfacing with Digital Performer and your virtual instruments. You get Akai's exclusive feel: either MPC 16 Levels or Full Level features for ultimate pad control. Now add four selectable pad banks totaling 64 pads, six assignable faders and eight assignable and 360 degree knobs for transmitting MIDI Control Change data. Included editor/librarian software gives you complete, intuitive programming and control for DP5 all of your other software titles. The MPD24 provides unprecedented creative freedom for manipulating sampled material.



The MOTU experts at Sweetwater can build the perfect DP5 desktop rig for you. We'll help you select the right components, and we can even install, configure and test the entire system for you. Why shop anywhere else?



Accurate monitoring

The **Mackie HR-Series Active Studio Monitors** are considered some of the most loved and trusted nearfield studio monitors of all time, and with good reason. These award-winning bi-amplified monitors offer a performance that rivals monitors costing two or three times their price. Namely, a stereo field that's wide, deep and incredibly detailed. Low frequencies that are no more or less than what you've recorded. High and mid-range frequencies that are clean and articulated. Plus the sweetest of sweet spots. Whether it's the 6-inch HR-624, 8-inch HR-824 or dual 6-inch 626, there's an HR Series monitor that will tell you the truth, the whole truth, and nothing but the truth.

Power conditioning

The **Monster Power Pro 900** is designed for high-performance hookup of digital and analog components to AC power for all your I/O studio equipment, providing optimized Monster Clean Power and surge protection for AC power lines. Advanced features include Monster's unique Clean Power Stage 1 filtering for high quality sound and Dual Mode Plus protection with audible alarm for maximum protection and performance. For even more complete protection, the **Power Pro 5100** features Monster's Clean Power filtering, color-coded outlets, audible and visual indicators for ground and protection status monitoring, extra-long high current Monster PowerLine cords for optimum power delivery, 24k gold plated contacts on grounded plug for maximum conductivity, 12 programmable outlets, a digital volt meter, Clean Power Stage 4 filtering, 5 filters, sequenced AC power on/off, 3145 joule rating, built-in rack mounts and handles. Get Monster Power today.

New hands-on control for DP5

The new **Mackie Control Universal Pro** control surface gives you ultimate hands-on control of your Digital Performer desktop studio. Nine motorized, touch-sensitive Penny + Giles faders, eight V-Pots and more than 50 master buttons let you tweak parameters to your heart's content. Unlike generic MIDI controllers, the MCU Pro employs a sophisticated communication protocol that delivers ultra-precise control, makes setup easy - no mapping required - and enables you to see your mix in action with real-time visual feedback via the huge backlit LCD and eight LED rings. Apply the custom overlay for Digital Performer for dedicated labeling of DP-specific functions. The MCU Pro is the ultimate way to mix in DP5!



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Universal Audio UAD Series

Hardware-Assisted Plug-Ins Take Your DAW to the Next Step

No matter how much heavy lifting the latest dual- and quad-core processors can handle, users of native DAW systems will always look for a way to add a few more plug-ins to the mix. With a host of included and optional software emulations of some of the world's most coveted pieces of studio hardware, the UAD Series can help give your tracks a pro sound that will leave even the most well-trained listeners guessing. Available for PCI, PCI-X and PCI-E-equipped Mac and PCs, as well as ExpressCard laptops, UAD plug-ins work with VST, Audio Units and (with a special VST wrapper) RTAS host applications.

WALK THIS WAY

Engineers often think about selecting and tweaking reverb plug-ins, but they rarely look for interesting ways to automate them, which is too bad. Dreamverb—included with high-end UAD bundles—screams out for automation. This plug-in lets you morph between different room size/shapes, materials and air thicknesses—something useful in any number of ways. For film sound work, simply match your automation moves to camera pans or as characters move from one environment to the next. With all three of the parameters (room size/shape, material and air thickness) armed for automation, it will take a couple of passes to get it right, but once in place, the reverb will subtly change as it morphs in real time between two different environments.

A DANGEROUS PROPOSITION

Regardless of how DAW technology progresses, many producers and engineers yearn for that big console sound. And while a number of high-dollar outboard summing products are available, most of them require 16 discrete output channels and additional rackspace. However, several of the UAD plug-ins make it possible to achieve a similar sound without the hassle.

One quick approach is to stack the Neve 1081 SE and Neve 33609 plug-ins on your stereo bus and sweeten to taste. (If you're using a multicard system, go ahead and use the full-strength Neve 1081.) You'll immedi-

ately notice that your snares will pop with extra sizzle and that the entire mix takes on a more congealed, "glued-together" quality. (Many of UAD's more CPU-intensive plug-ins include an SE version, which delivers most of the sound of the full version while devouring less horsepower.)

A second trick borrows more from the summing bus approach. Spread your tracks across your last eight stereo buses or condense your mix down to eight stereo stems, and simply drop in one Neve 1081 SE per bus or stem. (Again, if you're using multiple cards and have the horsepower available, then go for the full 1081 plug-in.) From here, just make a few subtle EQ tweaks to infuse your mix with some of that classic British sound. The caveat here? This approach is best saved for your project's mixing stage, as different DAWs handle plug-in delay compensation differently, and if you're still laying down or overdubbing virtual instrument tracks, you could run into some latency issues.

DUPLICATE COMPRESSION ON DRUMS

With a collection of hardware emulation and high-end digital dynamics processors, the UAD plugs can do some very interesting things with your drum tracks. To add extra sizzle and sustain to your close-miked drum tracks, try a duplicate compression chain. Simply solo and bounce a copy of the track you want to process and add it back to your session on a separate track. Next, bring up the UAD 1176LN. The idea here is to remove as much dynamic range from the track as possible while adding some vintage grit. The result will be a longer sustain on the processed drum track that you can add back into the mix. You can also do this on groups of drum tracks to achieve a more unified sound.



The UAD products let you effortlessly use massive, hardware-emulation plug-ins without taxing the host CPU. Here, the Neve 1081 EQ and 33609 limiter/compressor is running on a two-card system at 24-bit/48kHz with plenty of power to spare.

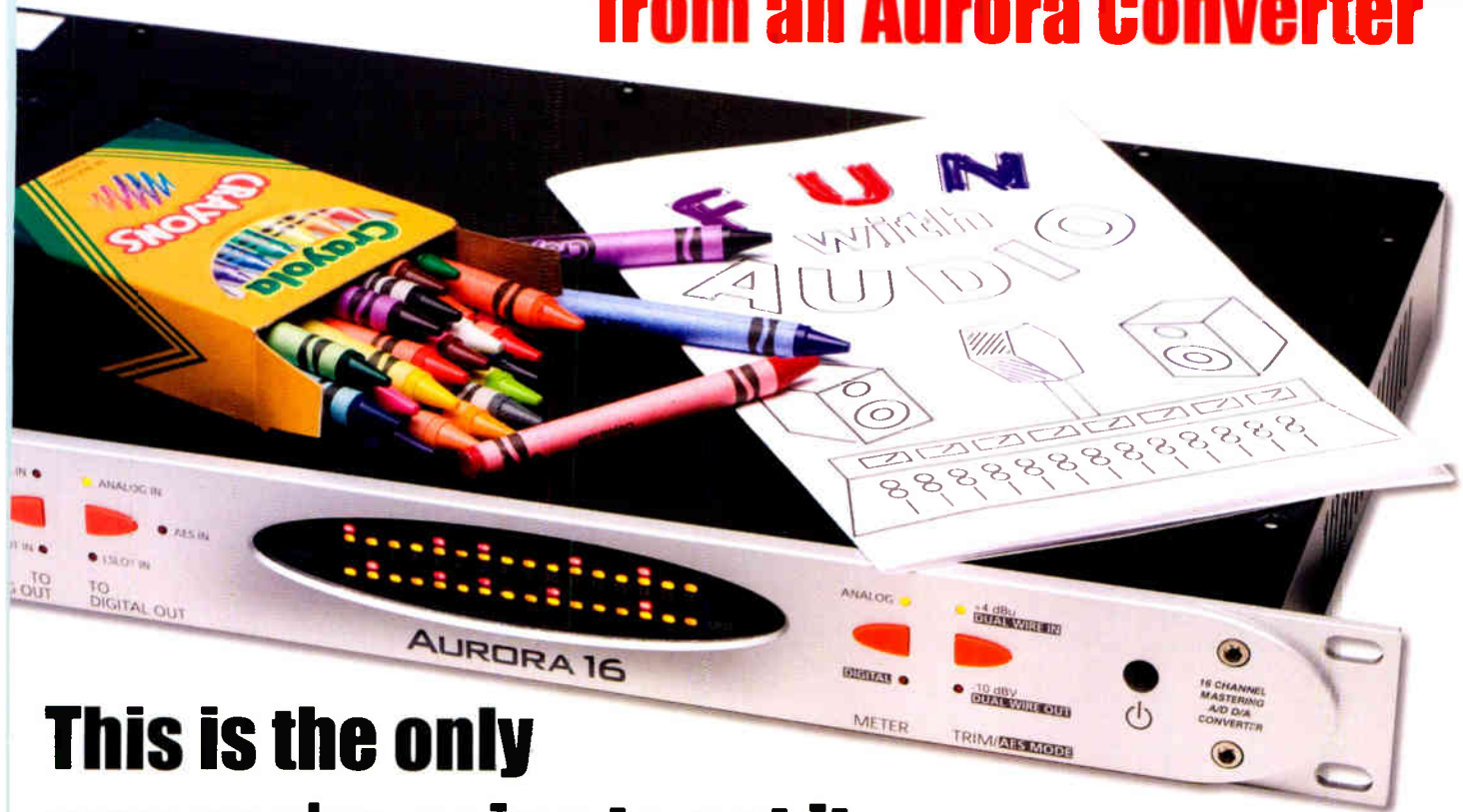
DEEP FREEZE

Like standard VST and Audio Units plug-ins, UAD plug-ins can also be frozen (depending on your DAW), freeing the UAD hardware to take on other processing chores. The same care should be taken when freezing UAD plug-ins: Make sure that your right-boundary marker is pulled in close to the end of your arrangement or your computer will needlessly render 10 minutes of blank audio. Also, expect that this process will take a tad longer than standard native plug-ins because the processing is happening inside the UAD hardware instead of your computer's CPU.

VIRTUAL HARDWARE CONSOLE

Some people just refuse to give up their aging computers, and UAD's stock plug-ins offer an easy way to keep an older machine humming along. One simple way to maximize your available resources (and squeeze in another CPU-hogging virtual instrument) is to exclusively use the CS-1 channel strip plug-in for all of your EQ, dynamic, chorus/delay and basic reverb chores. The CS-1 adds a nice touch of hardware-inspired sound without sucking up a ton of CPU cycles. And to stretch things even further, you can disable unused EQ bands and audition each component of the CS-1 separately. ■

If you're looking for coloration from an Aurora Converter



This is the only way you're going to get it.

When we designed the Aurora 16 and Aurora 8 AD/DA converters, we had a simple goal. Converters with clear, pristine, open sound and no coloration or artifacts. We wanted you to be able to get the identical audio out of Aurora converters that you put into them. From what we have heard from you and the major magazines, that's what we have accomplished.

Aurora includes no compression, no limiting, no equalization. No coloration. Why?

First, if you want or need coloration, you already have that handled. You have carefully selected your signal processing, which you can add to the signal chain at any point you like, or leave it out altogether.

Second, how would we know what processing would fit your needs and your tastes? We could nail it for our tastes and for a few of our friends, and completely miss what you want.

Third, we wanted to build the best possible AD/DA converter – period, not a converter/signal processor/preamp/exciter. Adding these functions would add the price of Aurora, for features you may not want or need.

Instead we packed in features such as our exclusive SynchroLock™ word clock, LSlot expansion port for optional interfaces, and exclusive remote control options into a single rack space format. And, most importantly, world-class audio quality that rivals converters costing many times the price.

Aurora 8 and Aurora 16 from Lynx Studio Technology. We'll handle the conversion and leave the coloring up to you.

Want more information? Go to: www.lynxstudio.com/aurora1

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STUDIO
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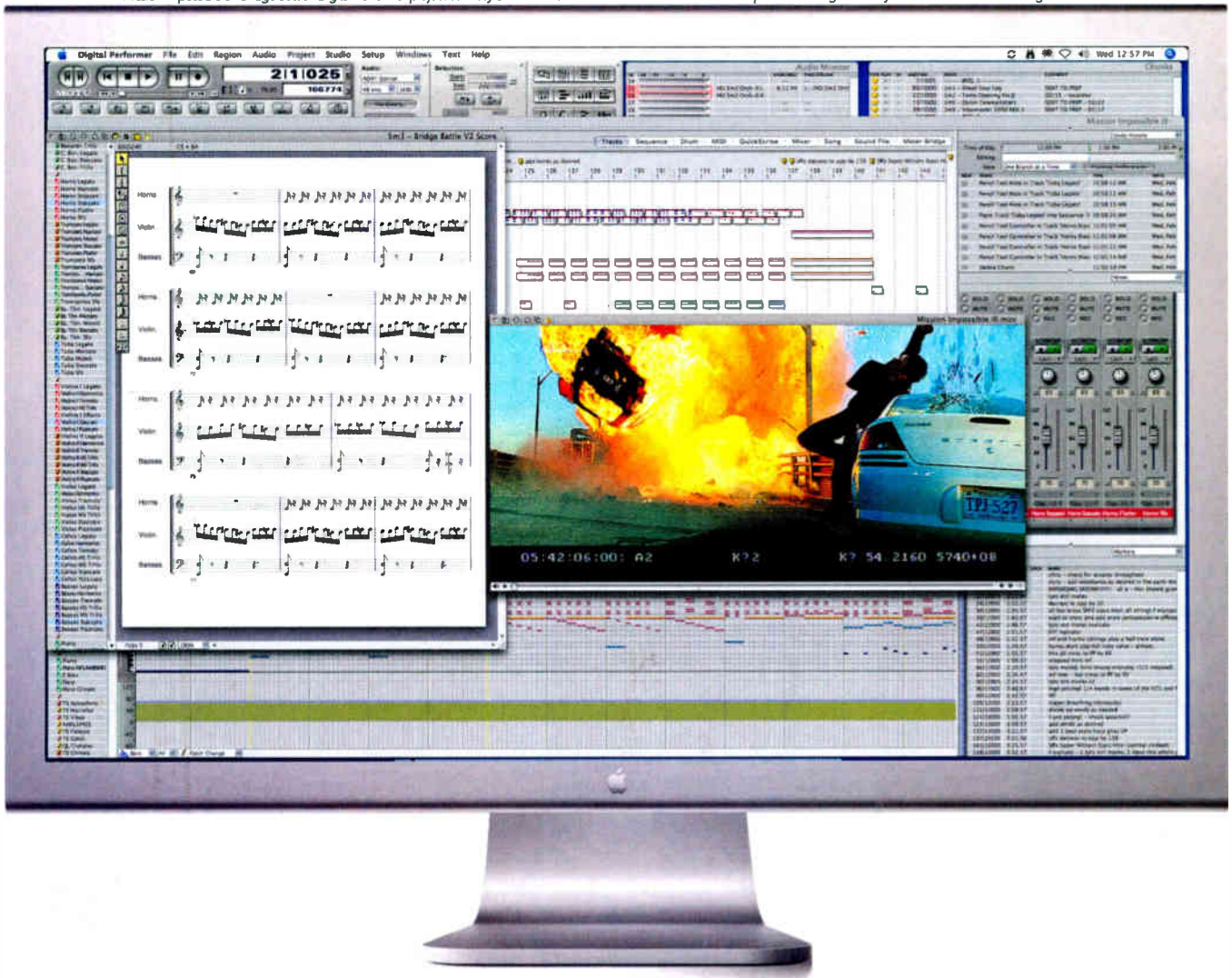
Digital Performer scores the impossible

"Digital Performer is a huge part of my scoring process. I do all of my writing in DP. At the Mission Impossible 3 sessions, we had a laptop running DP and a MOTU Traveler to handle prelays and record live stereo stems of Dan Wallin's mix from the main board. DP also drove video to the main monitors and synced the entire 100+ piece orchestra, so that everything was perfectly in line with my composition sequence. I count on DP every day. It performs flawlessly."



— **Michael Giacchino**
Composer
Original Music for M:i:3

Mission impossible 3 "Bridge Battle" Digital Performer project courtesy of Michael Giacchino and Chad Seiter. Mission Impossible 3 image courtesy of Paramount Pictures. All rights reserved.



MOTU
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