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"The KSM44 has amazing presence on vocals. It's a great all-around condenser mic."

-Eddie Kramer (Jimi Hendrix, Led Zeppelin, Kiss, the Beatles, ...)

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Happy Birthday to Us!

I can still vividly recall the day in 1978 when *Mix* founders David Schwartz and Penny Jacob trudged up the stairs next to my office and into the unfinished attic of the Oakland house that was the headquarters of *BAM* magazine (where I was an editor) for The Meeting. *BAM* had published *Mix*'s first couple of studio directories, which were modest successes, and were set to put out others, when David and Penny announced that they were leaving the *BAM* fold and going solo. First Paul leaves The Beatles, then this—the '70s was a cruel decade. Anyway, there was a heated and frank exchange of views, clearly audible in my office, and in the end David and Penny had their freedom and their magazine. I remember thinking, "Aw, let 'em have it! A tabloid magazine about recording? It'll never last!"

Needless to say, this prognostication—coming from one who predicted that Flock of Seagulls would be the Next Big Thing, who invested in the Pet Rock company after the craze was over, and who finally finished Macarena lessons last month—was just another ignominious embarrassment in a lifetime full of them. In what can only be deemed an ironic twist, a few years later I signed on as *Mix*'s first managing editor, and I've been here ever since, as *Mix* has grown and evolved into the biggest magazine of its kind in the world. My only regret now is that I didn't work with *Mix* during the era immediately after the separation from *BAM*, when their office was adjacent to a Winchell's donut shop.

In a business where we live issue to issue, year-in and year-out, a quarter-century goes by in a big blur—the triumphs and frustrations, the hot scoops and missed opportunities, the endless stream of wonderful and weird co-workers, owners, clients, competitors...they all helped shape what *Mix* became, in both obvious and undetectable ways.

It's been a great ride (most of the time), and I know I speak for everyone at *Mix* past and present when I say it's been a true privilege to serve our industry, which is every bit as vibrant, creative and exciting today as it was when David and Penny first came to *BAM* with that gleam in their eyes.

So enjoy this slice of readable birthday cake! And be careful as you pop that champagne cork!

Blair Jackson
Senior Editor



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FOUNDED IN 1977 BY DAVID SCHWARTZ AND PENNY RIKER

Mix® MAGAZINE IS AFFILIATED WITH **SPARS**



**Roland would like to congratulate
our friends at *Mix* for 25 years of
leadership in the recording and
audio industry.**

Here's to the next 25...



Ink-Stained Memories

The Humble Beginnings of "Mix"

by Hillel Resner

Picture, if you will, one of those black-and-white 1940s movies with Judy Garland, Mickey Rooney and Huntz Hall. They're a bunch of scruffy, lower-class kids who are always in trouble, never go to school. But, like everyone, they need money. Then, one day, they're hanging out on his mom's front stoop when Mickey jumps up and snaps his fingers.

"Hey, kids," he exclaims. "I've got it! *Let's start a magazine!*"

Okay, maybe the beginning of *Mix* wasn't exactly like that, but it was close. In this case, Mickey was played by a musician and acoustics consultant named David Schwartz, and Judy was played (with appropriate dramatic flair) by vocalist Penny Jacob, who had some friends with a small recording studio in Marin County. Energetic and inquisitive (required characteristics of successful journalists), they realized one day that a large number of studios were popping up around the Bay Area, and that it might be an interesting project to create a directory of these places. Assisted by the publishers of the local music trade, *BAM* magazine, the two brought their vision to fruition. In the fall of 1977, *The Mix* was born.

The magazine was actually a tabloid, printed on newsprint and pretty funky—sort of like your weekly free newspaper. (There are studio folks out there who will proudly tell you that they still have the very first issue, and how "the ink came off on your fingers.") But, instead of movie listings and steamy personals, this paper contained page after page of recording studios, with photos of their rooms, lists of their gear, "extras" such as hot tubs and pinball machines, and even their rates (which, oddly enough, were often approximately the same as they are today).

Yes, children. all those detailed studio listings that have become so ubiquitous in directories (and more recently on CD-ROMs and the Internet) started right here. And by the way, there turned out to be a lot more studios in the Bay Area than Penny and David imagined. So many, in fact, that it seemed only natural to scope out the scene in Los Angeles, and to publish a Southern California directory the following year. This was followed in the next couple of years by directories of studios



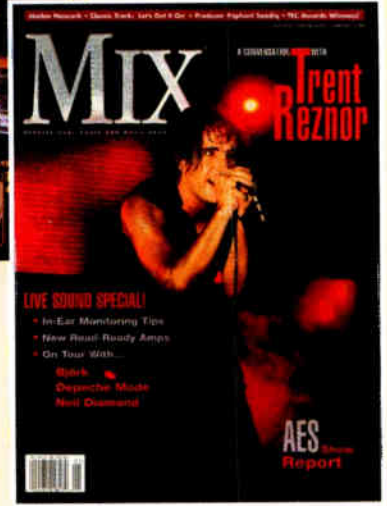
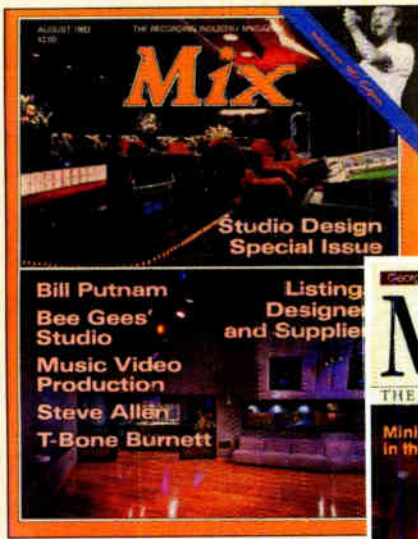
Mix founders Penny Jacob and David Schwartz



in Nashville and New York, the Midwest, Southeast, etc. By the mid-'80s, recording folks from coast to coast had their own editions of *Mix* (the name was modified in 1981), and no one had an excuse for not knowing which studio in his neck of the woods had just the right console, limiter or microphone to get the job done. Book it, Danno!

Flash forward 10 years. By the late '80s, fueled by artists such as Michael Jackson, Madonna and Bruce Springsteen, the market for recorded music had exploded into a global phenomenon. Thousands of people were making a livelihood (or trying to) in recording and music production, and *Mix*—by now a glossy magazine of more than 200 pages each month—had become their leading source of information on the technology and tools of the trade.

Under the editorial leadership of Schwartz, assisted by George Petersen (a rock drummer and studio junkie) and Blair Jackson (a music writer and the editor who'd come over from *BAM*), the *Mix* staff created a publication that was a cut above the technical journals of the time. There were equipment reviews and product surveys aplenty for the gearheads among us, but also features on the techniques of recording, and interviews with the engineers and producers who had become to techies what Eric Clapton and Carlos Santana were to guitar players. Readers around the world responded to *Mix*'s colorful blend of personalities and technology; and by the mid-'90s, more than 50,000 copies a month were going to subscribers in more than 90 countries.



Mix through the years

Of course, given the nature of the personalities involved and the industry itself, the only constant was change. In 1985, the magazine had acquired the fledgling publication *Electronic Musician* (edited by musician/technologist Craig Anderton) as a means of satisfying the information needs of the growing MIDI production field, and *EM* developed to become as much of a force in that market as *Mix* had for pro audio. And, in the same year, the publishers founded what would turn out to be *Mix's* highest-profile and perhaps most ambitious endeavor: the TEC Awards.

The Technical Excellence and Creativity Awards were born of the same awareness that led the magazine to write extensively not only about SMPTE timecode, workstations and digital converters, but about the creative people who employ those technologies in pursuit of better sound—the awareness that people and innovation are the lifeblood of successful audio production. Since the fall of 1985, when the first ceremony was held in New York City, the TEC Awards have annually honored the people, companies and products behind the recordings, tours and soundtracks that enthrall the public (and make millions for artists, record companies, film studios, promoters and others).

The *people*, it turned out, are what audio folks care about the most. Ever since the TEC Awards introduced its Hall of Fame (1988), followed by the Les Paul Award (1991), audio pros have turned out in increasing number each year to honor

their peers. After all, what audio professional is not moved by the opportunity to hear the likes of George Martin, Phil Spector, Stevie Wonder or Brian Wilson talk about how the technical personnel, the people *behind* the console, helped make their greatest successes possible?

There were interviews with the engineers and producers who had become to techies what Clapton and Santana were to guitar players.

Naturally, in the movie version of *Mix*, the characters played by Mickey and Judy would at some point be approached by a business tycoon who would offer them vast sums of money to turn their small-time operation into a big-budget production. In real life, this figure was played by television mogul Norman Lear, who in 1989 bought *Mix* Publications and folded it into his media empire. Successive owners have introduced many changes, but one thing that has not changed about the magazine is its real-life connection to the audio industry. It's that bond—the fact that *Mix* today is still produced by people who know the stage and studio, and the issues that matter to recording and sound professionals—that, we believe, keeps the magazine as vital as it was 25 years ago. It's been a great run, and we hope you enjoy the show! ■



Hillel Resner and Stevie Wonder at the TEC Awards.

Hillel Resner has worked for Mix since 1979, and previously starred as associate publisher, publisher and editor-in-chief. He is currently president of the Mix Foundation for Excellence in Audio and executive producer of the TEC Awards, which will be held this year in Los Angeles on October 7.

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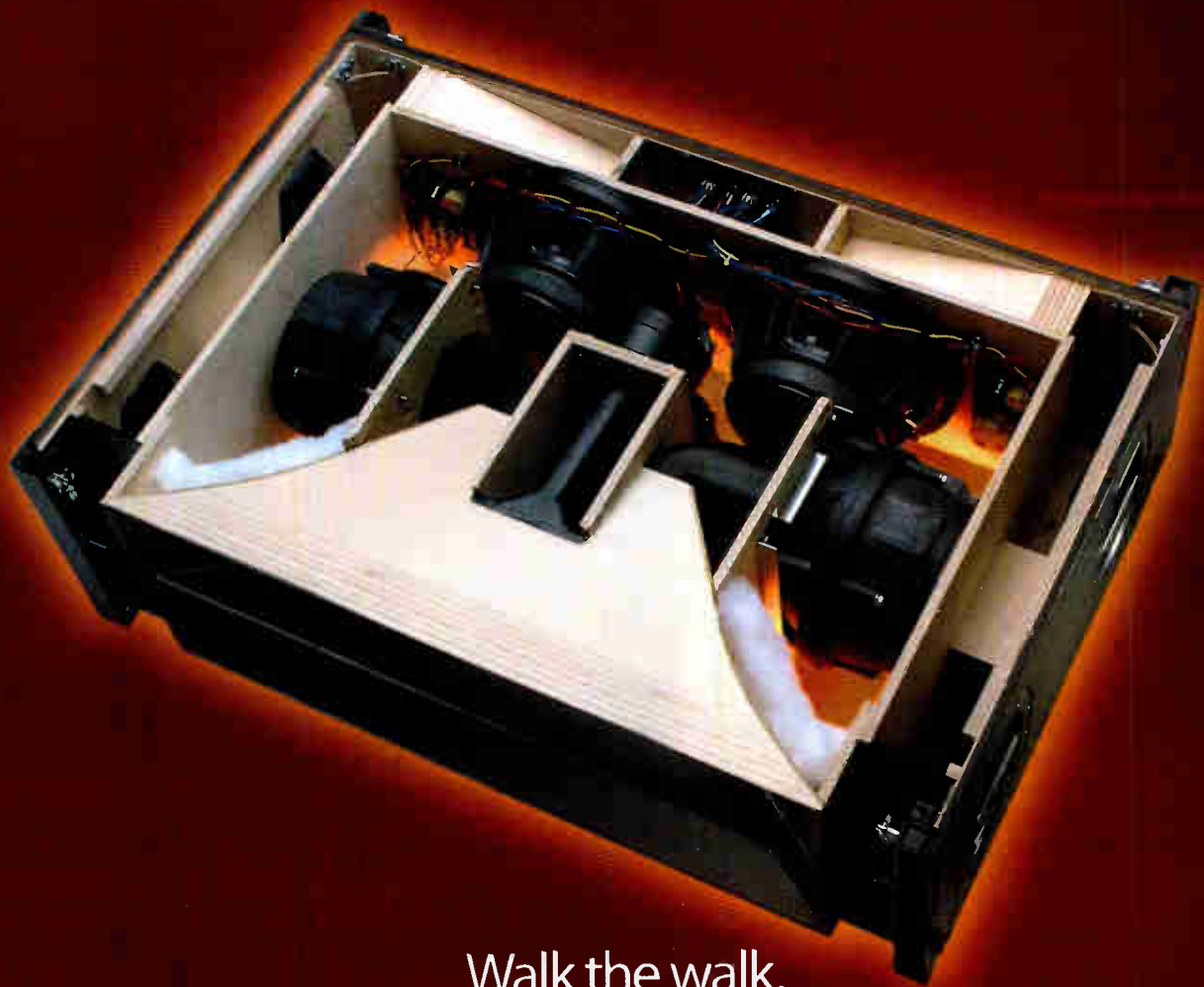


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[We'd love to make some wisecrack about not trusting anyone over 25, but we'll be in the same boat next year. Congrats, ya geezers! 😊]

EAW

25 Years of Digital

MDM, CD, DASH, AIT, FireWire...

Pro Meets Consumer

BY PAUL VERNA

In the 100 years between Thomas Edison's invention of the phonograph in 1877 and the launch of *Mix*, recording and playback systems took gradual, incremental steps—some subtle, some bold. Then, in the late '70s and early '80s, digital technology blew open the door, and we're still reeling from the backdraft. There has been more technological and entrepreneurial activity in the past 25 years than in the entire preceding century, and the next generation promises even more inventions, revisions, upgrades and detours than we've seen so far.

Any attempt to fix a date on the beginning of the digital era—or identify an individual or company responsible for ushering it in—is guaranteed to start an argument. There is no “father of digital audio” any more than there is any single entity that can claim credit for inventing it.

However, there were milestones in its development, some of which happened to coincide with the arrival of *Mix* in the fall of 1977. As we celebrate our 25th anniversary, we'll reflect on the products, formats and trends that defined this fertile period in the history of recorded sound. We'll also indulge ourselves a peek into the old crystal ball to see what the future may hold.

Leaving aside for a minute the recording industry, let's take a snapshot of the technological landscape as it was in 1977. It's easy for us now, freshly arrived in this era of connectivity, to recall that e-mail, the Internet and the personal organizer are relatively recent phenomena that were not even conceived of in the late '70s—except maybe by crackpots whose views weren't taken seriously.

But think about the *other* technologies we now take for granted that either didn't exist or weren't yet mainstream in



1977: cable TV, the remote control, the stereo Hi-Fi VCR, call-waiting, the answering machine, the fax machine, the personal stereo, the video game, the word processor, the personal computer, the CD player, the DVD player, GPS, home theater, MP3 and the cell phone—to name just a few.

In 1977, watching a television show meant sitting in front of your set at the appointed hour, adjusting a rabbit-ear antenna until the signal looked okay (it seldom looked “good”) and setting the volume at a comfortable level so you wouldn't have to get up from your easy chair once the program started. The notion of taping a show to view later, or watching an R-rated movie at home—uncut by network censors or commercials—simply did not exist.

Similarly, listening to a record required a long attention span and a commitment to the task. You carefully plucked the LP from its sleeve to avoid getting fingerprints on it, wiped it with a cleaning solution if you cared about its health and that of your turntable, and gently placed the disc on the platter. Then you oh-so-delicately dropped the needle on the vinyl surface, cranked up a big rotary volume knob, sat down in a plush chair, and contemplated the cosmos as the music came blasting out of the speakers. You probably weren't doing anything else while listening, other than gazing at the album cover and reading the liner notes.

Today, we seldom devote ourselves to any one task for more than a few minutes. Music gets listened to in the car, in a per-



sonal stereo at the gym, at our desks at work, or at home while cooking dinner, folding the laundry or browsing the Internet. Under such harried conditions, we almost never allow ourselves the luxury of actually *listening* to what we're hearing. We live in a world in which our information and entertainment choices are so vast as to be overwhelming, and we owe this fragmentation, in part, to the power and versatility of digital media.

If consumer electronics have undergone a radical transformation in the past quarter century, so has the task of recording, editing and mixing music. If you were a session musician going into a studio to cut a track in the late '70s, you almost certainly recorded onto an 8, 16 or 24-track analog reel through a console that had, at the most, 32 channels. There wouldn't have been much outboard gear to speak of, other than the heavy-duty vintage pieces you still find at high-end studios throughout the world.

The process could not have been more straightforward. You played, you recorded, you listened back and you mixed—sometimes all in the same day. There was no timecode, no sampling rate, no tapes or drives brought in from home, no automation, no computer, no digital pops and clicks, no plug-ins, and there was little ability to time-shift or

tune poorly played parts. What you saw was what you got, and what the listener heard on the other end was a reasonable re-creation of what went down in the studio, even if it was souped up by a creative engineer.

There were limitations on everything: the number of tracks on the tape machine, the amount of processing gear in the control room, the number of channels and auxiliary sends on the console, the ability to move from home to studio (or from studio to studio), the amount of time allotted to editing and mixing, etc.

Today, by contrast, we approach recording projects with a seemingly infinite palette of possibilities. We can leave a song in mid-stream and know that the next time we put it up on the drive or the digital console, it will come up exactly as we left it. We can clone tracks *ad infinitum* without worrying about generational loss. We can collaborate with musicians across the world via the Internet. We can avail ourselves to a powerful arsenal of editing, processing and mixing technology in the space of a computer hard drive.

Then, once we've finished the "album," we can mix it down to DAT, MDM (bit-split or not), CD-ROM, audio CD, Exabyte, AIT, DLT, data DAT, Masterlink, SCSI drives, FireWire drives or various analog formats (half-inch being the most common, but quarter-inch and 1-inch are also viable). Heck, if we want to we can use *all* of those formats and more. (I'm sure I'm forgetting at least a couple.)

We can upload the master to an FTP site or convert it to a data-compressed format to deliver remotely for approval.

Or, if we choose to overnight a "hard" copy to a collaborator far away, we can rest assured that if FedEx loses the package, the "original" master will not be lost, provided we went through the trouble of making a digital clone and/or data backup.

We've come a long way, baby, and we're still going! But, you ask, how did we get here?

THE BIRTH OF DIGITAL AUDIO

You might be surprised to learn that the origins of digital audio can be traced as far back as 1937, when Alec H. Reeves, a scientist at the International Telephone and Telegraph Co. in France, invented pulse-code modulation. He was granted a French patent in 1938, a British patent in 1939, and U.S. patent No. 2,272,070 in 1942, according to Steve Schoenherr, a history professor at the University of San Diego.

Although Reeves set the foundation for PCM audio in the early 20th century, it wasn't until 1962 that Thomas Stockham, an electrical engineering professor at M.I.T., began experimenting with digital audio tape recordings. Later, in 1975, he would co-found Soundstream, a company that created one of the first commercially available digital recorders.

At the same time, 3M engineer Tom Jung was also experimenting with PCM-based digital audio recording. He later left 3M to form DMP Records, which would become the first label to devote itself exclusively to the CD format.

Notwithstanding these important but relatively isolated experiments, the digital era began in earnest in the 1970s with various concurrent developments, including the digital delay, the microprocessor, the Synclavier synthesizer, the Apple computer, and videotape-based digital audio recorders.

We all know that the digital delay—introduced in 1971 by Gotham Audio and Lexicon—evolved into a universe of products synonymous with modern-day studio mixing. We also know that the Apple I launched a revolution in home computing that lives on in the form of the Macintosh. And, we are generally aware that New England Digital's Synclavier set the stage for the digital synthesizers, samplers and tapeless studios of the '80s and beyond.

But what happened to the early digital recorders, such as the multitracks from Soundstream, 3M and Mitsubishi, as well as Sony's PCM-F1 processor, which allowed users to record 14- or 16-bit digital signals to Beta or VHS decks?



Rick Plushner unveils the CD to the pro community at AES 1981 in New York.

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World Radio History



For reasons that had as much to do with luck, marketing and timing as with technology, these pioneering units all ended up in history's dust bin.

Much more fortunate were Sony's 24-track DASH machine and PCM-1610 U-Matic mastering deck (along with its successor, the 1630). Whatever their limitations, those products took hold because they were perfect for their time.

The DASH format, only recently eclipsed by lower-priced modular digital multitracks and hard-disk recorders, was for a long time the only game in town when it came to studio recording. (True, 3M and Mitsubishi fared well with their 32-track digital recorders, but they did not achieve either the market penetration or longevity of the 24- and 48-track DASH.)

By the same token, the 1610 arrived at a time when the mastering and manufacturing sectors of the industry needed a solid, universal carrier for digital au-

dio masters. The U-Matic kept its stranglehold on that market until more consumer-friendly formats like the CD-R came along.

COMPACT DISC: CONSUMERS TAKE THE WHEEL

Of course, no amount of professional digital production would have meant much without a digital consumer sound carrier like the compact disc. It's impossible to overstate the impact of the CD. Of all the technologies that have appeared since the beginning of (audio) recorded history—analogue or digital, consumer or professional—the little plastic disc is arguably the most successful.

While we in the audio world have preoccupied ourselves with comparing the 16-bit CD to high-end analog formats—and finding that the Red Book standard that underlies the CD is, at best, limited—the consumer's perspective has been entirely different.

Take off your "industry" hat for a moment and remember what it was like to be a consumer in the LP era. You had to constantly worry about the quality and integrity of your turntable cartridge, lest a worn needle damage the grooves of your cherished records. And, if you bor-



The 3-inch CD single format was popular in Asia, but never gained a foothold in the U.S.

rowed a friend's album to listen to it or tape it—or bought a used LP—how could you ensure that it wouldn't damage your \$75 needle? What about skips and scratches? Disparities in quality between the first and last tracks on a side? Differences between different pressings of an album? The wear and tear on the grooves after only a few spins?

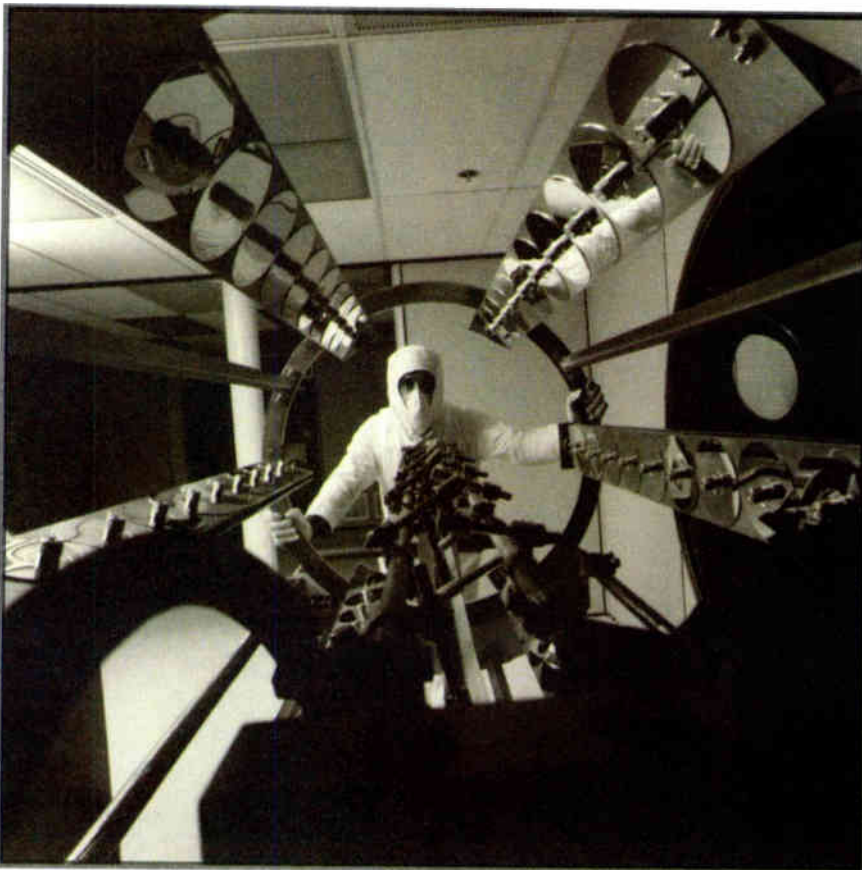
Even sonically, the LP left a lot to be desired. Unless you could afford an audiophile system and were disciplined enough to play only pristine albums on it, you probably experienced lackluster sound compared to what the creators of the music were hearing in the recording studio. Any mastering veteran will tell you that vinyl records were limited in their ability to deliver to the home what they were hearing coming off the 1/4- or 1/2-inch master.

Given those limitations, it's no wonder the public took to the CD like fish to water. After all, the new digital format was everything that the LP wasn't: practical, compact, durable, sexy and new.

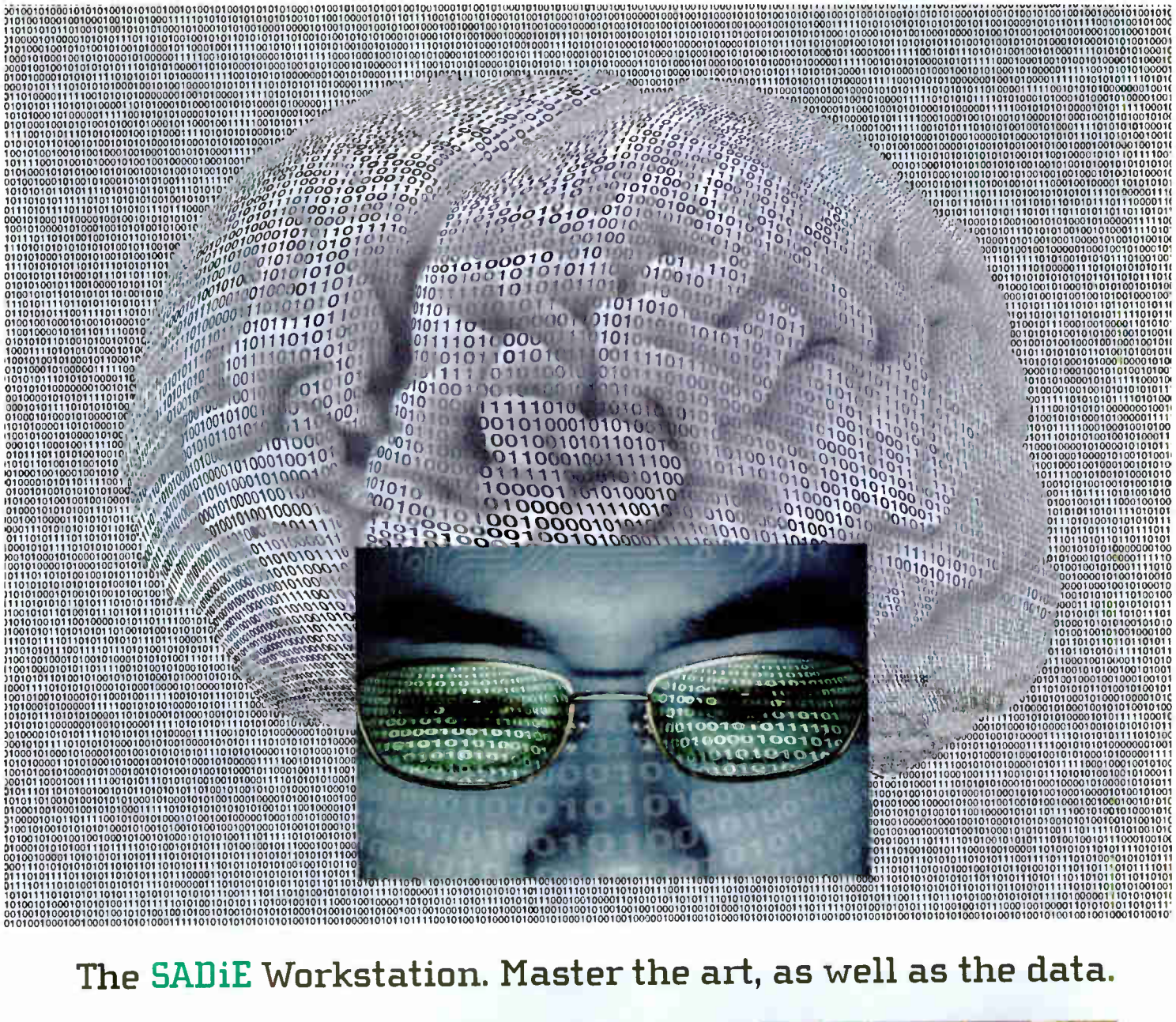
If the CD's runaway success was impressive, its endurance has been downright staggering. No other product in the digital era has lasted, virtually intact, for 20 years and is still going strong. Barring an unexpected turn of events, the audio CD will remain the dominant sound carrier for a good decade or more, and its cousins—the CD-R, the CD-ROM, the photo CD, etc.—are equally poised to remain in the forefront well into the foreseeable future.

CONNECTIVITY, AUTOMATION: MORE TRACKS!

As the CD was wowing the public at large in the early '80s, digital processors, samplers, synthesizers and drum machines were transforming the recording studio. But for all their creative poten-



Early CD manufacturing required multiple complex procedures in "clean room" environments.



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The SADiE Artemis® Audio Workstation at Gateway Mastering & DVD, Portland, Maine. Audio mastering pro, Bob Ludwig (right) with mastering engineer, Adam Ayan. Gateway masters the art of high-resolution audio and surround sound projects using SADiE.

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tial, these new devices would prove unwieldy unless they could be made to talk to one another.

Enter MIDI. A protocol that allowed all compatible digital instruments and modules to communicate with each other, MIDI was *the* solution for musicians, programmers and engineers who were struggling to make sense of their new digital arsenals. So powerful was the impact of MIDI on the recording industry that it colored the sound of music itself, giving rise to the synth pop sound of the early '80s and other subsequent forms of electronic music.

The advent of MIDI—with its layers of real and “virtual” tracks—combined with the arrival of 48-track recording (via the second-generation, 48-track DASH and the ability to synchronize two or more analog 24-tracks) to usher in the age of the big consoles. No longer would 32 channels suffice to handle a music mix; studios had to think in terms of 56 channels or more if they had any hopes of capturing mixing work.

Whereas Neve had dominated the console market for the better part of the 1970s, Solid State Logic emerged as the leader in the early '80s with its top-of-the-

line 4000 E Series mixer. Its features and options included Total Recall, automation, built-in dynamics and processing, and extensive routing capabilities. In short, the SSL 4000 E was perfectly suited to the increasingly complex needs of recording and mixing engineers at the time.

By the late '80s, a high-end commercial studio was expected to have a bank of MIDI-enabled synthesizers and drum machines; at least one and, ideally, several analog 24-tracks, along with a Time-line synchronizer; a Sony or Studer DASH 48-track; an automated SSL console (or a Neve, if the room was geared for tracking); a half-inch analog mastering deck; and a DAT machine, which by then had become the *de facto* digital mixdown medium after it failed to emerge as a recordable consumer sound carrier.

ENTER THE PROJECT STUDIO

While professional engineers and studio owners were busy sorting out a tangled web of new technologies, home recording enthusiasts were bubbling with excitement over the cassette multitrack recorders that had been introduced starting in the early '80s by companies including Tascam and Yamaha, and by low-cost drum machines by the likes of Roland and Yamaha. Few knew it at the time, but the recording establishment and this burgeoning home-based market were on a collision course that would level the playing field for the entire industry in the next decade. However, before the home studio could pose a real threat to



This early CD brochure touted the format as “the ultimate in audio reproduction.”

commercial facilities, the audiocassette would have to give way to a new, improved and preferably digital format.

The Alesis ADAT—a VHS-based, modular, digital 8-track recorder—turned out to be the dark horse on which the home recording army would ride to do battle with their big-studio rivals. Introduced in early 1991 at a NAMM show, the ADAT was an instant success.

Just as the CD had remedied the perceived shortcomings of the vinyl LP, the ADAT seemed to be the answer to every home recordist’s prayers. Its audio fidelity was considerably better than that of the cassette, it offered the ability to bounce tracks without losing quality, and its track capacity was virtually unlimited with the use of two or more machines in a modular setup. Furthermore, it was affordable—albeit more expensive than a cassette Portastudio.

Later, Tascam—the creator of the Portastudio—weighed in with the DA-88, a Hi-8-based machine that worked on the same principle as the ADAT but was a bit pricier and more professionally oriented. Together, these two devices—MDMs, as they came to be called (thanks to *Mix* editor George Petersen)—opened a floodgate for amateurs and professionals alike. Suddenly, a recording hobbyist with enough skill and creativity could make a master-quality record at home.

To further sweeten the pot for home-based engineers with modest budgets, in 1995 Yamaha introduced the 02R digital mixer, an automated console with built-in effects, dynamics and option cards



Products such as Mobile Fidelity’s Ultra Disk used gold metalizing as a means to achieve improved performance.

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A fully programmable audio processing system that's so easy to use you don't need a PC to set it up — just use the multi-layered front panel display. The flash upgradable Digitool MX provides all the mixing, routing and I/O capability you need. There's plenty of surplus DSP capacity to operate all the functions, giving you a complete 8X8 sound system. But that's only the beginning. Digitool is going to change the way you design installations. So what are you waiting for? The competitive edge you need is here.



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Editorial Director
Mix Magazine

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that offered digital links to ADATs, DA-88s and other popular devices. Other companies followed with similar products, and suddenly a market was born for affordable digital mixers that interfaced with the huge installed base of MDMs.

While the MDM/digital mixer combination posed a clear threat to commercial studios, forward-thinking facility owners saw that the same technologies that were enabling the home studio could also save them money. In other words, inexpensive MDMs—or some future variant thereof—could replace a far costlier DASH multitrack. Even if a studio owner felt he or she needed to stock a DASH machine for compatibility with the rest of the world, one recorder—not three—might suffice in a three-room facility.

Still, there was tension between these two ends of the recording spectrum, and it was far from the only source of friction in the recording industry in the 1990s.

A ROCKY ROAD TO DVD

In a format battle that recalled the Beta-vs.-VHS wars of the late '70s, Sony and Philips went head to head in 1991 with rival digital consumer sound carriers that were intended to address the need for a recordable product. Sony's MiniDisc (MD) and Philips' Digital Compact Cassette (DCC) were introduced almost simultaneously and with much fanfare, but neither managed to hit its target.

The DCC—a tape-based medium that employed the same form factor as an analog cassette, allowing backward compatibility with that format—died a swift death and has hardly been heard from since. The MD, on the other hand, may have failed to make it as a consumer carrier, but it emerged as a viable product in the broadcast, data backup and home-recording markets (the latter in the form of 4-track units modeled after the successful cassette multitracks of the '80s).

Interestingly, because of the data compression necessary to encode digital audio on a physically small carrier, MD and DCC were the first products ever introduced whose sound quality was admittedly *inferior* to that of its predecessors

(i.e., the CD and DAT).

This dubious distinction set the tone for other consumer and professional digital audio products of the 1990s, some of which were marketed on the strength of their practicality and flexibility, not their sound quality. This was true of ADAT and DA-88 (no one claimed that those machines were sonically comparable to, say, a Sony 3348 DASH recorder), MP3 (its creators boasted "near-CD quality"), and DTS and Dolby AC3, lossy compression systems used to encode surround-audio streams in CDs and DVDs.

If the '80s were dominated by such formats as MIDI, DASH, automated mixing and the CD, the '90s brought about an even wider array of possibilities for consumers and pros alike.

Still basking in the glow of the CD boom—which created both excitement for new releases and a massive market for reissues—the record industry tried, unsuccessfully, to repeat the feat in the '90s. Undaunted by the MD/DCC fiasco, in 1995 record labels introduced the enhanced-CD, a format that was saddled with technical hurdles, unwanted by the public, and was eventually made obsolete by the DVD.

Next, the record business set its sights on DVD-Audio. Here again, however, a series of tactical missteps and miscalculations have conspired against the format's success, and to date, it has not tak-

en off. The jury is still out on DVD-Audio, but it's safe to say that, if it succeeds at all, it will take several years.

The first problem with DVD-Audio was that the record industry insisted on incorporating a counter-piracy system into the format, as it did with DAT in the late '80s. While that effort may have been well-intended, it stalled the publication of the technical spec by a few critical years, during which DVD's video counterpart got off to a running start.

Initially, DVD-Audio and DVD-Video were intended to be released simultaneously, with DVD hardware supporting both formats. However, when DVD Audio bogged down in political negotiations over piracy and other issues, DVD-Video did not wait. After a fitful start during which two opposing camps—led by Sony/Philips and Time Warner/Toshiba—vied for the standard, an agreement was hammered out to create a single DVD-Video format.

It was the best thing that could have happened to DVD-Video, judging by a market introduction in the mid-to-late-'90s that justifiably earned comparisons to the CD. And no wonder, since DVD-Video was for the VHS user what CD was for the record buyer: a panacea.

But back at the audio ranch, things weren't going so well. While millions of DVD players were being sold to home video users, not a single one had a DVD-



Gordon Goodwin's Big Phat Band's *Swingin' for the Fences* was the first commercial DVD-Audio release.

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Audio chip in it, because the DVD-Audio spec had yet to be written. This was a lost opportunity from which the music industry has yet to recover.

When the DVD-Audio spec was finally published in 1999, it delivered on its promise of higher-resolution digital audio in both the stereo and multichannel domains (the latter thanks to a loss-free compression system developed by Meridian Audio). However, consumers did not appear to be interested in replacing their beloved CDs. The viewpoints of many audio professionals notwithstanding, the average consumer did not—and does not—feel the sound of CDs is in any way limited.

Furthermore, some marketers of music-oriented DVD-Videos touted their titles' superior audio capabilities *vis-a-vis* CD, further perplexing a consumer base already bombarded with an overabundance of formats. To this day, some seven years after the notion of DVD was introduced to the public, most people still have no idea what DVD-Audio is or why they should be interested in it.

To make matters even more confusing, Sony and Philips launched Super Audio CD, yet another high-resolution, disc-based audio format, but one that employs the Direct Stream Digital encoding process, which is inherently different from the linear-PCM system that underlies the vast majority of digital audio devices.

As with DVD-Audio, Super Audio CD has met with only limited success, mostly from audiophiles who are equipped to appreciate its superior sound. For the mainstream music consumer, however, both formats remain irrelevant.

TODAY'S STUDIO-IN-A-BOX

While the label side of the business grappled with the DVD/SACD conundrum, the production community became consumed in another trend that rewrote many of the rules of the industry: the digital audio workstation.

Initially embraced by mastering engineers as a 2- or 4-track, 16-bit editing platform, the DAW evolved into a bonafide tracking/mixing tool with the advent of 24-bit recording, powerful computers like the Mac G3, and a third-party plug-in ar-

chitecture that provided a wealth of processing options without any additional hardware.

Although many companies marketed compelling DAWs, Digidesign's Pro Tools platform became—and remains—the leader starting with the introduction of Pro Tools 24 in the late '90s.

Initially resisted by large pockets of the music recording universe, DAWs became increasingly visible at the turn of the millennium, and by now they're nearly ubiquitous.

Because of their inherent versatility as recorders, editors and processors, DAWs have carved huge holes into the demand for linear digital audio recorders like MDMs and DASH machines, digital consoles of the 02R generation and hardware processors. Up until a few years ago, a credible studio needed a minimum of two or three MDMs, a good console, and a stack of outboard gear. Today, a \$2,500 G4 equipped with a \$1,000, entry-level Pro Tools Digi 001 could form the core of a serious home studio that could give a commercial facility a run for its money, at least in the overdubbing and editing aspects of production.

Besides reducing costs—and thereby further threatening the commercial studio business—the consolidation of the home studio in a computer opens up the possibility of the Internet studio, a hot trend that is likely to define the next era of recording.

With the studio computer linked to the Internet via a high-speed connection, one can now collaborate with other music makers throughout the world by simply posting tracks on a server, or conceivably e-mailing them back and forth. This method of transmitting audio through cyberspace works equally well for shared multitrack projects as it does for quick approval of mixes or other works in progress. It's a big world out there, but it's being made smaller by the connectivity that these tools afford us.

THE NEXT WAVE

So, where does all this power, all this flexibility, and all this inter-connectedness leave us as members of the music production community?

For all we've accomplished in the past quarter century, we have probably only scratched the surface of what we can accomplish from a technical, creative and entrepreneurial perspective.

The home theater promises to open



Slow to start, the SACD format has picked up steam, with hundreds of releases currently available.

new vistas for musicians, audio engineers, and business people as we try to figure out how to maximize the format's potential. So far, we have dabbled in surround audio production, but the vast majority of our collective experience remains in the stereo realm.

We have raised the bar of audio resolution to a nominal threshold of 24 bits and 192kHz sampling, easing the concerns of those who felt that early digital sound was "cold." It's getting warmer, but it's still not as hot as a live performance. How can we make our recordings sound more "real"? Do we increase the word length? Do we embrace a whole new paradigm of digital recording, as Direct Stream Digital is trying to do? Or is there another, still uninvited way of delivering music to the listener?

We are beginning to use the Internet to further our creative goals, but even with T1s, DSL and cable modems, our ability to upload and download uncompressed audio data is severely limited by those systems' available bandwidth. If we are to truly rely on the Internet as a production tool, we need wholesale increments in bandwidth and affordable access to it.

Ultimately, even if we harness all these tools to their full potential, our success as creative individuals will be measured not by our technical achievements, but by how deeply we touch people with our work. As music industry veteran Al Teller wrote in 1991: "While we may be dazzled by all this technical wizardry, we should not be blinded to a simple truth: that it still takes the talents of a gifted artist to make these instruments truly sing." ■

Paul Verna is Mix magazine's New York editor.



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BRING ON THE REVOLUTION!

A Quarter-Century of Technological Change

By George Petersen



THEN AND NOW...

Right: Studio D of The Village Recorder, circa 1980. The room was originally built for (and with design input from) Fleetwood Mac, who worked in the room for a year recording their 1979 *Tusk* album. Above: Studio D as it now appears. The room was completely redesigned in 1997 by Vincent Van Haaff—including a new custom Village/Waterland/DAI 5.1 monitoring system. The room's 144 moving-fader, AMS Neve 88R analog console was added last fall.



If a time capsule took you to a recording studio on Jan 1, 1977, you'd be in an alien, yet strangely familiar world. You might see acoustic drums with a Beyer M88 on kick, Sennheiser 421s on rack toms, an E-V RE-20 on floor tom, a Shure SM57 on snare, Neumann U87s on overheads and an AKG C-414 on hi-hat. So far, nothing's too weird, but the drums are in a low-ceiling booth attached to the main room, which was finished in dark wood paneling accented by natural rock facings and overhead perforated acoustic tiles.

That small 1977 control room probably had Altec 604 or JBL 4311 monitors—but no near-fields, computers or MIDI gear. The outboard selection might include familiar goodies, such as Pultec EQs or UREI LA-2As, but nothing like the scads of effects toys you find in today's high-end rooms. The console itself would most likely be a custom design, probably built by the owner and/or chief engineer, a rarity today. Recorder-wise, this 1977 studio likely has a 2-inch analog 16- or 24-track MCI and an Ampex AG-440 2-track. Industry workhorses such as the Ampex ATR-102, Studer A800 and Otari MTR-90 and MX5050 simply don't exist at this time.

In today's "typical" (whatever that means) studio, the mic selection is mostly the same, except for high-end ribbons, tube reissues and a preponderance of low-cost knock-offs designed to look like classic models. Those same drums are still there, but for recording, the kit takes center stage in the middle of the main studio. Nowadays, the old "drum booth" is strictly used for overdubs or to iso a guitar amp. But the big difference is in the spacious control room, with its large stereo mains, near-fields and supplemental 5.1 system on speaker stands.

Unlike the control booths of old, modern environments are designed with ample space to work and overdub guitar, bass, keys (virtual or real, synthed or sampled) and sometimes vocals! Today's console might not even be a console at all; perhaps it is morphed into a workstation controller, providing tactile access to all of those faders and plug-in effects, or as a worksurface controlling racks of audio mixer electronics in a distant machine room. Ironically, today's studios probably have a greater percentage of tube devices than their counterparts a quarter-century ago. That old 2-inch deck might still be around, but relegated

for use as an "effect" in printing rhythm tracks to tape for a phat sound before transferring to disk for editing/processing.

Yet, that pre-PC/pre-MTV/pre-CD/pre-DVD/pre-MP3 year of 1977 when *Mix* magazine began was enormously significant, and the ensuing months offered just a glimmer of the changes to come in the quarter-century ahead. As a few examples, 1977 ushered in the SSL console, near-field speakers the Apple II (the first PC with color graphics), small-format pro multitracks (Tascam's 90-16 1-inch 16-track) and the release of commercial digital recordings made using Dr. Tom Stockham's Soundstream digital system. Always the visionary, Stockham's paper in the October 1977 *Journal of the AES* predicted future records on pocket-sized 490MB digital discs, holding 60 minutes of music sampled at 42.5 kHz. Five years later, the CD arrives, storing 60 minutes at 44.1 kHz on a 540MB. The era of digital recording was on its way...

Rather than dwell on the impact of mass-market developments on our industry, such as PCs, Macs, the Internet, MTV, CDs, DVD and the like, we'll focus on products for studio production. (For more on the changing face of consumer

release formats, see Paul Verna's article on page 12.) Here—listed mostly chronologically—are some key technology breakthroughs that would shape an entire industry during the past 25 years.

ENTER THE MODERN CONSOLE

The world was populated by consoles from companies such as API, Audio Designs, Auditronics, Electrodyne, Harrison, Langevin, MCI, Neve, Opamp (in kit or finished form), Quad-Eight, RCA, SpectraSonic, Sphere and Tascam. Yet, at the 1977 Paris AES, Solid State Logic debuted to pro audio with its first 4000 A Series console—complete with Studio Computer. A UK studio owner remarked: "No one will ever by a console with a television in it." The A Series had all of the foundations of the 4000 range: in-line channel, small fader, track arming, dynamics on every channel, computerized automation and tape machine control.

NEAR-FIELDS, FOREVER

Also in 1977, Ed Long's Calibration Standard Instruments unveils the MDM-4 Near-Field Monitor. In 1977, no one predicted the impact this then-revolutionary concept of near-field speakers would have on studios 25 years later. In 1978, Yamaha introduced its now-famed NS-10M—an entry-level home hi-fi speaker, which, unintended for near-field use, eventually became a regular studio fixture everywhere. A decade later, Meyer Sound Labs launched the HD-1, the first serious powered studio monitors, and with the HD-1's popularity, companies like Genelec—which was successful overseas—brought its high-performance compact designs to the U.S. pro market.

ROTARY DIGITAL

Sony's 1978 PCM-1600 recording processor stored 2-channel digital audio on rotary head, 3/4-inch video tape. The system (which eventually became the PCM-1610/PCM-1630 format used in CD production) allowed digital editing by using modified video-editing controllers. Four years later, Sony's PCM-F1 (and later PCM-701/501/601 units) and Nakamichi's DMP-100 processors offered a consumer method to tape CDs digitally, with selectable 14- or 16-bit operation. Connecting a PCM processor to a VCR (Beta, VHS or U-matic) proved unpopular with consumers, but at \$1,900, Sony's PCM-F1 was a hit with studios. A few stalwart individuals—myself included—made multitrack recordings using two PCM-F1s with multiple synchronized transports. But one thing was certain:

The democratization of digital had arrived.

BIG MONEY MULTITRACK DIGITAL

First shown in 1978, 3M's \$115,000 32-track digital multitrack recorded 16-bit, 50kHz audio on 45 ips 1-inch tape and is used on releases such as the self-titled *Film & The BBs* and Donald Fagen's *The Nightfly*. At the 1980 New York AES, Mitsubishi previewed its X-800, which stored 32 tracks of digital audio on 30 ips 1-inch tape. The format eventually became the PD (ProDigi) standard also used by Otari. In 1981, Sony countered with its \$150,000 PCM-3324 digital 24-track, and a year later, Sony, Matsushita, MCI and Studer announced the DASH (Digital Audio Stationary Head) standard, which called for 2/4/8/16/24/48-track formats. By 1988, Sony made good on its promise to deliver a 48-track machine with the PCM-3348. It was \$240,000, but sales took off like a rocket.

SAMPLING WORKSTATIONS

The 1978 launch of New England Digital's Synclavier—the first commercially available, real-time digital synthesis instrument—was a monumental achievement. Over the years, the Synclavier developed from a musical instrument to an all-encompassing digital production environment, by combining keyboard sampling and synthesis with its Tapeless Studio and Direct-to-Disk recording technologies. Australia's Fairlight began shipping its Series I CMI (Computer Mu-

sical Instrument) in 1979. Based on two (!) Motorola 6800 processors, the CMI provided sampling and digital synthesis with a six-octave keyboard, eight-note polyphony, two 8-inch floppy disk drives and a whopping 208K of RAM.

DIGITAL EFFECTS

In 1979, Lexicon shipped its 224 reverb (the ancestor of the company's 224X/224XL/480L/960L systems), consisting of a console-top controller and rackmount brain with chamber, plate and room programs. The 224 was hailed as "affordable," meaning \$7,900 with four programs, especially compared to the 1980's \$20,000 floor-standing EMT 251 reverb. Reverb prices continued to fall with the 1984 \$1,500 Lexicon PCM-60, and in 1985, the first under \$1,000 units: the \$795 Alesis XT and the \$995 ART DR2. A year later, Yamaha hit a home run with the SPX90, which at \$745, became a standard fixture in touring and studio racks for years to come.

THE PORTASTUDIO

September 1979 brought TEAC's Model 144 Portastudio, an integrated 4-track cassette recorder with 3.75 ips operation, and a 4x2 mixer with pan, treble and bass on each input. Tascam's Portastudios improved considerably over the following years, both in performance and features/flexibility, but for musicians who sought a sketchpad to record musical ideas and demos, the 144 was an overnight sensation.

THE DRUM MACHINE

Roger Linn introduced his Linn Electronics LM-1 Drum Computer—the first programmable drum machine with sampled sounds—in 1980. With its realistic drums, the LM-1 was an instant success, even at \$4,995. The term "drum machine" became part of the language, and jobs sprang up for drum machine "programmers." Pop music would never be the same...

MIDI

After years of backroom meetings between U.S. and Japanese manufacturers, MIDI, the Musical Instrument Digital Interface, was first demonstrated to the public at Winter NAMM 1983, where Sequential Circuits founder Dave Smith used a Prophet-600 to control a Roland synth. At the time, no one imagined the importance of this event, but later that year, some influential MIDI instruments emerged: Yamaha's DX7 brought FM synthesis to the masses; eventually, Yamaha sold more than 200,000 DX-Series prod-



One of the early advocates of the MIDI revolution was New York City's Unique Recording, which in 1984 earned the nickname "MIDI City" for its vast collection of synths, samplers and drum machines.



In the early evening of Sept. 17, 1973, Jay Barth was at the wheel of a 22 ft. utility truck that was loaded with sound equipment. Just south of Benton Harbor, MI an oncoming car crossed the center-line; fortunately Jay steered clear of the impending head-on collision. Unfortunately, a soft shoulder caused the truck to roll two and one half times. Exit several Crown DC-300A's through the metal roof of the truck's cargo area.

The airborne 300A's finally came to rest — scattered about in a muddy field, where they remained partially submerged for four and a half hours.

Jay miraculously escaped injury; the amplifiers apparently had not.

Unbelievably, after a short time under a blow-dryer all the amps worked perfectly and are still going strong.

The rest — and the truck, is history.



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ucts. At AES 1983, visitors marveled at the Kurzweil 250, the first ROM-based sampling keyboard that successfully reproduced natural-sounding pianos, lush strings and choirs, and more. It was \$15,000, and everybody wanted one.

THE TUBE RENAISSANCE

During the '70s, tubes definitely fell out of general use—except for guitar and power amps. Yet, ironically, it was the edginess of early digital systems that brought tubes back to the studio forefront, with companies such as Denmark's Lydkraft (Tube-Tech) and California-based Summit Audio leading the way with high-performance, ultra-smooth tube EQs. In 1983, AKG's "The Tube" mic was a modern update of the classic C-12, which began the trend of new and reissue tube mics from many companies. James Demeter expanded the tube gear genre with his 1991 Tube Direct Box, and by AES 1995, more than 25 companies displayed equipment using vacuum-tube technology. Today, the list is even longer...

SAMPLERS GO AFFORDABLE

E-mu Systems' 1984 Emulator II sampler was light years ahead of its predecessor in terms of sound quality and processing power. It retailed at \$8,500, and over the next four years, the EII and other E-mu products became standard fixtures in studios everywhere. Later that year, Ensoniq launched its Mirage, the first mass-market sampler. At \$1,700, and backed by an excellent library of sounds, it was highly successful, although do-it-yourself sample creation on the unit was nearly impossible. Two years later, Akai's S900 sampler's affordable price (\$3,295), quality audio and great library (which grew to mammoth proportions) appealed to the musician/studio market, while the post-production community loved them for effects triggering. It was a hit.

LUCASPRO!

Lucasfilm and Convergence Corp. formed The Droid Works and unveiled its SoundDroid workstation in 1985. It offered picture-interlocked multitrack recording, sound synthesis, editing, mixing, reverb and effects from a slick interface of touch-sensitive screens, as-

signable knobs, moving faders and shuttle wheel—a spellbinding technological achievement. A year later, commercial systems were offered to the public, but it was years before its time and the company folded. Later, former Droid Works execs formed Sonic Solutions, and in 1987, offered its NoNoise services for removing hiss, noise, clicks and pops from recordings. Eventually, the company expanded into stereo DAWs, unveiled the first 24-track editing/mixing workstation and developed the first DVD-authoring system.

PRICEY LOOPS

In 1986, Optical Media International released *The Universe of Sounds*, a \$1,200 single CD (!) of samples for the Emulator II. The Sony CD-ROM drive that went with it was \$2,000. It's expensive, but as with all revolutions, you gotta start somewhere. That same year, Digidesign debuted Sound Designer, a Mac program to edit and manipulate EII samples. Sound Designer also offered FFT analysis, digital EQ/mixing/compression, FM and waveshaping synthesis, and waveform redrawing using a mouse—all components of its 1989 Sound Tools System.

DAT

After years of home digital audio tape format squabbles over stationary (S-DAT) or rotary (R-DAT) head technologies, the latter won in 1987. A year later, no consumer DATs were officially delivered stateside, due to the RIAA's attempts to legislate copy-code circuits in DATs, to prevent duplicating CDs. However, pro DATs—such as Sony's PCM-2500 and Panasonic's SV-3500—were allowed into the country. Three years later, manufacturers had to include SCMS (Serial Copy Management System) on

consumer DAT decks. Pro gear was exempt from SCMS, yet it was appeared on some pro recorders, as manufacturers feared litigation if consumers bought pro machines to avoid SCMS. Ironically, by this time, DAT was considered a failure as a home format, and the net effect of SCMS made it difficult for bands who worked on home digital equipment to create back-up copies of their own works. Thanks, RIAA!

CD-R

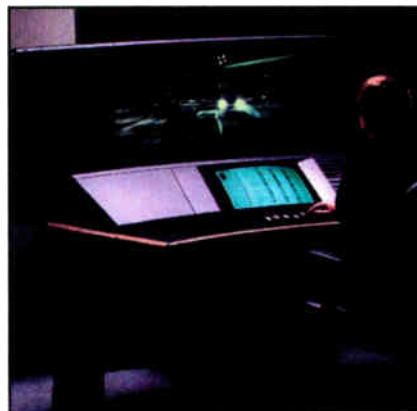
Tandy announced the vaporware THOR erasable CD system in 1988, with the promise of under-\$500 CD recorders and \$25 media. Using 1988 technology it was impossible to do, but the buzz about THOR caused CD player sales to plummet as consumers postponed buying CD systems until the "recordable" ones came out. A year later, a "real" one came out: Gotham's CDR-90 CD recording system. It was \$70,000: Ouch! But by 1989, the first "affordable" CD-R arrived: the stand-alone, rackmount Marantz CDR-600. Price was "only" \$7,500. A decade later, tabletop CD-R units were less than \$1,000, and under \$100 CD-R computer drives were commonplace.

MDMS

Unveiled in 1988, Akai's A-DAM (Akai-Digital Audio Multitrack) stored 12 tracks on 8mm videotape in an 80-pound, rackmount chassis and used the modular digital multitrack (MDM) approach, where multiple tape transports could be slaved for more tracks. It was \$35,000, but a bargain compared to the \$100,000-plus prices on reel-to-reel digital machines. The recording world turned upside down on January 18, 1991, when Alesis launched the \$3,995 ADAT, which offered 8-track digital audio recording on S-VHS tapes and interlocked up to 16 transports for 128 tracks. ADAT was 14 months away from deliveries, but immediately brought analog 8-track sales to a halt. Affected most by the advent of ADAT, Tascam began its own MDM development and showed the DA-88 in 1992. Digital multitracking was no longer the realm of the rich and famous.

THE AFFORDABLE DAW

In 1989, Digidesign unveiled Sound Tools, a Mac-based digital recording/editing system that combined custom outboard converters and DSP with its Sound Designer II software. At \$3,995, it was ideal for editing tracks on those DAT machines in studios everywhere. Even today, the SD II file format remains a worldwide standard.



The first "modern" workstation, The Droid Works SoundDroid was perhaps a little too much before its time.

Embrace the Past - Enhance Your Future



The console pictured above was designed and built by Bill Putnam Sr. for his studio in Chicago, Universal Recording. After moving to the west coast and forming Universal Audio, he built a production version, dubbed the 610. In addition to being the first modular recording console ever produced, the 610 was used on dozens of classic albums by artists ranging from Ray Charles and Frank Sinatra to Neil Young and the Rolling Stones. The Universal Audio M-610, 2-610 and 2108 microphone preamps, along with the 1176LN and LA-2A compressor/limiters, deliver this same classic sound to your recordings, and are available today from your local Universal Audio dealer. Go to www.uaudio.com/dealers to find a dealer near you.



UNIVERSAL AUDIO



Two years later, Digi launched Pro Tools, a Mac-based system that integrated multi-track digital audio recording/editing, DSP and onscreen digital mixing. Systems were priced from \$5,995—a fraction of the \$100,000-plus NED Direct-to-Disk systems it competed with.

LOW-COST ANALOG

Also in 1989, Mackie Designs—a new company formed by the founder of Tapco—debuted the CR-1604, a 16-channel design, but in an all-metal chassis with an internal power supply and seven aux sends per channel. The concept of a rugged, clean-sounding, affordable console took the industry by surprise, and the process repeated three years later with Mackie's 8•Bus line, with a 24-channel, 8-bus mixer priced less than \$4,000. With affordable mixers, MDMs and MIDI, the project studio movement was underway, leading to a surge in basement and bedroom studios.

DIGITAL SEQUENCERS

The talk of Winter NAMM 1990 was Opcode's Studio Vision, a digital audio sequencer that combined MIDI sequencing with the digital audio capability of Digidesign's Sound Tools. Audio data showed up as tracks of waveforms and could be cut/pasted/manipulated as easily as MIDI tracks in a conventional sequencing program. The concept caught on, and other digital sequencers, such as MOTU's Digital Performer, Steinberg's

Cubase Audio, Emagic's Logic Audio and Cakewalk Audio, entered the market.

PLUG-INS

By 1994, third-party software "plug-ins" (which brought new functions and features to existing programs) caught on with non-audio applications, such as PhotoShop and QuarkExpress. With the rising number of Digidesign systems in the world, outside software developers expanded the market with audio plug-ins for Sound Designer II and Pro Tools applications, and companies such as Waves, Jupiter Systems and Arboretum Systems were ready for this new industry. Later in the year, Digidesign shipped its TDM system—the open-architecture, 256-channel, 24-bit digital audio bus for Pro Tools—which opened new opportunities for plug-in developers. Eventually, the plug-in market expanded to other platforms such as MOTU MAS, Steinberg VST and general-purpose DirectX systems.

DIGITAL MIXERS BECOME AFFORDABLE

In 1995, Yamaha's under-\$10,000 02R 20-bit, digital 8-bus console, took off, offering 24 analog inputs and 16 digital tape returns (40 total inputs) and four card slots, accommodating various digital formats. Standard were moving faders, instantaneous reset of all parameters, limiter/compressor/gate on every channel, and two internal effects processors. Paired with a couple of MDMs, the all-digital studio was no longer a fantasy. By 2000, as 02R sales ebbed, Sony launched its \$20,000 DMX-R100 "Baby Oxford," a 48-channel, 24-bit, 96kHz-capable digital board, with full automation, color touchscreen parameter and control

of 5.1 surround panning. In late 2001, Yamaha countered with the DM2000, a \$20,000, 96-input console designed for true 24/96 production, with the processing power of nine 02Rs and no channel "loss" in 96kHz mode. Earlier this year, the 02R was replaced by the 02R96, a 56-input, 24-bit/96kHz board with full mix interfacing with popular DAWs.

PERSONAL DIGITAL STUDIOS

Roland's 1996 VS-880 Digital Studio combined a disk-based 8-track recorder/editor with a 14-channel digital mixer and two optional effects processors. The VS-880 was followed by similar offerings from Yamaha, Fostex, Korg, Tascam, Akai and expanded VS-Series models from Roland. The one-piece, no-computer-required approach was enormously popular, particularly with entry-level users. It created the most successful launch of a new product genre since the ADAT in 1991.

AND THE REST...

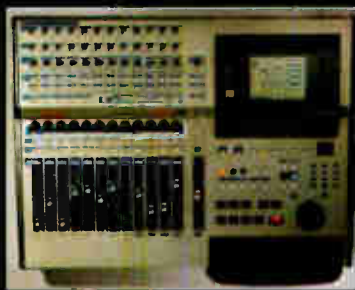
Is it over? No way; in fact, we're not even near the end of the race. However, as always, the audio industry is filled with ironies: While we wait in anticipation for the newest digital toys, the hottest product for big studios is high-performance, *a-n-a-l-o-g* consoles, with new models—such as the SSL XL9000 K Series and Neve 88R—installed in studios that 18 months ago would have only considered digital. Meanwhile, large digital consoles have been readily accepted by the broadcast industries in fixed suites and remote trucks. However, there's no denying that the future of audio is not only digital, but also computer-based. Touchscreens, joysticks and dedicated control surfaces are replacing traditional consoles at a rapid clip, especially with today's versatile plug-ins and virtual instruments. FireWire (IEEE 1394) and USB peripherals interface easily with laptops and desktop computers; and with the staggering increases in the power of today's Macs and PCs, high-resolution, true native processing is a reality, making us less dependent on banks of outboard DSP.

At the same time, large-scale project backups via low-cost DVD-R media (well under \$2 these days), and the excellent cost/performance ratios offered by DV video and 24-bit/96kHz desktop digital audio systems for stereo or surround production make broadcast-quality tools available to nearly anyone. Just add some creativity and start your own media revolution. ■



The console-less studio: The Mix2Pix Suite at Cincinnati's Sonic Arts Digital Audio Services features Digidesign Pro Control controllers with its Pro Tools systems, rather than a traditional console.

PHOTO: JAMES WILSON



DPS24

24-TRACK DIGITAL PERSONAL STUDIO

Building on the success of Akai's MG1212, MG1214, MG14D analog multitracks, and the award-winning DR/DD Series digital recorders, DAWs and digital dubbers, Akai again sets the standard for affordable, pro recording products with the DPS24.

This **24-track, 24bit/96kHz digital audio workstation**, supports 32/44.1/48/96k Hz sampling rates at 16- and 24-bit resolution. As with all Akai hard disk recorders, the DPS24 uses **NO data compression**. The DPS24 includes a **60GB IDE internal drive** and built-in **CD Burner**.

Sample-accurate, multichannel waveform editing, with 256 levels of undo, is made easy thanks to the large multi-angle LCD (320x240) pod. The intuitive, multimode edit suite features all variations of cut, copy, move, insert, and erase, as well as **time-stretch** (allowing phase-coherent processing of stereo recordings), pitch-shift, normalize, reverse, BPM matching and fast transport/edit high-resolution jog mode. And Akai's Q-Link makes searching through complex layers of menus a thing of the past, with direct access to all major Record/Edit/Mix/Effect functions.

Combining a serious multitrack disk recording system and a pro digital mixer eliminates complex multi-product interfacing. The heart of this incredible piece of engineering is a **46-channel, 20-bus digital mixer with eight sub-groups and four stereo returns**, with 24bit/96kHz A/D converters on its **28 balanced analog inputs**. The rear panel provides 24 balanced mic/line inputs (12 TRS and 12 Combo XLR/phone), stereo aux input, a Hi-Z "direct box" input, 2-track tape return, assignable stereo S/PDIF coax and S/PDIF-ADAT™ switchable multipurpose lightpipe (MPLP) ports and balanced inserts on inputs 1-4. Analog outs include balanced master, nearfield and main

monitors, studio talkback out, and four effects sends, with S/PDIF coax and switchable S/PDIF-ADAT™ MPLPs. The DPS24 provides **5.1 surround mixing and monitoring**, using the standard analog and digital outputs—features not currently found in other 24-track systems in this market.

Interface options include **Firewire™** (IEEE 1394), **68-pin SCSI**, **SMPTE**, **ADAT™ In/Out 16 channels** (for a total of 24 with standard MPLP) plus ADAT™ sync.

Dedicated tactile mixer controls rival any digital mixer on the market with **100mm motorized Q-Touch™ (capacitive-touch) faders** controlling five fader banks that ease programming/editing the built-in dynamic and scene mix automation data. Multifunction rotary encoders circled by LED indicators offer fingertip access to automated channel strip, pan or effects sends controls.

Independent compressor/limiter/noise gate processors are provided on all inputs and the L/R master. Each channel has 56-bit 3-band EQ with parametric mid, sweepable low and high shelving EQ, along with EQ bypass, four (pre/post fader switchable) FX sends to internal or external devices, phase invert, stereo link, group assign, L/R assign, and solo/mute. All internal processing is 56-bits wide, including the powerful 4-channel multieffects processor (standard).

Akai's ak.Sys control and networking PC/MAC software adds the ultimate dimension to the DPS24. A standard **USB interface** allows ak.Sys to provide a realtime **SVGA TrackView** display, networking capabilities with other Akai products, and easy software updates. Via the optional 1394 Firewire™ interface board, ak.Sys supports **VST™ plug-ins**, allowing the ak.Sys computer to be used as a **realtime effects engine** for the DPS24.

AKAI

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1928: Foundation of the Company by Georg Neumann



1928: CMV 3 First Commercial Condenser Microphone (The Neumann-Bottle)



1949: U 47 Variable Condenser Microphone
1957: U 48



1949: MM 2 Cal.-Microphone
1954: MM 3
1959: MM 5



1951: M 50 Pressure Microphone and M 49 (remote switchable)
1961: M 250 / M 249 (RF proof)



1953: KM 53 Miniature Microphone
1954: KM 54
1955: KM 56 (switchable)



1957: SM 2 Stereo Microphone
1961: SM 23



1960: U 67 Switchable Condenser Microphone
1962: M 269



1964: SM 69 Stereo Microphone
1970: SM 69 fet (Transistor)



1964: KM 63 ... 65 U 64, SRM 64 Miniature Microphones



1965: KTM First Transistor Condenser Microphone for Modulation Lead Powering



1966: KM 83 ... 85 Miniature Microphones for Phantom Powering



1977: KMS 84 Vocalist Microphone



1974: QM 69 Quad Microphone



1973: KU 80 Dummy Head
1982: KU 81
1992: KU 100



1971: KMS 85 Vocalist Microphone



1969: U 47 fet Condenser Microphone



1969: KM 88 Variable Miniature Microphone



1968: KMA Clip-on Microphone



1968: KM 86 Variable Miniature Microphone



1967: U 87 Variable Studio Microphone
1986: U 87 A



1967: KM 76 Variable Miniature Microphone



1966: KML Clip-on Microphone



1966: KM 73 ... 75 Miniature Microphones for Modulation Lead Powering



1966: KM 66 Variable Miniature Microphone



1978: KMR 82 Shotgun Microphone



1979: USM 69 Variable Stereo Microphone



1980: U 89 Variable Studio Microphone



1982: KMF 4 Miniature Microphone



1983: KMR 81 Shotgun Microphone



1983: TLM 170 Transformerless, variable Studio Microphone
1993: TLM 170 R (remote switchable)



1987: RSM 190-S First Stereo Shotgun Microphone
1988: RSM 191-S
1994: RSM 191 A-S



1988: KM 100 Variable Miniature Microphone System



1990: GFM 132 Boundary Layer Microphone



1990: TLM 50 Pressure Microphone



1991: KMS 140/150 Vocalist Microphone



1992: KFM 100 Spherical Surface Stereo Microphone



2002: KK105S Capsule for Sennheiser 5000 Series Wireless Systems



2001: Solution D—Digital Microphone System



2000: M150 Tube Pressure Microphone



1999: KMS 105 Vocal Performance Microphone



1999: Series 180 Miniature Microphones



1998: M 147 Tube Microphone



1997: TLM 103 Studio Microphone



1995: M 149 Tube Microphone



1994: KM 184 Miniature Microphone



1993: TLM 193 Studio Microphone



Neumann/USA www.neumannusa.com

TIMELINE



When *Mix* was launched in 1977, founding editor David Schwartz didn't know whether to show up at work wearing a skinny tie—to show his solidarity with the burgeoning new wave scene—or giant platform shoes and a gold disco necklace. My recollection is that he might have tried to wear *both*, but the point is, it was a very confusing time in music—rarely had the split between the mainstream and the underground been so acute.

What a quarter century it's been in the music world! Why, when *Mix* got its start, there were more than three major record companies! Not only that, they had real A&R staffs and publicity departments and promotional budgets. Most major cities still had an adventurous radio station or two. Selling 100,000 copies of a record was considered really good. Ticket prices were reasonable—yes, there really *was* a time when regular working stiffs could afford to go see a top band in concert.

Stop me, *please!* Is there anything worse than some old-timer rattling on about the “good old days”? After all, it wasn't all good times, was it? I did shell out my \$3.50 to see the disastrous movie *Sergeant Pepper's Lonely Hearts Club Band*. Stiv Bators of the Dead Boys nearly barfed on me at a show at the Mabuhay Gardens punk club in San Francisco. And I *might've* even gone to see that overblown ELO tour with the giant spaceship—I'm not telling, but if I did go, I'm pretty sure I had comp tickets. God, I *hope* I did.

But I digress. We want to salute the artists, producers, engineers and studios of what we will pretentiously dub The Mix Era! We've highlighted 175 albums—seven from each year from 1977 to 2001—to show some of the range of music that's come out during *Mix's* lifetime. We've adapted the format of our monthly “Cool Spins,” offering a couple of lines about the album and why it's significant, and then some info on who helped make it and where. Now for the *caveats*, and there are a whole bunch: This is not a survey of the “best” albums of the past 25 years. Some were big sellers, many were not. Some are here because they were groundbreaking albums within their genre. Others represent something important in the career of a particular artist. A few are odd but cool choices slightly off the beaten track. The list is overwhelmingly slanted toward rock and R&B, which, for better or worse, have always been *Mix's* primary orientation. There aren't enough jazz or country or world music albums on the list; there's no classical music on here at all. Many—perhaps *most*—of your favorite al-

25 Years of great Recordings.



bums won't be on here. You will find that a few artists have more than one album on here, while hundreds of possibly deserving ones are not mentioned. The same holds true for studios and producers and engineers. This is not because we don't like you. It just worked out that way. Where's Joy Division and Toto and Sonny Rollins and Steel Pulse and Mary J. Blige and Brooks & Dunn and (fill in the blank)? Very good questions all. The thing about lists is they usually don't satisfy anyone except the people who appear on them.

But to accentuate the *positive* for a moment, our purpose was to try to represent a broad variety of styles and hit *some* of the musical and cultural high points of the The Mix Era. And it *is* a very impressive roster of talent—both in the studio and behind the board. One final *caveat*: We've made our best effort to get complete and accurate recording information, but it was not always available.

Enjoy!

Blair Jackson
Senior Editor

1977

FLEETWOOD MAC: RUMOURS (WARNER BROS.)

One of the great American pop albums of the '70s, *Rumours* kicked Fleetwood Mac's career into the stratosphere, yielding a slew of hits, including "Go Your Own Way," "Don't Stop," "Dreams" and "You Make Loving Fun," as well as FM staples such as "The Chain" and "Second Hand News"—all strong tunes. Still a sonic marvel, 25 years later.

Producers: Fleetwood Mac, Ken Caillat, Richard Dashut. Engineers: Ken Caillat, Richard Dashut. Studios: The Record Plant (Sausalito, L.A.), Wally Heider (L.A.), Criteria (Miami), Davlen (No. Hollywood), Producer's Workshop (Hollywood). Mastering: Ken Perry/Capitol.

TALKING HEADS: 77 (SIRE)

It wasn't clear what New York's Talking Heads were up to with this bold and artful debut. Coming out of the CBGB's scene in New York, they were famous for David Byrne's jittery onstage personality, but once the album came out, for their unusual songs, too. "Psycho Killer" is the one tune everyone knows from this record, but there are plenty of cool oddities to go around, including "No Compassion" and "New Feeling." Byrne and the Heads were widely imitated for their entire career.

Producers: Talking Heads, Tony Bongiovi, Lance Quinn. Engineer: Ed Stasium. Studio: Sundragon Studios (NYC), Media-Sound (NYC). Mastering: Joe Gastwirt.

THE RAMONES: THE RAMONES LEAVE HOME (SIRE)

The Ramones' stunning 1976 debut album turned out to be one of the most influential records of the mid-'70s—the album that launched a thousand bands. This follow-up was similar, with the foursome banging their way through 14 punk anthems in quick succession, barely coming up for air to shout "1-2-3-4!" It's easy to forget how melodic The Ramones were until you hear songs such as "Sheena Is a Punk Rocker" and their dynamite cover of "California Sun."

Producers: Tony Bongiovi, T. Erdelyi. Engineer: Ed Stasium. Studios: Sundragon (NYC), Le Studio (Quebec), Track Recorders (D.C.). Mastering: Ray Janos/Media Sound.



Producer/engineer Richard Dashut on Fleetwood Mac's *Rumours*:

"We spent a year making *Rumours*, and that was almost unprecedented. And most of it was hard work—trial and re-trial, re-cutting songs. It was the right way to go with that record. It would not have been the record you hear today if it had taken a month or two

months or three months or however long people think a record should take. There was no compromising."

Mackie Control for Digital Performer

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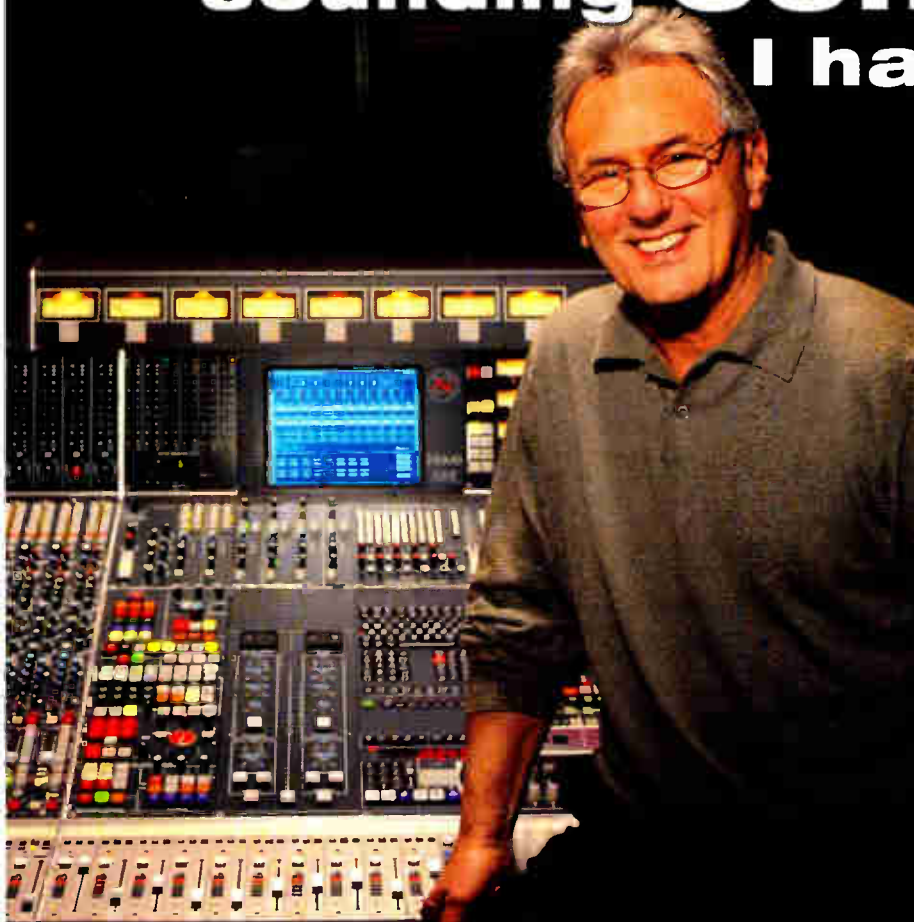
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the future of analog

Music Recording: Moving Forward Together

By Phil Ramone

Obviously, a lot has changed in the past 25 years, both in terms of the equipment we use and the way we work. I still love to get in there and work with live musicians: I still record a lot of rhythm section dates, I still overdub horns and strings, and sometimes I even do risky things like record a full orchestra in a room! What I miss most from 25 years ago is that camaraderie you enjoyed when you knew the band was going to show up at two or three in the afternoon and we'd work for six or eight hours every day for a couple of weeks, really getting everything down together as a group. That still happens occasionally, but not as much as I'd like. Now, of course, you have more situations where musicians are creating the foundations of their songs with computers and sequencers, and it is a good way of working, but it changes the recording experience. Even there, I'd say if you've created a track with machines and you overdub it with people, it's still better to overdub it with two or three people at a time, because chemistry is so important; it's something you can hear on the track.

Technologically, the big argument came when people started wondering whether the sound of digital would ever replace the warmth of analog, and 25 years later, the same argument exists; the controversy continues. I'm one of those guys who is always trying to move forward and who has taken chances on new devices—I feel you can't look back and be too sentimental about the way things were, because things can always be improved. Still, it's good to keep track of what's done well and what hasn't; not every development has been a good one. Many of us have used analog and digital together, taking from the best of both worlds.

Digital definitely became more interesting with 24-bit. I think in the early days of digital, particularly with vocals, the lack of bits really hurt a lot of projects. It didn't matter if you had a \$10,000 microphone if you had a lack of bits; it just wouldn't sound right. So that has gotten a lot better, but it doesn't change the fact that you still have to know how to record a vocal. Good equipment will not overcome bad mic technique.

I've noticed that, with the dominance of hard disk recording the past few years, many engineers are now more involved with the computer screen than with the action in the room, and that's not a good thing. I think it's important for the engineer to really listen to what's going down—to stay in touch with what's happening in the room instead of just looking at waveforms. I've found that you can usually put an assistant on to look at the screens for you. Obviously, the person running it has to be more than what an assistant was five or 10 years ago,

but it really does help the engineer to have a competent co-pilot.

So, with the new systems, there's been a lot of trial and error and a lot of discovery. But, in general, I think life has become tons easier because of the advances. Look at how ISDN and ED-NET have allowed us to work on a project in different cities. About the only thing that hasn't become easier is how to store the final master, which is a key point in our work—if you make a great recording, how do you preserve it? Personally, I still always like to have some sort of analog master, even if I'm also going to have one on optical or some other digital medium. Because, at this point, we still don't know enough about the digital masters—whether they're going to sound the same in 10 or 15 years, let alone 25 or 50 or 75 years. One thing we know about analog tape is that we can still pull off the sound intact in 25 or 30 years, even though, in some cases, the tape and the backing have deteriorated. I'm hopeful that we can come up with something we can all agree on, because we want to be able to preserve this music forever.

These days, there's also a lot of talk about high-definition sound, and from my point of view, it's here, and over the next 10 years, there will be nothing but improvements. One thing we've learned in the film world is that an audience will come because it sounds better and looks better. That's been proven at home, too: The DVD-Video is an accepted format. With DVD-Audio, it has been a little trickier because of the problem of standardization. The public doesn't want to go through another fight like the Beta-VHS fight. For that matter, they don't want to have to think about 24/96 vs. 24/44.1. And the manufacturers are caught in the middle of these battles, too. So, we have all these new technologies competing for a public that is confused, and meanwhile, we're all still sitting around the table arguing. We need common tools. We need to be able to work these things out. Fortunately, for the first time, engineers and producers are working more as a unit with the manufacturers. And if the manufacturers listen to us, it will be a home run and we all win. Everybody should be hooked up together, visually and aurally—it's the only way to go. ■



The legendary Phil Ramone is in his fifth decade as one of the industry's top producers and great technical minds. Recently, he has been working in London on a project with Rod Stewart.



R 121



David Royer



Rick Perrotta

ROYER RIBBON MICROPHONES

David Royer's unique personal history, deep love of classical music, and unrivaled understanding of ribbon technology led him to design the first R-121 on his kitchen table. The original design criteria were basic enough: The mic had to be simple, sturdy, reasonably priced, and it had to faithfully reproduce the full range of a pipe organ. David's R-121 succeeded in all of the above. It also succeeded in capturing the imagination of the people who would found Royer Labs with David; Rick Perrotta, John Jennings and Rafael Villafane.

The most interesting story at Royer Labs is David's. Born autistic, the only thing that could hold his attention as a child was the classical music his parents played for him every day. Music was instrumental in drawing him "out," and his love of serious music runs deep. David went on to study electronics, English and political history, and in the Navy he studied advanced acoustic principles for four years as a sonar technician. Over time, he came to believe that the most musical-sounding microphones were ribbons, and, while earning his living building custom tube condenser mics for L.A. producers and engineers, his work on various ribbon microphone designs culminated in the R-121—Royer's flagship mic and the first "modern ribbon" microphone.

Rick Perrotta is the other half of Royer's design team. As an owner of L.A.'s Baby-O Recorders in the '80s, Rick was involved in many high-profile recording sessions. In the late '80s, Rick co-founded the Matchless Amplifier company with Mark Sampson. As

President and Production Chief at Matchless, Rick earned a reputation for near-fanatical attention to quality and detail. Now Royer's President, Rick's recording background, manufacturing know-how and design abilities complement David's work perfectly.

The decision to open Royer Labs came slowly. The dominance of condenser microphones, the variety of high-quality and low-cost mics in the market, and the industry's intense focus on digital gear all combined to make the dream of launching a new line of "modern ribbon" microphones seem somewhat of a fantasy.

But musicians are not bound by convention, and almost everyone at Royer Labs is a musician, so in the end, the decision was not that difficult. Discovering how beautifully ribbon mics track to digital recording devices clinched the deal—we knew that the time of the ribbon microphone had arrived, again, and we wanted to bring them to the world. Since introducing the R-121, it has been a thrill to watch ribbon microphones become more mainstream, and to hear recordings of all genres of music from around the world in which the musicality of ribbon microphones is immediately apparent.

Every Royer microphone is hand-built over a three-week period by a team of highly trained craftsmen, and each unit is personally tested by David Royer. Royer mics come with a lifetime warranty—if they're not perfect, they don't go out the door. Visitors to our shop have commented that Royer Labs looks more like a violin shop than a manufacturing facility. We like the comparison.



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25 Years of Film Sound: Making Movies in the Digital Era

By Walter Murch

Mix magazine had the wit and wisdom to publish its first issue in 1977, the 100th birthday of Edison's invention of recorded sound. If we were digging at an audio archaeological site, our trowels would uncover four Eras of Sound layered below that first issue of *Mix*, each about 25 years deep: At bedrock, the archaic Cylindrical Era (1877-1902), then the Mass-Manufactured Disc Era (1902-1927), the Electrifying Vacuum-Tube Era (1927-1952), and finally the High-Fidelity Magnetic/Transistor Era (1952-1977).

The Fifth Era, which we now know turned out to be the Digital Era (1977-2002), was about to begin.

Large-format film sound in 1977-79 had finally reached a level of technical fidelity that had been the longed-for dream of the earlier Eras. *Star Wars*, *Close Encounters of the Third Kind* and *Apocalypse Now*, with their 6-track, Dolby-encoded 70mm magnetic sound, had finally eliminated surface noise, expanded the reproducible frequency range to its practical limit, and expanded the dynamic range to the threshold of pain. With *Apocalypse Now*, the six channels of sound were arrayed in what has become today's standard 5.1 format: three channels behind the screen, two channels of surrounds enveloping the audience, and one channel dedicated to super-low frequencies. Sound of astonishing power and subtlety could be moved around the theater in any direction.

So, here we are in 2002, 25 years on. A whole Era has passed, and what has changed? Well, technically, many things, but remarkably *not* a significant increase in audio quality when you compare any of the major studio releases this summer to what was heard when *Apocalypse Now* premiered at the Cinerama Dome in Los Angeles in 1979—virtually the same frequency response, dynamic range, noise threshold and channel array.

But if *Apocalypse* set new standards in sound, it was also one of the most expensive films of the period; innovation did not come cheaply. We had to design and build a mixing theater specifically for the film, and building/mixing/building/mixing stretched on for seven months. And when it came time to release the film, there were only 17 theaters equipped to play *Apocalypse* as it was intended. The sound was carried on six fragile magnetic stripes—each very expensive 70mm print was striped and sounded in real time, and had to be constantly monitored for defects and replaced frequently. Today, tens of thousands of theaters are equipped to play *Spiderman* or *Episode II* simultaneously in three flavors of comparatively inexpensive, endlessly

repeatable, reliable 5.1 digital sound (Dolby, DTS or SDDS).

And this digital abundance has spilled out of the theaters and into the home: DVDs, for those who can afford the extra speakers and amplifiers, reproduce the same 5.1 soundtrack you heard in the theaters. In 1977—amazing to recall—there was no home video distribution system of any kind, in any format.

So, the technical transformation of cinema audio in Era V has been largely behind the scenes: developing, standardizing, extending and perfecting digital systems for recording, cutting, mixing and theatrical exhibition. In 2002, all of the old mechanical-electronic procedures for manipulating sound have been completely replaced by their digital equivalents.

Does the transformation of the technical landscape go along with an improvement in the aesthetic quality of the soundtracks produced today? Well, there is always a developmental synergy between the creative urge and the technical means—a kind of yin-yang interdependence. If you listen to the films of the early '70s, you can often hear the sound straining against the technical limitations of the time. Back then, we wanted to achieve more than the equipment would allow, so we "souped up" the old sound engine to its maximum and relied for effect on unusual juxtapositions of image and sound. In 1976, when Dolby came along with optical stereo and an increased frequency and dynamic range, that pent-up urge burst forth into the new format. But the urge was already there; it was not elicited by the new technology.

Dolby's higher quality made the old sound libraries obsolete, so there is now a huge library of high-quality stereophonic sounds that simply did not exist in 1977. As a result, the verisimilitude and what might be called the "hormonal level" of the sound of today's films are much higher than it was a generation ago.

Listen to the complex, provocative integration of image and sound in Fritz Lang's *M* (1931) or Orson Welles' *Citizen Kane* (1941) and *Touch of Evil* (1958), and it is sobering to realize that on that level, we probably haven't made as much progress as we have in other areas.

Let the Sixth Era begin! Let us be astonished!

Academy Award-winner Walter Murch completed K19 this summer and is at work on Cold Mountain. ■

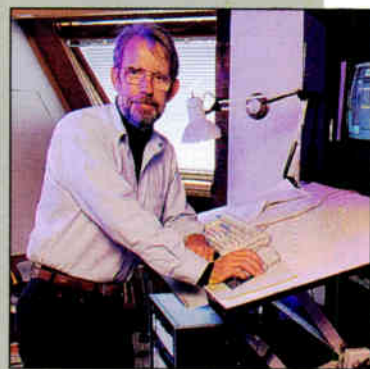
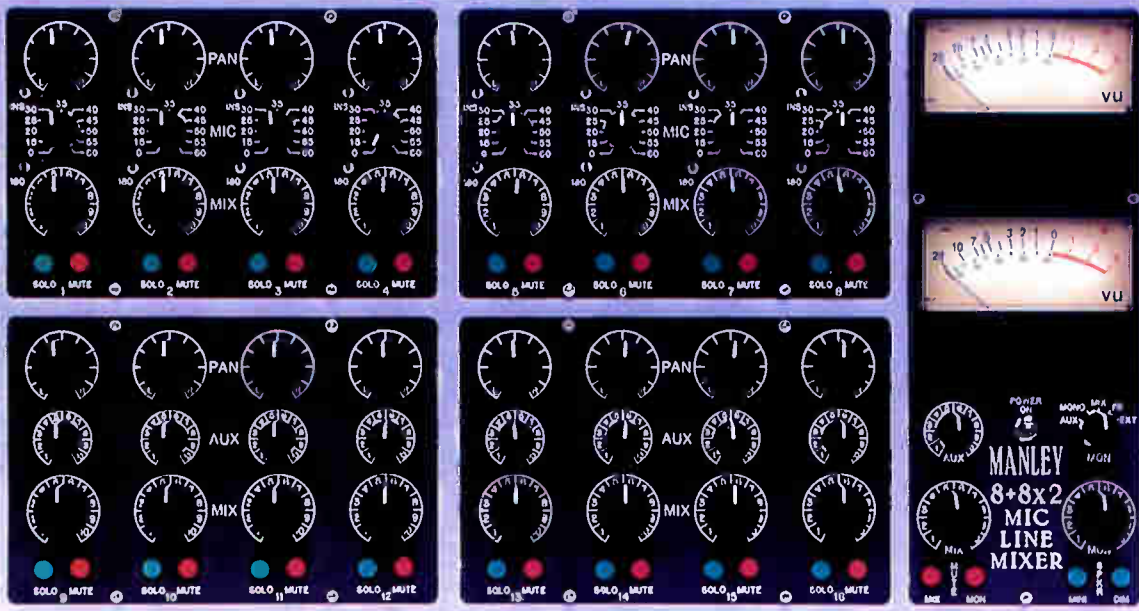


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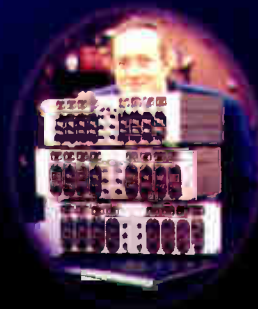
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Mastering the Music: A “Dark Art” No More

By Bernie Grundman

The main thing that I notice about the time I've been in the mastering business is that the technology has gotten so much more diverse and complex. Early in my career, I worked for A&M Mastering for almost 15 years—I was there when *Mix* started coming out in 1977—and in that time, very little changed technologically. About the only things that changed were we went to 30 ips and then to half-inch, and some projects might have Dolby. But there was still really only one format—LPs—and everything was tape-based. Back then, mastering was still sort of considered a “dark art,” because it seemed mysterious and was a very specialized craft done by relatively few people on cumbersome and expensive equipment. Disc-cutting is actually very tricky. If you do it right, it can sound spectacular, but there were a lot of idiosyncrasies you had to learn in order to do it right.

Things started to change in mastering when we started getting into digital, toward the end of the time I was at A&M and after I opened up my own studio in 1984. It figures that as soon as I started my own business, there would be a steady stream of new formats and I'd have to start buying new equipment every six months!

Frankly, I didn't embrace the early digital that much because there were a lot of problems with it. I was one of those guys who kept complaining that the manufacturers needed to improve digital—that you *couldn't* make perfect copies like they claimed. There was obvious degradation, but they denied it. I got a lot of flak from people at A&M for openly criticizing digital: “Bernie, stop—you're going to hurt the format!” Then, when manufacturers started making equipment that actually *did* make digital sound better, they had to admit that what they were selling earlier wasn't perfect, or even that good!

Digital's come a long way since then, of course, and what really turned it around was better converters, better ways of busing the signal around and improving the integrity of the signal—better wires have even helped. Now, too, we have devices that re-clock the signal, which is valuable. So there's been a steady improvement all along.

With digital, if you're really careful and you minimize your processing or the manipulation of the signal as much as pos-

sible, you can make a really good-sounding master. There are still people out there who believe that once you're in the digital domain you can't hurt the sound, but that's far from the truth. Any time you use processors or equalizers or whatever, you're going to degrade the signal a bit, simply by putting this equipment in the circuit. So if you don't need it, don't put it in. I tell that to all my clients.

Although musicians seem to know more about engineering and mastering these days than they used to, I find that the quality of the material that's coming to us is similar to what I've always gotten. What *has* gone downhill is the final product. What's in the stores is probably as bad as it's ever been—I'm talking about the sound quality of pop music; not jazz, not classical. And a lot of it is because of this whole level war that everyone is into with pop music: Everything has been slammed, pushed and processed to death, and the primary goal is to just get the thing loud.

These CDs all sound the same to me—they're all grainy and fuzzy; I call it “gray sound.” I'm hearing a lot of vocals that sound terrible because they've been worked to death on a computer. A lot of engineers don't seem to realize that every plug-in you use degrades the sound.

We've spent a lot of time here trying to develop equipment that can give us some of that feeling of dynamics and cleanliness, and still have it compete in the marketplace. We've done a lot of equipment modifications, built some of our own equipment—which we've always been known for—just to keep the integrity of the signal when it's going through this process of trying to make it competitive level-wise. I still enjoy working on all kinds of music, and I like the challenge of actually making those pop albums sound good—to make sure they have dynamics and still have punch. But I must admit, it's kind of refreshing when I get to do acoustical albums and jazz. I still prefer music that sounds *natural*. ■

Bernie Grundman is a world-renowned mastering engineer with studios in Hollywood and Tokyo. Bernie Grundman Mastering's new 5.1 suite is set to open this summer.



PHOTO: DAVID GOGGIN

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avoid shooting it up into areas that will reflect and cause nasty echoes. The audience hears very localized sound sources with great imaging.

The engineer in me strives for sonic perfection, but perfection isn't always a good thing. I remember early in my career being driven to select microphones based on their incredible specifications, only to find that a far less than perfect choice could actually complement a screeching guitar, sibilant vocal or woolly bass. With that in mind, I have to admit that, as much as I love the pristine new line arrays, I miss the pure excitement of leaning just the right amount into the limiters of a big wall-of-sound P.A.

The electronics side of live sound has made equally big strides. Increased complexity often brings with it a decrease in reliability. Fortunately, this hasn't been the case with modern mixing consoles, effects and amplifiers.

I remember doing shows with Elvis Presley, not long before *Mix* got started, where the air would be permeated with *bouquet de resistor*—the unmistakable smell of the resistors in an amplifier

supply, with connections for quick changeover. As mixers became more complicated, quite often the sound quality suffered. As more and more stages of electronics were added to increase rout-

Around the time *Mix* was hitting its stride, I was mixing Bruce Springsteen's Born in the USA tour through a P.A. with as many as 400 18-inch speakers. The pure brute force of the P.A., coupled with straight-ahead rock 'n' roll, wrapped you up in the music so you couldn't escape total involvement.



PHOTO: STEVE JENNINGS

burning up. One small whiff, and you knew you were in trouble. Grounding or other weirdness could cause amplifiers to smoke in a chain reaction. I never even think about amps blowing up anymore. Manufacturers have honed their designs and manufacturing to produce amplifiers that never seem to fail.

Twenty-five years ago, mixing consoles were pretty basic—not many buses, limited routing, EQ and metering. If it was an English-manufactured board, you'd better be carrying a spare power

ing, patching, buses, EQ, etc., the sound path increased from just a few electronic stages to many, with each one causing a subtle degradation of the sound. This was largely due to the cheap, integrated circuit amplifiers that manufacturers were forced to choose. In the past 10 years or so, integrated circuit manufacturers have improved reliability and produced amplifiers that are affordable *and* sound great.

Even better, we are on the cusp of all-digital sound systems. Since *Mix* magazine's inception, we have seen the in-

troduction of the CD for the consumer, and the gradual transition in pro audio from analog audio to digital. With all-digital systems, once the analog audio is accurately converted into numbers, digital mixing consoles that maintain enough internal mathematical precision can deliver mixes with zero degradation. However, many of today's digital mixers are still affected by the quality of conversion to and from digital and by internal math compromises. Obviously, it's a mistake to assume that just because it's digital, it has to be better. The proof is in the listening.

Digital processing does have the potential to do a lot of things better than analog. Professionally, the digital delay line was the first digital product to really affect live sound. Portable effects processors such as reverbs, AutoTune, pitch shifters and delays are much more practical, or only possible, in the digital domain. Mixers and amplifiers have been slow to follow, because analog processing was always much cheaper to manufacture than digital. With analog processing, it's very difficult to change a design once all the components are chosen. Once we jump into the digital world, all the limitations of analog processing go away.

I have spent the past few years heading up a team of engineers to produce a new way of processing live sound. My digital audio project, which is currently out on the road with Clair Bros., is what I like to call a mastering processor for live audio. It does all the basic things that products like XTA and BSS do, and then a lot more. And it was only made possible because of digital signal processing. For example, once we were freed of the boundaries of analog processing, we were able to create entirely new filter shapes to enable a sound engineer to get in and make surgical EQ adjustments on precisely what he wants to affect.

So, it has been a steady journey of progress over the past 25 years. It's exciting to witness the ways new technology accelerates change. Line arrays and digital audio processing will change the landscape of live sound at an ever-increasing rate, just as disk-based recording has changed the studio scene rapidly and forever. ■

Bruce Jackson is a veteran sound mixer and equipment designer.



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The Live Sound Industry Grows Up (and Slims Down)

By Bruce Jackson

Twenty-five years is a long time. The scary thing is, I've been involved with sound for a lot longer. It's amazing to stop and think about how much things have changed since the beginning of the touring live sound industry. I appreciate being asked to write this short perspective on the past 25 years, but I guess the choices were limited...there aren't really that many geriatric soundmen out there. I think I know most personally. My perspective will be a little different from some, because I'm both a mixer and an electronics designer.

In the late 1960s, when I was 18, I started my first sound and lighting company in my native Australia. We designed, built and rented psychedelic lighting, guitar amps and small column P.A.'s. I remember meeting Roy Clair when he came to Australia in 1970: Clair Brothers Audio was just a couple of years old at the time. Roy brought the P.A. system with him. It was an outdoor show at a racecourse, and I knew a way in over the back fence. I had never heard anything like it—a three-way system with folded-horn W boxes on the bass, multi-cell horns on the mids and ring radiators for the super highs. The show was mixed through several Altec model 1567 tube mixers, with big knobs to control the mix. And it sounded great; it made my P.A. columns look and sound anemic. I think the entire P.A. had four 15-inch woofers. Around the time *Mix* was hitting its stride in the early '80s, I was mixing Bruce Springsteen's Born in the USA tour through a P.A. with as many as 400 18-inch speakers, in places like Giants Stadium in New Jersey and the Los Angeles Coliseum. The two big walls of sound on each side of the stage would shake your chest cavity and move dresses and pants legs. The pure brute force of the P.A., coupled with straight-ahead rock 'n' roll, wrapped you up in the music so you couldn't escape total involvement. Each of the 200 speaker cabinets weighed 400 pounds.



Since *Mix*'s early days, I believe *accountants* have changed the live sound business more than anyone else. It's expensive to cart truckloads of heavy speakers around the world, let alone unload them, put them up for the show and put them back in the truck to go to the next gig. I guess too many acts went out on the road for an extended tour, only to find that production costs ate up profits. The pencil-pushers eventually came into positions of power and demanded more efficiency from sound companies, and they responded: Over the past few years, we have witnessed an evolution from big arrays of heavy speakers to tall, slender and lightweight columns of beautifully engineered loudspeaker technology—line arrays. The old arrays of several speaker cabinets high by a bunch wide were necessary to deliver the power, but in the process, each speaker cabinet interfered with its neighbors to the left and right, above and below. Interference between speakers messed up the frequency response, reduced the overall sound level and made the sound different for each member of the audience.

Now it seems like anyone who can cut wood is building his own line array, and for good reason—a well-designed line array coaxes each speaker to work constructively with its neighbor to create an even sound for the entire audience and to deliver previously unimagined control of the coverage pattern. I used line arrays from EAW for the opening and closing ceremonies of the 2000 Summer Olympics in Australia. Earlier in 2000, I took 80 of Clair Bros.' new I4 line array cabinets out on their first outdoor shows with Barbra Streisand. Line arrays deliver on their promise. You can more or less put the sound where you want it, and

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RODE MICROPHONES AUDIO DEMO



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Twenty-five years ago studio equipment was only really available to record companies and a small number of independents that invested huge sums of money. The required equipment was handmade, in small numbers, so the cost was high. Average musicians would rarely, if ever, have the opportunity to make pro-quality recordings of their music. The last ten years has seen a revolution! Digital recorders, signal processing, studio monitors and condenser microphones can now be had for a very modest investment. RØDE was a pioneer in this revolution, and it is our commitment to continue bringing innovative microphone solutions to musicians and engineers throughout the world.

2002 marks our 35th year in the professional audio industry.

Design, manufacture, testing and shipping of the entire RØDE Microphones line takes place in Sydney, Australia. We have invested millions of dollars in test equipment and state-of-the-art surface-mount machines, as well as the latest CNC metal working lathes and mills. Our core of design engineers and research scientists exemplifies RØDE's commitment to R&D. This investment allows us to continue releasing cut-

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This CD-ROM contains audio/video demos, as well as a factory tour and a few words from our president, Peter Freedman. This is available to anyone who asks. Simply e-mail us: info@rodemic.com

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THE SESSION

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You can also hear the tracks, watch the videos, and see the RØDE Microphones Factory Tour at the new Website: www.rodemic.com

2001

BJORK: VESPERTINE (ELEKTRA)

This mostly serene and reflective effort from Iceland's quirky music queen combines some of her most accessible songs to date with numbers that sound like intensely personal jottings in a diary. The arrangements are unfailingly interesting, employing lush strings, choral vocals, harps, music boxes and other unusual-for-pop instrumentation. A fascinating outing by one of music's most gifted eccentrics.

Producers: Bjork, with additional production by Marius de Vries, Martin Console. Engineers: Jack Davies, Damien Taylor, Spike Stent, Geoff Foster, Valgeir Sigurdsson, Leigh Jamieson. Studios: El Cortijo (San Pedro, Spain), Magic Shop (NYC), Astoria (NYC), Avatar (NYC), Sear Sound (NYC), Thule (Reykjavik, Iceland), Quad (NYC), Looking Glass (NYC), The Loft (NYC), Air Lyndhurst (London), Olympic (London).



DESTINY'S CHILD: SURVIVOR (COLUMBIA)

Just because they're fabulously commercial doesn't mean they aren't good: So far, Destiny's Child has shown an unerring instinct for churning out buoyant R&B/pop hits. This album gave us "Independent Women, Part 1" (from the film *Charlie Angels*), "Survivor," "Bootylicious" and "Emotion," all of which show off the trio's superb vocal blend, which is part-Motown, part-church. Get used to leader Beyoncé Knowles—she's going to be part of the popular music landscape for a long time to come.

Producers: Beyoncé Knowles, Poke & Tone, Anthony Dent, Rob Fusari, Falonte Moore, Damon Elliott, Errol McCalla Jr., Walter Afanasieff, Ken Fambro, Rapture Stewart, Eric Seats, Dwayne Wiggins, Bill Lee, Calvin Gaines. Engineers: Manelich Sotolongo, Troy Gonzales, Ramon Morales, Rich Travali, Anthony Dent, Orlando Calzada, Tony Maserati, James Hoover, Kent Huffnagle, Damon Elliott, Dave Pensado, Dan Workman, Brian Springer, Dexter Simmons, Greg Bieck, David Gleeson, Dave Way, Michael Conrader, David Donaldson, Jim Caruana. Studios: Lobo (Deer Park, NY), TK (Honolulu), Sugarhill (Houston), Hit Factory (NYC), Chase (Atlanta), Sound on Sound (NYC), Digital Services (Houston), Enterprise (Burbank), WallyWorld (CA), Stay Tuned (Atlanta), Chung King (NYC), 24/7 (Houston), House of Music (Oakland, CA), Sony (NYC).



BLINK 182: TAKE OFF YOUR PANTS AND JACKET (MCA)

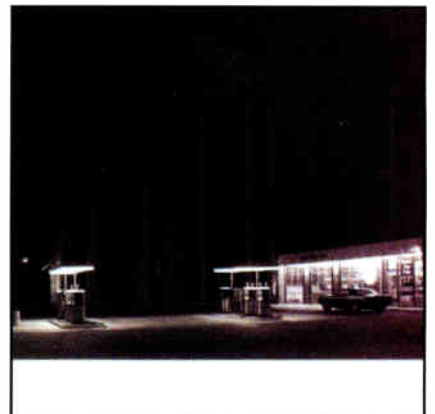
You see, it *does* pay to run around buck-naked in an MTV video. Amazingly enough, this was one of the best-selling rock albums of 2001, appealing mostly to teenage boys, who dig their speedy (and catchy) punk-pop melodies and funny and frank lyrics, many of which address the concerns of angst-y adolescents and party animals everywhere. Raucous and raunchy, Blink 182 dare to be stoopid, and that's something there's always room for in rock'n'roll. It is a great-sounding album, too.

Producer: Jerry Finn. Engineers: Joe McGrath, Tom Lord-Alge. Studios: Signature Sound (San Diego), Larrabee West (Hollywood), Cello (L.A.), Encore (Burbank). Mastering: Bernie Grundman.

BILL FRISELL: BLUES DREAM (NONESUCH)

Wonderful Americana jazz with folk and Western strains, the ghosts of early New Orleans, electric Miles, and much more played by a superb octet led by guitarist Frisell. Everything he does is at least interesting, but this is may be his best.

Producer: Lee Townsend. Engineer: Judy Clapp. Studios: O'Henry (Burbank), Different Fur (SF). Mastering: Greg Calbi/Sterling Sound. ■



2001



THE BAHAMEN: WHO LET THE DOGS OUT (S CURVE)

Can a group that's been around 20 years really be considered a one-hit wonder? Probably not, because in addition to the incredibly catchy (and for a while, inescapable) dance hit "Who Let the Dogs Out," the group has also served up such popular and infectious dance-floor fare as "You All Dat," "Get Ya Party On" and "Getting Hotter," all from this fine party album. The group's exhilarating blend of Bahamian junkanoo and various contemporary R&B ingredients has had considerable international appeal, too.

Producers: Michael Mangini, Steve Greenberg, Mark Hudson, Herschel Small, Peter Amato, Skoti Elliot, Jeffrey Chea, Anthony Flowers. Engineers: Luis Diaz, Skoti Elliot, Scott Gordon, Jules Gondor, Craig Lozowick, Nathan Malki, Rob Eaton, Juan Rosario. Studios: Mojo Music (NYC), Circle House (Miami), Gentlemen's Club (Miami).

ALICIA KEYS: SONGS IN A MINOR (J)

Multi-Grammy-winning debut album by the talented singer-pianist mixes jazz and contemporary R&B colors to great effect. "Fallin'" was the big hit, but the CD is loaded with great tunes, including "Why Do I Feel So Sad," "Girlfriend," and a cool version of Prince's "How Come You Don't Call Me." A star is born!

Producer: Alicia Keys. Additional production: Kerry Brothers, Jermaine Dupri, Jimmy Cozier. Engineers: Gerry Brown, Brian Frye, Phil Tan, Kerry Brothers, Russ Elevado, Manny Marroquin, Chris Wood, Ralph Cacciuri, Acar Key, Paul Flacone, Tony Maserati. Studios: Battery (NYC), Southside (Atlanta), Electric Lady (NYC), Krucial Keys (NYC), Larrabee (L.A.), Backroom (Glendale, CA), Sony (NYC), Doppler (Atlanta), Unique (NYC), Hit Factory (NYC). Mastering: Herb Powers, Jr./Hit Factory.



NELLY FURTADO: WHOA NELLY! (DREAMWORKS)

Furtado is a talented young singer/songwriter who dabbles in all sorts of modern R&B styles on this impressive debut effort. Her confident delivery and uncanny knack for smoothly layering creative vocal parts make her sound like a veteran beyond her years. Whether she's laying down some hip-hop song or soaring on pop tracks like her first hit, "I'm Like a Bird," Furtado always sounds like she's in complete control. Definitely a talent to watch.

Producers: Nelly Furtado, Gerald Eaton, Brain West. Engineers: Brian West, Victor Florencia, Brad Haehnel, Denis

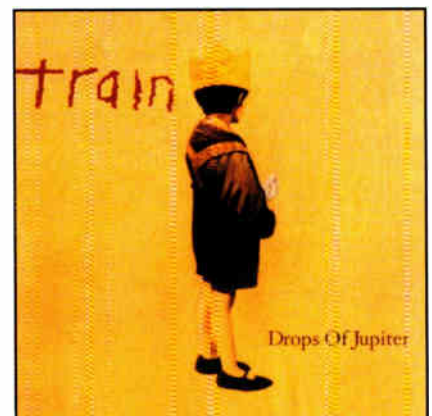


Tougas. Studios: The Gymnasium (Toronto), Can-Am (Tarzana, CA), Metalworks (Toronto), Iguana (Toronto), McClear Digital (Toronto), Mastering: Scott Hull/Classic Sound.

TRAIN: DROPS OF JUPITER (COLUMBIA)

The San Francisco Bay Area band has had its eye on the mainstream for some time, but it wasn't until they cut the grand, sweeping "Drops of Jupiter" for this sophomore effort that they found widespread acceptance. With its cryptic but engaging lyrics, a glorious Paul Buckmaster-arranged string section, and singer Pat Monahan's sandpaper-soul delivery, the song is an epic piece of work, worthy of the Grammy it received in 2002. The rest of the album is more conventional, but not without its charms.

Producer: Brendan O'Brien. Engineers: Nick DiDia, David Bryant, Steve Churchyard, Ryan Williams. Studio: Southern Tracks (Atlanta).



2000

THE CURE: BLOODFLOWERS (ELEKTRA)

Group leader Robert Smith has led various versions of The Cure through more than two decades, and remarkably enough, they still sound relevant today. This CD has been billed as the third album of a trilogy that began with 1982's *Pornography* and continued with the 1989 opus *Disintegration*—well, maybe. At any rate, it's classic Cure in many respects: darkly majestic, elegantly constructed, cool but still involving. The group's following remains large and passionate.

Producers: Robert Smith and Paul Corkett. Engineers: Paul Corkett, Sasha Jankovic. Studios: St. Catherine's Court (Avon, UK), Fisher Lane Farm (Surrey, UK), Rak (London). Mastering: Ian Cooper/Metropolis.

VARIOUS ARTISTS: O BROTHER, WHERE ART THOU (LOST HIGHWAY)

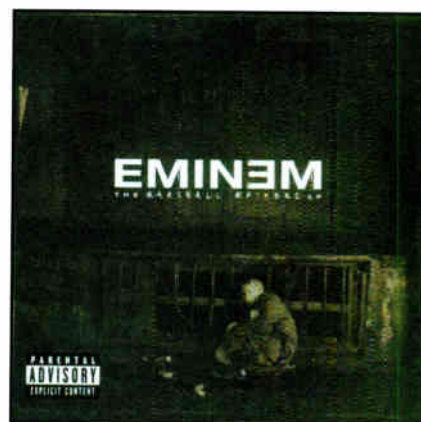
Who'd have think that a record of old-time country music could sell 5 million copies and win a Best Album Grammy? Bolstered by the Coen Brothers' fine movie, this ushered in a new era for traditional music. Artists include the Soggy Mountain Boys (members of Alison Krauss' band), Emmylou Harris, Ralph Stanley, Gillian Welch and others.

Producer: T Bone Burnett. Engineers: Mike Piersante. Studios: Sound Emporium

Producer/engineer Mark Bass on Eminem:

"Hip-hop is a culture. It should have nothing to do with race, color, breed, whatever, but of course it does. As white producers working with black artists, it was always hard to be taken seriously by our peers and by the record companies. Eminem changed that to a great extent; however, we will always have to overcome the fact that we are seen as an anomaly."

(Nashville), Ocean Way (Nashville), Sunset Sound (L.A.), Terminal Recorders (Jackson, MS). Mastering: Gavin Lurssen/The Mastering Lab.



EMINEM: THE MARSHALL MATHERS LP (INTERSCOPE)

If Eminem were controversial and lame (like 2 Live Crew, f'rinstance), he'd simply be annoying. But the fact is he's a compelling writer and a dynamic rapper with lots to say—even if a lot of it is abrasive and/or offensive to some. He's obviously doing something right: This album sold nearly 2 million copies the first *week* after its release, selling in unprecedented numbers to both black and white listeners. "The Real Slim Shady" and "Stan" (a duet with Dido) are the best-known tracks on an album that is always provocative and often spellbinding.

Producers: Eminem, The Bass Brothers, Dr. Dre, Mel-Man, the 45 King & Louie. Engineers: Chris Conway, Richard Huredia, Steven King, Lance Pierre, Michelle Lynn Forbes, Aaron Lepley, Rick Behrens, James McCrone, Mike Butler, Rob Ebeling, Akane Nakamura. Studios: The Mix Room (NYC). Encore (Burbank), Larrabee (L.A.), Chung King (NYC), Record Plant (L.A.), 54 Sound (Ferndale, MD).

Engineer Mike Piersante on *O Brother, Where Art Thou?* producer T Bone Burnett:

"This was a really huge passion for T Bone from the very beginning. He knew he wanted to do something special, and when we were doing it, we could tell it was special, but of course we never could guess that it would have that kind of popularity. We finished it up and we were so excited and the film was getting ready to come out and it was well-received at Cannes, and T Bone told me, 'You're going to win a Grammy!' And I said, 'What are you talking about?!'"

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2000

D'ANGELO: VOODOO (VIRGIN)

With its stacks of shimmering vocals, simple melodies and beats that range from hip-hop to funk, D'Angelo's *Voodoo* stands as one of the musically intoxicating soul albums of recent years—part old school, but unmistakably contemporary. D'Angelo can do it all—and he does, here—but he also has great taste in collaborators, as appearances by folks such as Lauryn Hill, Charlie Hunter, Roy Hargrove, Raphael Saadiq and Method Man & Redman show. Smoov!

Producers: D'Angelo, and one track each, DJ Premier and Raphael Saadiq. Engineer: Russell Elevado. Studio: Electric Lady (NYC). Mastering: Tom Coyne/Sterling Sound.

OUTKAST: STANKONIA (ARISTA)

There's a party goin' on here, and fortunately we're all invited. The Atlanta based hip-hop/funk group throws down some irresistible grooves over the course of this sprawling work, which encompasses 24 songs and interludes into some loose concept about...well, maybe George Clinton could figure it out. But the group covers a lot of stylistic terrain; they're certainly not stuck in any single bag. "Ms. Jackson" was a huge hit for the band and earned a Grammy for Best Rap Performance By a Group, while *Stankonia* won the Best Rap Album trophy.

Producers: Earthtone III, Organized Noize Productions, Antonio "L.A." Reid. Engineers: John Frye, Leslie Brathwaite, Bernasky Wall, Josh Butler, Ralph Cacciurri, Kevin Parker, Neal Pogue, Kenneth Stallworth, Mark Goodchild, Matt Still. Studios: Stankonia (Atlanta), The Dungeon (Atlanta), Patchwerk (Atlanta), Southern Living (Atlanta), Larrabee (West Hollywood). Mastering: David Kutch/Absolute Audio.

Producer Daniel Lanois on working with U2:

"Jam sessions often bring about song ideas or certainly grooves or music beginnings. With U2, a lot of their writing comes out of these fiery, spontaneous jams. There's a reason for that music to be. It came out of joy, or it came out of feeling right about a groove at that moment. And those are very reliable sources. Later, you might say, 'That's a great jam, a great groove. Now let's write some chords and build a song around it.'"



U2: ALL THAT YOU CAN'T LEAVE BEHIND (INTERSCOPE)

After a spell of less than thrilling albums, U2 regains its championship form with an album that rivals their best—and that's saying a lot. This album sold millions around the world, earned a truckload of Grammys and sparked a typically awesome arena tour. The stirring anthems "Beautiful Day," "Walk On" and "Elevation" are songs we'll be hearing for years, and there are three or four other songs on this deep CD that are as good.

Producers: Brian Eno, Daniel Lanois. Engineers: Brian Eno, Daniel Lanois, Richard Rainey, Mark Howard, Alex Haas, Stephen Harris, Ger McDonnell, Steve Fitzmaurice, Julian Gallagher, Mike Hedges, Steve Lillywhite, Tim Palmer, Richard Stannard. Studios: HQ, Windmill

Lane. Westland, Totally Wired (all in Dublin), a house in the South of France. Mastering: Arnie Acosta.



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1999

NINE INCH NAILS: THE FRAGILE (NOTHING)

On the surface, *The Fragile* is not tremendously different from NIN's landmark *Downward Spiral* album five years earlier, but Trent Reznor and company blend their trademark elements—the industrial noize, layered keyboard textures, crushing guitars and Reznor's impassioned vocals into an even more sophisticated weave. Amazingly, this tough, assaultive album hit Number One and sold more than two million copies.

Producers: Trent Reznor and Alan Moulder. Engineering: Alan Moulder, with additional engineering by Bob Ezrin, Steve Albini, Leo Herrera and Dave Ogilvie. Studio: Nothing (New Orleans). Mastering: Tom Baker/Precision.

TOM WAITS: MULE VARIATIONS (EPITAPH)

Waits' singular style is never less than interesting, even at its most bizarre. Here, he mixes some true sonic weirdness—"Big in Japan," "What's He Building?" et al.—with one of the most beautiful songs



Prairie Sun Studios owner Mark "Mooka" Rennick on frequent client Tom Waits:

"He has a fierce warrior spirit. He's always trying new things. He'll be there on the floor with these mallets hitting these big kick drums, doing his vocals live, or he'll grab a Marshall amp and stick it one of our live chambers and turn it all the way up. You never know."

he's ever written, "Hold On." Lots of provocative music and, as always, surprisingly sensitive balladry. His best since 1985's *Rain Dogs*.

Producers: Tom Waits and Kathleen Brennan. Engineers: Oz Fritz, Jacquire King, Gene Cornelius. Studios, Prairie Sun (Cotati, CA), Sputnik Sound. Mastering: Chris Bellman/Bernie Grundman.



Engineer Simon Osborne on recording *Brand New Day* at Sting's villa in Tuscany:

"It's surprising what you can get away with. You don't need that sterile studio atmosphere. Having a conventional studio environment can make it easier to get predictable results, but it's not necessary. I mean, when we were doing vocals, Sting would sit on a chair next to me, we'd both have headphones on, and away we'd go. It's certainly easier to communicate, because you can read each other's minds. You know when he wants to do another take because you're sitting right next to them."

STING: BRAND NEW DAY (A&M)

After a lull of a few years when he seemed to lose his commercial clout, Sting returns with a highly satisfying and eclectic album that became a worldwide hit, thanks to the popularity of the title track and the Arab-influenced "Desert Rose," featuring Cheb Mami's soaring backup vocals. As with all of Sting's solo work (and The Police before him), the

sound is impeccable.

Producers: Sting and Kipper. Engineers: Simon Osborne, Neil Dorfman, Geoff Foster. Studios: Il Palagio (Tuscany), Mega (Paris), Right Track (NYC), Avatar (NYC), AIR Lyndhurst (London). Mastering: Chris Blair/Abbey Road.





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World Radio History

1998

hits—"No Scrubs" and "Unpretty."

Producers: Jermaine Dupri, Carl So-Lower, Jimmy Jam, Daryl Simmons. Engineers: Ralph Caccuirri, John Gass, Leslie Braithwaite, Brian Frye, Phil Tan, Alvin Speights, Caludine Pontier, Phil Boutin, Jeff Griffin, Steve Hodge, Thom Kidd, David Rideau, Kevin Lively. Studios: Cross-wire (Atlanta), DARP (Atlanta), Brandon's Way (L.A.) FlyteTime (Minneapolis). Mastering: Herb Powers/Powers House of Sound.

MADONNA: RAY OF LIGHT (MAVERICK)

Madonna has reinvented herself so many times, it's hard to keep up with her, but this foray into electronica, drum 'n' bass and trip-hop was one of her more successful experiments. Also, in a genre that's sometimes considered cold, Ms. M manages to sound even warmer than usual. There were two Top 10 hits—"Ray of Light" and "Frozen"—and the album was hugely popular internationally with the dance crowd.

Producers: Madonna, William Orbit, Marius de Vries, Patrick Leonard. Engineers: Pat McCarthy, Dave Reitzas, Mark Endert, Matt Silva, Jon Englesby. Studio: Avatar (NYC). Mastering: Ted Jensen/Sterling Sound.



Ray of Light producer William Orbit, on tracking Madonna's vocals:

"With her range expanded and her confidence increased by her *Evita* voice coaching, Madonna's vocals came rather easily, compared to the hours upon weeks upon months spent on the instrumentation. Many of the vocals were laid down in one take. A few notes are missed here and there, but the vocals have the right impact, and that's so much more important."

ELLIOTT SMITH: XO (DREAM WORKS)

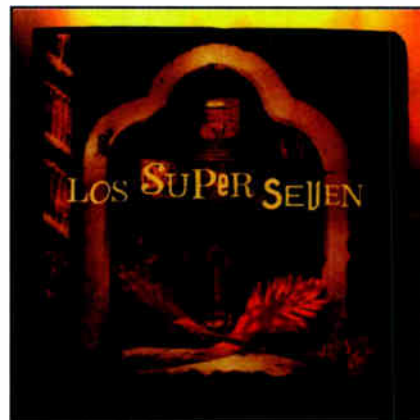
Though he'd been part of the indie rock scene for a while and put out a few albums on his own, it wasn't until his song "Miss Misery" was used prominently in the film *Good Will Hunting* that Elliott Smith attracted a real audience for his moody folkish ballads. That song, which was nominated for an Academy Award, led to Smith signing a deal with DreamWorks, which put out this major-label debut. Though he has folksy tendencies and is occasionally compared to Nick Drake, Smith has more rock and pop in his system, as the occasionally Beatlesque production and arrangements on this fine outing show.

Producers/engineers: Elliott Smith, Tom Rothrock, Rob Schnapf. Additional engineering: Larry Crane. Studios: Sunset Sound (L.A.) Ocean Way (L.A.), Sonora (L.A.), Jackpot (Portland, OR). Mastering: Stephen Marcussen/Precision.

VARIOUS ARTISTS: LOS SUPER SEVEN (RCA)

A wonderful, spirited mixture of different Mexican and Tex-Mex music styles (and one Anglo song) by a veritable supergroup, including Los Lobos leaders David Hidalgo and Cesar Rosas, *norteño* accordion great Flaco Jimenez, Freddy Fender, Rick Trevino, Joe Ely and Reuben Ramos.

Producer: Steve Berlin. Engineer: Dave McNair. Studios: Cedar Creek (Austin), Sunset Sound Factory (L.A.). Mastering: Doug Sax/Mastering Lab.



'OHM-MAZING" DISCOVERIES

SECRETS OF THE GROOVE TUBES VIPRE PREAMP

EARLY IN THE ANNALS OF PRO AUDIO, mics and mic preamps were often made by the same company, and the output and input impedance between the mic and preamp were matched to provide the best possible audio quality.

Those days are long gone now, and most condenser mics send a 200-250 ohm load into an input about 10 times the impedance – roughly 2000-3000 ohms.

Altering the load against which the mic has to push fundamentally alters the tone and character of the output signal.

At the core of the Groove Tubes Vipre is a multi-tap high-performance input transformer, with four distinct positions: 300, 600, 1200 and 2400 ohms. This changes the working impedance or loading of a given microphone and can strongly influence the sound qualities by the cumulative effects of small differences.

These differences vary from microphone to microphone, but all mics respond quite audibly when the preamp input impedance is altered. This control feature opens a much larger sonic window to each mic, and provides the ability to magnify certain attractive tonal shifts in the way it responds to impedance changes.

Vintage microphones are especially sensitive to load terminations, as impedance matching was the norm in early broadcast and recording facilities.

Ribbon mics, for example, are sought after for their smooth tonal properties. When properly terminated or loaded with 300 ohms, the tonal characteristics change, and the sound seems to "bloom" in a way most people have never heard.

The equalization changes slightly as well, with the entire spectrum from about 100Hz to 15kHz taking on a very slight tilt, typically around -1dB at the low end, and around +1dB at the upper registers. Very slight when looking at individual frequencies, but the cumulative effect over the whole spectrum is unmistakable.

This kind of variation would be almost impossible to recreate with any kind of EQ, unless the principle of a simple, uncluttered signal path is abandoned altogether.

Moreover, a balanced-bridged or transformerless input is provided, bypassing the variable-impedance input transformer altogether for a completely different sonic character.

An instrument input is also provided on the front panel of the Vipre for easy access, and can be padded by -20dB to accommodate the stronger output signals from active instrument electronics.

VARIABLE IMPEDANCE INPUTS

Altering the input impedance changes the load against which the mic has to push. This dramatically alters the performance of any mic – from classic ribbons to vintage and modern condensers – even dynamics. All mics will respond similarly in that the apparent proximity gets 'closer' when the impedance is lowered, but since you're changing the load on the mic, you're altering the performance of the mic – not the preamp.

Some vintage mic preamps (like Neve modules) can be internally hard-wired to one of two different impedances. Avalon's 2022 and Joe Meek's VC-1 both have an "impedance matching circuit" – consisting of a resistor network placed AFTER the load is already terminated. But, this isn't the same as what the Groove Tubes Vipre offers.

This is the only preamp we know of with a front-panel-selectable, truly variable impedance transformer.

In short: You haven't heard your mics until you've heard them loaded at different impedances. With all the control functions available on this unit, anyone with even a modest selection of mics can dramatically increase their tonal options by using a Vipre.

VARIABLE RISE TIMES

Rise-time is very much the same as "slew-rate" – the rate of speed at which the amplification circuit can amplify the signal.

You can't go from zero to five volts in no time – and how fast a circuit can amplify is part of what imparts its sound. Vintage circuits were much slower than are today's, and – in theory – faster is better.

Faster amplification circuits retain the leading edge of the transient signal, especially apparent on the higher frequencies. But slowing the rise time down can mellow or smooth out the signal, often rounding-out harsh sibilants from vocals or edgy tones of instruments.

In a way, you can think of rise-times as a "time machine" for preamps – the slower the rate, the more vintage the sound. No other preamp but the Vipre has this special feature.



The Groove Tubes Vipre is a mono-block, fully-differential Class A all-tube preamp with variable input impedance and adjustable rise time. It can be set for over 20 different tonal variations – all without ever requiring EQ or other signal-degrading devices to achieve them.

ALL-TUBE, FULLY-DIFFERENTIAL CLASS A DESIGN

Class A means that the same amplification device (in this case, tubes) are doing the entire waveform, both the maxima and minima of the wave.

Class AB and Class B use separate amp devices to do the maxima (or top side) and minima (low side) of the wave. Those are more efficient, but not nearly as accurate or true.

Fully-differential means that the signal remains balanced throughout, never becoming unbalanced or single-ended.

Almost all amp circuits break the balance. (In a console, the signal is single ended from the time it comes into the preamp, until bridged at the output.) This is accomplished by using identical, mirror-image signal paths throughout – and why we use ceramic deck attenuators instead of potentiometers for gain adjustments.

Common mode-rejection ratios are significantly improved, as are signal-to-noise ratios.

PRECISION GAIN AND GENUINE VU

In order to maintain a fully floated and balanced signal path throughout the entire circuit, there are no potentiometers on the front panel. Instead, gain controls consist of ceramic deck rotary switch assemblies arranged for discrete step attenuation, providing repeatability, ultra-wide control range and superior accuracy.

To watch over all this signal manipulation capability, the Vipre is fitted with a genuine VU meter for signal observation – complete with five separate types of VU response through an amplified VU meter driver circuit that allows for an "expanded view" of -20dB to +4dB – up to a -60dB to +9dB response.

BOTTOM LINE: ONLY VIPRE DOES WHAT NO OTHER PREAMP CAN

Hear the Vipre – along with our full line of mics at your Groove Tubes audio dealer – or visit us at the New York City AES, booth 1087.

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1997

Chalker's Creek (Martha's Vineyard, MA), Westlake (L.A.), Right Track (NYC). Mastering: Ted Jensen/Sterling Sound.

PUFF DADDY & THE FAMILY: NO WAY OUT (BAD BOY)

Sean "Puff Daddy" Combs was already famous for producing acts such as the Notorious B.I.G., Faith Evans, Lil' Kim, Jodeci and Mary J. Blige before he cut this, his first "solo" album. "I'll Be Missing You," his tribute to the slain B.I.G., featured Faith Evans and rocketed to Number One. Other hits included "Can't Nobody Hold Me Down" and the witty "It's All About the Benjamins." Some clever use of samples, including a snippet of The Police's "Every Breath You Take."

Producers: Sean Combs, Stevie J., Carlos Broady, Yogi, Nasheim Myrick, Ron Lawrence, Jazz, Jay Garfield, J. Dubb. Engineers: Sean Combs, Tony Maserati, Lane Craven, Doug Wilson, Axel Niehaus, Diana Pedraza, Al Machera, John Eaton, Stephen dent, Michael Patterson. Studios: Daddy's House (NYC), Caribbean Sound Basin (Trinidad) Mastering: Herb Powers.

RADIOHEAD: OK COMPUTER (CAPITOL)

The top young British band of the late '90s (at least in America; Oasis was bigger worldwide), Radiohead is a genre-defying group that boasts a prodigious frontman (Thom Yorke), who has never settled comfortably into any one style. They can rock, they can sound arty and obscure; but their songs are always a canvas for Yorke's often compelling personal vision. This record broke through to a large audience with virtually no mainstream radio play.

Producers: Nigel Godrich, Radiohead. Engineer: Nigel Godrich. Studios: Canned Applause Mobile (UK), Mayfair (London), Abbey Road (London) AIR Lyndhurst (London), The Church (London). Mastering: Chris Blair/Abbey Road.

1998

LAURYN HILL: THE MISEDUCATION OF LAURYN HILL (RUFFHOUSE)

Coming out of the popular, arty hip-hop band The Fugees, Lauryn Hill had one of the great crossover smashes of the late '90s with this album that so deftly mixed hip-hop, reggae, soul and confessional poetry. "Doo Wop (That Thing)" was the biggest of several hits from the record, but really, it was the album as a whole that blew everyone away; it's a marvelous polyglot. At the 1999 Grammys, she took home five trophies, including Album of the Year.

Producers: Lauryn Hill, Che Guevara, Vada Nobles. Engineers: Commissioner Gordon, Tony Prendatt, Warren Riker, Matt Howe, John Wydrycs, Chris Theis, Ken Johnston, Storm Jefferson, Johnny Wyndrx. Studios: Marley Music (Kingston), Chung King (NYC), Hit Factory (NYC), Perfect Pair (NJ), Circle House (Miami), Sony Music (NYC), RPM (NYC), Metropolis (London), Right Track (NYC), Mastering: Herb Powers/Powers House of Sound.

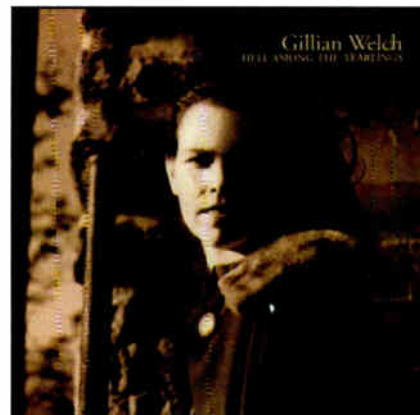


GILLIAN WELCH: HELL AMONG THE YEARLINGS (ALMO SOUNDS)

Though she grew up in New York and L.A., Gillian Welch sounds like she's from the backwoods of North Carolina, and her writing (with partner David Rawlings, a fine guitarist and harmony singer) is firmly rooted in the old-time music tradition. This album could've been made in the '20s, yet it still feels contemporary—a nifty feat.

Producer: T Bone Burnett. Engineers: Rick Will, Roger Moutenot, David Rawl-

ings, Mike Piersante. Studios: Sound City (Van Nuys, CA), Sound Emporium (Nashville), Nevada (Nashville), Ocean Way (L.A.) MCA (Nashville). Mastering: Doug Sax/Mastering Lab.



DIANA KRALL: WHEN I LOOK IN YOUR EYES (VERVE)

There's a timeless quality to Diana Krall's lilting pop-jazz... Is this the '50s, the '60s? There's also an unforced naturalness to both her singing and playing that is unquestionably appealing; it's no wonder she is the best-selling contemporary jazz artist. On this album, she teams up with producer Tommy LiPuma, who places her basic trio sound in an ocean of strings arranged by Johnny Mandel on a number of tracks to mostly good effect. This is lush, sentimental music all the way; self-consciously retro, but still satisfying.

Producer: Tommy LiPuma. Engineer: Al Schmitt. Studios: Avatar (NYC), Schnee (Hollywood). Mastering: Doug Sax/Mastering Lab.

TLC: FANMAIL (LAFACE)

Part of the '90s wave of Atlanta-based hip-hop/R&B groups, TLC consisted of Tionne "T-Bone" Watkins, the late Lisa "Left Eye" Lopes and Rozonda "Chilli" Thomas—three distinctive styles and personalities. Though they put out just three albums over the course of nearly a decade together, every album they made was extremely successful. This one—their last—featured the same blend of hip-hop and classic soul elements that made them so popular; it contained two Number One

1997

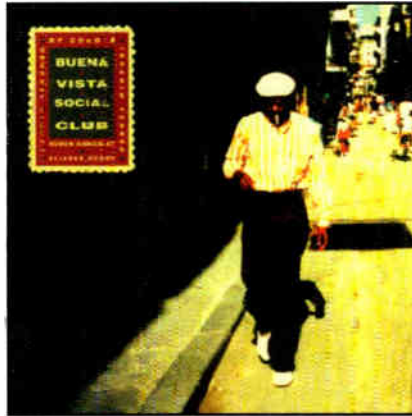
VARIOUS ARTISTS: BUENA VISTA SOCIAL CLUB (NONESUCH)

Every now and then an album comes out of nowhere and becomes a smash just from word-of-mouth. Chances are, whether you first heard this in a restaurant, a store or a friend's house, you said, "Hey, what *is* that? I gotta get that!" And so a pleasant album of Cuban folk and pop music performed by an ensemble of elderly unknown players (at least in America) went on to sell millions around the world and make belated stars of some of the principal players. A terrific album all the way through; it's as good as its hype. Kudos to Ry Cooder for lacing it together.

Producer: Ry Cooder. Engineer: Jerry Boys. Studios: Egram (Havana), Ocean Way (L.A.). Mastering: Bernie Grundman.

BOB DYLAN: TIME OUT OF MIND (COLUMBIA)

Nearly dying is always a good career move—it helped earn Dylan some overdue recognition from Grammy voters for this bleak, moody album. It also happened to be his best work since another

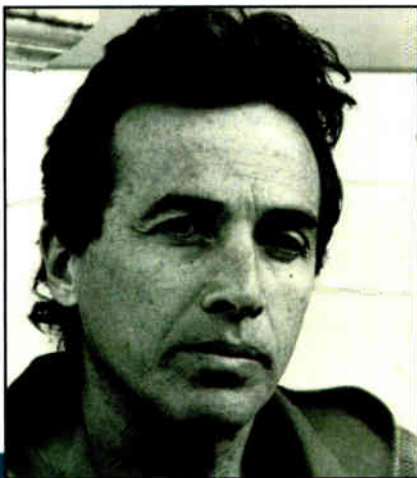


disc he'd cut with producer Daniel Lanois, the underappreciated *Oh Mercy*, back in 1989. There's an ominous undercurrent to much of this rootsy material that gives it a dark power, and Dylan's gravelly vocals match this set of songs perfectly. Four of Dylan's better late-period songs are here: "Love Sick," "Cold Irons Bound," the lovely ballad "Make You Feel My Love," and the stately "Highlands."

Producers: Daniel Lanois, Bob Dylan. Engineer: Mark Howard. Studios: Criteria (Miami), Teatro (Oxnard, CA).

SHANIA TWAIN: COME ON OVER (MERCURY)

A Canadian who moved to Nashville in the early '90s, Shania Twain took Music City by storm with her glossy, rock-influenced country sound, which was largely fashioned by her producer/husband Robert John "Mutt" Lange (of AC/DC and Def Leppard fame). Those who complain that Twain's success is all about image—she *is* strikingly beautiful—haven't checked out her songs (co-written with Lange), which



Producer/guitarist Ry Cooder on *The Buena Vista Social Club*:

"These musicians play in the classic [Cuban] manner, you might say. They have a natural expression that comes from somewhere deep inside. They have an inner life that was never eclipsed or replaced."

are finely crafted and nicely rendered nuggets of mainstream country-pop. The album boasted *nine* hit singles (with several crossing over onto the pop charts), including "You're Still the One," "That Don't Impress Me Much" and "Love Gets Me Every Time."

Producer: Mutt Lange. Engineers: Jeff Balding, Bob Bullock. Studios: Masterfonics (Nashville), Emerald (Nashville), Glenn Gould (Toronto), GBT (Nashville), Seventeen Grand (Nashville), Sven (Mamaroneck, NY), Sound Barrier (NYC). Mastering: Glenn Meadows/Masterfonics.

WILL SMITH: BIG WILLIE STYLE (COLUMBIA)

He was a rapper before he was an actor, so he's not some guy just cashing in on his Hollywood fame. He's always been funny and clever and literate; all three of those qualities are in evidence here. "Gettin' Jiggy With It" was the mega-hit, but there are other cool tracks, too—such as "Miami" and "Men In Black."

Producers: Will Smith, Andrea Heard, Poke and Tone, L.E.S., Jeff Townes, Keith Pelzer, Valvin Roane, Sauce. Engineers: Poke, Rich Tavali, Ken Ifill, Rob Chiarelli, Jeff Townes, Tony Maserati, Commissioner Gordon. Studios: The Hacienda (L.A.), Hit Factory (NYC), Right Track (NYC), Touch of Jazz (Philadelphia), Pacificque (No. Hollywood). Mastering: Herb Powers Jr./Powers House of Sound.

JAMES TAYLOR: HOURGLASS (COLUMBIA)

At this point, Taylor doesn't get played much on the radio or generate much excitement with new releases, but he still has a huge, faithful following, and to his eternal credit, he continues to make strong albums filled with warm, likable, personal songs that draw from many different genres but always sound like James Taylor songs. On this outing, he gets a little help from some interesting friends, including Sting, Stevie Wonder, Branford Marsalis, Shawn Colvin and Yo-Yo Ma; talk about eclectic! At the 1997 Grammys, *Hourglass* won Best Pop Vocal Album and Best Engineered Album, Non-Classical.

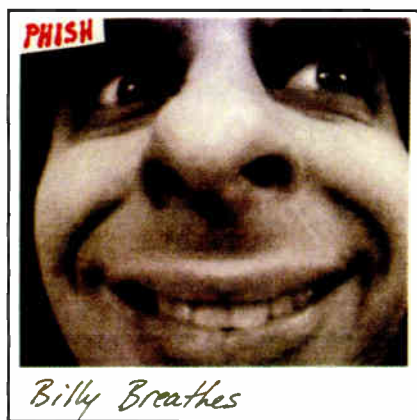
Producers: James Taylor, Frank Filipetti. Engineer: Frank Filipetti. Studios:

1996

THE BACKSTREET BOYS: THE BACK-STREET BOYS (JIVE)

It's too easy to criticize the Backstreet Boys and their ilk because their huge fan base was/is dominated by screaming young girls. These Boys *can* sing, and there is undeniable craft in many of their songs, which tend toward blue-eyed soul ballads and mild R&B dance numbers. For better or worse, this album ushered in the current wave of teen-pop sensations, although it had been a hit in Europe for nearly a year before it caught on with American listeners. Two songs—"Quit Playing Games (With My Heart)" and "Everybody (Backstreet's Back)"—cracked the Top Five, softening up the market for N'Sync, Britney Spears and others.

Producers: P.M. Dawn, Mutt Lange, Denniz Pop, Mookie, Kristian Lawing, Toni Cottura, Larry Campbell, Kristian Lundin, Mr. Lee. Engineers: Tim Donovan, Stephen George, Rick Behrens, Bulent Aris, Chris Brickley, Hakan Wollgard, Dana Cornock, Chris Trevett, Max Martin. Studios: Chevron (Stockholm), Battery (NYC), Parc (Orlando), Platinum Post (Orlando).



PHISH: BILLY BREATHES (ELEKTRA)

Phish fans will tell you that the group's studio albums never measure up to the legendary jam band's live performances, but they have made a few good ones that showcase the strong songwriting of guitarist/singer Trey Anastasio and his mates. Typical of Phish, it's a highly eclectic affair, drawing from any number of rock and folk styles and zipping between them

with utter confidence. "Free," "Prince Caspian" and other songs here went on to become Phish concert staples.

Producers: Steve Lillywhite, Phish. Engineer: John Siket. Studio: Bearsville (Bearsville, NY). Mastering: Bob Ludwig/Gateway.

JAMIROQUAI: TRAVELING WITHOUT MOVING (SONY)

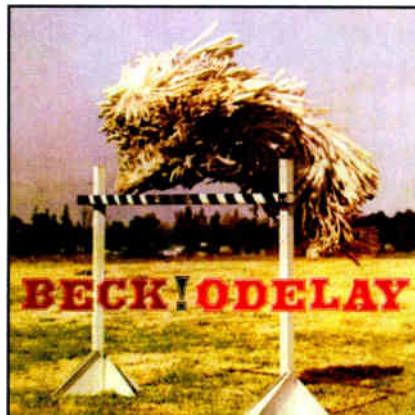
The multiracial British group has always been more popular in Europe than in the U.S., though they have made inroads in the dance scene with their mixture of acid-jazz and world music rhythms, alt rock energy and American funk and soul. It's quite a jumble of styles, but they wear all of them well.

Producers: Jason Kay, Al Stone, M-Beat. Studio: Great Linford (Milton Keynes, UK)

BECK: ODELAY (Geffen)

What an unlikely success story this is: Beck's finest album is a challenging pastiche of styles and textures, ranging from hip-hop to rock to country to blues, sometimes all within the same song. Lots of creative use of samples from everywhere, but that wouldn't add up to much if Beck's own songwriting and performances weren't so compelling. One of the defining albums of the '90s.

Producers: Beck Hansen, The Dust Brothers. Engineers: Beck Hansen, The Dust Brothers, Mario Caldato Jr., Brian Paulson, Tom Rothrock, Rob Schnapf. Studios: Conway (L.A.), G-Son, The Shop, Sunset Sound. Mastering: Bob Ludwig/Gateway.



PAULA COLE: THIS FIRE (WARNER BROS.)

This was a big year for singer-songwriter Cole. "Where Have All the Cowboys Gone" shot up the charts and helped *This Fire* become a top seller. And in the summer, she joined Sarah McLachlan on the popular Lilith Fair tour. A strong, personal writer with a pleasant and distinctive vocal style, Cole has continued to make interesting albums full of heartfelt songs.

Producer: Paula Cole. Engineer: Kevin Moutenot. Additional engineering: Kevin Killen, Gerry Leonard. Studios: The Magic Shop (NYC), Room With a View (NYC), Bearsville (Bearsville, NY), Shelter Island (NYC), Paula's apartment. Mastering: Bob Ludwig/Gateway.

PACO DE LUCIA, JOHN MCLAUGHLIN, AL DI MEOLA (VERVE)

Two of jazz's greatest guitarists and a flamenco master get together for an impressive acoustic summit where their disparate styles and ideas merge, mingle and occasionally collide. Each is given ample opportunities to shine *and* to be supportive, and though there are plenty of speedy runs—as you'd expect from such incredible technicians—there is also lots of subtle and sensitive interplay. Not surprisingly, Paco de Lucia brings a lovely Spanish feeling to a lot of these tunes.

Producers: John McLaughlin, Al Di Meola. Engineers: Stuart Bruce, Russell Kearney, Jaquie Turner, Ben Findlay. Studio: Real World (England). Mastering: Bob Ludwig/Gateway.

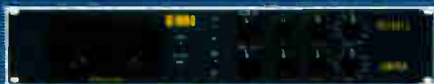
THE WALLFLOWERS: BRINGING DOWN THE HOUSE (INTERSCOPE)

Jakob Dylan was determined not to trade on his famous family name (he's Bob's son) and to make it on his own terms and—lo and behold—he succeeded! He has his own voice and style and has earned his own fans because he's an excellent singer and songwriter. He sounds more like Tom Petty than Bob Dylan, but he does share his father's passion for literate, evocative songwriting. There are several excellent songs on this sophomore release from The Wallflowers, including the Grammy-winning "One Headlight," "The Difference," "Invisible City" and, best of all, "6th Avenue Heartache."

Producer: T Bone Burnett. Engineers: Joe Schiff, Neal Avron, Toby Wright, Tom Lord-Alge, Andy Wallace. Studios: Larrabee West (Hollywood), Cello (L.A.), Encore (Burbank). Mastering: Bernie Grundman.

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1995

ALANIS MORISSETTE: JAGGED LITTLE PILL (MAVERICK)

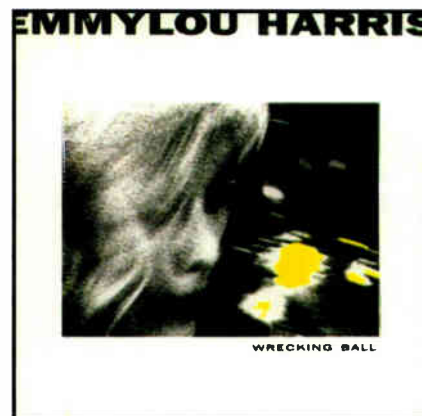
Though this album is loaded with quirky, intensely personal songs that practically sound like they're part of a musical therapy session, it resonated with *millions* of people, becoming one of the surprise hits of the mid-'90s and spurring rock radio to play more women artists (for a while). Besides landing a series of idiosyncratic songs on the charts—including "You Oughta Know," "You Learn" and "Iron-ic"—the album was also recipient of four Grammys, including Best Album.

Producer: Glenn Ballard. Engineers: Glenn Ballard, Ted Blaisdell, Rich Weingart, Chris Fogel, Victor McCoy, Francis Buckley, David Schiffman. Studios: Westlake (L.A.), Signet Sound (L.A.) Mastering: Chris Bellman/Bernie Grundman



EMMYLOU HARRIS: WRECKING BALL (ASYLUM)

A left turn for the mostly country artist, this album features the highly ambient sonics typical of Daniel Lanois productions, and an eclectic batch of tunes by folks such as Neil Young, Bob Dylan, Jimi Hendrix, Steve Earle, Gillian Welch and others. Unusual and adventurous, but ultimately successful.



Producer: Daniel Lanois. Engineers: Malcolm Burn, Sandy Jenkins, Mark Howard, Trina Shoemaker. Studios: Woodland (Nashville), Kingsway (New Orleans). Mastering: Joe Gastwirt/Oceanview Digital.

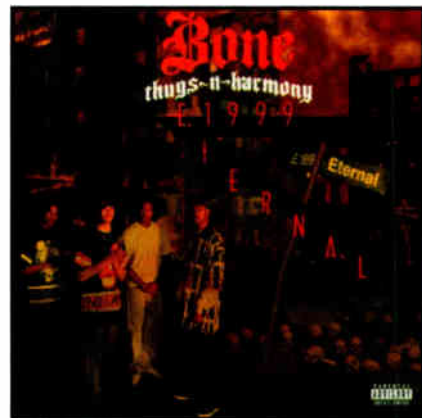
BONE THUGS-N-HARMONY: E. 1999 ETERNAL (RUTHLESS)

Blasting out of Cleveland, hard core rappers Bone Thugs-N-Harmony became one of the top groups of the late '90s by fusing clever, literate raps with bright harmony singing, best exemplified in the outstanding track "Tha Crossroads." Though their underlying philosophy, as expressed in their raps, was a bit hazy, their appeal was not: This album sold more than 4 million copies, as did the follow-up CD, *The Art of War*.

Producers: Eric Wright, DJ U-Neek. Engineers: Aaron Carter, Tony Cortez, Eric Nordquist. Studios: Trax (Hollywood), Studio Cat (Hollywood), Sound City (Van Nuys, CA)



Producer Glen Ballard on the recording of Alanis Morissette's *Jagged Little Pill*:
"We didn't redo anything on that record. We would record something, and that was basically it. We later added some overdubs to what we'd already done, but all of her lead vocals are from the day they were written... We felt from the beginning that it was important not to try to gild the lily, and really let the rawness and the freshness of what we had captured in its initial form speak for itself."



1994

GREEN DAY: DOOKIE (REPRISE)

Fast, funny, punky assault by a trio from Berkeley, California, of all places. They sound like The Clash sometimes, but their concerns are less political, instead touching on teenage boredom and frustration. That they became huge stars is remarkable, but they *can* sing, play and write catchy songs. This is the peak of their early sound.

Producers: Rob Cavallo, Green Day. Engineers: Neil King, Rob Cavallo, Jerry Finn, Casey McCrankin. Studios not listed.



HOLE: LIVE THROUGH THIS (Geffen)

Courtney Love's first post-Kurt album has a scary intimacy and intensity at times, but also great punky performances by guitarist Eric Erlandson and the rhythm section of bassist Kristen Pfaff and drummer Patty Schemel. Love can't help but be annoying some of the time, but you've

got to give her credit for really laying out her emotions for the world to hear.

Producers/Engineers: Paul Kolderie and Sean Slade. Additional engineering: Scott Litt, J. Mascis. Studios: Record One (L.A.), Bad Animals (Seattle), Triclops (Atlanta), Sear Sound (NYC). Mastering: Bob Ludwig/Gateway.

TOOTS THIELMANS: EAST COAST WEST COAST (PRIVATE)

The jazz harmonica master has made many excellent albums; this one really captured a nice, "up" mood, with songs by the likes of Coltrane, Diz, Monk, Brubeck, Bird, Miles and more. Among the contemporary luminaries helping out are Joshua Redman, Charlie Haden, John Scofield, Robben Ford, Peter Erskine and Christian McBride.

Producers: Miles Goodman and Oscar Castro-Neves. Engineer: Joel Moss. Studios: Conway (L.A.), Hit Factory (NYC), Signet (L.A.). Mastering: Bernie Grundman.

JEFF BUCKLEY: GRACE (COLUMBIA)

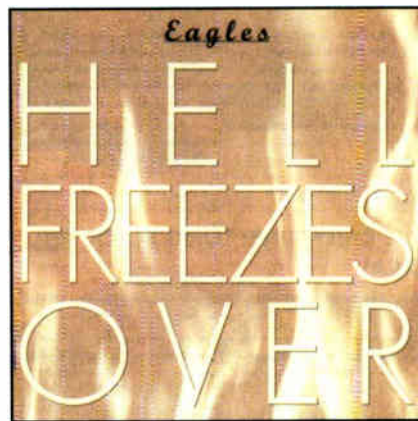
Buckley was one of the more interesting male singer/songwriters to emerge during the '90s, and this debut showed a lot of promise. As quirky as his famous father—folkie Tim Buckley—Jeff Buckley had an elastic voice that soared and swooped over the sometimes dense arrangements of his songs. Buckley drowned just before his second album was completed.

Producer/engineer: Matt Wallace. Additional engineering: Clif Norrell. Studios: Bearsville (Bearsville, NY), Quantum Sound (Pomona, CA), Soundtrack (NYC). Mastering: Howie Weinberg/Masterdisk.

IRIS DEMENT: MY LIFE (WARNER BROS.)

Listening to Iris DeMent is like flipping through a book of old black and white photographs. Her backwoods style harkens back to an earlier era of rural country music, but her heartfelt personal reflections and the characters she draws are powerful, timeless and universal.

Producer: Jim Rooney. Engineer: Rich Adler. Studios: Cowboy Arms Hotel & Recording Spa (Nashville), Jack's Tracks (Nashville). Mastering: Denny Purcell/Georgetown Masters.



EAGLES: HELL FREEZES OVER (Geffen)

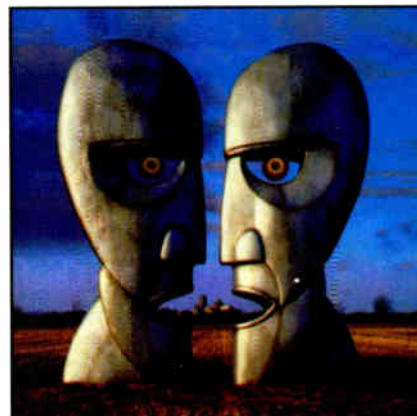
The reunion album nobody believed would happen. Superb live versions of many Eagles hits (including an acoustic "Hotel California," full of Spanish flavor), and four pretty good new tracks, too. This was also a TV special and 5.1 DVD.

Producers: The Eagles, with Elliot Scheiner and Ron Jacobs. Engineers: David Hewitt, Elliot Scheiner and Ron Jacobs. Studios: Warner Burbank, Le Mobile remote, Village Recorder (L.A.), A&M (L.A.), Hit Factory (NYC). Mastering: Ted Jensen/Sterling Sound.

PINK FLOYD: THE DIVISION BELL (COLUMBIA)

The finest hour of the post-Roger Waters Floyd, the CD is dark but still tuneful, with biting lyrics that seem to address the split between Waters and his ex-bandmates. David Gilmour shines throughout as leader of the band. Tremendously underrated.

Producers: Bob Ezrin and David Gilmour. Engineers: Andrew Jackson, with Steve McLaughlin and Keith Grant; mixing by Gilmour and Chris Thomas. Studios: Astoria, Britannia Row, Abbey Road, Metropolis (all London), The Creek.



1993

COUNTING CROWS: AUGUST AND EVERYTHING AFTER (DGC)

The Counting Crows managed the difficult feat of attracting an alt rock following with music that had classic rock roots—in singer-songwriter Adam Duritz's introspective songs, there are echoes of Van Morrison, Bob Dylan, The Band and others; it's literate and loose, sometimes almost sounding like it's stream-of-consciousness. The format-busting album produced three radio hits—"Round Here," "Rain King" and "Mr. Jones"—and eventually sold more than 7 million copies.

Producer: T Bone Burnett. Engineers: Steve Holroyd, Patrick McCarthy, Robert Hart, Clark Germain, Howard Willing. Studios: "A big house on a hill in Los Angeles,



T Bone Burnett, producer of Counting Crows' *August and Everything After*, on making successful records:

"I couldn't tell you exactly what it takes that makes most hit records successful. And I don't think I'm facile enough to sell out. You have to be able to do something you don't mean, and I'm not good enough to do something I don't mean and have it sound like anything. The only reason what I do sounds like anything at all is because I mean it."

Kiva West (L.A.), Conway (L.A.), Village (L.A.), Sunset Sound (Hollywood), Ocean Way (L.A.).

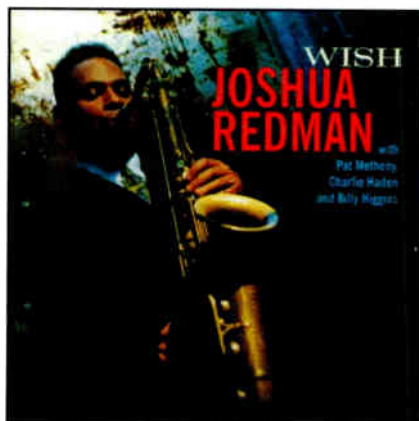
DIGABLE PLANETS: REACHIN' (A NEW REFUTATION OF TIME AND SPACE) (ELEKTRA)

What a cool band this was. Digable Planets was among the first groups to hit it big by fusing rap with jazz; their breakthrough single, "Rebirth of Slick (Cool Like Dat)" used a horn sample from an old Art Blakey record! Eschewing the anger and bravado of so many of their rap brethren, Digable Planets instead went for a mellower, more inclusive style that turned out to have very broad appeal. A very influential album; too bad they didn't stick around after the early '90s.

Producer: Butterfly. Engineers: Mike Mangini, Shane Farber. Studios: Sound Doctor (No. Bergen, NJ), Sound On Sound (NYC), Hit Factory (NYC). Mastering: Tom Coyne/Hit Factory.

JOSHUA REDMAN: WISH (WARNER BROS.)

Redman is one of the best young tenor sax improvisers out there, an adventurous spirit also capable of great lyricism. Here he is part of an amazing quartet that includes guitarist Pat Metheny and Ornette Coleman's old rhythm section—bassist Charlie Haden and drummer Billy Hig-



gins. That sounds like it would be an invitation to go "outside," but Redman mostly keeps things fairly restrained, which isn't to say there aren't some heady post-bop flights. With tunes by Ornette, Charlie Parker, Stevie Wonder, Eric Clapton, Metheny, Haden and Redman, there's lots of stylistic variety and many moods.

Producer: Matt Pierson. Engineer: James Farber. Studio: Power Station (NYC). Mastering: Greg Calbi/Sterling Sound.

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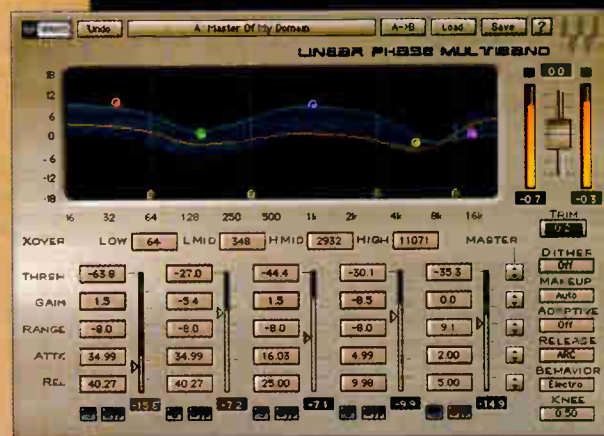
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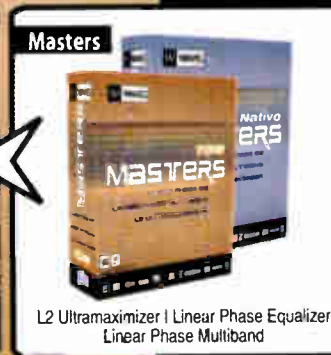


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SHERYL CROW: TUESDAY NIGHT MUSIC CLUB (A&M)

After years toiling away as a backup singer for the likes of Don Henley and Michael Jackson, singer/songwriter Crow steps out with her first solo album, co-written and produced with a group of songwriter friends known as the Tuesday Night Music Club. Though it took awhile to catch on, eventually Crow's loose, catchy folk-pop did find an audience. Behind the success of songs like "All I Wanna Do," "Leaving Las Vegas,"

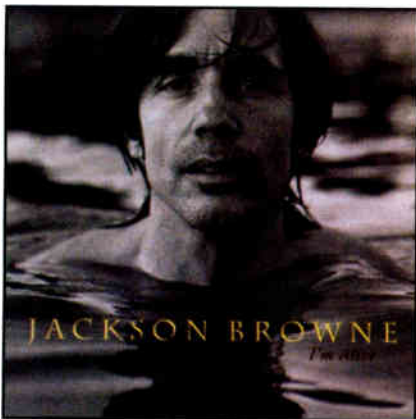
"Strong Enough" and "No One Said It Would Be Easy," this album went on to sell more than 9 million copies and establish Crow as one of the top performers in pop.

Producer: Bill Bottrell. Engineers: Bill Bottrell, Blair Lamb. Studio: Toad Hall (L.A.) Mastering: Bernie Grundman.

JACKSON BROWNE: I'M ALIVE (ELEKTRA)

In the '70s, Browne made some of the definitive "relationship" albums. This is the definitive break-up album. A true return to form; his best since *The Pretender*. Besides the stirring title track, it contains the gospel-inflected "My Problem Is You" and the lovely "Too Many Angels."

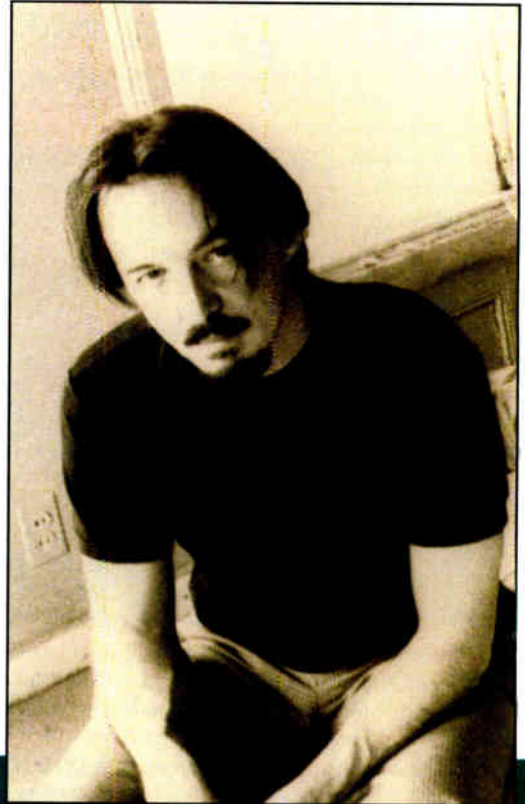
Producers: Jackson Browne, Scott Thurston, Don Was. Engineers: Paul Dieter, Rick Pekkonen, Ed Cherney. Studios: Groove Masters (Santa Monica). Mastering: Doug Sax and Gavin Lursen/The Mastering Lab.



SMASHING PUMPKINS: SIAMESE DREAM (VIRGIN)

Their indie debut, *Gish*, cut with Butch Vig, was huge on college radio and added to the Chicago alternative band's already impressive following. And when they made the jump to a major label with this album, again with Vig on board, they became national stars. Leader Billy Corgan's intense, layered guitars and rambling compositions owed more to psychedelic and progressive rock than to the band's punk roots; it's a formula that let them retain their indie cred while tapping into the fringe of the mainstream. Powerful and trippy.

Producers: Billy Corgan, Butch Vig. Engineers: Butch Vig, Jeff Tomei, Mark Richardson. Studio: Triclops (Atlanta).



Producer Butch Vig on getting guitar sounds on Smashing Pumpkins' *Siamese Dreams*: "Billy [Corgan] and I would go through all these different combinations of guitars and pedals until something made sense to us. Billy and I have this strange chemistry where we both kind of agree on things. We can listen to 20 sounds in a row, and all of a sudden we look up at the same time and say, 'That's it!' Sometimes we might be looking for something that's like the attack of the killer bees, or maybe we want something sludgy. 'Soma' has 26 guitars on it."

JOHNNY CASH: AMERICAN RECORDINGS (AMERICAN)

By the early '90s, Johnny Cash didn't have to prove anything to anybody; he was a living legend who'd done it all. That's what made the stunning success of this album all the more surprising. It's bare-bones Cash—just him and his guitar,

rolling through an inspired set of original songs, and tunes suggested by producer Rick Rubin by the likes of Nick Lowe, Tom Waits, Loudon Wainwright and even metal singer Glenn Danzig.

Producer: Rick Rubin. Engineers: David Ferguson, Jim Scott. Mastering: Stephen Marcussen.

Producer Mitchell Froom on Los Lobos' *Kika*:

"I really think this was kind of the liberation of David Hidalgo musically, because the songs didn't suffer under the tyranny of their being a live representation of what was going to happen. They wanted to get cool noises and make it a cool record; then they could reinvent it live later. That gave them tremendous room to be adventurous."



From left: Froom, David Hidalgo, Louie Peres and Tchad Blake

Producers: Neil Young and Ben Keith. Engineers: Tim Mulligan, John Nowland. Studio: Redwood Digital (Woodside, CA). Mastering: Tim Mulligan/Redwood Digital.

LOS LOBOS: KIKO (WARNER BROS.)

Dreamy, rootsy, gutsy, surrealistic, down-home, rocking, enigmatic, intimate, ethereal. It's Los Lobos' shift from a good-time Tex-Mex rock band to artists with a capital A. The start of their impressive run with the Froom-Blake team. A strange but beautiful album.

Producers: Mitchell Froom, Los Lobos. Engineers: Tchad Blake, Paul duGre, Kevin Killen. Studios: Sound Factory West, Paul

and Mike's, Ocean Way (all in L.A.). Mastering: Bob Ludwig/Masterdisk.

LYLE LOVETT: JOSHUA JUDGES RUTH (MCA)

People always want to call Lyle Lovett a country singer, but that tag doesn't quite do it, because his eclectic style incorporates folk, gospel, R&B and even jazz, depending on the album. This one has strong gospel and pop influences; in fact, it sounds like a descendant of Ry Cooder's mid-'70s gospel-rock. As always, there's lots of desperation and love-gone-wrong in his songs, but Lovett's dry wit is usually right around the corner. Beautifully recorded by George Massenburg, et al.

Producers: George Massenburg, Lyle Lovett. Engineers: George Massenburg, Nathaniel Kunkel, Gil Morales, Steve Holroyd, Marnie Riley, Noel Hazel. Studios: Ocean Way (L.A.), Conway (L.A.), Mastering: Doug Sax, Alan Yoshida/Mastering Lab.

ERIC CLAPTON: UNPLUGGED (REPRISE)

A surprise smash hit from the veteran Clapton, with acoustic renditions of various old blues and original tunes, including a slowed down "Layla," the spry "San Francisco Bay Blues," and the tragic ballad "Tears in Heaven." His most popular al-



bum, and winner of several Grammys.

Producer: Russ Titleman. Engineers: Jim Barton, Steve Boyer. Studios: MTV (NYC), Power Station (NYC). Mastering: Ted Jensen/Sterling Sound.

ARRESTED DEVELOPMENT: 3 YEARS, 5 MONTHS AND 2 DAYS IN THE LIFE OF... (CHRYSALIS)

It's a shame this group couldn't stay together longer, because this debut album was one of the most exciting and provocative albums of the early '90s. It brought together strains of hip-hop, funk and soul in a completely original way, and managed to have a strong social consciousness at the same time. The multi-Platinum album won the Grammy for Best Rap Album, and the group was *Rolling Stone's* Band of the Year for 1992.

Producer: Speech. Engineers: Alvin Speights, Speech, Ton Held, Richard Wells. Studios: Bosstown, 2560, Trax 32, UVM. Mastering: Howie Weinberg/Masterdisk.



1991

1992

Producers: Dallas Austin, Mark Nauseef, Walter Quintus, Kurt Renker. Engineers: Steve Berg, Jim Hinger, Dennis Mitchell, Darin Prindle, Chris Trevitt, David Way. Studios: Studio 4 (Philadelphia), Soundworks (NYC), Doppler (Atlanta). Mastering: Bernie Grundman

METALLICA: METALLICA (ELEKTRA)

Metallica is probably the most important and influential metal band to emerge during the 1980s, a word-of-mouth phenomenon that just kept getting bigger and bigger every year. This record, known colloquially as "The Black Album," marked a commercial turning point for the group, as Bob Rock's sleek production made their sonic squall shine like never before, but also seemed to add even more crunch to their destructo bottom end. A few diehards cried, "Sell-out," of course—hit singles? Metallica? But subsequent albums proved they never lost their manic edge.

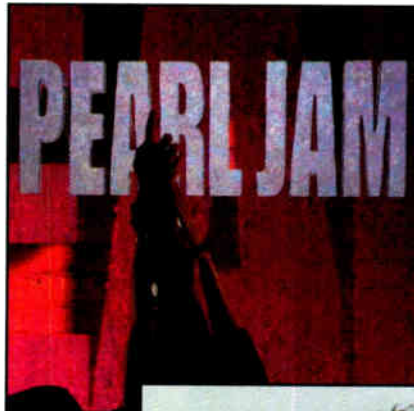
Producers: Bob Rock, James Hetfield, Lars Ulrich. Engineers: Randy Staub, Mike Tacci. Studios: One On One (L.A.).

Producer Bob Rock on working with Metallica:

"They wanted to improve the sound. They wanted to have a lot more power, and they wanted to get more melodic. So when we talked about things, we talked about the approach of recording. Previous to my involvement with them, they had done a lot of work bit-by-bit, drums separate from guitars, etc. So I got them playing in one studio."

PEARL JAM: TEN (EPIC)

Though criticized by some as a poor-man's Nirvana when they burst onto the scene with this impressive debut, Pearl Jam wasted no time in making their mark with a huge following that appreciated their accessible grunge sound—less punk than Nirvana, less metal than Alice



in Chains. Eddie Vedder was a truly original voice and, as it turned out, a very influential one. Includes the classic tunes "Black" and "Alive."

Producers: Pearl Jam, Rick Parashar. Engineers: Rick Parashar, Tim Palmer, with additional engineering by Dave Hillis, Don Gilmore and Adrian Moore. Studios: London Bridge (Seattle), Ridge Farm (Dorking, UK). Mastering: Bob Ludwig/Masterdisk.

EN VOGUE: FUNKY DIVAS (EAST/WEST)

Long before there were TLC and Destiny's Child, the four women of En Vogue were the reigning queens of vocally based R&B. The hot production/writing team of Foster & McElroy gave them solid material and a delectable sheen; the rest the women did with sheer talent and show biz smarts. The album was a huge seller, thanks to hits such as "Free Your Mind," "My Lovin' (You're Never Gonna Get It)," "Give It Up, Turn It Loose" and "Giving Him Something He Can Feel." An unbeatable party album!

Producers: Denzil Foster and Thomas McElroy. Engineering: Michael Semanick, Neill King, Steve Counter, Ken Kessie. Studios: Fantasy (Berkeley), Can-Am (Tarzana, CA). Mastering: Brian Gardner.

NEIL YOUNG: HARVEST MOON (WARNER BROS.)

A conscious return to the country feeling of his *Harvest* album 20 years earlier, this one actually surpasses the original with a full slate of fine acoustic-based tunes. Like *Comes a Time*, this record highlights Young's pretty, romantic balladry. Hard to believe this is the same guy who lays down the sonic sludge with Crazy Horse year after year.

'80s TV series. Julie Cruise is the smooth-voiced chanteuse on a few tracks. The music is easier to understand than the show was, but both were/are cool.

Producers: David Lynch, Angelo Badalamenti. Engineers: Art Pohlemus, Jay Healy. Studios: Excalibur, Hit Factory (NYC). Mastering: Howie Weinberg/Masterdisk.

WORLD PARTY: GOODBYE JUMBO (CHRYSALIS)

WP mastermind Karl Wallinger wears his influences on his sleeve—Beatles, Beach Boys, Stones, Stevie Wonder, etc.—yet, he still manages to come up with a singular pop style that is tuneful, loaded with great hooks and sounds like nothing else. "Is It Too Late," "Way Down Now" and "Put the Message in the Box" are the best of the fine lot here.

Producer/Engineer: Karl Wallinger. Studios: Seaview (London), The Old Rectory (Bedfordshire, UK).

World Party mastermind Karl Wallinger on layered recording:

"A lot of World Party songs are like downtown Tokyo—they're pretty dense. But everyone's got to find someplace to live, so someone's on the top floor, someone's in the basement, and there are a lot of people in the middle. I think of sound pictures as being like that: I've always enjoyed putting

together interesting combinations of instruments and sounds."



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1990

JANE'S ADDICTION: RITUAL DE LO HABITUAL (WARNER BROS.)

Meanwhile on the planet Perry (Farrell), things are very strange indeed. With their arty-bordering-on-pretentious posturing and bizarre hodge-podge of metal, alternative, trance and opiated punk, Jane's Addiction was unlike any other band. They were impossible to pigeonhole and never stayed in one spot too long, stylistically. From expansive jams to crunching hard rock, to weird, ethereal tone poems, these guys covered a lot of ground—and sold a lot of albums. "Mountain Song" and "Ocean Size" are just two of the standout oddities here.

Producers: Perry Farrell, Dave Jerden. Engineers: Ronnie Champagne, Dave Lacivita. Studios: Track Record (No. Hollywood), Sound Castle (L.A.) Mastering: Eddy Schreyer/Future Disc.

SINEAD O'CONNOR: I DO NOT WANT WHAT I HAVEN'T GOT (CHRYSALIS)

Forget the controversies that have swirled around O'Connor for most of her career. She's a brilliant singer and songwriter, as this disc shows. At once incisive, confessional and always soaked in a fundamental *truth*, these songs add up to a stirring self-portrait of a very distinctive artist. The hit single from this album "Nothing Compares 2 U," was written by Prince, but she totally makes the song her own.

Producer: Sinéad O'Connor (with Nellee Hooper on one song). Engineer: Chris Burkett (with Sean Devitt on one song). Studio: STS (Dublin).



SONIC YOUTH: GOO (Geffen)

This band already had underground cred to spare by the time this major label effort was released, and to their credit, they made no compromises—it's still awash with feedback and noise, and loaded with the sort of arty post-punk rambling that is their trademark. The earlier *Daydream Nation* is probably their masterpiece, but this one helped elevate them from the underground somewhat.

Producers: Sonic Youth, with Nick Sansano and Ron St. Germain. Engineers: Nick Sansano, Ron St. Germain, Jim Waters. Studios: Sorcerer (NYC), Greene Street (NYC), Right Track (NYC), Waterworks (NYC). Mastering: Howie Weinberg/Masterdisk.

GARTH BROOKS: NO FENCES (CAPITOL)

Brooks' self-titled 1989 debut announced that a major new force had emerged on the Nashville scene, but no one could have guessed just how big he would become. This sophomore effort spawned a number of country hits, including "Friends in Low Places," "Unanswered Prayers" and "The Thunder Rolls" (a controversial song about domestic violence), but the real secret of Brooks' success is that he managed to attract followers outside of the country market. *No Fences* remains the best-selling country album of all time.

Producer: Allen Reynolds. Engineer: Mark Miller. Studio: Jack's Tracks (Nashville). Mastering: Denny Purcell/Georgetown Masters.



PAUL SIMON: THE RHYTHM OF THE SAINTS (WARNER BROS.)

After immersing himself in Africa for *Graceland*, Simon moves on to Brazil, with similarly engaging results. While not quite as spunky as its predecessor, this album is laced with mystery, and the "up" songs, such as "The Obvious Child" and "Proof" are infectious. And there's still plenty of Africa in this album, too.

Producers: Paul Simon, Roy Hallee. Engineer: Roy Hallee. Studios: Hit Factory (NYC), Transamerica (Rio), Impressao Digital (Rio), Guillaume Tell (Paris). Mastering: Greg Calbi/Sterling Sound.



ANGELO BADALAMENTI: MUSIC FROM TWIN PEAKS (WARNER BROS.)

Twisted hipster lounge music and odd and unsettling themes dominate this strange and moody soundtrack from David Lynch's bizarre and influential late

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1989



NEVILLE BROTHERS: YELLOW MOON (A&M)

A stunning blend of New Orleans R&B, funk struttin', social consciousness and a bit of moody bayou voodoo. The Nevilles have never sold a lot of records, but they've made lots of good ones: this is their best. Aaron Neville's unearthly falsetto never sounded better.

Producer: Daniel Lanois. Engineer: Malcolm Burn; additional engineering: Charles Brady. Studio: A House in New Orleans. Mastering: George Horn/Fantasy.



Saxophonist Charles Neville on the making of the Neville Brothers' *Yellow Moon*:
"We found this old five-story building near our neighborhood [in New Orleans] and just took it over for a while. I lived on the first floor, Daniel [Lanois] lived on the fifth floor, and some of the engineers lived on two other floors. Daniel set up the recording studio on the second floor, and it worked out beautifully."



ELVIS COSTELLO: SPIKE (WARNER BROS.)

Some found the eclecticism of this album a bit much; it does jump from style to style in a fairly haphazard fashion. But the songs are a strong and ageable lot, and, of course, Elvis has the vocal chops to move easily from one genre to the next. With the Attractions out of the picture at this time, Elvis turned to a host of interesting collaborators, including the Dirty Dozen Brass Band (on the superb "Deep Dark Truthful Mirror"), Roger McGuinn, members of The Chieftains, New Orleans piano great Allen Toussaint, Chrissie Hynde, Paul McCartney, Mitchell Froom...the list goes on and on. The delightful EC/Sir Paul tune "Veronica" was a substantial hit.

Producers: Elvis Costello, Kevin Killen, T Bone Burnett. Engineer: Kevin Killen. Studios: Ocean Way (L.A.), Southlake (New Orleans), Windmill Lane (Dublin), AIR (London). Mastering: Bob Ludwig/Masterdisk.

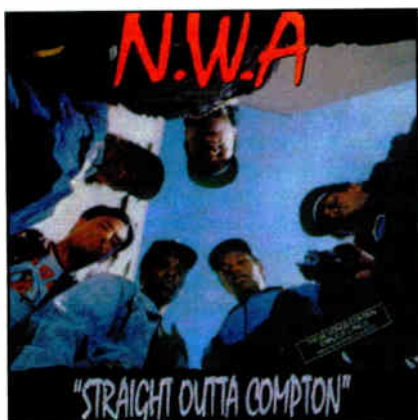
Spike co-producer/engineer Kevin Killen on meeting Elvis Costello:

"I was sitting in my apartment one day in New York, and the phone rings. I pick it up and a voice says, 'Can I speak to Kevin; this is Elvis Costello.' I put my hand over the receiver and barely suppressed a gasp. Costello was one of my all-time favorite artists...[Later], I went to his hotel room and spent four hours listening to him talk about music, and after that I left feeling musically illiterate. That's how brilliant Costello is."

NWA: STRAIGHT OUTTA COMPTON (RUTHLESS)

When this raw, visceral, brutal, misogynist and profane slice of gangsta rap exploded out of L.A.'s South Central area with songs like "F— the Police," "Gangsta Gangsta" and "Express Yourself," and then went on to sell more than 2 million copies, America freaked out! That's a *good* thing, because NWA told an unvarnished version of inner-city truth, and spoke for thousands of disaffected people. This album made stars of group leaders Dr. Dre, Ice Cube and Eazy-E, and spawned a zillion, mostly inferior, imitators.

Producers: Dr. Dre, DJ Yella. Engineer: Donovan Sound. Studio: Audio Achievements (Torrance, CA). Mastering: Bernie Grundman.



CLINT BLACK: KILLIN' TIME (RCA)

There was nothing startlingly different or original about Clint Black when he came onto the scene. His sound was based more in traditional country than most artists, but he was also a little glossier than some others. Whatever the appeal, he *immediately* struck a chord with the public—this debut album hit Number One on the country album chart and stayed there for *eight months*, thanks to the success of singles such as the title cut, "Nobody's Home," "A Better Man," and "Walkin' Away." The Houston-area native was "discovered" by ZZTop manager/producer Bill Hamm.

Producers: Bill Hamm, James Stroud, Mark Wright. Engineers: Lynn Peterzell, Milan Bogdan. Studios: Digital Services (Houston), House of David (Nashville), Sound Stage (Nashville), Woodland (Nashville), Reflections (Nashville), Eleven Eleven (Nashville) Mastering: Glenn Meadows/Masterfonics.

K.D. LANG: ABSOLUTE TORCH AND TWANG (SIRE)

This is exactly what the title implies: torch songs with a country twist. It's not as lush as her equally brilliant *Shadowland*, but it's filled with incisive country love songs (most by lang and Ben Mink) and superb and tasteful playing. k.d. is a different strain of country but she's the real deal—a singer of amazing range and conviction.

Producers: Greg Penny, Ben Mink and k.d. lang. Engineers: Joe Setta and Greg Penny. Studio: Vancouver (B.C.).



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1989

TOM PETTY: FULL MOON FEVER (MCA)

Though technically a solo album, the other Heartbreakers appear here and there, and three of these songs instantly went into TP & the Heartbreakers' live repertoire, and "Free Fallin'," "I Won't Back Down," "Running Down a Dream" found their way onto the group's greatest hits CD. What separates this from a regular Heartbreakers album is Jeff Lynne's bright production and the appearance of guests such as George Harrison and Roy Orbison (fellow travelers in the Wilburys). Two other highlights: "Yer So Bad" and the ultra-goofy "Zombie Zoo."

Producers: Jeff Lynne, Tom Petty. Engineers: Bill Bottrell, Dennis Kirk, Don Smith. Studios: Mike Campbell's (L.A.), Sunset Sound (Hollywood), Devonshire (Hollywood), Conway (L.A.).



Tom Petty, on how he came to work with producer Jeff Lynne:

"It sounds like a tall story, but it all started when I ran into Jeff Lynne at a traffic light, around Thanksgiving 1987, and found he lived right up the road from me...We got to talking and became friends. Then [later] I wrote a couple of songs and showed them to him, and he had a few suggestions that really improved them. We ended up going over to Mike Campbell's house and putting them down in his studio, and they sounded like records...Then I kept convincing Jeff song by song to do one more, and finally I hooked him into finishing the whole album."

Producer Bruce Fairbairn on making Aerosmith's *Pump*:

"Production should always come secondary to capturing a moment. None of the songs on *Pump* would have flown if the guys in Aerosmith hadn't played them great initially...All those songs can be stripped down. You can get rid of the horns, the piano, the accordion and still have a good album with great songs. The production is just there to enhance what the band has done. It's like baking a great cake with a lot of icing. I like a lot of icing!"



AEROSMITH: PUMP (Geffen)

Aerosmith already had years of hit albums and enough ups and downs to fill a dozen episodes of VH-1's *Behind the Music* when they made this powerful hard-rocking album in the late '80s. All the ingredients of their initial success are here: the riff-heavy rock tunes, the thundering ballads, the mid-tempo rockers that recall the Stones but still manage to sound original. "Janie's Got a Gun" and "Love in an Elevator" both made the Top 5.

Producer: Bruce Fairbairn. Engineer: Mike Fraser. Studio: Little Mountain (Vancouver). Mastering: Greg Fulginiti/Artisan Sound.



MIDNIGHT OIL: DIESEL AND DUST (COLUMBIA)

The socially conscious Australian band has made a number of fine albums; this is the best-known because of the international success of the catchy "Beds Are Burning," but it's solid throughout. Rock and politics do occasionally mesh well, as the Oils prove. And they're still going strong and fighting the good fight.

Producers: Warne Livesay and Midnight Oil. Engineers: Guy Gray, Nick Launay, Greg Henderson. Studio: Albert (Sydney).

GEORGE HARRISON: CLOUD NINE (DARK HORSE)

Harrison's best solo album since *All Things Must Pass* showcases his lighter side, with producer Jeff Lynne giving it a little of that old Beatles sheen. Friends

Ringo, Clapton, Elton and others help out on what would be George's final studio album.

Producers: Jeff Lynne and George Harrison. Engineer: Richard Dodd. Studio: FP-SHOT (UK). Mastering: Brian Gardner/Bernie Grundman.



Producer Jeff Lynne on getting together with George Harrison for *Cloud Nine*:

"One night at dinner, Dave Edmunds said, 'Oh yeah, I forgot to tell you—George Harrison asked me if you'd like to work on his new album.' I said, 'What?!' It turned out George had been looking for me."

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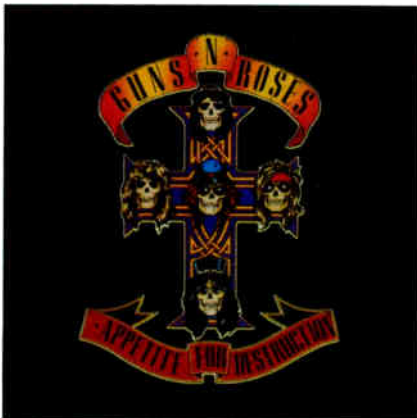
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1987

GUNS 'N ROSES: APPETITE FOR DESTRUCTION (Geffen)

For a while there, it looked as though Guns 'N Roses would take over the world. With Slash's heavy guitars and the screeching lead vocals of frontman Axl Rose, GNR were a sort of Led Zeppelin for the late '80s, except they imploded much earlier. Contains "Welcome to the Jungle," "Sweet Child O' Mine" and other anthemic testosterone-fueled rockers.

Producer: Mike Clink. Engineers: Mike Clink, Steve Thompson, Michael Barbiero. Studios: Rumbo (Canoga Park, CA), Take One (Burbank), Can Am (Tarzana, CA), Media Sound (NYC). Mastering: George Marino/Sterling Sound.



JOHN HIATT: BRING THE FAMILY (A&M)

Hiatt is known primarily as a writer of songs others have recorded, but he's also made a number of excellent albums himself, with this being perhaps the pick of the litter. His material and his singing are always first-rate, and on this album, he's also got a fabulous band to deliver the tunes: Ry Cooder on guitar, Nick Lowe on bass and Jim Keltner on drums. The songs range from the confessional to the acerbic; pain and humor do battle through much of his work. "Memphis in the Meantime," "Have a Little Faith in Me," "Thing Called Love" and "Your Dad Did" are just a few of the delights here.

Producer: John Chelew. Engineers: Larry Hirsch, Joe Schiff. Studio: Ocean Way (L.A.). Mastering: Bob Ludwig/Masterdisk.

U2: THE JOSHUA TREE (Island)

Another band where you could pick just about any album they made and argue for its significance. They were already huge when this album came out, but *The Joshua Tree* turned them into the biggest band in the world. A masterpiece from beginning to end, it opens with four of their strongest songs: "Where the Streets Have No Name," "I Still Haven't Found What I'm Looking For," "With or Without You" and "Bullet the Blue Sky."



U2 producer Brian Eno on recording vocals:

"The best experiment with vocals is to trick the singer into thinking you're not recording! I'm always terrified of the moment I get into vocals with a band. Suddenly, the door seems to shut on having a good time."

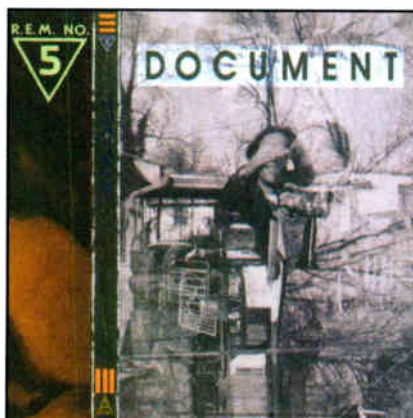
Producers: Daniel Lanois, Brian Eno. Engineers: Flood, Steve Lillywhite, with additional engineering by Dave Meegan, Pat McCarthy and Mark Wallace. Studio: Windmill Lane (Dublin).

REM: DOCUMENT (IRS)

These guys have had more distinct periods than Picasso, and each is worth exploring if it's adventurous rock you're looking for. This album marked the beginning of their association with producer/engineer Scott Litt, who cleaned up their famously muddy sound and really

seemed to bring out the best in singer Michael Stipe. Lots of choice tunes here, including "The One I Love," which became the band's first big hit single, "Finest Worksong" and "It's the End of the World As We Know It." Subsequent albums might have sold more, but this is where they turned a corner...

Producers: Scott Litt, REM. Engineers: Scott Litt, Steve Catania, Todd Sholar, Ted Pattison, Tom Der. Studios: Sound Emporium (Nashville), Master Control (L.A.). Mastering: Bob Ludwig/Masterdisk.



INXS: KICK (Atlantic)

With slashing rhythm guitar lines, booming kick drums and the distinctive lead vocals of the late Michael Hutchence, the Australian band INXS developed a sleek hybrid dance/hard rock sound in the mid-'80s that made them popular all over the world, but especially in Great Britain and the coasts of the U.S. "Need You Tonight" became their biggest U.S. hit, while "Devil Inside" and "New Sensation" also were successful tunes for the band.

Producer: Chris Thomas. Engineers: David Nicholas, Bob Clearmountain. Studios: Rhinoceros (Sydney), Studio de la Grande Armee (Paris), Air (London).

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1986

charts behind the Number One hits "Little Rock" and "Whoever's in New England" (as well as a few that didn't make the top slot). Between 1985 and 1992, she racked up 24 consecutive Top 10 country singles, an amazing feat!

Producer: Jimmy Bowen. Engineers: Ron Treat, Bob Bullock, Chip Hardy. Studios: Sound Stage (Nashville), The Castle (Franklin, TN).

DWIGHT YOAKAM: GUITARS, CADILLACS, ETC. (REPRISE)

Yoakam is a contemporary honky-tonk hero who has shown his versatility on album after album since the early '80s. This one was his major-label debut, and it immediately established him as one of the most promising singers and songwriters operating outside of Nashville. It contains fine covers of Johnny Horton's "Honky Tonk Man" and Johnny Cash's "Ring of Fire," as well as a slew of solid originals, including the smash hit title song. Another auspicious debut.



Producer: Pete Anderson. Engineer: Brian Levi, Dusty Wakeman. Studios: Excalibur (Studio City, CA), Capitol (Hollywood). Mastering: Eddie Schreyer/Capitol.

BEASTIE BOYS: LICENSED TO ILL (DEF JAM)

White boys turn rap on its ear with a dazzling pastiche of varied samples, beats and crude, macho-man posturing. Man, they were annoying! But also funny and talented. The first rap record to go Platinum, it went on to sell more than five million copies and influenced many white and black artists. Contains "(You Gotta) Fight for Your Right to..." and "Brass Monkey."

Producer: Rick Rubin with the Beastie Boys. Engineer: Steve Ett. Mastering: Howie Weinberg/Masterdisk



Beastie Boys producer Rick Rubin on recording *Licensed to Ill*:

"[That album] was done long before the sampling craze started, and I'll never forget when we started recording at Chung King, this studio in Chinatown, we had tape loops going all over the studio. Sonically, it was pretty wild using hard rock guitar. I got the guitarist from Slayer to do some solos, and he thought it was pretty bizarre to be doing a rap record. Everyone thought I was nuts. The Beastie Boys hated it. There was a big fight, but luckily I prevailed."

Producer Pete Anderson on Dwight Yoakam and the Nashville establishment:

"I don't make records that fit the normal Nashville sound. I listen to what's on the radio and I just don't fit in. I don't want to say that Dwight's a fluke, but he's built a fan base, and his records sound completely different from any others in country, on a number of levels. I'm not saying better or worse, just different, and that's how I like to make records."

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1986

PAUL SIMON: GRACELAND (WARNER BROS.)

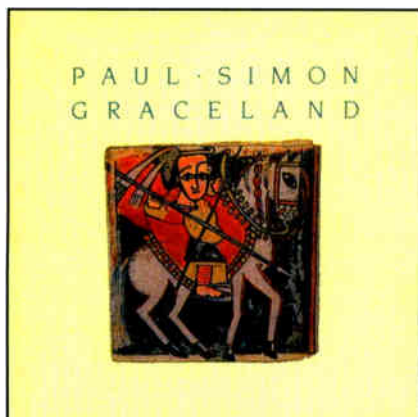
A remarkable fusion of Simon's abstract but evocative writing, South African flavorings and a helping of American roots music. Chock-full of great songs, including the title cut, "Boy in the Bubble," "You Can Call Me Al," "Diamonds on the Soles of Her Shoes" and "Homeless"—the last two featuring Ladysmith Black Mambazo. Few albums have opened up Western listeners to the wonder of African music the way this did.

Producer: Paul Simon. Engineer: Roy Hallee. Studios: Ovation (Johannesburg), Hit Factory (NYC), Amigo (L.A.), Abbey Road (London), Master-Trak Enterprises (Crawley, L.A.). Mastering: Greg Calbi/Sterling Sound.

BRUCE HORNSBY & THE RANGE: THE WAY IT IS (RCA)

Hornsby was the first piano man to capture the public's imagination since the hey-day of Elton John and Billy Joel. This album introduced millions to his solid singing, literate songwriting and fluid playing. The title cut, about racial injustice in his native South, was a huge hit, and both "On the Western Skyline" and "Mandolin Rain" became FM staples.

Producers: Bruce Hornsby and Elliot Scheiner. Engineers, Elliot Scheiner, Jim Gaines, Eddie King, David Luke, Don Smith. Studios: Rumbo (L.A.), Ocean Way (L.A.), Studio D (Sausalito), Village (L.A.), Capitol (L.A.), Fantasy (Berkeley), Conway (L.A.), The Complex (L.A.).



PETER GABRIEL: SO (Geffen)

Gabriel left Genesis after their epic *The Lamb Lies Down on Broadway* album and wasted no time showing that he had the chops for a strong solo career. This was his fifth solo effort, and the one that really established him as a worldwide phenom. Extremely clever MTV videos of his singles certainly helped, too. This exciting polyglot of styles included "Sledgehammer," "Red Rain," "In Your Eyes" (which introduced many to the talents of singer



Peter Gabriel on music and computers:

"I think there are two ways in which we function as musicians. One is with what I call Energy A, which is analytical, and for that the computer is wonderful. It allows you to pinpoint any small section of a piece, any sound, and have a high level of control over it. However, that is slow and thoughtful and produces a different kind of music than Energy Z, which is what happens when musicians are in the same room together and responding to what each person is doing."

Youssou N'Dour) and "Big Time." A landmark of '80s pop.

Producers: Daniel Lanois and Peter Gabriel. Engineers: Kevin Killen, Daniel Lanois. Additional engineering: David Bottrill, David Stallbaumer, Bruce Lampcov. Studios: Real World (UK), Polygram (Rio de Janeiro), Power Station (NYC). Mastering: Ian Cooper/Town House.

JANET JACKSON: CONTROL (A&M)

Michael's little sister grows up big time on this fun and fast-paced album of groovacious dance tunes and power ballads. Producer/writers Jimmy Jam and Terry Lewis give Jackson excellent material and arrangements to work with, and to her credit, she has the goods to totally pull it off. The parade of hits this generated includes the title song, "What Have

You Done For Me Lately," "Nasty," "When I Think of You" and "Let's Wait Awhile." Her sensational videos and tours helped her establish an image apart from her famous sibling.

Producers: Jimmy Jam and Terry Lewis. Studio: Flyte Time (Minneapolis). Mastering: Brian Gardner/Bernie Grundman.

REBA MCENTIRE: WHOEVER'S IN NEW ENGLAND (MCA)

The daughter of an Oklahoma rodeo rider, and one-time rider herself, McEntire is as country as country music stars get. (Just check out her self-titled series on the WB network some time.) She'd already been recording for nearly a decade when this career-making album was released and stormed to the top of the



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1985

best new singers of her generation. The daughter of soul singer Cissy Houston (not to mention the cousin of Dionne Warwick), Whitney seemed to be a fully-formed talent at 22—a powerful, gospel-inspired R&B singer with incredible range and great instincts; to some, she was reminiscent of the young Aretha Franklin. This album went to Number One and contained the hit singles “You Give Good Love,” “Saving All My Love for You,” “How Will I Know?” and the inescapable “Greatest Love of All.”

Producers: Kashif, Narada Michael Walden, Michael Masser, Jermaine Jackson. Engineers: Bill Bottrell, Michael Barbiero, Michael Mancini, Michael O'Reilly, Russell Schmitt, Bill Schnee. No studios listed.



Bangles Producer David Kahne on “that moment”:

“I think music is so private and so perverse; when you're in recording, you might've been working for three weeks, and in a split second, there is something there that has meaning, that has tone, and all of a sudden there is shape to the music and a center to the song. My feeling is that the artist let a 'secret' out, and that secret and that moment always show up on tape.”

Producer/engineer Neil Dorfsman on recording Dire Straits' *Brothers In Arms* in the Caribbean:

“I remember one day going out of the control room to page the band, and they were all lying around the pool like beached whales. When I got them in the studio, they were playing with towels around their waists, white cream on their noses, sunglasses and towels on their heads, and everything was like 60 beats per minute—it was so slow! I'm saying, 'Guys, we're trying to make a record here!'”



THE BANGLES: DIFFERENT LIGHT (COLUMBIA)

Though they started as a humble, popish offshoot from L.A.'s so-called Paisley Underground, the all-female band broadened their following with a series of driving, melodic tunes on their David Kahne-produced major label debut, *All Over the Place*. Kahne produced this one, too, and it became a huge hit, spawning the quirky pop singles “Walk Like An Egyptian” (which hit Number One), “Walking Down Your Street” and a song given to them by Prince, “Manic Monday.” Lightweight but fun.

Producer: David Kahne. Engineers: Tchad Blake, David Leonard, Peggy McDonald. Studios: Sunset Sound Factory (Hollywood), Sunset Sound (Hollywood).

DIRE STRAITS: BROTHERS IN ARMS (WARNER BROS.)

One of the first fantastic-sounding CDs, *Brothers In Arms* was also the peak of Dire Straits' often brilliant career. Leader Mark Knopfler really mixes up the styles here, nimbly moving from bright acoustic textures to crunching rock, and back again. The chart-topping “Money for Nothing,” the spry “Walk Of Life” and languid “So Far Away” were hits that led to the album eventually selling more than 25 million copies worldwide; it's one of rock's greatest international success stories. A true classic—rich and smart.

Producers: Neil Dorfsman, Mark Knopfler. Engineer: Neil Dorfsman. Studios: Air (Montserrat), Air (London), Power Station (NYC).

SADE: DIAMOND LIFE (PORTRAIT)

The exotic Nigerian/British singer Sade Adu has made a career out of a sort of relaxed detachment: she mostly sings cool ballads that have a pleasing jazz-pop feeling to them. *Diamond Life* was her first release, and it yielded hits both in Britain and the U.S.: “Smooth Operator,” “Hang On to Your Love,” and “Your Love Is King.” The album went on to sell more than 6 million copies, and it practically defined the sound of the then-popular “Quiet Storm” radio format.

Producer: Robia Millar. Engineers: Ben Rogan, Mike Pela. Studio: Power Plant (London).

TASCAM DM-24: The Affordable Luxury Console Is Here



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

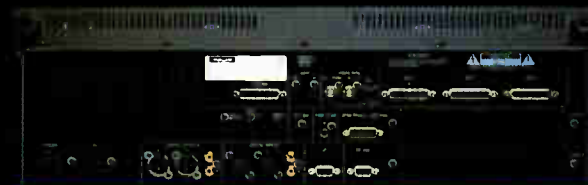
The DM-24's features are usually reserved for super high-end mixers. With 24-bit/up to 96kHz digital audio, the DM-24 blows away the standards in sonic quality for affordable consoles. With its internal automation, you'll get more power at your fingertips than you would from those huge consoles in commercial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

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

DM-24 DIGITAL MIXING CONSOLE



Two DM-24s can link together with optional Cascade modules to create a seamlessly integrated 64-channel super console. For larger studios operating on a budget, it's a no-compromise affordable solution for high-end digital mixing.



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

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TASCAM: THE HOME STUDIO REVOLUTION

Ask any musician or engineer "Who invented the home studio revolution?," and you are likely to hear the same reply from every one: Tascam. For the last 28 years, Tascam has created a huge variety of innovative music and audio products that serve everyone from beginning hobbyist musicians through the highest echelons of commercial recording studios.

Tascam's history is fascinating. It began as a small side project for TEAC Corporation, which is now a \$1.2 billion manufacturing company headquartered in Japan. TEAC was founded nearly 50 years ago by a pair of engineers (the Tani brothers) who made open-reel tape recorders. In the late 1960s, the Tani brothers and Dr. Abe, a senior engineer at TEAC, formed a special R&D group named TASC (TEAC Audio Systems Corp.) for the purpose of researching ways to apply TEAC's recording technology for musicians and recording studios. TASCAM (TASC America) was established in 1971 to distribute TASC products in the U.S. and conduct additional market research.

In 1974, Tascam became the official brand name of all TEAC products designed specifically for musicians and recording studios. Before unveiling the Tascam brand, the company was already creating recording tools under the TEAC name, which included the now-famous 3300 Series recorders. Like many innovations before it, the creation of the A3340 was a happy accident. The deck was originally designed as a quadraphonic recorder. However, when the applications for studio recording were realized, the TASC engineers modified the deck with their new Simul-Sync technology, allowing the revolutionary ability to record on one track while listening to another. So, 1972 ushered in the era of mass-produced multitrack recorders like the A3340S.

In 1977, when a little magazine was created to list recording studios in the San Francisco, Tascam had expanded its line of studio tools, including 2-track mastering decks and large-format mixers. A couple of years later, *Mix* magazine had grown, and so had Tascam—but in a slightly different direction. In 1979, the original 144 Portastudio™ arrived. At the time, TEAC was the only company capable of making a record/erase head small enough to record and playback four individual tracks on a standard audio cassette. We all know the rest of the story: The term "Portastudio" became a household name among musicians and remains the most popular multitrack recorder in the history of audio recording, with more than a million Tascam Portastudios sold since 1979. And each month, thousands of musicians purchase Portastudios due to their ease of use and readily available cassette-recording media.

Since then, *Mix* has grown to become one of the most respected magazines for the pro audio community, and Tascam's technological advancements have evolved. The '80s and '90s saw the

shift from analog to digital recording, and Tascam helped lead the way with its DAT recorders, DTRS-format multitracks, digital mixers and CD-recording tools that remain widely popular today. Now, in the 2000s, Tascam's focus has expanded to include hard disk recorders, computer interfaces, control tools and even software products with the addition of GigaStudio to the Tascam line. In any case, Tascam continues to draw upon its rich history of understanding the needs of people who have a passion for the creation of music and audio. Here's to the next 25 years of *Mix*...and to the long future of Tascam, the world leader in recording.

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1985

LL COOL J: RADIO (DEF JAM)

Like Run-DMC, LL Cool J came out of Queens, N.Y.; he was rapping by the age of 9 and made this debut album at 17 under the watchful eye of Run-DMC producer/mastermind Russell Simmons; in



fact, this was the first album on Simmons' Def Jam label. There's little here musically besides rapping, scratching, a beat box and a few samples, but LL was such a clever writer and had so much force to his personality, he quickly won over the rap community and became one of its leading lights for many years. He also has had a moderately successful acting career.

Producer: Rick Rubin. Engineer: Steven Ett. Studio: Chung King (NYC). Mastering: Herb Powers/Frankford Wayne.

JOHN COUGAR MELLENCAMP: SCARECROW (RIVA)

Mellencamp already had a number of hits under his belt when he made this career-defining album. He was clearly influenced by Springsteen, Bob Seger and others, but he also found his own distinctive, populist songwriting voice, which is in full bloom here. The multi-Platinum al-

bum contained several hit singles, including "Lonely Ol' Night," "Small Town," "Rain on the Scarecrow" and the anthemic "R.O.C.K. in the USA." Heartland folk-rock at its best.

Producers: Don Gehman, John Mellencamp. Engineers: Don Gehman, Greg Edward. Studios: Belmont Mall (Belmont, IN), Rumbo (L.A.). Mastering: Bob Ludwig/Masterdisk.

TALKING HEADS: LITTLE CREATURES (SIRE)

This is the finest release from the Talking Heads' late period; it's stacked top to bottom with typically interesting rhythms, harmonies and offbeat songs about who-knows-what. "And She Was," "Stay Up Late" and "Road to Nowhere" rank with the group's best songs.

Producers: Talking Heads. Engineer: Eric Thorngren. Studio: Sigma (NYC). Mastering: Jack Skinner/Sterling Sound.

WHITNEY HOUSTON: WHITNEY HOUSTON (ARISTA)

Though her troubled personal life has drawn more attention than her music in recent years, when Whitney Houston first appeared on the scene with this debut smash, she was rightly hailed as one of the

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1984

DON HENLEY: BUILDING THE PERFECT BEAST (Geffen)

As the principal author and singer of so many of The Eagles' best and most literate tunes, Don Henley was the most likely member of the group to enjoy solo success, and he did, beginning with *I Can't Stand Still* in 1982. This second solo effort showed him at the peak of his powers, though, and contained a number of AM and FM hits, including "Boys of Summer," "Sunset Grill" and "All She Wants to Do Is Dance." Half of the musicians in L.A. appear on the album, including Lindsey Buckingham, Belinda Carlisle, Randy Newman, Benmont Tench and Mike Campbell of the Heartbreakers, et al.

Producers: Don Henley, Greg Ladanyi, Danny Kortchmar, Mike Campbell. Engineers: Greg Ladanyi, Niko Bolas, Allen Sides, Tom Knox, Richard Bosworth. Studios: Record One (Sherman Oaks, CA), Bill Schnee Studio (Universal City, CA), The Villa (No. Hollywood). Mastering: Doug Sax, Mike Reese/Mastering Lab.



Producer/engineer Greg Ladanyi (Don Henley's *Building the Perfect Beast*) on keeping it fresh in the studio:

"You get much better results in the studio if it isn't labored over. My goal with any artist is to work out what must be worked out before we go into the studio, so that when we come in it isn't 'played' too much there. The minute that happens, it's not fresh and exciting. You work things out in rehearsal and when you come into the studio it's like it's being played for the first time. There is a lot of energy in the studio when you know you're really *doing it*."



Engineer Bob Clearmountain on mixing for Bruce Springsteen:

"Bruce doesn't let much get by him. As most producers do, he gives me a few hours to get my mix together and listens to my concept. If he doesn't like it, he'll just tell me it isn't what he had in mind. He'll point me in a new direction. But usually he likes what I come up with and he'll just go through a bunch of different options...We'll end up with 20 or 30 mixes on tape, so he can listen to them in his drive back to New Jersey."

BRUCE SPRINGSTEEN: BORN IN THE USA (COLUMBIA)

The album that turned Bruce into a megastar, it's full of fire and bombast, but also some of his most affecting ballads. Hits included "Born in the USA," "Dancing in the Dark" and "Glory Days." "My Hometown" and "I'm on Fire" were among many affecting tunes. Still powerful after all these years.

Producer: Bruce Springsteen. Engineers: Toby Scott, Bob Clearmountain. Studios: Power Station (NYC), Hit Factory (NYC). Mastering: Bob Ludwig/Masterdisk.





HD24



ML9600

SOME THINGS AGE WELL

In 1977, *Mix* magazine gave recording engineers, producers and studio owners something new: Access. Access to a world of gear, techniques, and perhaps most important, each other. Inspiring success stories and lessons from the School of Hard Knocks blew the doors off studio A, and introduced *Mix* readers to ideas that marked the beginnings of a personal recording revolution.

At Alesis, we know what it's like to bring music to the masses. For over 15 years we've been giving audio professionals and musicians the tools they need to chase their dreams. Out of a tiny guest house in Hollywood, our XT Digital Reverb was born, and the rest, as they say, is history—from building the first affordable effects processors to obliterating the digital recording price barrier and creating an industry standard for connecting gear.

We're still innovating with products like the ADAT HD24, the only hard disk recorder with ultra-secure File Streaming Technology; MasterLink, a remarkable "why hasn't anybody thought of this before?" mixing and mastering system; and a huge toolbox of amps, monitors, compressors, equalizers, and effects for engineers and music makers of every level.

Sure, we like being first, but we're old school about some things: quality, reliability, integrity... Hmmm. sounds like a magazine we know.

Congratulations, *Mix*, on 25 years of serving everybody who's passionate about the craft of capturing great music.

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1984

MADONNA: LIKE A VIRGIN (WARNER BROS.)

One of the first true stars of the MTV age, Madonna always projected a strong image and courted controversy wherever she went. Her soulful dance music became extremely popular, but so did her LOOK—few women have had as much influence on teens and young adults as she did during this period. The title song, "Material Girl" and "Angel" were all big hits internationally; indeed, she became as iconic as Michael Jackson and Bob Marley, to name two other bona fide world sensations.

Producers: Nile Rodgers, Madonna, Stephen Bray. Engineer: Jason Corsaro. Studio: Power Station (NYC). Mastering: Bob Ludwig/Masterdisk.

RUN-DMC: RUN-DMC (PROFILE)

Today, Run-DMC are perhaps best remembered for their rap deconstruction of Aerosmith's "Walk This Way" in 1986, but when they first appeared on the



Producers Russell Simmons and Larry Smith with Laurie Anderson

Laurie Anderson on the record biz:

"There is only one rule: If you sell records, you can make more records. If you don't sell records, you don't make any more records. It makes breathtaking sense. If nobody wanted to listen, you would stay at home and entertain yourself with the music. You wouldn't bother to go to the mastering session and get it just right for mass distribution. It's clear, very well-defined."

Nile Rodgers on producing Madonna's song "Like a Virgin":

"That was a very simple record. If you look at the track sheet, you'll see there aren't very many tracks used—it's just bass, drum kit, one guitar, keyboard pad, one keyboard overdub and Madonna's vocal, plus one other vocal track with Madonna, to double herself in the chorus only—and that's it...That record wasn't made to be some gigantic club record, to be sampled and to put all sorts of other grooves on it. It lives for what it is, it does what it's supposed to do. It's a building that lives within the confines of its environment."

scene in 1983, they had an enormous impact on every facet of rap culture—the sound, the style (gold chains, etc.), the attitude. They integrated rock and heavy metal elements into some of their songs, and Jam Master Jay was one of the first great turntablists. This first album contains "Rock Box," "Sucker MCs," "Hard Times" and "It's Like That," all hits for the band and songs that helped take hip-hop to the mainstream.

Producer: Russell Simmons, Larry Smith. Studio: Greene St. (NYC). Mastering: Herb Powers/Frankford Wayne.



LAURIE ANDERSON: MISTER HEARTBREAK (WARNER BROS.)

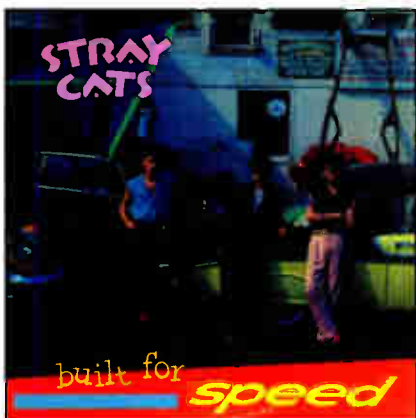
A step toward the mainstream by the darling of the New York art/avant-garde community, *Mister Heartbreak* features outstanding musicianship from the likes of Adrian Belew, Peter Gabriel, Bill Laswell, Nile Rodgers and others. Anderson's musings—some spoken, others sung—range from funny and offbeat observations to dreamy wordscapes.

Producers: Bill Laswell, Laurie Anderson, Roma Baran, Peter Gabriel. Engineer: Leann Ungar. Studio: The Lobby (NYC). Mastering: Bob Ludwig, Howie Weinberg/Masterdisk.

STRAY CATS: BUILT FOR SPEED
(EMI AMERICA)

The Stray Cats' deliciously retro sound brought the new wave movement's rockabilly roots into clear focus. Leader Brian Setzer was the real deal—an excellent guitarist, singer and songwriter. He's managed to forge a remarkably successful career fusing rockabilly and big band sensibilities, and this is the album that really launched him. It contains the radio hits "Rock This Town" and "Stray Cat Strut."

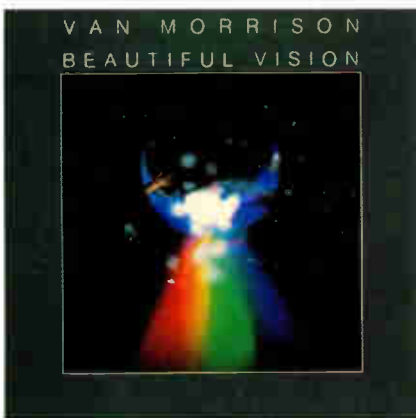
Producers: Dave Edmunds, Stray Cats, Hein Hoven (one track). Mastering: Wally Traugott/Capitol.



VAN MORRISON: BEAUTIFUL VISION
(WARNER BROS.)

Van at his most mystical, dabbling in some arcane theology of his own creation. Like his best work, this has an other-worldly quality to it. The "hit" was "Cleaning Windows," a peppy burst of R&B nostalgia, quite unlike the rest of the album.

Producer: Van Morrison. Engineers: Jim Stren, Hugh Murphy. Studio: Record Plant (Sausalito). Mastering: Kent Duncan/Kendun Recorders.

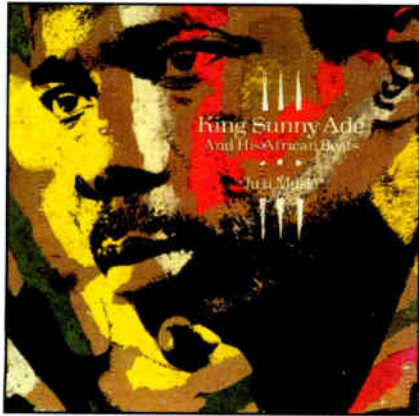


Not Just Another Pretty Face!

The advertisement for Auralex acoustics shows a recording studio with a large mixing console. A yellow sticky note is placed on the console with the handwritten text: "Thanks, MIX, for 25 great years!". The Auralex acoustics logo is prominently displayed, along with the website "www.auralex.com" and the phone number "1-800-959-3343". At the bottom, the slogan "Your Studio. Your Sound. Our Passion." is written in white on a black background.

The advertisement for Ocean Way Nashville features a large, detailed image of a recording studio's mixing console. The text "OCEAN WAY NASHVILLE" is at the top in a stylized font. Below it, the text reads: "Congratulations to Mix Magazine on 25 years of Editorial Excellence In Audio" and "Ocean Way Nashville - the only Nashville recording studio to receive the prestigious Mix Technical Excellence Award." At the bottom, the address "1200 17th Ave South Nashville, Tennessee 37212" and phone number "615.320.5900" are listed, along with the website "www.oceanwaystudios.com".

1982



KING SUNNY ADE: JUJU MUSIC (MANGO)

Nigerian guitarist Ade leads a huge band—more like a tribal orchestra—through some of the most hypnotic grooves you'll ever hear. Eight percussionists, four guitarists, a steel guitarist who sounds like he's on another planet, and a whole mess of chanting singers create quite a sound. This album made King Sunny an international star, long after he was one in Africa, and helped open the door for other African musicians in America.

Producer: Martin Meissonnier. Engineers: Katrin Lesevre, Godwin Logie. Studios: Otodi (Lome, Togo), Island (London).

DONALD FAGEN: THE NIGHTFLY (WARNER BROS.)

With Steely Dan in hibernation, group co-leader Fagen comes up with a brilliant album that sounds just like...Steely Dan! The title track and the hit "IGY" got the most airplay, but it's all pretty cool, and it sounds great; this is another album that was often used in hi-fi stores to test stereo systems.

Producer: Gary Katz. Engineers: Roger Nichols, Elliot Scheiner, David Lazerus. Studios: Soundworks (NYC), Village (L.A.), Automated Sound (NYC). Mastering: Bob Ludwig/Masterdisk.

MICHAEL JACKSON: THRILLER (COLUMBIA)

What is there to say about an album that sold some 40 million copies worldwide (it was popular *everywhere*); that generated a parade of *seven* Top 10 singles, including "Billie Jean," "Beat It," "The Girl Is Mine" and the title song; and helped launch both MTV and music videos in general? Jackson became the biggest star in the world because of this album, and it's not clear whether his career has ever truly recovered—talk about peaking early!

Producers: Quincy Jones, Michael Jackson. Engineer: Bruce Swedien. Additional engineering: Humberto Gatica, Matt Forger. Studios: Ocean Way (L.A.), Westlake (L.A.). Mastering: Bernie Grundman.



Engineer Bruce Swedien on mixing for Michael Jackson:

"I can't be in the control room when Michael listens to a mix. He plays it so loud. We'll be in the middle of one of our huge mixes and he'll turn to me and say, 'Hurt me!' So I'll turn up the speakers and leave the room. He'll then send me a little laundry list signed, 'Love, Michael' at the bottom."



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World Radio History

1982

JOE JACKSON: NIGHT AND DAY (A&M)

The one-time new wave tyro developed into a first-class songwriter in the tradition of Gershwin and others. *Night and Day* is a masterful blend of songs about New York, love ballads and topical tunes, by a crack Latin-influenced band with no guitarist! "Steppin' Out" shows off Jackson's serious composer's chops, but other gems include "Breaking Us in Two," "Real Men" and the dramatic, moving "Slow Song." One of many career peaks he's enjoyed.

Producers: David Kershenbaum and Joe Jackson. Engineer: Michael Ewasko. Studio: Blue Rock (NYC).



Night and Day producer David Kershenbaum on demos:

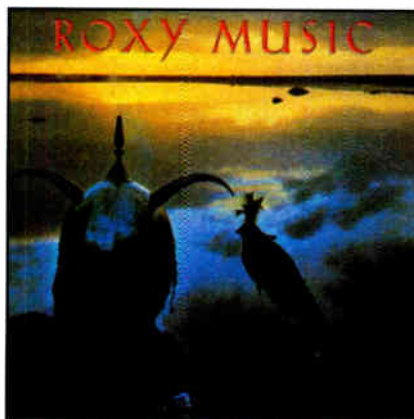
"Artists today are like producers. They have access to equipment and can try ideas. An artist today can bring you an incredible demo where they've fleshed out a lot of interesting ideas. Then you have to take it and shape it and maybe add another couple of layers of ideas to it, but there's something to listen to. Sometimes that can work to the negative, too—sometimes you don't want to hear a lot of it because it influences you too much. I've found that truly great artists can sit down with their guitar or at a piano, and it either gets you or it doesn't."



ROXY MUSIC: AVALON (VIRGIN)

The apex of Brian Ferry's smooth period with Roxy Music, this album sounded so good, it was frequently used as a demonstration disc in hi-fi stores. The title track and "More Than This" are the best-known songs, but the album as a whole has a warm, lovely consistency. By this time, the edge of early Roxy albums had long since vanished, and Ferry was content to be the smooth operator.

Producers: Rhett Davies, Roxy Music. Engineers: Rhett Davies, Bob Clearmountain. Studios: Compass Point (Bahamas), Power Station (NYC). Mastering: Bob Ludwig/Masterdisk.



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World Radio History

1981

dio: Pecan St. (Austin). Mastering: Bobby Hatta/Amigo.

RICK JAMES: STREET SONGS (MOTOWN)

Though he later became a cartoonish bad boy and even did time in the Big House,

at his peak Rick James was a fabulously talented singer, songwriter, musician and performer. He had a real gift for laying down deep urban funk, as songs such as the smash "Super Freak," "Ghetto Life" and "Give It to Me Baby" show. James was eventually left in the dust by his innova-



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Engineer Tom Flye on working with Rick James during the *Street Songs* era:

"He was so prolific there for a while, full of ideas, not just for himself, but for all those other artists he worked with. He'd come in and make these little demos of song after song. He and I would sit there and he'd play *all* the parts, and he was really good at all of them...He's definitely one of the most talented people I ever worked with."

tive rival, Prince, but in the very early '80s, James' songs ruled the dance floor.

Producer: Rick James. Engineer: Tom Flye. Studios: Record Plant (Sausalito), Motown (L.A.).

THE GO-GO'S: BEAUTY & THE BEAT (A&M)

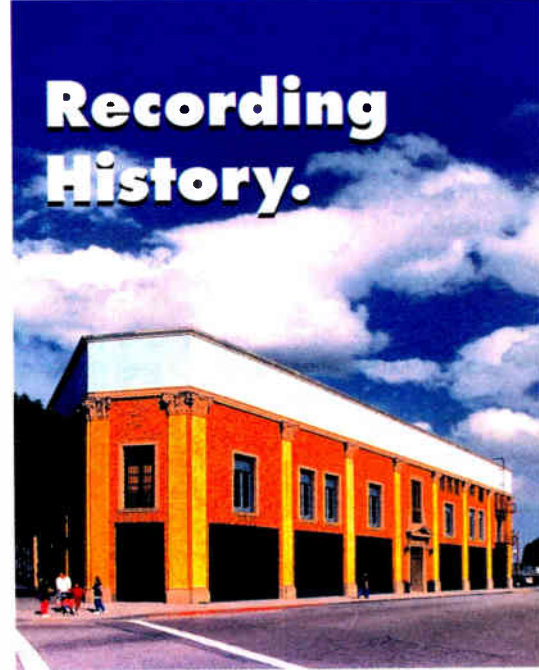
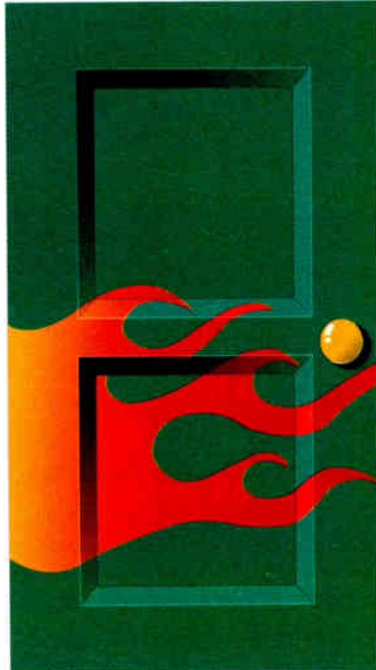
Sure, it sounds like inconsequential fluff today, but 20 years ago The Go-Go's were like a blast of fresh air—on the pop side of the punk/new wave movement from which they sprang; they were five girls who could really rock. The semi-retro feel of "Our Lips Are Sealed" and "We Got the Beat" made them stars, but they were also capable of edgier material, which college radio favored over their hits.

Producers: Richard Gottehrer and Rob Freeman. Engineers: Rob Freeman, Thom Panunzio, Doug Schwartz. Studios: Penny Lane (NYC), Record Plant (NYC), Sound Mixers (NYC).

Aerosmith • Christina Aguilera • The Allman Brothers • Tori Amos • India Arie • Howie B • Babyface • Burt Bacharach • The Band
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 Mick Jagger • Etta James • Rick James • Janes Addiction • Al Jarreau • Jayhawks
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 Method • Joni Mitchell • Keb Mo • Shawn Mullins • C Murder
 Dave Navarro • Randy Newman • Nelly • Stevie Nicks
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World Radio History

1980

X: LOS ANGELES (SLASH)

In the late '70s and early '80s, Los Angeles had a punk and new wave scene nearly as vibrant as New York's, with the band X leading the charge. Their smashing debut is a gripping portrait of the L.A. scene's seamy underside. The rough harmonies of John Doe and Exene Cervenka sound like the Jefferson Airplane on speed, while guitarist Billy Zoom brings a mangled rockabilly sensibility to the group's sonic assault. Ray Manzarek of The Doors produced and played keyboards—appropriate for this group, whose street poetry wasn't that far removed from Jim Morrison's ravings a decade before.

Producer: Ray Manzarek. Engineers: Rick Perrotta, Norm Graichen. Studio: Golden Sound (Hollywood).



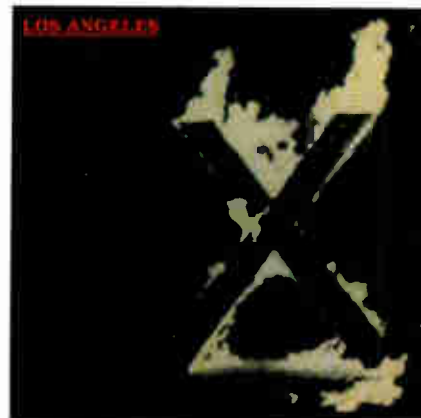
Producer Ray Manzarek on X's *Los Angeles*:

"I'm going to say that it's the best punk rock record ever, bar none. It beats The Clash, hands down, and the groups of New York, as stylish and fashionable as they were, couldn't hold a candle to X's musicianship and their incredible sense of poetry. And I'm not trying to compliment myself here; I'm complimenting *them*. What a sensational band that was, and what a great time in Los Angeles."



Devo leader Mark Mothersbaugh on *Freedom of Choice*:

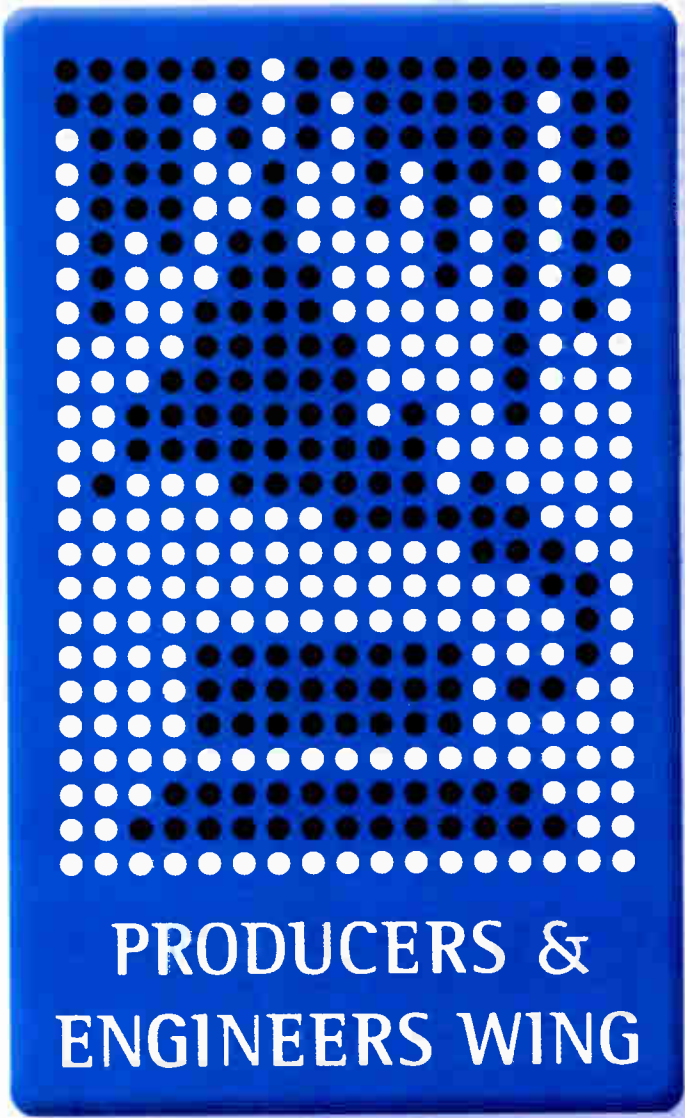
"We had this concept for a while, which was do an album that was sort of rhythm & blues techno music. There really wasn't anything like that around then...Now, whether somebody would go back and listen to *Freedom of Choice* and crack up thinking of that being our concept or not, that's up for debate. But coming from our perspective, it was as rhythm & blues-y as we'd ever been in our lives."



DEVO: FREEDOM OF CHOICE (WARNER BROS.)

Devo was one of the strangest products of the new wave—cynical, comical, nerdy, self-proclaimed "spud boys" transplanted from Akron, Ohio, to L.A. They were deep into electronic keyboards before it became fashionable and also one of the first groups to use videos effectively. Though their 1978 debut is not to be missed, this is their commercial and creative high-water mark; it contains the immortal hit "Whip It," as well as the wry title track, "Girl You Want" and the ominous "Gates of Steel."

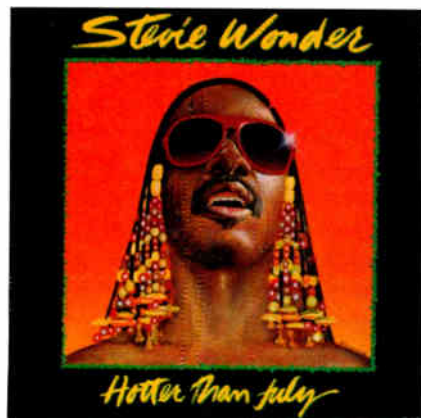
Producers: Devo, Bob Margouleff. Engineers: Bob Margouleff, Howard Siegel. Studio: Record Plant (L.A.) Mastering: Ken Perry/Capitol.



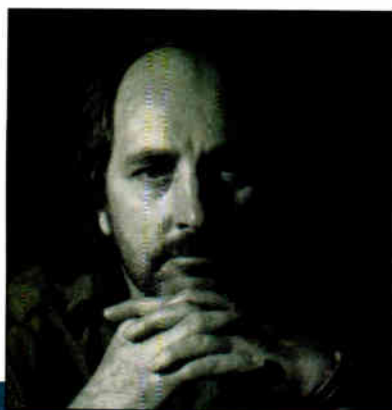
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1980



ter Than July contains a number of stand-out tunes, including the simmering funk-reggae tune "Master Blaster (Jammin')," a joyous ode to Martin Luther King called "Happy Birthday" and the usual comple-



Producer Chris Thomas on hooking up with The Pretenders:

"I remember one time Chrissie [Hynde] asked me, 'Can you help me?' She wanted to be a singer. I said, 'You've got a great voice, but that's not really going to be enough. What you're going to have to do is write. You need to write and get into a band.' Then the next thing I heard was 'Stop Your Sobbing' on the radio and I thought, 'Great, she's cracked it. She's got a band!' Then she contacted me and asked, 'Can you produce us?'"

ment of songs about love, troubled and otherwise. Not quite up to his '70s classics, but still loaded with soul.

Engineer Gary Olazabal on Stevie Wonder:

"Stevie buys a new synthesizer just about every week. In the analog days, I had to study every synth that came in, because he didn't really have a programmer. There was no one else to show him, so it ended up being the two of us fiddling with knobs for a real long time."

Producer: Stevie Wonder. Engineer: Gary Olazabal. Studios: Wonderland (L.A. with the Record Plant remote truck), IAM Studios (Irvine, CA), Crystal Sound (Hollywood). Mastering: Arnie Acosta, Larry Emerine, Stephen Marcussen/Precision Lacquer.

PRETENDERS (SIRE)

Chrissie Hynde came from Ohio but emerged out of England at the height of the new wave with this tough, exciting album. "Brass in Pocket" and a fine version of "Stop Your Sobbing" (originally by The Kinks, who influenced The Pretenders) were both mainstream hits, but it's a deep album filled with great songs: Remember "Tattooed Love Boys"? An auspicious debut.



PHOTO: DAVID GOSSEN

Producers: Chris Thomas, Nick Lowe (one song). Engineers: Bill Price, Steve Nye, Mike Stavrou. Studios: Wessex, AIR (London).

AC/DC: BACK IN BLACK (ATLANTIC)

These hard-rock bad boys had already been going strong in their native Australia for half a dozen years before they had their first big American success, *Highway to Hell*. Shortly after that, lead singer Bon Scott died; then they came back with this 10-million-selling disc. And they're still selling records today.

Producer: Robert John "Mutt" Lange. Engineers: Tony Platt, Brad Samuelson. Studio: Compass Point (Bahamas).

PETE TOWNSHEND: EMPTY GLASS (MCA)

While not technically the Who leader's first solo album (that would be the skeletal *Who Came First* in 1970), it was the first solo project that he really labored over, and the result is better than anything The Who made since *Quadrophenia*. Great, revealing songs including the punky "Rough Boys," the sensitive "I Am an Animal," and one of his true masterpieces, "Let My Love Open the Door." Chris Thomas' varied production keeps everything lively and unpredictable.

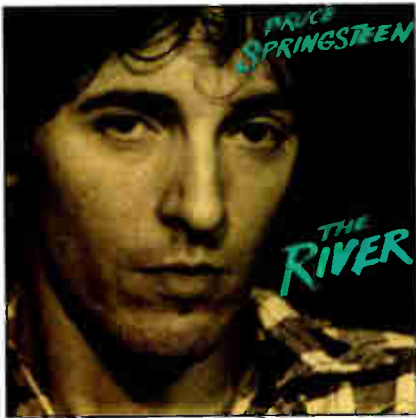
Producer: Chris Thomas. Engineers: Bill Price, Steve Nye. Studios: Eel Pie, AIR, Wessex (all in UK). Mastering: Sterling Sound.

1980

BRUCE SPRINGSTEEN: THE RIVER (COLUMBIA)

The Boss follows up his late-'70s masterworks *Born to Run* and *Darkness on the Edge of Town* with a sprawling double LP loaded with rambunctious rockers and emotional ballads. The hit "Hungry Heart" is probably the worst of the album's 20 songs. The real meat is in tunes such as "Independence Day," "Out in the Street," "Point Blank," "The River," and any number of raucous rockabilly-tinged tunes.

Producers: Bruce Springsteen, Jon Landau, Steve Van Zandt. Engineers: Neil Dorfsman, Chuck Plotkin, Toby Scott. Studios: Power Station (New York), Clover (L.A.). Mastering: Ken Perry/Capitol.



GEORGE JONES: I AM WHAT I AM (EPIC)

Jones has had a number of different periods of greatness. This album is from his "middle" period, and it stands with his



best—it's full of heartbreak and longing and deep country angst. Has there ever been a sadder song than "He Stopped Loving Her Today"?

Producer: Billy Sherrill. Engineers: Ron "Snake" Reynolds, Lou Bradley. Studio: CBS (Nashville). Mastering: CBS/Nashville.

STEVIE WONDER: HOTTER THAN JULY (TAMLA)

Wonder's first conventional album since his brilliant and ambitious *Songs in the Key of Life* in 1976 (in between he made the odd, mostly instrumental *Journey Through the Secret Life of Plants*), *Hot-*

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RICKIE LEE JONES (WARNER BROS.)

Talk about an auspicious debut! Rickie Lee Jones burst on the scene a fully formed talent, like some hipster love child of Tom Waits and Joni Mitchell. A classic first album, with memorable tracks such as "Chuck E.'s in Love," "Coolsville" and "Easy Money."

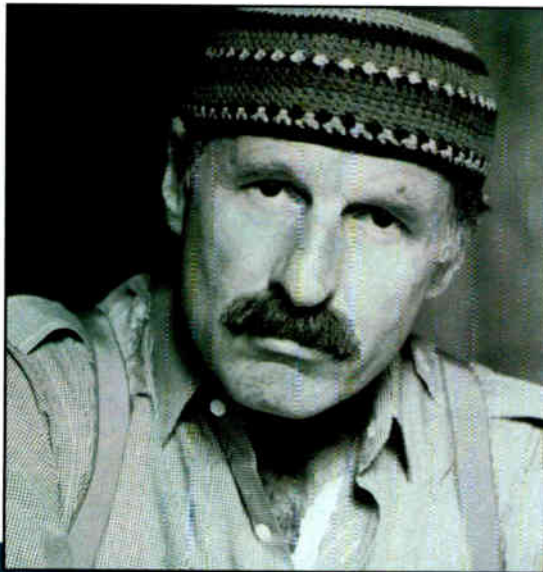
Producers: Lenny Waronker and Russ Titleman. Engineers: Lee Herschberg, Lloyd Clift, Roger Nichols, Tom Knox. Studio: Warner Bros. (Burbank). Mastering: Lee Herschberg/Warner Bros.



GRAHAM PARKER: SQUEEZING OUT SPARKS (ARISTA)

You can't go wrong with any of Parker's '70s albums, but this one is so overflowing with passion, it's no surprise it became his biggest seller. His backup band, The Rumour, never sounded better or more polished, and the mix of songs—sizzling, R&B-inflected rockers and searing ballads—is perfect. One of the great works of the "new wave."

Producer: Jack Nitzsche. Engineer: Mark Howlett. Studios: Lansdowne (London), Cherokee (L.A.). Mastering: Mark Howlett, Jeff Sanders/Crystal.



Joe Zawinul on the line-up of Weather Report that made *8:30*:

"Jaco, Peter, Wayne and me—pretty amazing! We knew how to space and we knew how to play off one another. We still had that jazz thing. We had a couple of R&B-oriented things, but in general we played some serious, forward jazz grooves with a stronger beat. We were able, with that band, to get an incredible power, and we turned on so many people through this music; it was unbelievable!"



WEATHER REPORT: 8:30 (COLUMBIA)

Exciting live album by the best of this jazz-rock fusion band's many lineups: Joe Zawinul, Wayne Shorter, the incomparable Jaco Pastorius and Peter Erskine, with guest percussionist Erich Zawinul. Contains "Birdland," "A Remark You Made" and "Teen Town" from their landmark *Heavy Weather* album, plus "Black Market," "In a Silent Way," and more.

Producers: Joe Zawinul, Jaco Pastorius. No recording info available.

THE SUGARHILL GANG: THE SUGARHILL GANG (SUGARHILL)

This album is significant because The Sugarhill Gang's "Rapper's Delight" brought rap and hip-hop out of the New York underground and into the mainstream; it was many people's first exposure to this kind of music. It shamelessly used the break from Chic's hit "Good Times," and that move, too, would prove to be influential—samples became an accepted part of the hip-hop vocabulary. Not all of the album is rap-oriented, but "Rapper's Delight" is the one tune most people remember from the debut of this short-lived aggregation.

Producer: Sylvia Robinson. Engineers: Sylvia Robinson, Nate Edmonds. No recording info available.



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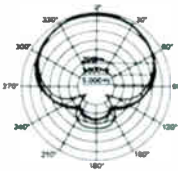
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punk energy and dancefloor grooves. "Hanging on the Telephone" and "Heart of Glass" show both sides of the band at their best. Other delights include such acknowledged classics as "One Way or Another" and "Fade Away and Radiate." An underrated band at an undeniable peak.

Producer: Mike Chapman. Engineer: Peter Coleman. Studios: Record Plant (NYC), Forum (Covington, KY). Mastering: Steve Hall/MCA.

THE CARS (ELEKTRA)

The Cars had a new wave look and some of the edge, but at heart they were just a really good pop band, as this debut full of

cision. Includes the undisputed new wave classics "Radio Radio," "Pump It Up," "No Action" and "Lip Service."

Producer: Nick Lowe. Engineer: Roger Bechirian. Studio: Eden (London).



Producer Roy Thomas Baker on *The Cars*:

"When we did the first Cars record, we purposely made it very sparse, but when the vocals came in, there were as many vocals there as there were on a Queen record."

hit singles shows. "Just What I Needed," "My Best Friend's Girl" and "Good Times Roll" all benefited from the sheen provided by producer Roy Thomas Baker, who'd helmed Queen's exquisite albums. The album went on to sell more than six million copies and established the group as one of the top bands of late '70s.

Producer: Roy Thomas Baker. Engineers: Roy Thomas Baker, Geoff Workman. Studio: Air (London). Mastering: George Marino/Sterling Sound.

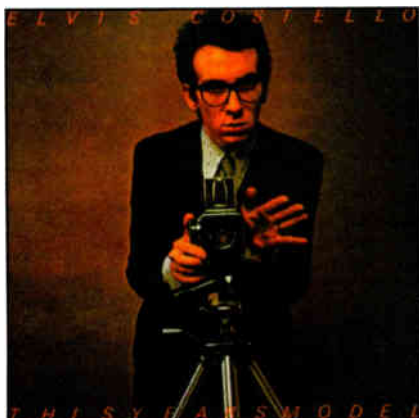
ELVIS COSTELLO: THIS YEAR'S MODEL (COLUMBIA)

Each of Elvis' first four albums is worth singling out for its greatness, but this sophomore effort captures the angry young Elvis at his punky best. As *The Attractions* rave crisply behind him, Elvis spits out his lyrics with poison-dart pre-

NEIL YOUNG: COMES A TIME (WARNER BROS.)

A gentle, mostly acoustic masterpiece with some of Young's most touching songs, including "Goin' Back," the title track, "Human Highway" and "Already One." This is the album that introduced most of us to the talented harmony singer Nicolette Larson. Like Young's best music, it has a timeless quality to it.

Producers: Neil Young, Ben Keith, Tim Mulligan, David Briggs. Engineers: Mulligan, Michael Laskow, David McKinley, Danny Hilly, Mike Porter, Denny Purcell, Rich Adler, Ernie Winfrey, Gabby Garcia, Paul Kaminsky. Studios: Triad (Ft. Lauderdale), Columbia (London), Wally Heider (L.A.), Woodland (Nashville), Sound Shop (Nashville), Broken Arrow (Redwood City, CA). Mastering: Phil Brown, Stu Romain/Columbia.



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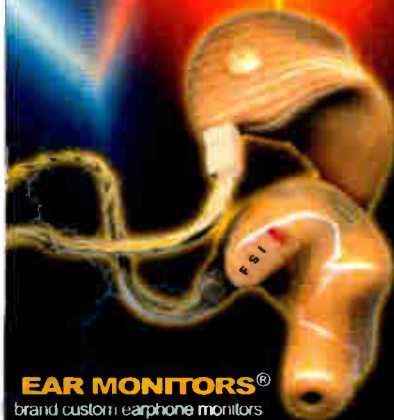
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1978



PATTI SMITH GROUP: EASTER (ARISTA)

Smith's most commercial effort ("Because the Night" was her biggest hit), *Easter* is no less poetic and inspiring than her less accessible albums. "Rock 'n' Roll Nigger" is a ferocious number; "Til Victory" is a stirring call to arms; and the incantory "Ghost Dance" displays her mysterious spiritual side.

Producer: Jimmy Iovine. Engineers: Thom Panunzio, Charlie Conrad, Shelly Yakus. Studios: Record Plant (NYC), House of Music (West Orange, NJ). Mastering: Greg Calbi/Sterling Sound.



Blondie's Deborah Harry on working with producer Mike Chapman:

"He was pretty much a dictator, but he had all the credibility as the popmeister—the tunemeister—and we learned a lot from him working on those records. Even though they were considered very 'pop' by some people, they were still pretty adventurous..."

PAT METHENY GROUP (ECM)

Intricate, beautifully constructed, highly melodic jazz instrumentals—with dashes of folk and rock—by one of the great quartets to come down the pike: guitarist Metheny, keyboardist Lyle Mays, bassist Mark Egan and drummer Dan Gottlieb. A very popular album filled with spirit and invention. The "Wave" radio format was practically invented to accommodate this kind of music.

Producer: Manfred Eicher. Engineer: Jan Erik Kongshaug. Studio: Talent (Oslo, Norway).

VAN HALEN (WARNER BROS.)

Another hugely influential album, this debut record by the L.A.-based Van Halen helped usher in a new era of hard rock/heavy metal. Eddie Van Halen was a new kind of guitar hero—really, the first to emerge in a number of years—and lead screamer David Lee Roth was the perfect brash frontman. They had actual hits—"Running With the Devil" and The Kinks' "You Really Got Me"—but like most metal bands, attracted most of their fans through hard-rocking concerts. Don't blame Van Halen for all the bad bands that copied them: they were for real.

Producer: Ted Templeman. Engineer: Don Landee. Studio: Sunset Sound (L.A.). Mastering: Warner Bros. (No. Hollywood).

BLONDIE: PARALLEL LINES (CHRYSALIS)

For sheer wacky energy and drive, it's hard to top Blondie's eponymous 1976 debut album, but this record best represents the—ahem—*mature* Blondie sound, mixing

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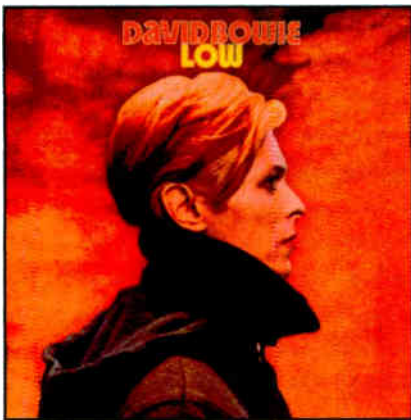
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DAVID BOWIE: LOW (RCA)

The first of Bowie's moody late-'70s art-rock trilogy, this is light years from the Bowie of *Ziggy Stardust* and even *Diamond Dogs*. Lots of fascinating instrumental interludes, courtesy of Brian Eno, and no real "hits" to speak of, though "Breaking Glass" at least got airplay. Still, a mesmerizing slice of Eurorock that has aged beautifully.

Producers: David Bowie and Tony Visconti. Engineer: Tony Visconti. Studios: Chateau d'Herouville (France), Hanza By the Wall (Berlin).

STEELY DAN: AJA (ABC)

After years of being a cult band, Steely Dan breaks into the commercial mainstream with a jazz-inflected pop album that becomes an FM favorite and source of Classic Rock radio favorites for years to come. The top-drawer list of musicians includes Larry Carlton, Steve Gadd, Chuck Rainey, Joe Sample, Jim Keltner, Wayne Shorter and many more. The title song, "Black Cow" and "Deacon Blues" are still ubiquitous.

Producer: Gary Katz. Engineers: Roger Nichols, Elliot Scheiner, Bill Schnee, Al Schmitt. Studios: The Village (L.A.), Producer's Workshop (Hollywood), Warner Bros. (North Hollywood), Sound Labs (Hollywood), A&R (NYC). Mastering: Bernie Grundman.



KRAFTWERK: TRANS-EUROPE EXPRESS (CAPITOL)

Early techno/trance music from the groundbreaking German electronic band. These guys never sold millions of records, but their impact on music, particularly in Europe, was significant. "Europe Endless" is endlessly hypnotic.

Producers: Ralf Hutter and Florian Schneider. Engineers: Peter Bollig, Thomas Kuckuck, Bill Halverson. Studios: Klingklang (Dusseldorf, Ger.), Russl (Hamburg, Ger.), Typografie Ink (Dusseldorf), Record Plant (Hollywood).



BOB MARLEY & THE WAILERS: EXODUS (ISLAND)

This is arguably the commercial apex of reggae star Bob Marley's career, following on the heels of the international smash *Rastaman Vibration*, and generating three big hits on its own: the title song, "Jammin'" and "Waiting in Vain," as well as a pair of tunes that would become famous the world over—"Three Little Birds" and "One Love/People Get Ready." Few managed to mix the political and the personal as skillfully as Marley; it's no wonder he's still popular today, years after his death.

Producers: Bob Marley & The Wailers. Engineers: Chris Blackwell, Karl Pitterson. No studios listed.



Producer Tony Visconti on recording David Bowie's *Low*:

"David's a great person to experiment with, as is Eno, of course. Every day, we'd record in the strangest styles we could imagine. We'd have people swapping instruments, tried all sorts of things just to be different. It was quite unusual. RCA didn't like it at all. In fact, one guy said, 'I'm going to buy Bowie a house in Philadelphia so he can make *Young Americans II*!'"

From mic-pre to CD...



DPS24 DIGITAL PERSONAL STUDIO

The DPS24 is the only affordable integrated hardware digital workstation that offers 24 tracks of recording without data compression. Most types of data compression throw out portions of your audio during recording, and use a mathematical algorithm to approximate the original audio upon playback.

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