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Studio Sound



THE INTERNATIONAL TECHNICAL MAGAZINE FOR
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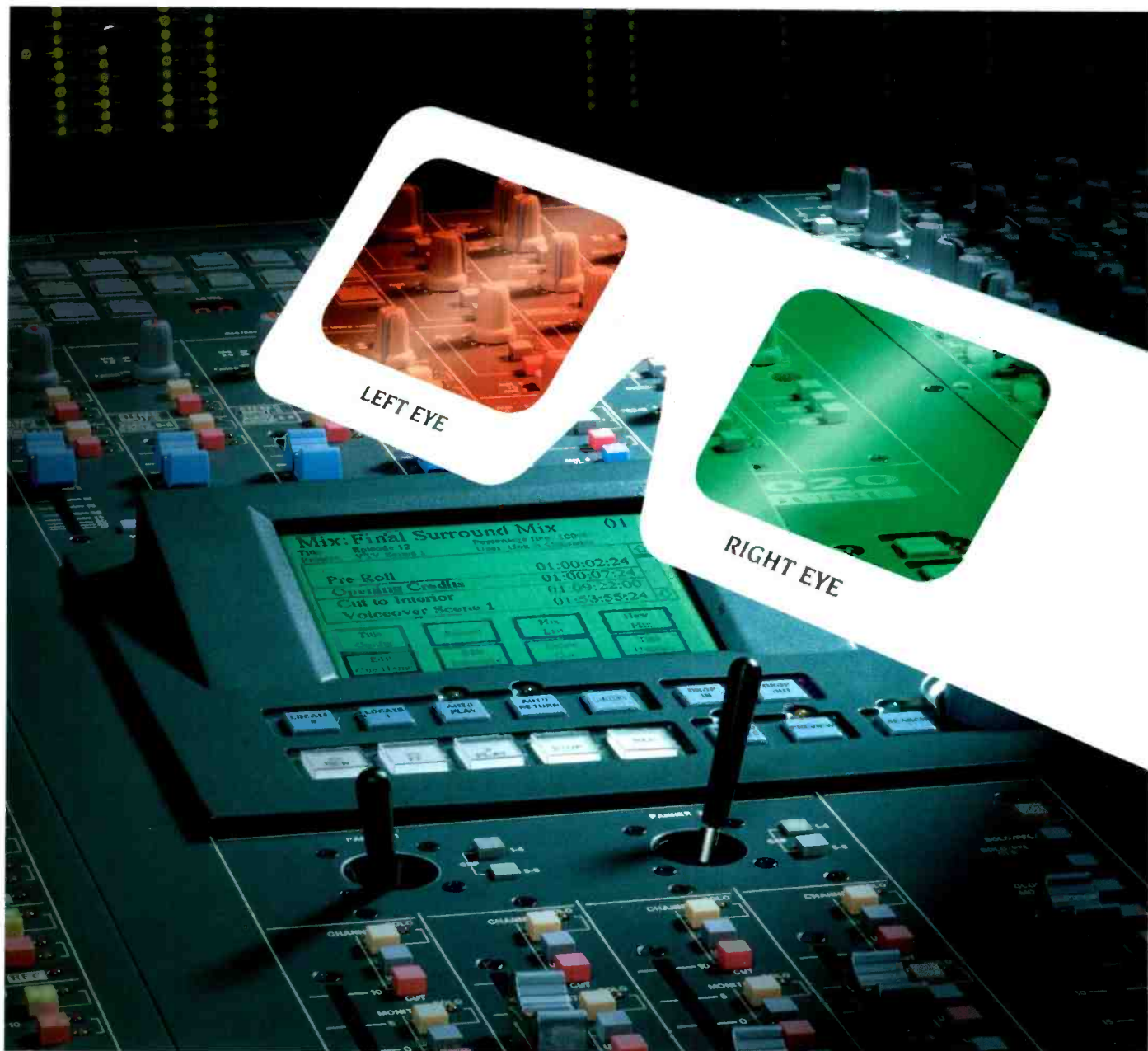


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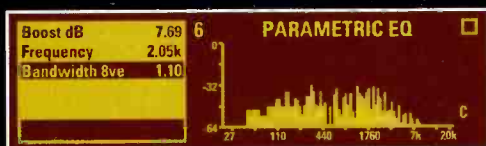
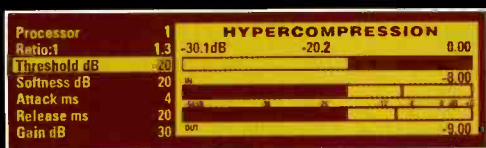


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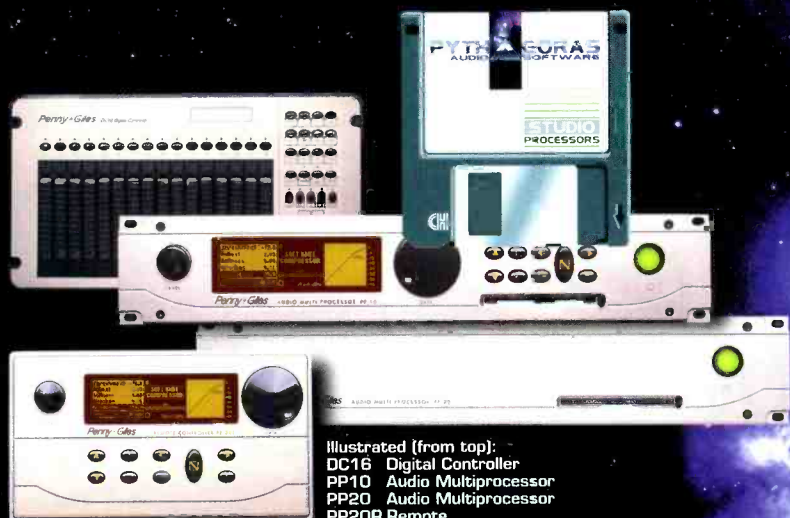
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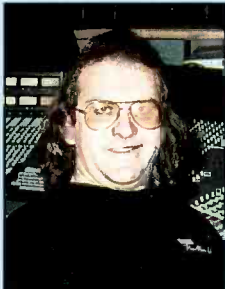
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Penny & Giles GmbH
 Mauthstrasse 9,
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Penny & Giles Incorporated
 2716 Ocean Park Boulevard,
 # 1C05, Santa Monica, CA 90405, USA
 Tel: (310) 393 0014
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Penny & Giles Studio Equipment Ltd
 Blackwood
 Gwent NP2 2YD, UK
 Tel: +44 (0)1495 228000
 Fax: +44 (0)1495 227243

THIS EDITION'S CONTRIBUTORS



ANDY WOOD (pictured here in AIR Lyndhurst's Studio 2) is a charismatic freelance journalist. With a background in marketing for both HW International and Harman Audio (UK), he specialises in live and studio production projects and is a regular visitor to the world's pro-audio exhibitions.



NICK SMITH (pictured here at Abbey Road with his Washburn) has played with some of the UK's finest indie guitar bands. Despite lack of recognition he is strangely optimistic about his musical career, writing, playing and recording in his home town, Brixton. By day he is Executive Editor of *Studio Sound*.



JIM JAMES left his position of Marketing Manager at AMS Neve to establish a media and marketing consultancy in direct response to the needs of the audio and broadcast industries in Singapore. EastWest Communications is now enjoying its second year in the business.

Never mind the censor

Two news releases, both dated 6th June, recently appeared on the 'wire' news services. They announced the intention of the UK Government to license data-encryption services 'to safeguard the confidentiality of electronic information transmitted on public telecommunication networks'. Of course, we can safely assume that the Government's actual goal is as much to control the level of security in common use as it is to safeguard the communication of any particular party. The development will not have surprised anyone conversant with the convoluted politics of data security and it bears close comparison to recent events both in the United States and Japan.

The licensing story is more fully reported in next month's Soundings but if you're wondering why you're reading about data security in *Studio Sound*, I would further direct you to an earlier editorial – 'Enigma variation' in September 1995's issue—which was devoted to the possible implications of the audio industry's use of the wire to transmit sound and video before commercial release. The matter of (any nation's) government intervention in the information we wish to send to each other brings up the issue of censorship, however. I'm not talking about political or sexual subversion here, censorship can have far more subtle ways of making its way into our world. Take, for example, the recent American broadcast of an Ozzy Osbourne gig—mindful of the potential offense caused by Ozzy's more rock 'n' roll lyrics, a tc electronic 1280 digital delay was used as a profanity delay with the ability to substitute crowd noise for risqué words. The man in the hot seat was Sound Engineer John Valenzuela. The question arising, here, is a sound engineer's qualification as censor. On the basis of whose moral values and with whose authority were the decisions to censor taken? Would you regard yourself as qualified to drive the 1280?



RETURNING TO DATA CENSORSHIP, it's satisfying to note the trouble the America On-Line network got itself into when it took the moral high ground over the word 'breast'. Deeming its use inappropriate to healthy communication, AOL censored any communications in which breast appeared—and in so doing, ruined a medical discussion group set up to cover breast cancer.

Not content with this relatively minor *faux pas*, America has recently passed what it's called the Communication Decency Act into US law. This has two direct consequences, neither of which reflect well on America's idea of decency: the first is that although the Internet was 'invented' in America, to impose American legislation upon its use is to impose American standards of decency on an international service. The second is that the Communication Decency Act is apparently in direct conflict with the First Amendment. It is unsurprising, therefore, that the new legislation is presently being challenged in the American courts.

I trust that by highlighting these instances, we can recognise that censorship is a difficult issue that readily reaches far into our professional as well as private lives. And the explosion of electronic media and communications mean that it, as well as new age piracy, is going to be increasingly relevant to audio and video in the foreseeable future.

In assembling this editorial I have to acknowledge a particularly profitable discussion I had with sometime *Studio Sound* contributor and general technical authority, Simon Trask (over an unsecure telephone line). In the course of our discourse, he described the Internet as being like a 'digital city with no back alleys, sleazy areas or underground clubs'. You may or may not want to live your life in any of these places, but I can assure you that they are essential to a healthy society.



editor

Sound

Re-pro announces major new initiatives

DENMARK-UK: A European collective of record producer and sound director institutions has been announced at a high-level meeting held at this year's 100th AES Convention in Copenhagen. The European Sound Directors Association (ESDA) has been set up as a lobbying body to voice concerns among sound directors over the way they are paid both by record companies and collection societies.

Prompted by a widespread ambiguity over the meaning of the word 'producer' the initiative is seen as a major breakthrough in differentiating between the common ideas of the term being used to describe either the record company or the creative input behind a recording—the 'sound director'.

The meeting—chaired by Peter Felieul—outlined ESDA's primary aim as coordinating the activities

of the Europe-wide associations on behalf of the profession to the European Commission and the World Intellectual Property Organisation. It is seen as the first time associations of this type have joined forces in order to further common aims.

In a lively, and at times emotional, meeting attended by representatives from over ten member or prospective member countries, agenda items discussed included: 'Why do some sound directors get paid royalties and others not?'; 'When is a producer a performer?' and 'When should engineers qualify for royalties?'

Hot on the heels of these controversial topics came a second meeting in London, at Air (Lyndhurst) where the long awaited Draft Producer Agreement was announced by Re-pro and the newly formed Producer Managers Group of the IMF (International Managers Forum). The agreement, which is still in its nascent form has been circulated to major and minor record companies, lawyers and producers themselves. The IMF is currently talking to two as yet unidentified major record companies that are interested in taking the idea further.

According to the IMF, the benefit

of such a scaled-down document is that it has the potential to relieve both contracting parties from much of the burden imposed by the unnecessary bouncing-back of contractual exchanges during negotiation, allowing both parties to concentrate on the real business in hand: areas of genuine commercial value.

In substance the thinking behind the contract is to separate those ideas which can be agreed and are regarded as non-negotiable from a schedule containing the elements unique to the contract which may be subject to bargaining. It is hoped that the next stage in the development of the agreement will be for producer managers to put it into practice in real situations. This may be more difficult than it sounds, but the IMF recognise that objections could be critical to the way in which they hone the terms in order to provide a document that can be more universally used.

At the moment the agreement is more suited to UK-based deals, as European and American agreements are based on different basic contractual expectations. But the spirit of the agreement should easily translated to respond to legal structures beyond the UK, and it is likely with the formation of ESDA that these contractual approaches will be considered in the near future.

At what is thought to be the largest ever gathering of producer managers, the panel—chaired by Steve Budd—put forward the historical position prompting the proposals for simplifying the currently ridiculously over-legalised procedures for allowing the producer anywhere near a band in the first place.

Introducing the meeting, Steve Budd said: 'The role of the record producer has become recognised by the record companies as more an more crucial to the success of a record. However, this has been coupled with a tendency to reduce the monetary value in real terms that producers earn from advances. Often the producer is seen as a potential profit centre for the record companies, and as negotiations become more and

more complex, so the producers bottom line income has been eroded by clawback deductions.'

While it could be argued that record company legal departments of will never stand for bringing their hopelessly obtuse legalese within the grasp of mere producers and their management, there still remains the glimmer of hope in the form of the two majors who seem to feel that after all, however you word it, a good idea is basically a good idea.

NICK SMITH

AUDIO 96, the name of the last UK APRS show to follow the format of the preceding 28 years, can justifiably claim to have surprised the majority of its critics. Certainly, the show had enough pull to attract Peter Gabriel through the door within half an hour of opening. And alongside Brian Eno's official presence, other celebrity sightings included Steve Lipson, High Padgham, Sir George Martin, Alan Parsons and current *Studio Sound* interviewee, Spike Drake. With the exception of the publisher of one British musicians' magazine ('Been here ten minutes—seen it all'), all the exhibitors I spoke to claimed to have at least covered their costs at the show, and the visitors to have seen enough to keep them up to date. Certainly, the atmosphere of the event was relaxed and positive—regardless of the absence of a few 'key' exhibitors.

It has been confirmed that next year's show will be amalgamated with the Vision show to more comprehensively address the converging areas of audio and video. The show will be called Vision and Audio 97 and take place at Earls Court, 4th–7th November.

TIM GOODYER

WHENEVER Brian Eno does anything extraordinary—and let's face it, that's his job, and he's very good at it—people get suspicious and cynical. This is probably because there's a generally held doubt as to whether the guy's a total genius or a complete charlatan. Eno himself seems to be aware of this, and there's a definite sense of his new book-diary *A Year with Swollen Appendices* being an



GERMANY: The 20th anniversary of the School of Audio Engineering saw hundreds of guests descend upon the School's Munich studio for a tour and explanation of the operation's success, and future goals, from founder Tom Misner before moving on to a picturesque restaurant for excesses of food, drink and traditional German culture. Among the notable guests were AMS Neve's Mark Crabtree, Soundtracs' Todd Wells and Producer Alan Parsons. TIM GOODYER

open-hearted attempt to set the record straight.

Don't be fooled by his opening protestations about it being a genuine diary that shifts bias as he gets used to the idea of publishing it. That's bullshit. Eno doesn't do things in anything other than a calculated way and this—like just about everything else he does—is a piece of performance art.

And very good it is too. Apart from being a rattling good read it's also a remarkably good example of the diary qua diary. Political themes, artistic causes, guarded self-consciousness are all characteristics of this complex and in many ways delightful book. Characters develop extremely well, the most engaging being his two little daughters Irial and Darla who steal the show from the word go. There's a great scene when he's trying to explain the Solar System to them, by drawing circles in the sand.

You won't learn anything about record production by reading *A Year With Swollen Appendices*, and you'll learn precious little about what it's like to be a creative genius (the appendices themselves are not as clever or interesting as he thinks they are) but you will get the sense of being propelled through a book that will one day be regarded as one of the cornerstones of his career. (Faber & Faber UK £9.99)

The pet project of producer John Walters, *Unknown Public* is a masterpiece of alternative music. A quarterly CD music 'magazine', *Unknown Public* (now in its seventh issue) offers a uniquely qualified insight into a diverse collection of musical styles, values and production values. For the musically inclined, UK is a listening challenge, consistently opening up new territories (musical and geographical) to an audience endangered by record company fiscal policy. For those educated beyond reproduced sound, UK's challenge cuts deeper—given the room and the musicians, what would you do? The music is abundantly different to rob you of familiar



The author of *A Year with Swollen Appendices* at the opening ceremony of Audio 96. Brian Eno is in demand

references and demand that you justify your experience by identifying musical imperatives, production values and commercial opportunities.

The current UP07 issue focuses on The Netherlands and currently concedes sleeve notes in four different tongues (in keeping with its 41-country circulation). And if Walters' pedigree in any of these areas is under debate, it's worth noting that his (1981 UK hit) *Einstein a Gogo* has just resurfaced in a British Mercury television ad...

Unknown Public can be contacted on +44 1734 312580; fax: +44 1734 312582. e-mail: walters@gn.apc.org

TIM GOODYER & NICK SMITH

PRO-AUDIO EQUIPMENT

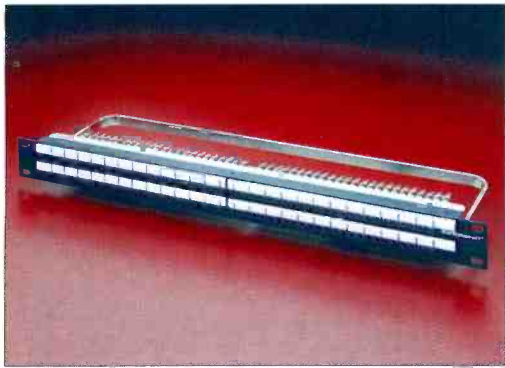
hire company FX Rentals has announced the formation of PARN—the Pro-Audio Rental Network—a European collective of equipment rental companies. As one of three founding members of PARN, FX has said that by offering its clients a Europe-wide service, it will take away a lot of the difficulties in hiring gear overseas. Explaining the move, Managing Director Neil White said: 'Through PARN, FX Rentals' clients can source equipment in exactly the same way as they always have, even if the equipment is destined for an overseas location. They will still have FX's 24-hour support and backup but we will be able to reduce the expense by cutting down on transport costs.'

NICK SMITH

News in brief

- ◆ Chicago's Metropolis Media Complex has purchased the first AMS Neve Libra console to compliment its Capricorn. The purchase accompanies an order for a Logic 3 console. Metropolis Media Complex, US. Tel: +1 708 941 3571. AMS Neve, UK. Tel: +44 1282 457011.
- ◆ Austria's ORF TV broadcasting organisation is building two new TV continuity rooms, both of which will be equipped with Genelec surround-sound monitoring systems. Each will comprise 1031As for the L-C-R channels and 1094A for the sub. Genelec, Finland. Tel: +353 77 13311.
- ◆ Hong Kong has scored its first SL9000j console. Kowloon's Avon Studio. The console has been installed in a new Hidley-designed room and will run with a Sony PCM-3348 DASH machine for music tracking. SSL, UK. Tel: +44 1865 842300. Sony, US. Tel: 201 930 1000.
- ◆ Warner Bros' Burbank facility has added nine Fairlight MFX3s and four Digital Audio Dubbers to its existing two 24-channel MFX3s. The Hollywood-based film and TV house has opted to replace its old multitrack and mag film dubbers with the new DaD systems for dubbing duties. Fairlight, UK. Tel: +44 171 267 3323. Fairlight, US. Tel: +1 213 460 4884.
- ◆ The Netherlands' Studio Michael Mulders post house has opened a new editing and film dubbing room with a DAR Sabre Plus and Yamaha 02R. On the music front, Zwolle's Hulst Recording has installed a Soundtracs Solitaire and Dutch recording artist Robby Valentine has a new project studio with an automated 32-channel Soundtracs Solitaire. DAR, UK. Tel: +44 1372 742848. Soundtracs, UK. Tel: +44 181 388 5000.
- ◆ The Redmond, Washington teleproduction facility of Microsoft will be home to two SSL Axiom digital production systems. Further south in the US, Florida's Latin recording hotspot Kokopelli Sound Studio has added 39 channels of Uptown 990 automation to its Neve 8068 console and the Full Sail Real World Education facility has become the first audio school to install an SL9000j. Uptown Automation, US. Tel: +1 616 695 5948. SSL, US: Tel: +1 212 315 1111; +1 213 463 4444.
- ◆ Radio Guangzhou recently miked a 15,000-voice choir and 500-plus orchestra as part of a television tribute to Chinese composer Xian Xingha. MC736 and MC737 shotguns took care of the choir, while MC742 stereos were used on the orchestra. Additional U700 radio systems were used for the announcers presenting the concert for China Central TV which was staged with a 40,000-strong audience. beyerdynamic, Germany. Tel: +49 7131 6170. beyerdynamic, UK. Tel: +44 1444 258258.
- ◆ Syrian National TV and Radio has invested in six Soundcraft B800 consoles, a Series 30 broadcast console and two Venue PA consoles. The Venues are being used in live-for-broadcast recording, the Series 30 for TV work and the B800s are part of a station update. Soundcraft, UK. Tel: +44 1707 665000.
- ◆ dB Postproduction, in London's Soho, has recently installed its second 32-channel Audiomation Audiomate system running on an MTA console. The new pairing is a duplication of an existing arrangement and feeds an AudioFile Spectra. dB Postproduction, UK. Tel: +44 171 287 9144. Audiomation Systems, UK. Tel: +44 1207 529444.
- ◆ San Francisco saw the opening of the Sega Music Group studios recently. Created to produce original CDs for distribution by PolyGram records, the facility has two rooms—the studio bauton Studio A and Studio B which was modelled on its sister and contains a 56-input, 8-bus Mackie console with Ultramix, Genelec 1032A monitoring, Pro Tools 3 and ADAT XT MDMs. Mackie Designs, US. Tel: +1 206 487 4333. Alesis, US. Tel: +1 310 558 4530.
- ◆ London's Complete post facility has become Europe's first Avid Media Spectrum site. Media Spectrum integrates comprehensive video facilities with 48kHz audio and will run on the Onyx R10K platform and will be ATM networked. Complete, UK. Tel: +44 171 379 7739. Avid Technology, UK. Tel: +44 1753 655999.

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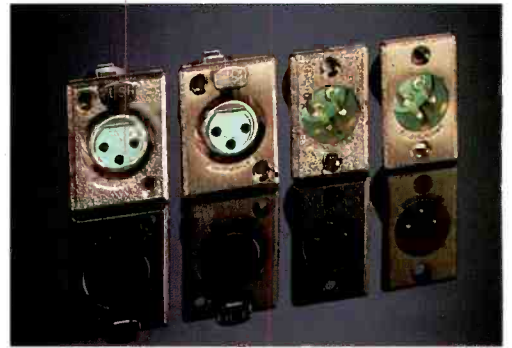
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The workman or his tools?

The popularity of digital processors and the decline of signal testing has put junk into the audio signal. How about returning to some old values?

As audio professionals, we make a living out of manipulating sound in a way which ends up to someone's liking.

Temporarily we may do it to no-one's liking, but this is a poor long-term strategy. As in all professions we are distinguished from labourers in that we do not offer our physical strength to the market; instead we bring the ability to use tools, which is a skill.

In the case of the woodturner, the number of tools is quite small. A lathe, some chisels and a sharpening stone will provide a good start. However, without the appropriate skill these tools will not produce the desired result, possibly leading instead to the local accident and emergency department.

In audio engineering, the tools are quite different; but the underlying principles are not. As in all evolving technologies, the tools of the audio engineer are in a state of change. Now, I have never had a problem with technological change *per se*, but I find it hard to justify the use of technology for its own sake. The requirement is to store and manipulate sound, and the technology is quite irrelevant as long as all of the criteria are met.

Unfortunately, one of the side effects of advancing technology is the need of the manufacturer to provide 'better' or 'newer' equipment. In the good old days, equipment design was a battle with noise and distortion, and elements which impaired frequency response. Users spent a good deal of time testing signal quality before using equipment. Newer and better, then, meant audibly better. Today's materials and components are such that this battle is virtually over. How, then, is the manufacturer to make a 'better' model.

One answer has been to put more knobs on it, to give it more functions, to make it programmable, to style the box and so on. While digital recording has done wonders for sound quality, the downside of digital is that many products have become much harder to use than their analogue predecessors. Because the digital domain was superior for audio recording, it was assumed that the digital domain was better for the control surface. Quite a false assumption I assure you.

In the high-tech approach, the first generation of over-complicated boxes established that this 'more functions' approach is normal and desirable. The next generation over-complicated-box may actually sacrifice sound quality to achieve what is perceived as required for this year's degree of functionality. And because people have got out of the habit of testing things, that poor quality enters the chain. A case of more is less.

THE TIME WASTED fighting the over-complication of some of today's products erodes time which was traditionally spend on making sure that everything is working properly; performing line-ups and so on—a case of not being able to see the wood for the trees. People tend to be carried away by the glamour of high technology and assume that enough technology will guarantee success. Worse, people assume that technology is capable of anything, even when this requires violation of established laws. It doesn't matter what's wrong with the sound, putting some fancy processor in will fix it.

Unfortunately, if the required fix is impossible, or if the extreme parameters being used in some desperate repair process are having side effects, it is usually the equipment which gets the blame, closely followed by a request for a more advanced model. This is unfair. It's the poor workman blaming his tools. If we chose to use some process to get out a hole, and the results are imperfect, we should blame ourselves for being in the hole, not the imperfect process.

Compressors are a good example. While it might be impossible to compress the dynamic range of solo instruments prior to a mix, compression of mixed track, or compression of a signal from a microphone which is sensing several instruments is theoretically impossible without audible artefacts. If we hear artefacts we blame the compressor when, perhaps, we should be blaming ourselves for thinking of using compression.

Microphones are another example. A microphone is like a camera and has a field of view. Put it in the wrong place and the perspective is wrong. Too close and sibilance, tip-up and breathing noises are yours, with a host of effects units and pop-up screens to remove the

'deficiencies' in the microphone. In fact, the microphone is just doing its job, reproducing the sound at the place where you put it. Put the mic in the right place and these problems simply aren't there.

Digital audio was oversold, particularly the myth that testing was unnecessary. One of the biggest problems of digital audio has been the misuse of the available dynamic range. Analogue consoles had developed to such a standard that a reasonable result would be obtained with the levels some way out from optimum. Operational slackness had set in. With the unforgiving nature of digital clipping this was revealed.

To avoid a deterioration of standards, we have to hold on to professional audio basics. These have not changed with technology nor do they need to. A professional approach to sound quality requires that every item in the chain shall be under permanent suspicion in

If we hear artefacts we blame the compressor when, perhaps, we should be blaming ourselves for thinking of using compression

several ways. In order to above suspicion we must answer the following: has it been designed and built to sufficiently high standards and tested to show that they are met? And are all of the controls set to values that the unit has a chance of executing properly?

Apart from a few exceptions, if you are using equipment which is not above suspicion, you could be on thin ice.

One way of thickening the ice is to simplify the system. Following Murphy's Law, the fewer boxes the signal goes through, the less chance there is of damaging it. Instead of doing it wrong and fixing it later, why not just do it right?

John Watkinson

O N E W O R L D



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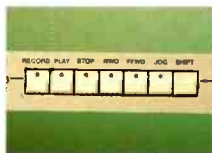
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Whatever will be, will be



New York's Power Station: the site of a pitched battle between yesterday's visionaries and today's mercenaries **DAN DALEY** hosts the inquest

On April 25th, part of the fabric of the American recording industry passed into history. Power Station was founded in 1979; at the height of the glory days of independent commercial facilities, Tony Bongiovi's new studio was the Taj Mahal of technology in both appearance and vibe.

Over its 17-year history, Power Station hosted thousands of recording sessions which produced over 400 gold and platinum records for such artists as The Rolling Stones, Eric Clapton, Bruce Springsteen, Barbara Streisand, Mariah Carey and the Spin Doctors. Bongiovi himself was the apotheosis of what an independent recording studio owner was supposed to be: brash, brilliant, full of himself (and other organic material) but capable of delivering the goods.

I remember getting tour of the place some years ago and looking at the upstairs room that he had turned into a shrine to his younger cousin and then-protege, Jon Bon Jovi, with clothing pretty much left where it was thrown while Jon and Tony plotted the first Bon Jovi record there. Tony and Jon had a falling out not long after. Another relation left the studio and went to a competing facility in Manhattan, with no love lost between the two of them. Tony Bongiovi is an intense man, with an ego to match his accomplishments. And a temper, reportedly, that possibly exceeded both. When Power Station was riding the crest of success' wave, Tony was regarded as a visionary; those same characteristics came to be viewed, when the troubles started, as hubris and egotism. The truth, as usual, lies somewhere in the middle. Tony took out a \$3m loan in the early 1990s to build a postproduction room. It was beautiful but expensive, and it came at a time when the economy was in shambles, when the commercial advertising business in New York was evolving from for-hire facilities into home-based ones, and when the film industry was virtually shunning New York in response to absurd demands from the city's grip and gaffer unions, unions that eventually caved in when they realised the extent of the damage they were inflicting upon themselves and the city. And Tony Bongiovi, historically and temperamentally not a candidate for the Diplomatic Corps, was taking a lot of the way the events affecting Power Station, personally. Now add to this a rift between him and main partner Bob Walters, who left shortly after. It was now Tony against the world.

The stage was set for an American tragedy of classical Greek proportions. Tony Bongiovi claimed that while he pursued his technological vision for Power Station, the day-to-day business of running it was mishandled. Conversations with those who were there during that period offer a very different story, one which casts Tony as trying to buy back a position in a business that was responding to stronger forces than money. When all was said and done, Tony was facing increasing debt, armed mainly with a sense of denial as strong as anything he'd ever undertaken. He had suspended payments on the loan, then declared bankruptcy to protect the studio's assets, including some of those acquired with the funds from the loan. His reasoning? They should never have lent him the money in the first place! Tony reached out the the media, calling to say that Power Station had entered into a joint venture with a New York-based content development company, one that, unfortunately, didn't have a listing in the New York City telephone information directory. Tony tried a lot of tactics

during the year-long fight, losing friends, allies and possibly years off his life in the process.

IN THE END it was for nought. On April 25th, in an auction conducted by Rabin Brothers Auctioneers and attended by an estimated 500 people at the Manhattan Centre in New York and 200 more at the Butterfield & Butterfield Auction Gallery Hollywood facility linked by video, Power Station was taken by a lot bid of \$5.3m by Japanese recording studios owner Takashi Kanamori and a group of Japanese investors. The bid was apparently enough to satisfy the reported now-interest-swollen \$4.175m debt owed to the bank, plus the court costs of the suit, as well as the estimated six-figure cost of the bi-coastal auction and several hundreds of thousands of dollars in unpaid real estate and sales. Tony's denial, his weapon of first and last resort, never faltered, right up to the very end.

According to inside reports, he attempted twice to gain entry to the building prior to the auction, which was then placed under 24-hour guard and whose locks were changed. Even after the sale, Tony told anyone who would listen that it could still be legally blocked. Very few were listening at this point. The last time I enquired, I found out that Tony was in Japan, working on deals to build new studios there and elsewhere in Asia, as well as pursuing financing for a series of Power Station Cafes around the world—he still owns the name, if not the studio. Other reports have him filing court motions to block the sale, even as the new owners are measuring the studio for a fresh coat of

paint. The studio once known as Power Station will still be there, and it will still be a recording studio, albeit under another name. But the recording business is a different one now than it was in 1979. It's a corporate environment, with studios placed as cogs in the great machine of a culture that has become America's main profitable export. And like many of the other American engines of culture, it now has foreign owners. There might not be a place for a mad genius in this business anymore. I believe that Tony will find other ventures that could be just as successful as Power Station was during its heyday. And the studio, whatever it will be called, will still be a major facility in a major city. But the synergy that it had under Tony Bongiovi's reign won't be there anymore. Some might say that's for the better. But it also says that the time for those sorts of intensely personal adventures, on that kind of scale, in this business might also be over, perhaps forever. **S**



Doris Day (right) and pet poodle discuss the future of the NY recording scene

The end of an era



The death of Alan Blumlein offers lessons that may prove valuable to those documenting the achievements of Michael Gerzon writes **BARRY FOX**

Michael Gerzon died early in May, at the age of 50. For years he had been struggling against two different illnesses that would each have wrecked a lesser man. After a spell at the Mathematical Institute in Oxford, Gerzon worked for 20 years as a consultant on digital audio, video and computer projects. As his partner on many projects, Peter Craven, put it 'What Michael does now the world will want in 30 years time'. His partner on Ambisonics, Professor Peter Fellgett told me years ago, 'I work on the very simple principle that if we disagree, Michael is right'.

My lasting memory of Michael will be my first. CBS (later bought by Sony) was demonstrating SQ quadrasonics in a Park Lane hotel back in the 1970s. We heard a demonstration of sound effects rattling round the room and got the chance to pretend we were sitting in the middle of an orchestra. The CBS people then launched into a highly technical explanation, with much talk of vectors. From the back of the room, a young man stood up, holding a flimsy square cage made out of wire. He turned it inside out to explain vectors in a language that even I understood, and went on to challenge the CBS theory.

During the 1970s, relations between CBS and Michael Gerzon got progressively worse. Every time CBS would give an AES lecture, Michael would pop up and ask challenging questions. He wasn't doing it for fun, or to look clever, or to harm CBS. He was doing it because he firmly believed, and had the maths to prove it, that none of the quadrasonics systems would be right for hi-fi in the home.

Behind the scenes, complaints were lodged with the Oxford authorities and Gerzon was 'carpeted'. He admitted to me that he had to be careful what he said and how he said it. All this may well have cost him an academic career.

What I shall always remember about Michael was his extraordinary ability to make even the most complicated concept easy to understand. He pitched his explanation at exactly the level of whoever he was talking to, without ever sounding even slightly patronising.

Michael would phone me every few months to plant a few thoughts, gently correct me where I'd got something wrong and explain what I couldn't understand. I always wanted to listen to whatever Michael had to say, at whatever time he called and for however long he wanted to talk. It made such a welcome change from listening to the Managing Directors, Director Generals and Public Relations Executives who are paid vast salaries to shape policy and pontificate on subjects about which they know nothing.

I cannot help comparing Michael Gerzon with Alan Blumlein. Both were thinking decades ahead of their time. Both died too early. Both were fully appreciated only by the people they worked with. The difference is that Blumlein died in the war, while engaged in secret military work so it took years for a wider appreciation to start to seep out. Then, in the hope of seeing a book published, Blumlein's family encouraged those with first hand information to send it to IEE member Francis Thomson, who said he was writing a biography. More than 50 years after Blumlein's death and more than 20 years after Thomson started collecting the material, there is still no biography. Thomson has still not done as he agreed with the Royal Society in 1992 and handed over Blumlein's papers for

safe keeping.

If nothing else the Blumlein experience has ensured that no similar mistakes are made with Michael Gerzon's work. To the best of my knowledge, nothing he did was classified as a security risk and there are too many people who worked closely with him, and respected him, to let any one person monopolise his archives.

EUROPE IS NOW FAMOUS for the widely ridiculed Eurovision Song Contest. In essence this is because the singers representing each country sing songs which are often an embarrassment to the local music industry. The event is broadcast live, and viewers get their kicks from seeing the panel of international judges award 'nil points' to entrants from countries they do not like and 'dix points' to political allies. It's a peaceful alternative to war.

Behind it all there is some very impressive technology at work. This year's event came from three separate stages in Oslo's Spectrum Stadium, and was covered by Norwegian state broadcaster NRK. It has sparked an engineering debate on the most efficient use of wireless microphones.

Sony made the running with press announcements on the use of its WD-880A Spectrum Divider. This claims up to 60% more audio channels in the allocated band—but BBC engineers do not agree with Sony's theory or practical solution.

In Europe each country allocates three UHF tv frequencies, in the band 774MHz–820MHz, for low-power radio microphones. Each television channel is 8MHz wide, and can accommodate ten high-quality radio transmissions. So, in theory, a studio should be able to use 30 radio microphones at the same time without interference or breakthrough between them. In practice it has so far been possible to use only half this number.

As well as transmitting on its allocated frequency, each microphone generates harmonics. These and the fundamentals intermodulate to create signals which interfere. So the number of microphones has to be limited. Instead of treating the three TV channels as a single 24MHz slice of the frequency spectrum, Sony's system trims the width of each channel and keeps it separate. Band-pass filters between the aerials and receivers divide the incoming signal into three channels, each 6MHz wide, with a 2MHz guard band in between. Each TV channel then acts like a pipe, feeding eight high-quality microphone signals to the receiver. Spurious signals from other channels are blocked or lost in the guard bands.

Sony tested the system with 20 microphones at Norway's national music awards, Spellamanspriesen, and then used 24 microphones for Eurovision. If European governments will approve the use of six television channels, next year's Eurovision Song Contest will be able to have 48 microphones working simultaneously.

The BBC's analysis of the interference problem shows there are two quite different intermodulation mechanisms at work—one is in the receiver, when it is hit with two adjacent frequencies which mix and overload the input stages. There is also intermodulation in the radio mic transmitters. The signal from one microphone is picked up by the transmitter aerial of another microphone. It then feeds back into the amplifier circuits, creating intermodulation signals which the radio microphone then transmits. The BBC's fix for this is to put unidirectional circuitry in the microphone transmitters so that they can pump out power, but not receive it. Ⓢ

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Burning ambition



The explosion of trade shows has scorched exhibitors and their budgets around the world—but while the cause is the same in the West, the effect in the Far East is as unique as the territory writes **JIM JAMES**

I was going to write about the two major audio shows happening in consecutive months here in Singapore—Broadcast Asia that has just closed and PALA is about to open. Then I read John Watkinson and counted in excess of 40 shows scheduled for the remainder of this year in the World Events page of last month's issue, and figured that we have all reached the same conclusion—how many shows do we need and what do we end up doing at them?

It never ceases to amaze me how much money is spent on mounting an exhibition, how many R&D deadlines are driven by show dates, and how many days are lost in transit, on stands and in recuperation.

The proliferation of trade shows in Asia over the last few years has been as a result of two things; statistical and anecdotal evidence of the size of the market, and the belief that a show presence means market penetration. Certainly the market is large, but it is not a new frontier anymore and we are entering a phase of intense competition not plunder

I'm just getting back to the state of good health that I enjoyed before Broadcast Asia. According to the organisers this was the biggest yet, with over 9,100 visitors from 34 countries coming here to see the latest offerings on 564 stands. But, of course, these were not the latest releases, as the NAB scoops up all the new launches and announcements to be made for the first six months of the year, with companies waiting until the American AES or European IBC to fan the flames of competition.

As Broadcast Asia has got bigger, covering more floor-space, the 9,000-plus visitors looked pretty thin on the ground, especially as they were spread over four days which most think is too long.

However, there seem to be many benefits to having a show which is not full-on all the time; the opportunity to get a proper demo, look at the competition and chat with colleagues—forget the 'first day of the sales' crush of NAB.

Broadcast Asia is only once every two years, and this year was held at a different venue to Telecom Asia and Network Asia, so the people walking round the stands actually meant to be there, and according to the salespeople I have spoken with the quality was good, but not really representative of the whole region, with the combined factors of the NAB and growing number of national shows reducing the gravitational pull of Singapore.

This is, perhaps, also as a result of the maturing nature of distribution in Asia and the changing of the traditional role of Singapore as the entrepôt. With new free-market policies being adopted by governments, notably India, and a sophisticated network of subdealers being managed by large regional trading houses out of Hong Kong and Singapore, the traditional role of shows should be re-evaluated.

For those who had planned ahead, Broadcast Asia was a good place to meet some of these potential agents, as by all accounts direct sales were minimal, and with DTI sponsorship of up to half the costs of attending, missing such an opportunity would seem inexcusable.

The same governmental support applies to Pro Audio Light Asia, the annual show which has expanded its remit to include 'professional recording; CD manufacturing; duplication; public address; live sound; disco lighting; lasers; special effects and associated equipment for the leisure; presentation; entertainment; music and related industries for the entire Asian region.'

This is an ambitious but understandable target market, for the music industry in South-east Asia is probably one of the most sluggish in the world, but sound reinforcement and live entertainment is booming. Last year the show attracted over 4,500 people, and this year the IIR organisation aim to attract a near 6,000 number to see the 300-plus exhibitors.

SOME MANUFACTURERS have made the understandable decision not to attend both Broadcast Asia and PALA, among them AMS Neve who missed the first, and SSL who will not attend the latter. Broadcast Asia is squarely targeted at the TV and radio stations, and naturally as audio follows video, postproduction facility staff were seen heading for the DAW's on show, while PALA is very much a live and recording show.

For distributors the decision is not so easy, as for most their services cover all A-V applications, and with the exception of some of the larger pieces of equipment, sell equipment which is found in all installations. The reality of it is that in Asia there is an overlap of operations and people, and many of the attendees of Broadcast Asia will come back down for PALA.

Some manufacturers will have two bites at the market, as is the case for Amek who demonstrated its new DMS console on the Team 108 stand and will have its own stand at PALA. This sensible arrangement shows a degree of cooperation and trust essential for servicing the market properly and profitably.

The proliferation of trade shows in Asia over the last few years has been as a result of two things; statistical and anecdotal evidence of the size of the market, and the belief that a show presence means market penetration. Certainly the market is large, but it is not a new frontier anymore and we are entering a phase of intense competition not plunder, a time which require good local partners and patience.

But returning to the original point, how many shows do we need and what do we do at them. Good salespeople naturally know all their customers, a good communications department can liaise with an agency based in the region, work up appropriate direct mail pieces and use database marketing as a highly effective complement to advertising; coordinated these can provide the air cover and generate the leads for telesales and eventual roadshows, all of which can be done with greater control from the privacy of the office.

Of course, a decision has to be taken on who to commission, which of the increasing number of magazines should be graced with advertising and selection of mailing lists for accuracy, which hotels are good value, all of which probably need a bit of market research; see you at PALA. ☺

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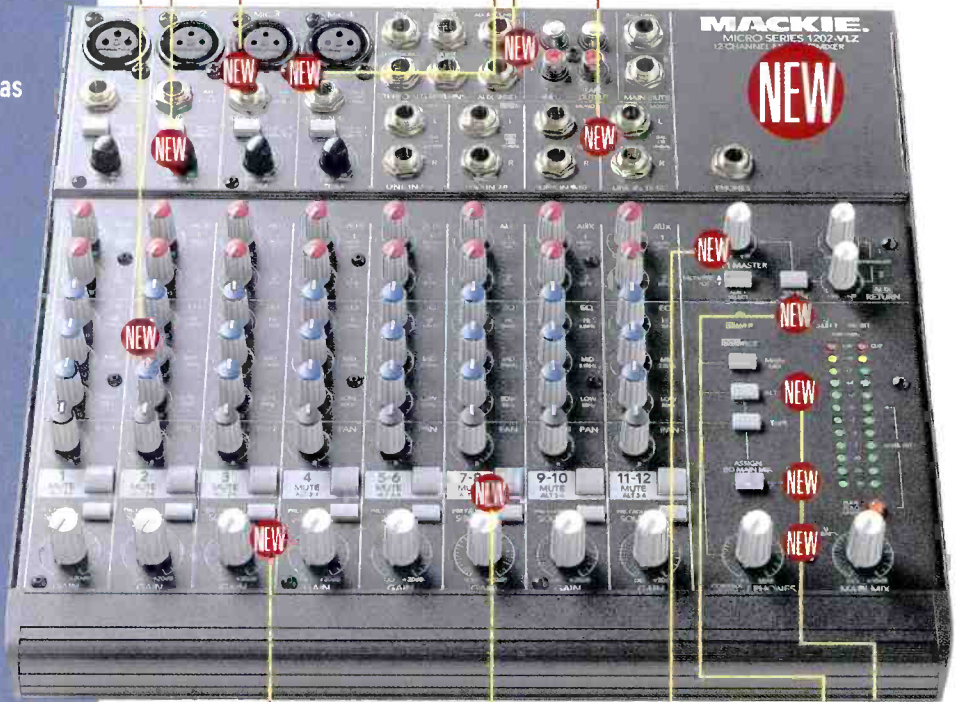
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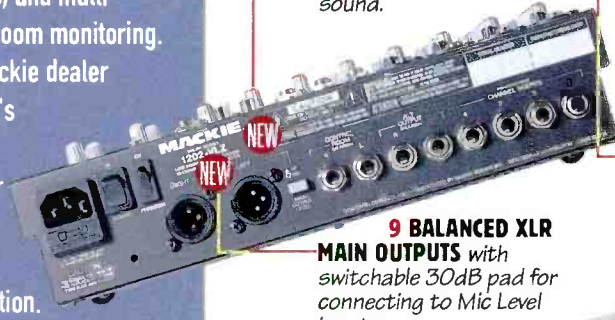
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Denon MINIDISC RECORDER

Denon DN-80R portable recorder combines the key elements of professional location recording with the convenience of the MiniDisc format **DAVE FOISTER** weighs up big-build standards and compression compromises

MINIDISC WON THE WAR with DCC long ago as far as professional users are concerned. The use of data compression on both meant that neither was going to get used as a mastering medium, but while DCC had no discernible advantages for the professional, MD's combination of CD-style access and reusability made it just what certain areas of the business had been waiting for. Keith Spencer-Allen's survey of the format's use in broadcast and elsewhere (Studio Sound November 95) shows how well it has succeeded in those areas, and surely this has helped keep it alive and developing in the face of a lukewarm reception from the consumers for whom it was intended.

But while MD's acceptance in broadcast studios for jingle, ID and

commercial playout, and in the theatre for sound effects playback, quickly became inevitable, few would have anticipated the availability of an MD recorder designed for location work, with a heavy duty build quality and a price to match. MD's appeal has always been as a delivery medium, not an acquisition medium, and the question marks over the effects of the data compression made it seem unlikely that any other professional use would be countenanced.

Denon evidently thinks otherwise, as shown by the DN-80R, a machine which makes little attempt to exploit MiniDisc's small size but instead places it at the heart of a rugged portable machine, clearly intended for location recording and designed to be readily familiar to those used to portable DAT. There is no attempt

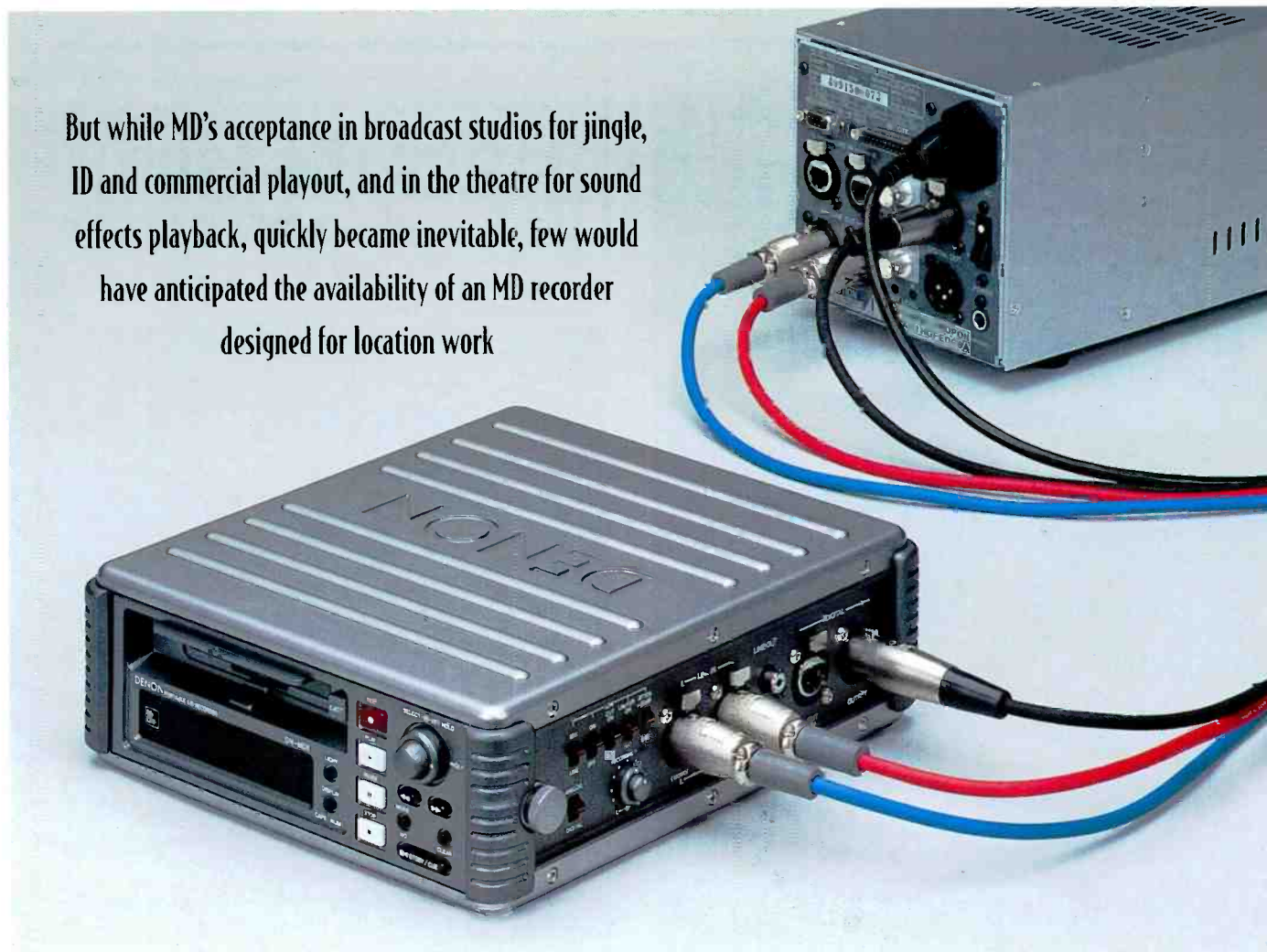
to emulate a cart player, none of the big coloured buttons found on the Denon desktop MD machines, and neither is there a big remote control for text entry. All of MD's inherent features for editing and cueing are here, but on the DN-80R they take second place to the primary function of recording.

THE MACHINE IS DESIGNED

to be used slung over the shoulder as a true portable, and all its main controls and the display then appear on top. This could make the disc slot vulnerable to moisture and dust, so a protecting door is fitted. This and the eject mechanism work manually, removing the risk of being left with a disc trapped inside when the battery runs out. Protection against knocks is very good, with all the controls and connectors

Not so much the standard desktop MiniDisc recorder —more a ruggedised location unit

But while MD's acceptance in broadcast studios for jingle, ID and commercial playout, and in the theatre for sound effects playback, quickly became inevitable, few would have anticipated the availability of an MD recorder designed for location work



on the front and side panels, leaving the rear, on to which the machine would fall if dropped, completely blank. Top and bottom panels are big chunks of aluminium, and protruding corner pieces shield the controls from impact, creating the impression of a very solidly built piece of kit. MD's resistance to shocks during playback, thanks to its reliance on RAM, is well known, and I certainly couldn't make the Denon skip. The only warning is to avoid movement while the User Table of Contents (UTOC) is being written, as an error here could make the whole disc unplayable. An updated UTOC is written every time a recording or editing procedure is completed, which means that the times at which it needs to be treated gently for the four-second UTOC write cycle occur quite often. There does not appear to be the safety net of a pre-TOC as seen on some other recorders, which seems a surprising omission given the machine's purpose. Having said that, I experienced no such problems.

The front panel is commendably uncluttered, with most of the main functions clearly laid out and a good informative backlit display. This shows levels, timing, track titles and transport status, which is also indicated by the illuminated control buttons. Text and timing cannot be shown simultaneously, although all the timing options for elapsed or remaining time for an individual track or a whole disc are available. The metering has a brief peak hold but no margin display, a feature so commonplace nowadays and so useful in live recording situations that its omission here is disappointing. A useful feature for the application is automatic time and date stamping of tracks

from a battery-backed clock.

Inputs and outputs are on the right hand side, along with the record level controls; the single knob on the front is not a pot at all but an encoder providing the means of getting at the editing functions. Separate mic and line analogue inputs are on balanced XLRs (pin 3 hot!), with limiting, attenuation and bass roll-off provided on the microphone preamps. Phantom power is not

The front panel is commendably uncluttered, with most of the main functions clearly laid out and a good informative backlit display. This shows levels, timing, track titles and transport status

fitted, again a surprising decision given the restriction this places on choice of microphones and the relatively small additional battery drain it would create. Analogue outputs are unbalanced low-level phonos, as often found on portable DAT machines, and as is the case with them, this is not much of a drawback as the machine is unlikely to be used primarily for playback anyway. Digital signals in and out are on XLRs, however, and the

format is selectable between AES/EBU and SPDIF, although the manual warns against shorting unused legs down for conventional phono SPDIF connection and even offers circuit diagrams for suitable interfaces. This is all the more surprising as the manual is generally written and laid out like the instructions for a piece of consumer equipment rather than a professional reference.

The other side panel carries a small loudspeaker for (very) basic monitoring, and this is over-ridden by the headphone socket, which provides plenty of level. The battery compartment is here as well, accepting a 2.3Ah Ni-Cd battery giving well over three hours of normal use. A charger is available for two such batteries, complete with a controlled discharge cycle, and this is separate from the mains power adaptor, supplied as standard, which provides 15V via a 4-pin XLR. This seems a curious choice as it is the standard connector for 12V location supplies which presumably wouldn't work with this machine. There is also an RS-232 serial port on a 9-pin D, allowing control of the machine from Denon's ACD-19 software, although as this is intended for the desktop machines it doesn't mimic the DN-80R's operation exactly.

There is little on the front apart from the display, the transport buttons and the multi-purpose knob. Transport controls are as simple as one would expect for MD, and include a cue button for preparing an instant start. The machine will cue either to a track ident or to audio, settable in software with a choice of detect thresholds, and as expected startup from cue is virtually

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Okay, bragging is too strong a word. But we are very proud when one of the most important, rule-breaking producers in recording history has become a Mackie 8•Bus fan.

After all, Eddie Kramer's role in the making of popular music has changed its sound forever¹. His recipe? "Make a record unlike anything that's ever been heard." So, while other engineers in London were churning out England's formula Pop of the Day, Eddie Kramer was across the console from a strangely-dressed young man from Seattle named Jimi Hendrix. Together, they broke practically every sonic and musical rule in sight. The result was an aural legacy of such originality that it still sounds amazing — even revolutionary — a quarter century later.

Eddie hasn't gotten any more conservative over the years. So it's not surprising that a man with Kramer's receptiveness to change would add a 32•8 to his creative arsenal. A mixing console that costs hundreds of thousands less than those he's worked on for most of his awe-inspiring career. A console he says he likes for its "...sweet EQ, dynamic range, and cleanliness."



1. Including Hendrix, Led Zeppelin, Kiss, Buddy Guy, and more recently, his work with other Mackie mixer owners: Sting, David Abruzzese, Vinnie Colaiuta, Stanley Clarke, Tony Williams, Steve Vai, and Carlos Santana.

2. He rates the location of the 8•Bus talkback button.

3. According to Eddie, Eric Shenkmar (Spin Doctors), Little Red Wagon Mobile Recording Studio, Bootsy Collins and John McEnroe have purchased 8•Bus consoles at his urging.

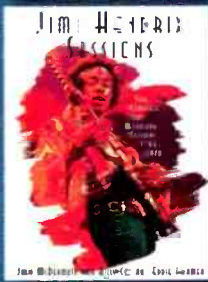


Eddie wanted to do more than just take advantage of the creative and lifestyle options afforded by the project studio revolution. He also wanted to help DRIVE it. So a year ago, we agreed to lend Eddie a 32•8 in return for his feedback. Since then, we've learned Eddie is not shy about expressing his opinions. Luckily they're mostly good².

And Eddie Kramer recommends Mackie consoles to his associates, too³. In these cynical times (when pop stars accept millions to "endorse" products they admit later to having never

tried), we at Mackie Designs think that's the only kind of "endorsement" worth having.

If you're in the market for a serious but affordable mixer, we hope you'll take a close look at the only 8•Bus console Eddie Kramer says is worth having.



Sample Eddie's latest work on "No One Else" by Jimi Hendrix.

a brilliant orchestral he made to Hendrix with an astonishing array of some of the best players in the world. Leave it to Eddie to break more rules. (New staffers should check out the **Mackie** Web Page @ <http://mackie.com>.) For a great read, pick up the *Jimi Hendrix Sessions* book by John McDermott with Billy Cox and Eddie Kramer (Little Brown), and on video, *Adventures In Modern Recording* (available from **MCA** Books/elf, 577-653-3307).

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REVIEW

instantaneous. Various preset functions are adjustable in this way, from stereo-mono record switching to the display details, and this set of parameters is accessed by an obscure double button push—definitely not something you'd find without the manual. Once there, the select knob scrolls through the functions and is pushed like a button to choose the required setting. This is a very fast intuitive way of getting round the system, beating nudge buttons, shift keys and the like hands down.

The same knob operates all the editing functions, of which there are plenty, perhaps surprisingly so in view of the machine's intended market. Search buttons allow precise location of points in the audio, at which tracks can be divided in two; the resulting blocks can have their order rearranged and be joined back together in the new sequence to perform simple cut-and-splice editing. Given suitable material, the monitored audio produced by the search functions and the precision they give allow this to be carried out with musical accuracy, and they would certainly be sufficient for speech editing. This is perhaps why the facilities are provided, as it would be quite feasible to record an interview or news piece and edit it immediately on the machine before transfer back to the studio. Track markers can be recorded on the fly manually, or triggered by quiet portions of audio (again, the threshold is adjustable) and these can be used as editing markers. For the sake of completeness, tracks can also be incremented by incoming idents in an SPDIF data stream, from either DAT or CD. The usual titling facilities are available for tracks and


whole discs, and these too are controlled by the front-panel knob in conjunction with a caps/lower case/numbers/symbol button. Again, this is surprisingly fast to use, although no substitute for a keyboard.

The recorded audio quality is excellent, with little to distinguish it from linear 16-bit PCM; what differences there are will be familiar to those who

**The recorded audio quality is excellent,
with little to distinguish it from linear
16-bit PCM; what differences there are
will be familiar to those who have
heard this kind of data compression**

have heard this kind of data compression, and take the form of slightly reduced definition of the lower-level signals. Data compression always seems to work best with the loudest signals, as might be expected, and the slight hazy granularity in the fine detail is enough to make it unacceptable as a substitute even for DAT for serious music recording. As competition for the typical reporter's analogue machine, be it open reel or cassette, the Denon unquestionably wins hands down even before its convenience features are taken into account, and similarly for sound

effects gathering it would be a very appropriate and useful tool. Whether Denon sees it as a recorder for film and TV work is not clear, although its lack of any form of time-code facility would suggest perhaps not.

Which really encapsulates the biggest question about the DN-80R: who is it for? It is beautifully designed and built, and clearly provides everything the medium can offer in a heavy-duty recorder, fully justifying its asking price. Its audio quality is without doubt superb, but it will face an uphill struggle persuading some applications to accept MD's compromises, however slight, simply because they are inherent in the medium, however good the individual machine. Perhaps its most likely market is in news gathering, where the data compression is irrelevant and where its huge convenience advantages and deceptively powerful on-board editing will make it very attractive indeed. If you have a use for MiniDisc, you couldn't wish for a better recorder than the DN-80R. 

CONTACT

**US: Denon Electronics, 222 New Road,
Parsippany, NJ 07054.**

Tel: +1 201 575 7810.

Fax: +1 201 808 1608.

**UK: Hatden Laboratories, Hayden
House, Chiltern Hill, Chalfont St Peter,
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INTRODUCING THE LIBRA MUSIC CONSOLE

A NATURAL

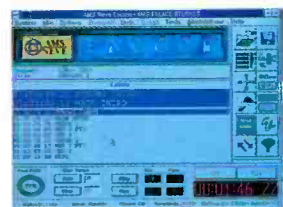
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*"I don't have a clue
how it works. But it
keeps me working."*

*"I know exactly how
it works, and it keeps
me working."*



Jon Bon Jovi



Rocky Holman





CEDAR FOR WINDOWS

Making the leap from the dark ages of DOS, CEDAR is now ready to run on a PC under Windows. **DAVE FOISTER** offers an overview of the new system and the benefits gleaned from CEDAR's latest stand-alone processors

IT HAD TO HAPPEN sooner or later. CEDAR's audio restoration technology has been through several incarnations, most recently the breaking down of the various elements of its PC-based system into stand-alone processor modules which then saw further developments of their own and fed back into the main system. The inevitable (though nonetheless impressive for that) next step was a recombining of the processes into a single flexible multitasking system, and that is what we

If the original PC platform can be said to have any drawbacks, the biggest is its inability to provide more than one process at a time.

now have in the shape of CEDAR for Windows.

If the original PC platform can be said to have any drawbacks, the biggest is its inability to provide more than one process at a time. The number of available processing modules has been increasing all the time, and was recently augmented by the addition of powerful EQ and dynamics packages on top of the existing dedicated restoration processes, but the

platform can only run one of them at any one time. Switching between them is straightforward and fast, and, of course, all the processes are real time, but some awkward material may require, for example, declicking and noise removal, or even declicking and decracking, to eliminate all its problems, and this will require two passes. There is then an added complication that the action of one may reduce the demands made on another and separate passes cannot allow for this potential interdependence. This was one benefit of the separate hardware boxes that sprang from the system, in that they could be daisy-chained together (by those who could afford the full set) in the digital domain and provide multiple treatments simultaneously.

Another small complication with the main system is the elaborate copy-protection procedure, stemming from the days when the DSP cards were off-the-shelf, third-party units and piracy was therefore quite feasible. CEDAR's way round this was preformatting of the PC's hard drive, which had to be done by CEDAR personnel either at CEDAR or on site, making the business of purchasing and settling up a new system more involved and long-winded than it might have been.

Both these aspects and more have been addressed by the new package, which can run multiple processes

Multiple processing is now possible through the use of multiple ProDSP/R-20 boards



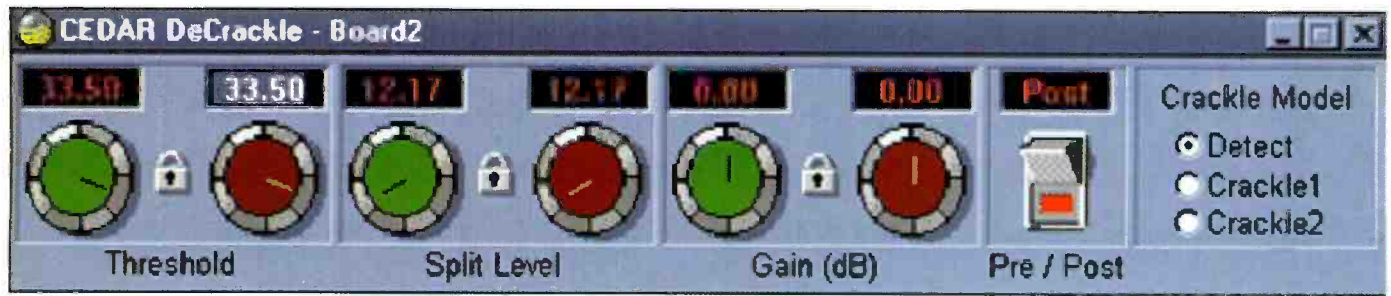
simultaneously under Windows (3.1 or 95) using CEDAR's own proprietary ProDSP/R-20 boards. These boards have already replaced the old cards in the main system and were designed with this latest development in mind from the beginning. The minimum requirement is for one of these boards, the controlling Console software, and one processing software module chosen from the range

THE CONSOLE SOFTWARE is the heart of CEDAR for Windows. It provides control, from a single window, of up to eight DSP boards, defining the function of each and the routing between them while showing each board's signal levels on a pair of large meters and allowing access to the controls for the processes in use. The Console window looks a bit like a set of channel strips where each represents a DSP card, with a big button showing the currently-assigned process and opening the associated control window when pressed. Any board can have any of the installed processes assigned to it, which means for one thing that you only have to buy each software module once but can then use it on all the boards in the system simultaneously.

The routing provided by the Console is what gives the new system its flexibility. Each board has AES-EBU and SPDIF inputs and outputs for independent operation, and also has a daisy-chain ribbon cable to adjacent boards. The Console determines whether each board's signal is derived from or sent to its own local I-O or the board before or after it, giving the possibility of eight simultaneous independent stereo processes, a single



REVIEW



Detail of the Decrackle control panel

signal path with eight processes in series, or anything in between. For instance, given six boards, two chains of DeClick, DeCrackle and DeHiss could be set up to run simultaneously on separate signals under independent control, all accessed from the Console.

These three processes in fact comprise the currently available range. The techniques are familiar from previous CEDAR systems, but rather than coming from the main PC system, the software involved is virtually identical to that in the Series 2 stand-alone processors, which has seen various developments since its separation from the main system. All the Series 2 units are controlled from a single screen of functions and displays, and this is carried over into the relevant windows for the new equivalents, although in some cases the labelling has been changed.

All three processes are simple to operate, and the simplest is the DeClick module, providing the fundamental treatment primarily associated in many minds with CEDAR, the removal of record scratch-type clicks. The DeClick window contains

two pairs of controls, a rocker switch representation for selection between preprocess and postprocess signals, and selector buttons for the three types of scratch model the process offers, each algorithm dealing differently with disturbances in the audio depending on the size and nature of the click. The window scores over the hardware box in having the algorithm selection available alongside the other controls—the DC1 uncharacteristically has it on a separate page. This selection and a THRESHOLD control are all that is required to get rid of clicks, and the variable controls, like all the others in the new system, are shown as rotary knobs which open up a long-fader graphic when clicked. A small display above each control shows its currently set value as confirmation of the position of the 'knob' and the pair can be locked together for true linked stereo operation. The only other controls on the DeClicker are for gain, a feature on every process as there is always the possibility that the processing can give rise to higher peaks than were present in the original signal.

DeCrackling is slightly (but only slightly) more complex, and again all the controls and switch options are shown simultaneously in the window. This treatment works by splitting the signal between the portion which contains the problems and the portion which is louder, treating the problem area and then recombining them. Its controls allow you to identify the required split point, helped by a Detect monitoring mode, and then decide on a Threshold level for removal of whatever artefacts are in the problem area. Such is the power of the DeCrackle process that these artefacts can include LP surface noise, thyristor buzz, and even some forms of distortion, and again two algorithms are available to deal in different ways with different types of problem.

Auto DeHiss is the most recently introduced of CEDAR's stand-alone processes, and the one even they once thought would be impossible as a real-time treatment. Its window contains an extra pair of controls again, but the procedure for using it remains very simple. Again, a Threshold is set identifying your perception of what constitutes the

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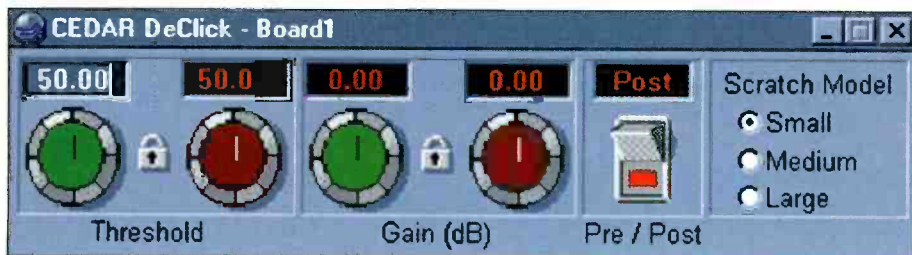
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REVIEW



Detail of the DeClick control panel

noise in a given signal, and an attenuation control decides how much of the identified noise is to be removed. The process is in fact building a model of the noise, basing the model partly on the information provided by the user, and it gets further assistance from the final control, labelled AMBIENCE. This helps it distinguish between wanted low-level HF, reverberant tails or other noise-like elements and the noise itself before carrying out the noise removal—this is not a control for restoring or compensating for lost information after processing.

Being Windows-based, the new system can have all these little control panels available on screen at the same time, and if any of them should disappear behind another one a single click on the relevant Console channel's button brings it back. This is particularly useful for handling a chain of processors, where the settings of one can quickly be optimised for the effects of another.


The other existing CEDAR processes will be available for the Windows system before too long, adding the aforementioned EQ and dynamics as

well as azimuth correction. On a fully fitted system this will provide enormous corrective and creative power, making it a unique and very flexible mastering system.

Also in the pipeline is integration into PC-based editing systems, making the various processes available to the audio within the editor. CEDAR's link with Studio Audio is already established, with a noise removal module promised for the forthcoming v3 of SADiE, and the new Windows system will extend the possibilities still further and make them available to other systems.

The point about copy protection is small but worth making; CEDAR for Windows will only run on the new boards, so the procedure is simpler and consists of the issue of a password from CEDAR—via fax or e-mail if necessary—tying the software to the serial numbers of the boards and registering the user for further support.

CEDAR has evidently put a lot of thought into making the best use of the Windows environment for the new system, and the end result is a set of tools which could really hardly be simpler to use. CEDAR's concern as a result is that in terms of

knobs, switches and other complexities, CEDAR for Windows may leave some prospective purchasers wondering where their money is going, because in the best CEDAR traditions the system is far from cheap. It seems strange, and a worrying reflection on our supposedly mature industry, that such a consideration should be seen as a problem; actual use of the system and experience of its uncanny ability to eliminate problems without any side-effects whatever should leave no doubt where the money has been spent and that the asking price is more than justified by the sheer power of the system. CEDAR for Windows appears to represent a major step forward for what was already a unique system. 

CONTACT

CEDAR AUDIO, 9 Clifton Court,
Cambridge CB1 4BN, UK.
Tel: +44 1223 414117. Fax: +44 414118.

HNB COMMUNICATIONS,
73-75 Scrubbs Lane, London
NW10 6QU. Tel: +44 181 960 2144.
Fax: +44 181 960 1160.

US: Independent Audio, 295 Forest
Avenue, Suite 121, Portland, Maine
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Fax: +1 207 773 2422.

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"The Father of British EQ has just made the Mother of all Consoles"

For good advice on your next mixer you can't beat an independent magazine round-up. Yes, you've guessed it. The quote above is an independent summary on John Oram's BEQ Series 8 desk*. Look below. There's its big brother - the BEQ Series 24 Console.

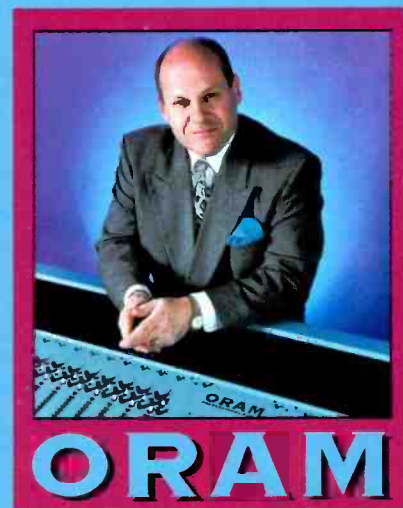
BEQ: It stands for British EQ. Throughout the world, John Oram is known as the 'Father of British EQ'. It's no surprise, British artists like Queen and The Beatles (with Vox amps), Dire Straits and Elton John (with Trident consoles) and Eric Clapton (with Martin guitars) have taken John Oram's EQ and circuit design philosophy to every corner of the globe.

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* Source: EQ magazine March 1996, "Console 96" round-up



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Blue Ribbon Award Winner 1995 Oram BEQ Series 8 Console

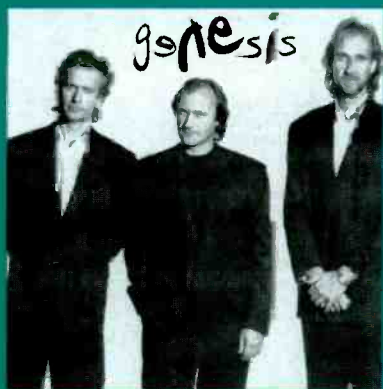
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STUDER D19 MICVALVE

Part of a series of mic-preamp-based outboard units, the MicValve preamp and A-D convertor marks Studer's determination to bring its old expertise to bear on modern recording techniques. **DAVE FOISTER** put it through its paces

THE D19 SERIES of microphone preamps marks several departures for the revered old name of Studer. The company's enviable reputation and status was established through its tape machines, consoles, and little else—and outside mainland Europe even the consoles have made very little impact. On their home territory, the consoles are very highly regarded, however, with the same reputation for over-engineered quality and longevity that made the tape machines a byword. Studer's designers are particularly proud of the mic preamps in the recent desks, and versions of this preamp have been surfacing over the past few months as outboard units with various combinations of additional facilities. This is a departure in that I cannot recall ever seeing any Studer outboard gear before, and also because some of the processing available on the new range goes very much against the functional grey laboratory image of the Studer of old.

Besides the microphone preamps themselves, the other common feature of the two models is onboard conversion to the digital domain, very much following the growing trend. The MicAD incorporates eight channels of this chain, complete with optional TDIF and ADAT 8-channel interfaces, but the MicValve, under review here, contains only two, the rest of the space being taken up with what Studer, in the first of several surprising turns of phrase, calls a Valve Dignifier. There is no missing the presence of this

stage, as each channel has a large window with the word 'VALVE' in huge letters across it, behind which can be seen the two ECC81s which provide the dignity.

The D19 MicValve offers several modes of operation, the most straightforward of which is a simple high-quality preamplifier. Two inputs are provided for microphones and balanced lines, and the single coarse GAIN switch selects between these. A high-pass filter and switchable phantom power are available on the microphone input, and a fine GAIN control calibrated down to single dBs is shared by both. Metering is on LED bar graphs with switchable peak hold, and shows the input to the convertors; for straightforward analogue use this is only used as a guide to internal headroom as there is a calibrated line, output control, post the meters, to match levels to subsequent equipment.

Used like this, the D19 is certainly as clean and quiet a preamp as would be expected, giving the required neutrality and accuracy to deliver everything the microphone can provide untouched. This then forms an ideal front-end to the A-D convertors, which are 20-bit, delivering AES-EBU signals in a choice of formats. Besides the full 20-bit output there are two 16-bit options, one with simple dither and the other with Studer's own noise-shaping algorithm, an audible improvement over the dithered version and well worth using. Either way, these are clearly not run-of-the-mill convertors, and deliver a quality warranting their inclusion in a specialist

outboard package like this, but nevertheless Studer offers an optional Super ADC for further improving the conversion quality.

The convertors can be locked to house sync either via word clock, for which there is a pair of BNCs for looping through, or AES-EBU presented on an XLR for syncing purposes only—the unit cannot noise shape an incoming digital signal. An automatic sync mode locks to the first available clock, and in internal mode just 44.1kHz and 48kHz are supported.

Just as the 8-channel version has optional digital interfaces for the two main modular digital multitrack formats, the 2-channel MicValve can also have them fitted, and each preamp can then be routed to any of the eight channels as well as appearing on the normal analogue and AES-EBU outputs.

So far so good; high-quality precision-calibrated, preamps, sensible and well-implemented facilities and convertors capable of upgrading most recorders. The rest of the package sets all this on its head by deliberately moving away from clinical accuracy and into the realms of unquantifiable enhancement. The mere presence of a valve stage in Studer equipment is no surprise in itself, as Studer founded its reputation in the days when valves were the only way of doing things. There are still people in Studer's design department who have been with the company since those days, so despite the moves to solid-state analogue and

Part of the D19 series, the MicValve combines high quality preamplification with 20-bit A-D conversion



REVIEW



Rear panel details of the D19 MicValve

Then digital techniques there is a rare continuity from the original use of valves and a consequent survival of the expertise in valve design.

UNLIKE MANY valve preamps, the D19 does not rely on the valve for its operation. The basic job of bringing microphone signals up to line level is done with solid-state circuitry, and, of course, the digital stages use no valves. The valve section of the circuitry is effectively a unity gain stage for imposing valve characteristics on the signal, and can be switched in and out of

circuit independently for the two channels. Unusually, the preamp has insert points, proper balanced XLR ones at that, which can be switched in circuit before or after the valve stage. Besides the addition of dynamic control or EQ, this offers the interesting possibility of using the valves on two microphone signals while simultaneously feeding a final mix through the converters.

Once switched in, the valve stage has four controls for determining the amount and nature of valve characteristic added, a couple of which

have names and functions which in staid Studer terms are a little off the wall.

The clearest of these is the **GAIN** control, which as one would expect determines how hard the valve stage is driven. It has quite a range, and its resulting level increase is not reflected in the unit's gain with the valve bypassed, sometimes making it hard to judge the effects of the treatment you have added simply by switching the valve stage in and out. It has an associated control for adjusting between hard and soft clipping, but however hard the unit is driven the

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effects of both remain subtle—this is no fuzz box, nor is it intended to add any real graunch. Delicate warmth and punch are the added ingredients, with slight brightness added by moving towards hard clipping. In case the extra gain proves too much for the digital convertors, a soft clip feature is provided at the digital end to prevent unintended digital overers.

But it is the other two knobs that raise an eyebrow when found on a piece of equipment alongside a Studer badge. These, unashamedly, adjust the tonal balance of the signal in a way that is neither simple EQ nor conventional enhancement, inviting comparisons with the likes of the SPL Vitaliser—a most unexpected soul-mate. The first control is labelled BASS WARMTH, and in the best traditions of such circuits Studer will not say exactly what it is doing. It clearly relies on shifting the phase of the low frequencies, and the control adjusts the upper end of the affected band. Used carefully, it can be tuned very finely to bring the most out of the signal's bottom end, making it bigger, smoother, more solid and (sorry but it's true) warmer without appreciably increasing its level. The caveat is that if the D19 is being used in stereo then the two channels' BASS WARMTH controls must be very carefully aligned to the same value, otherwise distinct and unpleasant phase differences are introduced between the two channels. Fortunately, the controls are very well matched, but if ever there was a case for ganged operation this is it. The degree of misadjustment which causes side-effects verging on the unacceptable is barely big enough to show on the travel of the knobs.

The remaining control suffers from no such

difficulties, but may instead cause a credibility crisis among old Studer hands. It is labelled ANGEL ZOOM, a charmingly poetic name for a function whose effect is at once more subtle than the BASS WARMTH and more clearly defined in terms of what it actually does. This is indeed an EQ function, with a predefined curve attempting to emulate the frequency-response characteristics associated in many people's minds with valve circuitry. Many would argue that this is a misconception which does little to advance the cause of the valve as a signal path whose quality can at least rival that of the best solid state, but nonetheless the word valve often suggests warmth and presence at the expense of extended HF response. Thus the ANGEL ZOOM curve has a rise in the upper mid followed by a gentle HF roll-off, and the control simply increases the effect of these two elements, giving progressively more mid and less extreme top. Lest anyone think that this just produces an in-your-face bandwidth-limited end result, it must be stressed that, like the valve drive, the effect is very subtle and not at all brash or overdone. On some signals it is barely detectable even at its extremes, while on others it adds a gentle smooth brightness.

THIS SUMS UP the qualities of the Valve Dignifier stage on the D19, which always remains restrained and musical. This is not a device for broad brushstrokes, rather delicate detail, and as such fits in better with the aspirations of a high-end mic amp and A-D convertor than it otherwise might. I used the preamps on a simple crossed-pair big-band recording in the Barbican Hall, expecting simply to exploit the high quality signal

path, but then found that the introduction of the valve stage added significantly to the effectiveness of the overall result. In particular, the Bass Warmth made the acoustic bass sing without sounding EQd and the whole band acquired a subtle sheen which complemented the musical content well. This was the general experience, with the valve controls rarely failing to add something desirable to an already impressive sound.

The point is that the D19 MicValve can be whatever you want it to be, from a simple, well-designed mic pre, to a top-end A-D convertor, to a unique tweaking tool. The D19 shakes off the outdated Studer lab-technician image without losing the fundamental qualities of sound design and superb engineering, and may well surprise a lot of people as a result. **S**

CONTACT

STUDER REVOX, Althardstrasse 30, CH-8105 Regensdorf, Switzerland. Tel: +41 1 870 7511. Fax: +41 1 840 4737.
UK: Harman Audio, Unit Two, Borehamwood Industrial Estate, Rowley Lane, Borehamwood, Herts WD6 5PZ. Tel: +44 181 207 5050. Fax: +44 181 207 4572.
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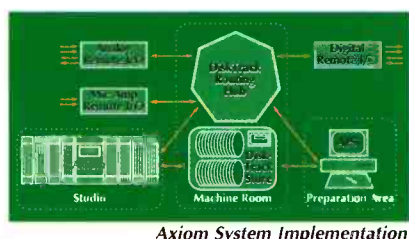
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Peavey PVM T9000

Bidding for a place in the fashionable but increasingly crowded tube microphone market, Peavey has produced a mic that combines style and sophistication with an eye to long-term acceptance. **DAVE FOISTER** asks us to lend an objective ear

PEAVEY MUST sometimes wonder what it takes to get taken seriously by the professional audio fraternity. Several years ago, I remember reviewing a Peavey 20/20 digital multieffects processor which was outstanding in its flexibility, its range and its quality, offering things which at the time nobody else was doing at the price. I never saw or heard of it again. In many people's minds Peavey equals guitars, amps and PAs, and perhaps the odd keyboard, and even if Peavey produces something interesting like the 20/20 it must surely be aimed at the MI market and therefore not appropriate for the studio so not worth a second look. Peavey's loss is also the studios' loss.

Peavey is no stranger to microphones, again with a strong bias towards live applications and budget PA equipment that stands in the way of investigation for studio use. Obviously the company has

Valves in microphones can be used to provide somebody's perception of what the Valve Sound means, or to deliver as clean a signal as possible.

Peavey have opted for the latter

had enough of this, as here is a microphone which only the foolhardy would take on stage, containing as it does the little hot glass envelope without which, it seems, no self-respecting piece of equipment is nowadays complete.

THE PVM T9000 is, then, a valve microphone—and Peavey is not ashamed to play up the retro aspect of the valve microphone movement in terms of its styling. Many have done this in their own ways, resulting in blatant imitations of classic models vying with outlandish designs with gold grilles and more curves than a Pammy. Peavey's approach is somewhere in between, with an overall shape that suggests the forties without mimicking anything specific and remains reasonably sleek and elegant. The cylindrical body is quite heavy stainless steel, held together by a massive solid steel collar which also retains the



suspension mount. The whole thing is finished off with a domed mesh grille which by rights should be at the top of the microphone but in this case appears to be at the bottom. This is suggested by the identifying band round the middle, whose print and switch labels are upside down in conventional terms, and by the Peavey badge itself, the only splash of colour (a fetching sky blue) on the otherwise all-silver body. These make it clear that the microphone is meant to be suspended grille downwards, although whether there is any significance in this is not apparent.


The suspension mount is the normal, if not the only, way of attaching the T9000 to a stand, and as such is supplied with it as standard. It is sturdy enough, although liable to get pulled about by the weight of the cable. Its swivel locks securely with a big knob.

Two switches are provided, one for low frequency roll off cornering at 200Hz and one for a 10dB pad. There is no polar pattern selection as the microphone is cardioid only, and the published charts suggest the cardioid pattern is impressively even with frequency. At no frequency does it show a complete rear null, but the back lobe is almost exactly the same size in all the plots.

Styling
reminiscent of
the 1940s—the
PVM T9000

The microphone connector is a six-pin gold plated receptacle for the T9000's special lead, which is a reassuringly heavyweight 25-foot multicore for connection to the dedicated power supply. This is a substantial black box with an equivalent multiway connector, an XLR output socket (no phantom required of course) and an IEC mains connector. Its only control is an on-off switch with LED indicator, and I was concerned to note that the review sample gave off a very low mechanical hum as of loose transformer laminations. This was not too severe, but I could imagine circumstances where it might be audible, which is obviously unfortunate as the power supply has to be in the room with the microphone.

It is a credit to the T9000 that it might in fact be able to pick up the sound of a rogue PSU. Valves in microphones can be used to provide somebody's perception of what the Valve Sound means, or to deliver as clean a signal as possible using the different strengths of valves as compared to solid state components. Peavey, I suspect, have opted for the latter approach, which is more likely to win long-term friends, and created a microphone which is flat and smooth and impressively uncoloured. This last attribute attests to the consistent polar pattern, as off-axis sounds are delivered almost as naturally as those on axis. There is at the same time a richness to the sound, enabling it to enhance, for instance, a vocal without obviously deviating too far from the truth.

I enjoyed this microphone very much. It is not the most flexible design around, but it can cope with the normal tasks of a cardioid with ease; it is not the most compact microphone around, but is less obtrusive and ostentatious than some of its competitors. Neither is it the most clinically accurate microphone around, but it resists the temptation to impose too much of its own character, making it far more rewarding in the long run. I hope the studio fraternity will give it a shot. 

CONTACTS

PEAVEY ELECTRONICS,
711 A Street, Meridian, MS 39301,
US. Tel: +1 601 486 1408.
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Waves TDM PLUG-INS

The TDM bus standard begins to take strong hold as more manufacturers offer suitably configured processing packages.

DAVE FOISTER evaluates the Q10 EQ, C1 dynamics processor and S1 stereo imager processor from Waves

IT IS FITTING that we should be looking at the suite of TDM plug-ins from Waves at this time, as they feature the work of Michael Gerzon, who died in May. Widely known for his work in Ambisonics, Gerzon had many other areas of expertise both inside and outside audio. Part of his contribution to this software, for which he was a member of the Product Team, involves a technique he had been working with for years, while the other is in a wholly different area.

The suite is a collection of four plug-in processors intended for use with TDM-capable software, comprising the Q10 parametric EQ; the C1 compressor-gate; the S1 Stereo Imager; and the L1 Ultramaximiser. The functions of the first two are obvious, and their implementation is equally clear.

Q10 offers up to ten bands of stereo fully parametric EQ, presented graphically on screen with numeric adjustment by mouse or keyboard or on-screen dragging of the curve itself. All bands are identical, covering the full audio range, and can cross over freely; the initial centre frequencies are only a nominal starting point. Each band has five selectable shapes, offering bell, high or low shelving, and high-pass or low-pass filtering characteristics, and the result is a powerful and flexible equaliser which also sounds very good. Waves' intention was to produce a digital EQ to rival the best analogue designs, a bold aspiration whose success or failure will lie in the ears of the individual listener; it is certainly true that the EQ, for all its power, produces extremely musical and controllable results.

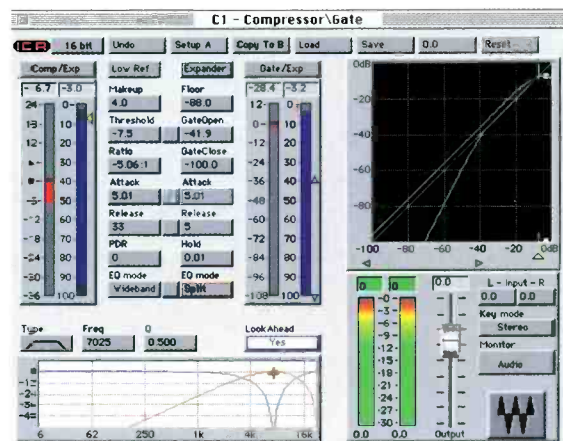
The C1 dynamics module provides a compressor and a gate, again in stereo and with real-time graphical representation of its action. This is presented as the transfer function resulting from the position of the controls,

with dragging of the threshold possible from the screen and a moving marker to show where the signal level lies along the line. This hugs the line all the time, not moving above or below it to show the effects of the time constants as on the Euphonix display, and is complemented by meters for signal level and gain reduction. The gate has controllable hysteresis in the form of separate thresholds for gate open and gate close, shown again as markers on

the graph available for dragging. Both modules can operate as expanders, the compressor as an upward expander and the gate as a conventional downward version, and several functions are included which go beyond the usual capabilities of straightforward dynamics processors—for instance, the compressor has a mid-level mode to compress the central part of the dynamic range without affecting the louder peaks, negative compression ratios for making loud peaks quieter than the body of the signal, and a user-variable, programme-dependent, release time function. Very flexible built-in filters allow frequency-conscious gating, de-essing and other band-split compression techniques.

The L1 Ultramaximiser is effectively a limiter designed to exploit fully the available dynamic range, and incorporates the most sophisticated version of Michael Gerzon's Increased Digital Resolution (IDR) algorithm. A scaled down IDR is available with the other modules, but only the L1 offers variable noise shaping and two dither types alongside re-quantizing to 20, 16, 12 or 8 bits. In conjunction with its ability to match the maximum signal level to a user-defined ceiling, this makes the L1 the ideal last stage in a chain.


Gerzon's other contribution, and the one which obviously has his name on it, is the S1 Stereo Imager, which offers an interesting range of methods for adjusting the stereo soundfield. Besides a very effective width control, there are unusual ones for asymmetry, which alters the left-right balance without moving centre images, and rotation, which does the opposite. Finally a Shuffler control increases stereo width at low frequencies without introducing interchannel phase differences, and in common with the other effects seems to have little effect on mono



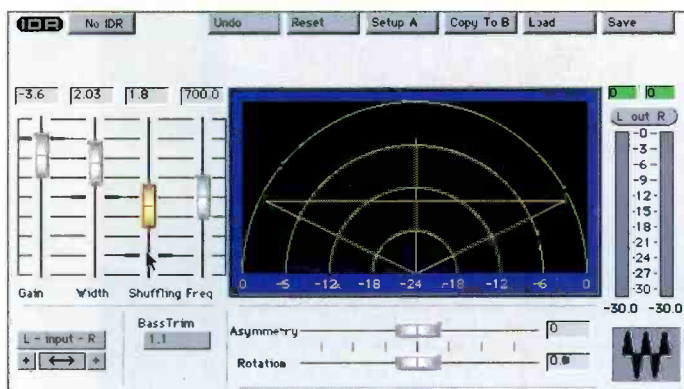
The C1 processor offers comprehensive dynamics processing

compatibility or even the impression of the mix in mono. A semicircular display shows the resulting vectors from the adjustment of the imager, and the results can vary from the subtle to the spectacular.

Besides their use in Pro Tools and other obvious TDM environments (I also used them with Logic Audio) the Waves plug-ins can be used for mastering from Sound Designer II and as stand-alone, real-time processors using WaveShell-RT to control the Digidesign hardware. The combinations on offer depend on the processing power available and the application, but Sound Designer II, for example, can happily cope with several basic blocks at once while WaveShell-RT will only run one at a time. All modules have two concurrent setups which can be switched between, and which can be saved for later use.

This is an extremely comprehensive and well-presented package. All the processes work well, with good graphic displays and controls which respond like real analogue processors to produce a musical analogue-like sound. Most take the possibilities further still, without ever losing sight of the need for a musically useful end result. TDM is here to stay, and software like this validates the whole concept. 

The operating window of the S1 stereo-imaging processor



CONTACTS

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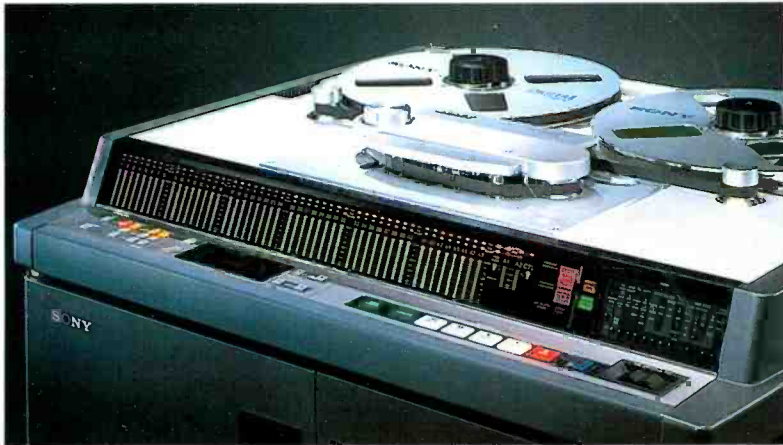
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New Technologies

Following last month's roundup of equipment with its launch at the Las Vegas' NAB convention, this month's selection of hardware and software made its debut at Copenhagen's 100th AES. **DAVE FOISTER** brings the news



At the AES: the latest version of the Sony PCM-3348HR multitrack handles 48 tracks of 24-bit audio

beyerdynamic MCD 100 Digital Microphone

The digital microphone is here at last. beyerdynamic's new MCD 100, launched in Copenhagen, is the first microphone to have on-board A-D conversion, delivering AES-EBU digital signals straight from the back of the microphone. The transfer to the digital domain takes place immediately after the impedance conversion, and the microphone has 10dB gain-adjustment steps up to a maximum handling of 150dB SPL. The condenser capsule has a dynamic range of over 100dB, and 20-bit A-D conversion is used to maintain this resolution. The convertor chosen is the Stage Tec, 22-bit, True Match unit—from the developers of the Cantus console—specially redesigned to fit inside the microphone body in a joint development effort. Obviously a special power supply is used as the digital circuitry requires 1.5W, and digital cable runs of up to 100m are possible, or 300m with special cables. The single MC834 capsule is cardioid, and the resulting mono signal is transmitted on both channels of the AES-EBU signal.

- ◆ beyerdynamic, UK.
Tel: +44 1444 258258.
- ◆ Stage Tec, Germany.
Tel: +49 951 9 72 2525.

Sony 24-bit production system

At the Copenhagen AES Sony's OXF-R3 was revealed as the heart of a new 24-bit production system, with the launch of a new version of the 3348 multitrack

recorder. The PCM-3348HR records 48 channels at 24-bit resolution, and remains compatible with existing 24-track and 48-track DASH tapes. 45 minutes 24-bit recording are available on a single reel of tape, and the full selection of interfaces is supported, from full MADI compatibility to a range of parallel and serial control ports for machine and system control.

- ◆ Sony Broadcast & Professional, UK.
Tel: +44 1256 483646.

Genex Research GX8000

Genex' GX2000, 2-track, M-O recorder has already been joined by a multitrack

model, the GX8000. As the numbers suggest, this is an 8-track system using the recently-available 2.6Gb M-O disks to give up to 25 minutes recording time, per track, per side. The proprietary lossless data packing introduced on the GX2000 is also fitted, increasing this to 35 minutes. Recording resolution is switchable from 8 bits to 24 bits, and up to eight machines can be linked with sample accuracy. Full machine control is supported via Sony 9-pin, and the GX8000 can function as master or slave in a synchronised system. Remote operation is possible from a Windows software package, although full familiar transport controls are provided on the front panel complete with track-select switching, a jog-shuttle wheel and comprehensive metering.

- ◆ HHB, UK. Tel: +44 181 962 5000.

Amptec Stone-D001 digital console

New from Belgian company Amptec is an all-digital console featuring a familiar user-interface and flexible configuration. A choice of frame sizes and I-O modules, up to a maximum of 20 inputs, provides the flexibility, while the control surface has been designed to be instantly operable with the minimum of shifted or multilevel functions. All inputs incorporate sample-rate conversion, allowing the connection of multiple-source formats, analogue inputs have 24-bit A-D convertors followed by 32-bit floating-point DSP. A special DSP feature is Amptec's Dynamic Range Convertor, which auto-ranges high-level signals down to the available headroom and avoids overloads. Rotary encoders and motorised faders are used throughout, allowing preset configurations to be stored and instantly

The Genex Research GX8000 takes the stereo GX2000 into the high-bit digital multitrack arena





Amptec's Stone D001 digital console includes an unusual Dynamic Range Conversion feature

recalled, and a full real-time automation module is in preparation.

◆ *Amptec, Belgium. Tel: +32 11 28 14 58.*

Doremi V1 Video Disk Recorder

Random-access video recording is becoming an accepted necessity for DAW postproduction work, and Doremi Labs' V1 is the latest machine to address the need. Doremi says it is the only system that is fully CCIR 601 compliant, offering full screen NTSC and PAL resolutions from either hard drives or optical cartridges. One video and two 18-bit audio channels are recorded alongside VITC and LTC, and a broad range of compression standards are supported from VHS quality (32:1) up to Digital Betacam at 4:1. The front panel provides everything from jog-shuttle to autolocator, and two RS422 ports enable the V1 to follow any popular video editor or controller, as well as hard lock to a DAW even in varispeed or jog-shuttle mode. The system uses Doremi's proprietary Constant Block Size Compression (CBSC) under which every field data block occupies the same amount of storage no matter how complex the field image, reducing disk-access time. This means the V1 can use standard SCSI hard disks, not needing a RAID or a specially fast hard drive.

◆ *Doremi Labs, France. Tel: +33 08 53 70 02.*



The Doremi V1 video disk recorder brings full CCIR 601 compliance and NTSC-PAL compatibility to modular A-V workstation systems

Fairman TRC

Fairman (Fairchild grows up?) has combined the attributes of the Pultec equaliser and the Fairchild compressor into one unit, the Tube Recording Channel. All stages are valve-based, with a triode input stage claiming a frequency response to 100kHz. The filter section is based on the two types of Pultec filter, giving 3-band EQ, and HF and LF filters. The compressor is based on the Fairchild VCA with four attack and four release times. Signal routing is flexible, with the compressor either before or after the EQ or keyed by the filter. Stabilised power supplies are used for the valve heaters as well as the audio electronics, and no potentiometers are used; all control is via ELMA-type switches with hard gold on all contacts to allow accurate replication of effects and to minimise wear.

◆ *Fairman, Denmark. Tel: +45 33 14 89 96.*

B&K compact microphones

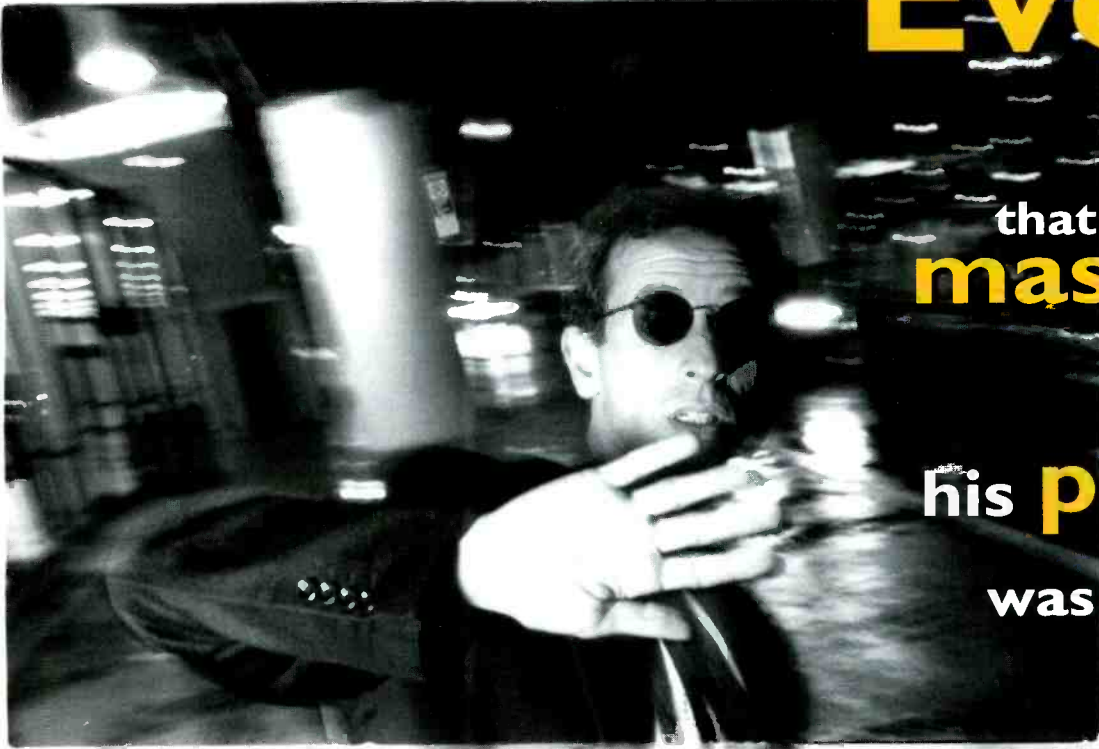
Three new models have joined the Compact Series of microphones from Danish Pro Audio. The 4021 claims to be one of the smallest high performance cardioid microphones on the market, using a thick film preamp with SMD transistors and the prepolarised capsule already used in the 4011 and 4012. There are two omnis, one for high and one for low SPLs; the 4037 also uses a prepolarised microphone

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cartridge and a built-in FET amplifier to provide the required headroom for high SPLs, while the 4051 has a high sensitivity, low noise-floor and linear frequency response suiting it for low SPL recordings. All three of the new compacts are available in three variants, with axially-mounted, or 90-degree cables, or with a LEMO connector for mounting and removal of the microphone capsule. A new 2-channel microphone amplifier was also launched by B&K at AES. The HMA4000 is a development from the 2812 Mk.II with a wider frequency range, better LF performance and the same dynamic range of 140dB. It can deliver standard 48V phantom power with an adaptor, but is specially designed for use with B&K's high-voltage microphones which require a supply of 130V. Revised PCB layouts, and the use of surface-mount components, allows the placing of amplifiers very close to the input connectors, minimising wiring runs inside the amplifier.

◆ Danish Pro Audio, Denmark.
Tel: +45 48 14 2828.

Quested monitors

Newly returned to private ownership, Quested showed four new monitors at AES, a suite comprising active close-fields, active and passive full-range monitors, and a sub-bass cabinet. The VS2205 uses two proprietary 5-inch bass drivers in separate chambers and a 28mm, ferrofluid-damped, soft-dome HF unit, driven by 100W and 50W internal amplifiers, respectively. The cabinet is designed to stand on a console meter bridge and has switchable LF and HF contours. The VS2108 is intended for close and



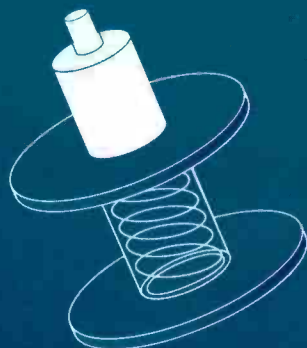
Quested VS 2205—one of four new Quested monitors to appear at AES

mid-field monitoring in larger rooms, and is a 2-way design consisting of a custom 8-inch bass driver and a 28mm, soft-dome, HF unit, each driven by 100W. The unit is magnetically shielded and, again, includes contour switching. The passive version is the VH2108, and this can be

upgraded to active operation if required. Either active module can be augmented with the VS1112 active sub-bass, with a 12-inch driver and attached amplifier module. This includes a filtered line output to the main speakers.

◆ Quested, UK. Tel: +44 181 566 8136.

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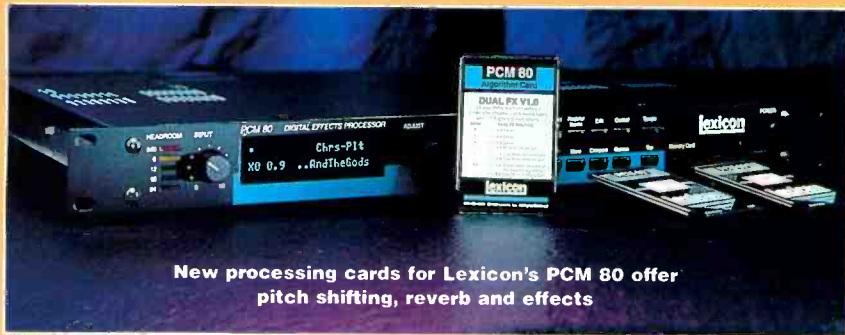
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me working."*

Jon Bon Jovi

Rocky Holman



IN BRIEF



New processing cards for Lexicon's PCM 80 offer pitch shifting, reverb and effects

Lexicon FX cards

Lexicon has added new cards to the range of effects algorithms and presets for the PCM 80. Two are the beginning of the Artist series of cards, containing presets developed by Sound Designer Scott Martin Gershin and Keyboard Player David Rosenthal. A Pitch FX card adds five new algorithms to the Lexicon's pitch-shifting capabilities including a 4-voice shift algorithm with concert hall reverb, and the Dual FX card contains 25 new algorithms each containing two independent stereo-effects blocks with onboard submixing and routing.

- ◆ Lexicon, US. Tel: +1 617 736 0300.
- ◆ Stirling Audio, UK. Tel: +44 171 624 6000.

Yamaha MD4

New at AES was the first multitrack recorder based on the MiniDisc format, Yamaha's MD4. The system offers nondestructive editing, limitless track-bounce including the ability to play all four tracks while bouncing back on to one of them, and an integral mixer. Mixing facilities include 3-band EQ, aux send, pan, fader and a stereo aux return, and outputs comprise stereo out, monitor out and four direct outs. Synchronisation to external

sequencers is possible using MTC and a tempo map.

- ◆ Yamaha Corporation, US. Tel: +1 714 522 9011.
- ◆ Yamaha-Kemble, UK. Tel: +44 1908 366700.

You/Com digital studio

You/Com's Reporterset system, which recently sold 60 units to Swedish Radio, has acquired the capacity to store and edit compressed digital audio into a standard Notebook computer without the need for additional interface cards. Windows software carries out the editing functions, and completed work can be sent back to the studio in the usual way as a file or in the form of a playlist in combination with real-time audio.

- ◆ You/Com, Netherlands. Tel: +31 15 262 59 55.

Telex Keypanel and KP-12

Two releases from communications specialist Telex comprised the Windows Keypanel, intended to offer convenient desktop comms via their PC through Telex' RTS systems and the RTS KP-12 programmable comms key panel.

- ◆ Telex Communications, US. Tel: +1 612 884 4051.

Rane processors

Four new outboard processors have recently appeared from Rane. The most obviously studio-oriented model is the VP 12 voice processor, a preamplifier with built-in signal processing. Phantom-powered microphone and line inputs are provided (including a sum of both) and processing comprises sweepable high and low filters, a de-esser, a gate-expander, a compressor and two bands of full-range parametric EQ. Sections can be individually bypassed and the order of processors rearranged. The other items are all equalisers, two being graphics and the other a remote

programmable unit. The graphics are the mono-third-octave, GE130 and the 2-channel, two-thirds, octave GE215, both featuring 45mm sliders, constant-Q filters and quick-disconnect Euroblock connectors alongside conventional XLRs. The final model is the RPE228, a 2-channel, third-octave, remote, programmable equaliser controlled by Raneware Windows software. Minimal controls are provided on the 1U front panel, but 16 memories may be programmed via RS232 for subsequent recall with external contact closures without the need for a computer.

- ◆ Rane, US. Tel: +1 206 355 6000.



tc electronic's Wizard Finalizer dynamics processor is dedicated to stereo processing

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Maycom Digicorder

Intended for news-type audio gathering and preparation, the Digicorder is a very portable self-contained recording system storing up to four hours of audio on PCMCIA, credit-card-sized, hard disks or flash cards. Cut-and-paste editing is provided, complete with a jog-shuttle wheel, and optional interfaces allow the unit to be directly connected to ISDN or telephone lines for data transmission. Musicam audio compression is used, with compression giving 32kbit/s to 192kbit/s per channel, and 32kHz, 44.1kHz and 48kHz sampling rates are supported. If ISDN is available on site the Digicorder can go on air in real time, and has a feed-through mode for live direct audio. A suitably equipped PC can receive the files from Digicorder ISDN transmissions, complete with an identification of the source machine, and process them using Digitrans software under Windows.

◆ Maycom, Netherlands. Tel: +31 481 377740.

tc Finalizer

Complementing the recently introduced M2000 signal processor is the Finalizer from tc electronic, a dedicated studio-dynamics package intended for processing the final stereo output to DAT or CDR. Its processes include a 3-band stereo compressor-limiter-expander with a wide range of control parameters, and a 5-band stereo parametric EQ. Gain normalising is provided to ensure optimum signal levels on to the final medium, and more creative treatments include groove emulation, stereo enhancement and de-essing. Metering shows phase correlation,

gain reduction and normaliser action, as well as peaks to a resolution of 0.1dB. Like the M2000, the Finalizer includes a Wizard function to help identify the best setting for a given situation.

◆ tc electronic, Denmark. Tel: +45 86 26 28 00.

Soundscape additions

Soundscape's SSHDR1 DAW system acquired several additional capabilities at the AES. Central to the upgrades is the SSAC-1 accelerator card, which can be retrofitted to existing systems to add several times the processing power and

8 channels of I-O in the form of a Tascam-style TDIF port. This allows direct connection to a DA-88 system or suitably-interfaced console as well as to the new SS8IO-1, a 2U-high rack unit providing 8 channels of analogue I-O via 18-bit A-D converters and 20-bit D-A converters. An ADAT optical interface is also fitted, allowing translation between ADAT and TDIF formats. Other new options include an AVI file player, allowing real-time video AVI files to be played on screen and synchronised with Soundscape's audio. EDL processing software has been added.



Soundscape's SSHDR1 benefited from a variety of updates at AES, including an increase in processing power and CD-R mastering capabilities



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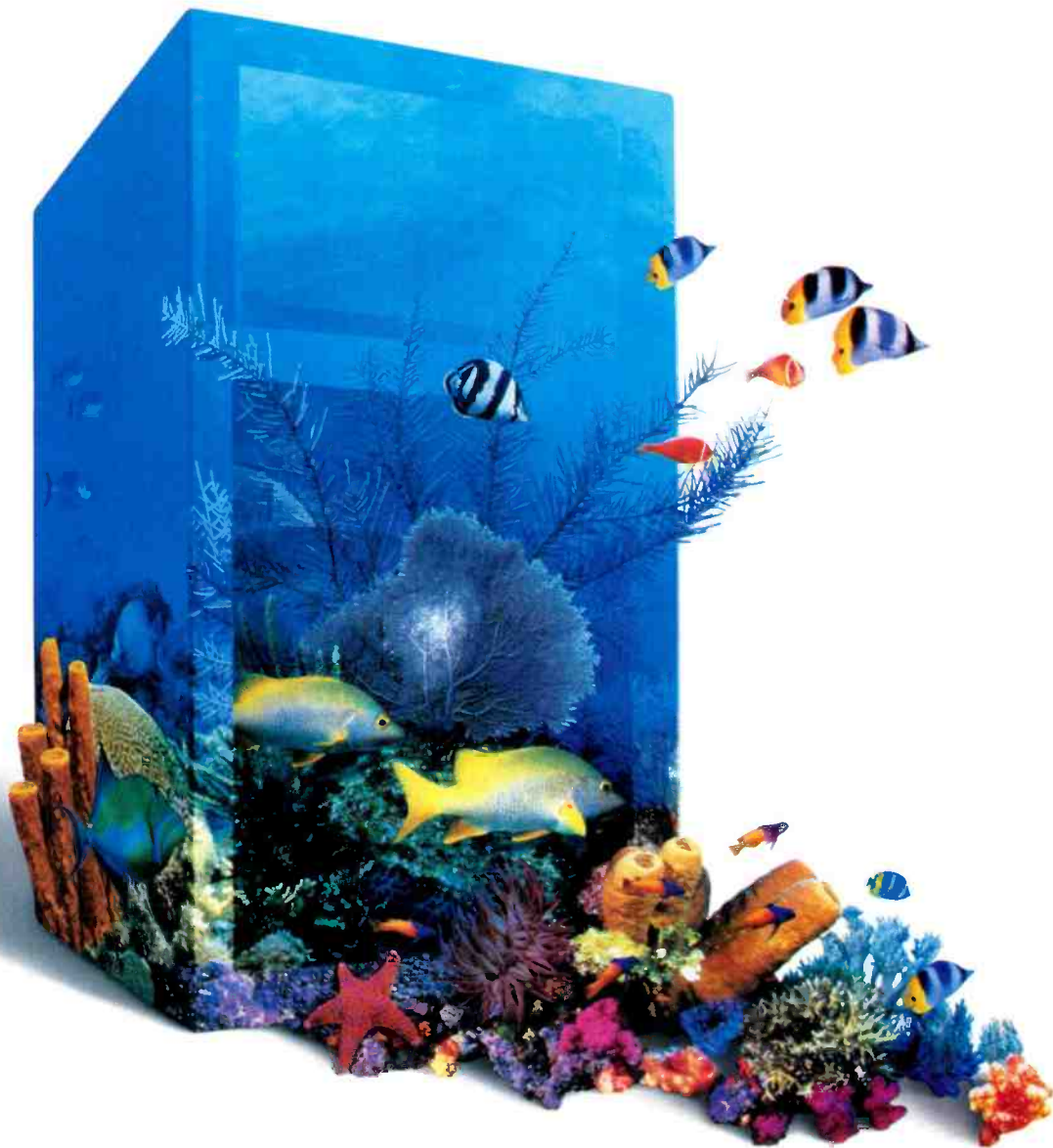
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Apogee Sound's D1 loudspeaker controller has applications in live, development and recording studio situations

Reading CMX, GFG and Sony EDLs from 3 1/2-inch disk, and an RS422 card allows automated control of a connected VCR for autoconform. There are also new DSP plug-ins, comprising the Time Module for time stretch-compression; pitch shifting; sample-rate conversion and the Reverb plug-in from Wave Mechanics with over 100 presets. CD-R mastering software is available, offering Red Book PQ encoding for the Marantz 610 and 620, Apex CDR2000 and Studer machines.

◆ *Soundscape, UK. Tel: +44 1222 450120.*

Apogee digital loudspeaker controller

Apogee's D-1 is claimed to be the first product of its kind to be offered by a major high-end loudspeaker manufacturer, and provides all the functions of an Apogee analogue processor and more in the digital domain. Its available processes include 1800ms of digital delay; 48dB/octave crossover slopes; user-programmable protection algorithms; a look-ahead noise gate and a 26-band parametric filter set. Conversion both in and out is 20-bit; internal data-handling at 48 bits, and standard factory-preset curves are provided for all current Apogee speakers and subwoofers. The basic

D-unit engine has two inputs and four outputs which can be configured to drive a stereo biamped system, a 3-way system with a sub; a stereo single-amp system with subs, and so on. Two versions of the D-1 offer a choice of one D-unit in 1U or two D-units in 2U, the larger having Road (front-panel connectors) and Permanent (rear panel) versions. Control and monitoring can be carried out via a standard RS432 port using a Windows control program.

◆ *Apogee Sound, US. Tel: +1 707 778 8887*

apt additions

apt's new ADK200 PC expansion card offers simultaneous multichannel playback and record using a choice of coding systems including apt-x. Individual channel processing, crossfades and multicard synchronisation are supported, and a number of I-O options are offered up to 20-bit digital and balanced analogue. WorldNet Voyager software provides simple PC control and monitoring of apt's Pro-Link ISDN manager, and allows a database of sites to be built up and traffic logged. Full details can be found on apt's new web site (<http://www.aptx.com>), which also contains a searchable database of all studios worldwide using WorldNet codecs.

apt, UK. Tel: +44 1232 371110. ☎

IN BRIEF

Pro-Bel routers

Copenhagen saw the launch of the AES-EBU versions of Pro-Bel's new XD Series large-scale digital routers, available as 64x64, 64x128 and 128x64 matrices. The new series retains control compatibility with existing Pro-Bel routers and can be expanded to 1024x1024 without the need for ancillary hardware. Sample rates from 32 to 54kHz are supported, with synchronous switching for click-free operation and routing of mixed sample-rate signals.

◆ *Pro-Bel, UK. Tel: +44 1734 866123.*

Mark IV CD-ROM

The Mark IV Pro Audio Group has released a CD-ROM Product Source containing detailed information on the company's product portfolio, which comprises Klark Teknik, Midas, DDA and Electro-Voice concert series. The 2,750 pages allow the user to search for, and print, any page on any product currently supplied or marketed by the group.

◆ *Mark IV, UK. Tel: +44 1562 741515*

Digigram expands board range

Digigram's PCX line of products has been enlarged by the addition of two new boards. The new entry-level board is the play-only PCX20, based on the same platform as the PCX9 and PCX11 and intended mainly for broadcast applications. The PCI bus is now catered for by the PCXi9, incorporating the top-of-the-line features of the PCX9. At the same time, Digigram's DAW package, Xtrack, is now available for Windows.

◆ *Digigram, France. Tel: +33 76 52 47 47*

Hyperprism TDM plug-ins

Hyperprism-TDM 1.0 has been upgraded to 1.1.2. Full MIDI time-code support is now included, allowing Pro Tools to lock effect parameter changes to musical or picture events, and the package now works with most TDM-compatible applications, such as Studio Vision and Logic Audio.

◆ *Arboretum Systems, US. Tel: +1 415 626 4440.*

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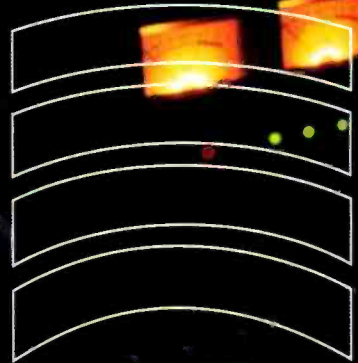
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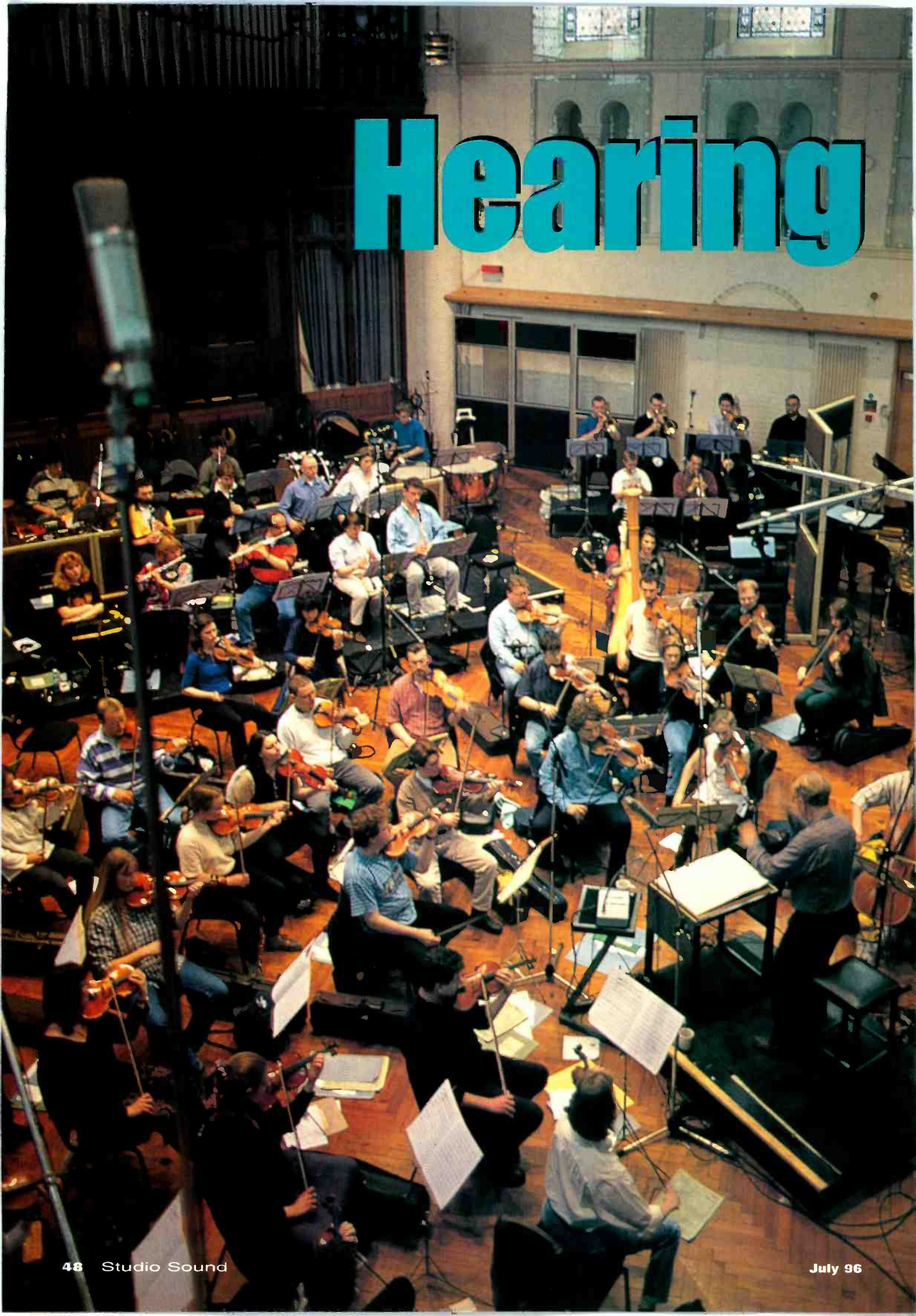
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Hearing



Voices

Last year, the YPCF project presented an opportunity to experiment in ways impossible in conventional recording sessions. This year's project continues this tradition as **ANDY WOOD** discovers

FOR THE CURRENT GENERATION of studio engineers and producers, there is an abundance of quality recording rooms available around the world, and a host of reasons why a room becomes popular. Acoustics, facilities, overall recording quality—all are a basic requirements for addition to any list of top recording environments.

Of all these rooms, it is, perhaps, the main hall at London's AIR Lyndhurst studios that commands justifiable respect. With its combination of the natural acoustics created from the complex's original use as a church, and the addition of one of the finest selections of audio-recording equipment and in-house technical expertise, the Hall is considered one of the finest venues for classical recording in the world. The bonus of having Sir George Martin regularly on-site is the icing on the audio cake. It is, therefore, small surprise that London-based, music-production company Creative Dialogue chose the room for their latest classical recording venture, a collaboration with the Young Persons Concert Foundation (YPCF) on the production of a package of specially recorded pieces, *Instrumental Voices*.

The project follows on from Creative Dialogue's highly successful *YPCF Live!* CD which was recorded last year at Westminster Central Hall, London and once again brought together the team of Executive Producer Sir George Martin and Creative Dialogue's international team of Producer Ian Dean; Canadian Engineer Kevin Herring; and Project Manager Janet Burke (see *Studio Sound*, January 1995).

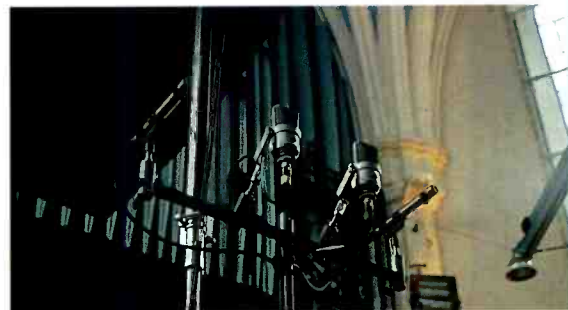
Below: mission control—the YPCF crew in the control room of Lyndhurst's main hall

A main feature of all Creative's work is their commitment to technical excellence, which combines the

finest recording techniques with the latest technology in audio engineering. Where *YPCF Live!* featured one of the first uses of multitrack hard-disk recording technology in the classical domain, *Voices* again opens new ground with the use of Focusrite Red and Blue series processing, Brüel & Kjær 4040 microphones, BASF 931 digital master tape and one of the first uses of the latest Neumann M149 valve microphone. Singularly, these are not ground-breaking, but together, and in conjunction with, the Lyndhurst Hall environment, it was a fascinating and new experience for all involved with the production.

RECORDING was held over two weekends in late April this year and involved a wide selection of musicians ranging from the Foundation Philharmonic Orchestra (FPO); Renaissance instrumentation; the Chris Baron Latin percussion ensemble; and Jazz vibes virtuoso Roger Beaujolais. Naturally, this wide range of musical variation made the sessions themselves a permanent mood swing of both recording techniques and artistic direction, but if anything this is a major trademark of Creative's work. It was also a major reasoning behind the venture.

'*Instrumental Voices* is a curriculum package of recorded and support materials for music teachers in listening, composition and improvisation for the 5–12 age group,' explains Creative's Ian Dean. The repertoire of the recording covers a time scale from 1551 to 1987, concentrating on 20th century orchestral writing. Designed with an audience of young listeners in mind, all of the tracks average four minutes and are all complete movements from significant orchestral works and create a repertoire which explores *Instrumental Voices*—ways in



B&K 4040s join Neumann TLM 170s in a Faulkner Array for main stereo pickup

which composers manipulate texture!

For this reason, Dean worked with Canadian composer Richard Gibson, Conductor David Snell and YPCF Artistic Director Bill Starling to create a musical palette which ranged from the renaissance band—complete with crumhorns and rackett—through the first movement of Janacek's *Sinfonietta* (performed with a full complement of nine trumpets) to orchestral works encompassing everything from Prokofiev to Lutoslawski.

In addition, pieces were chosen from a Tom & Jerry cartoon (*Heavenly Puss*) and the tension-laden string performance from Hitchcock's thriller *Psycho*. Amazingly both had not been recorded since their original performances, with the acquisition of scores for these pieces proving to be one of the more exhausting aspects of the project.

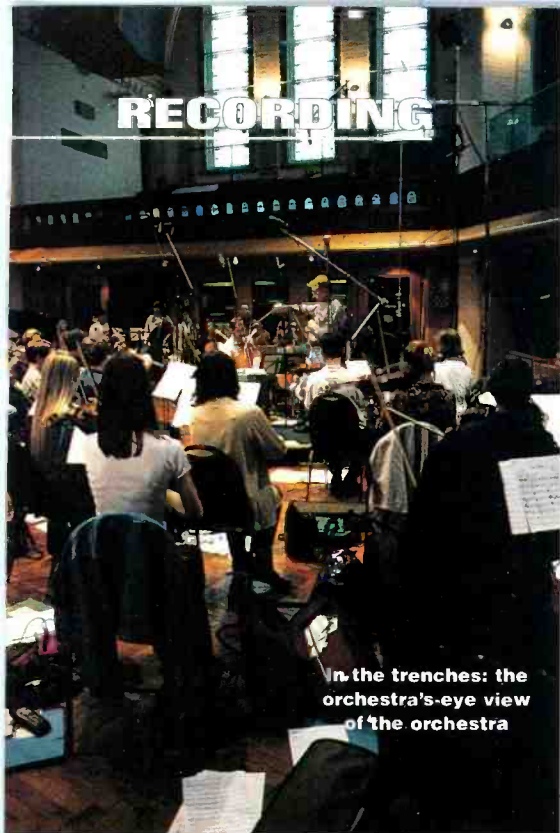
The sessions were split into two definable areas. Recording in the main hall and editing—mastering in Lyndhurst's Studio 3, the latter incorporating the resident AMS Neve Logic 2 desk which offers a digital-audio chain right up to the crossovers. Focusrite Blue 315 EQ was used here for tweaking of the overall mix, with a Blue 330 dual-channel compressor-limiter used featuring on many tracks and also for levelling of a special cassette master mix to DAT.

With Dean taking production responsibilities, it was left to Engineer Kevin Herring to prepare each session in the main hall with its own, individual, mic and recording environment. Interestingly, Herring decided to bypass the Neve VRP Legend desk's equaliser section, and run most of the signals dry with any required EQ being provided by Focusrite Red 6. Focusrite Red 1 mic-preamps were also used throughout where necessary, with all four outputs of the B&K 4040s running direct from a Red 1 to the X850 32-track for A-B comparisons of stereo valve and transistor outputs.

'My main thrust was to print straight to tape relying on mic choice and placement'



RECORDING



In the trenches: the orchestra's-eye view of the orchestra

and the Neve preamps to give me the open sound I always aim for,' says Herring.

The main stereo pickup was a combination of a Decca tree using Neumann TLM 50s, and a Faulkner array using two Neumann TLM 170s and the new B&K 4040s. For the orchestral pieces, the Decca Tree gave a wide, spacious sound to the entire string section, while the Faulkner Array gave a much more precise sense of localisation and depth to the entire orchestra. In effect, both arrays were hung essentially the same place with the blend of both being our own special recipe,' explains Herring.

Interestingly, although the Neumann M149 was made available for the sessions, only a single mic could be acquired. 'It was our intention to use them in the Decca Tree, but we couldn't get three. I'm still dying to try them though, especially judging from the sound of the one we did get,' he adds.

Eventually, the M149 was used as a spot mic on the orchestral double basses and

also on the double bass on a recording of John Barry's Bond Theme, via a Red 7 for compression straight onto tape. 'I would love to have more time with that mic. It was really quiet and has that typical bright Neumann sound, but not as dry and clinical sounding as the TLM170; although I should add that this is not a criticism of the TLM 170s as you just wouldn't notice that about them without having the M149 there to compare.'

The outer desks of the strings and cellos were miked with AKG C12VRs and all other sections—horns, woodwind and brass mainly miked with U87As and Schoeps with MK21 capsules. Percussion was handled by B&K 4011, 4007 and Neumann 87s.

One of the great revelations of the sessions, however, came from the piano, a glorious Steinway which was miked with a B&K 4040 using the valve output running through a Focusrite Red 1.

'What a sound!' Herring enthuses. 'As far as I'm concerned there can never be any other way to record piano; Steinway in the main hall with 4040's and Red 1s.'

As a humble journalist present at the sessions I have to admit that this aspect of the recordings astounded me—especially when recording jazz, where the piano was stereo miked with a pair of 4040s valve output via the Red 1 straight to tape. An industry standard in the making if I ever heard one.

In another unusual move, the timpani used in Chris Baron's world jazz Latin percussion ensemble also used the 4040s, this time using the transistor output.

'We felt that the transistor sound was not as *woofy* in the extreme bottom end and also gave us a bit better transient response in this application,' explains Herring. 'The thing that impressed me was the massive amount of SPL those mics could handle.'

The jazz sessions also incorporated the use of a pair of B&K 4011s on vibes with marimbas stereo miked with Neumann KM84s and the M149 valve on the bottom. Drums went straight to tape via a Red 6 on both the jazz and Bond theme takes, with Red 7 to compress the kick drum on the

same songs.

While the combination of mics and techniques is an intrinsic part of the overall recording function, the room remains all important. A major feature of the main hall is its natural reverberation, and this can be adjusted from a standard by the use of a huge motorised acoustic ceiling. For *Voices*, the ceiling was taken fully out for the orchestral and renaissance pieces and lowered drastically for the jazz items to

HERRMANN'S PSYCHO

BERNARD HERRMANN wrote what is reputedly the only film score for strings alone for *Psycho* and has been quoted as saying that this choice of ensemble counterpoints Hitchcock's use of black & white photography.

A long forgotten score, Kevin O'Bourne at BMG tried several routes before coming up with Ridge Walker on the Paramount picture lot who was immediately able to fax over the original Herrmann score and parts.

'The string writing is incredibly adventurous,' explains Ian Dean. 'As a composer I would think several times before daring to ask the double basses, muted to play *divisi* cords high in their treble register.'

'The dissonant downbows, the huge spacing of octaves and sevenths, the edgy timbre of the highest violin range and lowest bass range—none of the brutality has diminished over 36 years of many brilliant and more elaborate film scores. No wonder doctoral theses have been written about *Psycho*.'

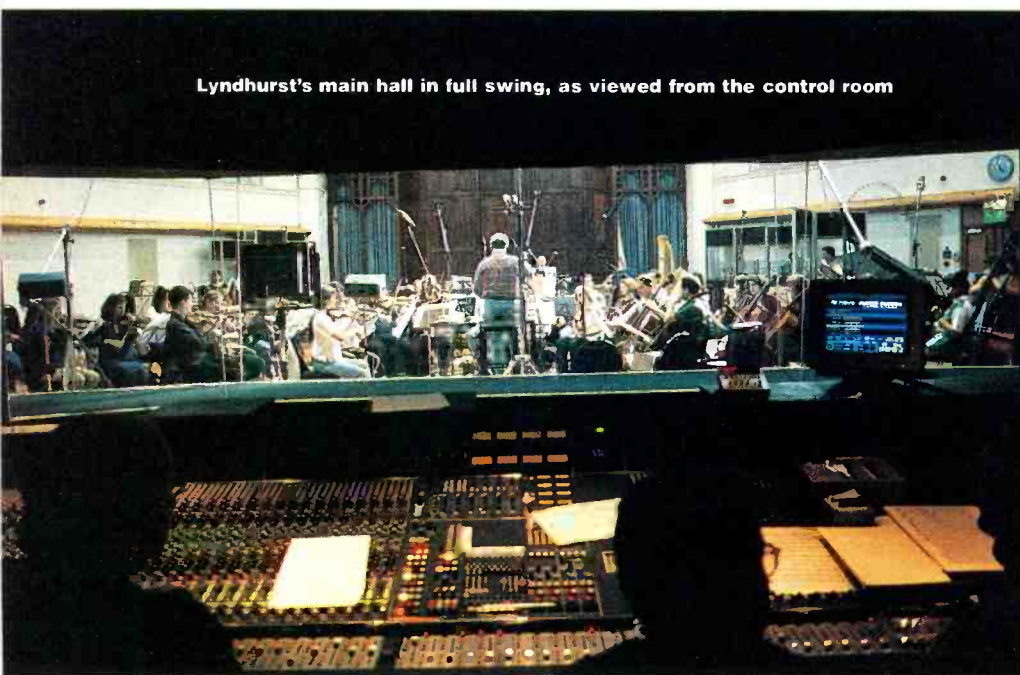
give a more intimate feel to the vibes and marimbas.

'The AIR main hall has a famously controlled, detailed ambience and reverberation with the ceiling fully out,' says Dean. 'Recording Herrmann's *Psycho* with 42 string players in the gently falling daylight in April was without exaggeration an unsettling experience.'

It also needs to be pointed out, that while a great room and technology help, the musicians themselves need to play their part, and here the members of the FPO orchestra shone, not only for their professionalism and playing ability, but also their performance over a wide range of musical styles without the luxury of a large rehearsal schedule.

Tom & Jerry, for example, was played directly from the scores and for anyone who has spent a Sunday afternoon watching the cartoons will know, Scott Bradley's writing incorporates everything from ragtime to full-on, Gershwinesque string sweeps (normally within two bars or less). The whole Tom & Jerry session took five takes late in the afternoon after a solid eight hours in the studio. This you might expect from the LSO, but remember these are all graduate musicians. Conductor David Snell is indubitably a professional who can draw the best from his musicians without a trace of negative emotion and unflagging attention to detail.

IN THE CONTROL ROOM, both Herring and Dean concentrated on caressing the faders of the Neve VRP to achieve the



Lyndhurst's main hall in full swing, as viewed from the control room

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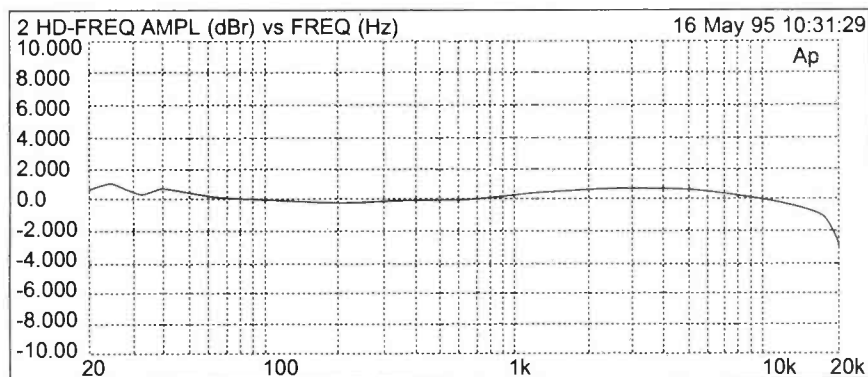
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RECORDING

TOM & JERRY

IAN DEAN EXPLAINS the details behind *Heavenly Puss* (Cartoon 189):

'Very little attention is usually paid to the innovative composers who worked in cartoons, yet there was considerable attention to detail with Disney attending sessions and standing in the percussion section of the orchestra.

'Scott Bradley started in 1929 when sound effects, dialogue and music had to be recorded at the same time and in one take. However from 1938-58 he worked at MGM developing musical scores that added significance to the picture. Cartoon music of the 1940s and 50s has freshness and audacity and is firmly of the 20th century in a way that feature film writing of this period was generally not. Bradley used what he called 'shock cords' rather than mechanical sound effects, and created intricate rhythmic patterns against the tyranny of the click track.

'I started to pursue the possibility of including a Scott Bradley score for *Tom & Jerry* because of this, however sourcing the original score was a bit of a logistical nightmare for project manager Janet Burke, who working through the many copyright owners from MGM to the present eventually received a fax from Turner Entertainment and Loews Incorporated—all 29 pages of a very short, short score.

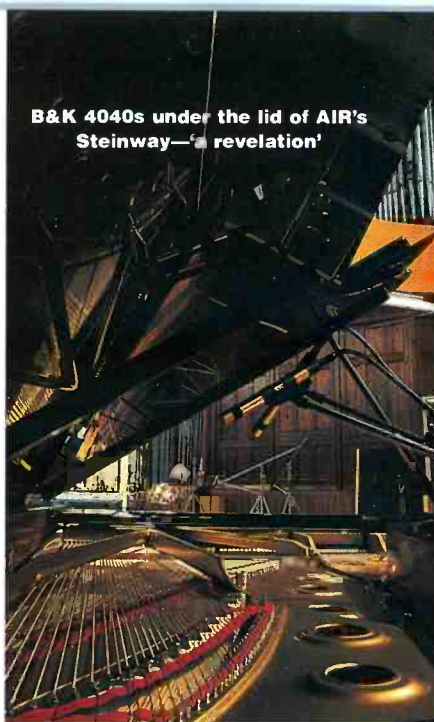
'This is the kind of score that a composer sketches out so that an orchestrator can work from it—no full score, no parts. Luckily an orchestration job with not much to go on is right up my street! Canadian composer Richard Gibson set about copying parts from my full score, and after sourcing a VHS copy of the cartoon to give the players an insight into the piece via SelectTV we were off.

'Tempos were worked out from click markings where these existed, and it was the practise of the day to stop at each change in units of measurement and record in sections. David Snell, with his wide experience in sound-to-picture work, found this a comfortable approach and we edited the sequence just the way in that Bradley's sound editor would have to produce a seamless score. The finished article is full of fresh textures and rhythmic twists—and all of it is just as exciting without the visuals.'

best possible results which were then discussed after each take with both Conductor Snell and principal musicians. All recordings were applied onto BASF's 931 Digital Master tape (which was manufactured and flown in from Germany especially for the sessions) via 32-track Mitsubishi X850, with the final edits from Studio 3 going onto Sony DAT, then via SADIe to PQ encode on an Exabyte drive for final mastering.

In all, some three days of recordings

B&K 4040s under the lid of AIR's Steinway—'a revelation'



were edited down and mastered to just over 70 minutes of music in four days. According to Herring, 'At the end of the day the Logic 2 was a very intuitive desk to operate. The fader automation was a dream with a marvellous touch and feel. There was no zippering or apparent time lag, plus I was able to use the desk's ability to time delay the signal coming into the front end to put in all my time delays for the spot mics. The 5-hour crash course on the desk given to us by Mike Reddick at AMS Neve in Burnley proved invaluable.'

The overall feel of AIR Lyndhurst lends itself very well to a production of this sort in that the room itself can adapt magnificently to a wide range of production criteria within a very short space of time.

'It's an absolute dream to work at AIR,' confirms Herring, 'not only because of the beautiful acoustic, the equipment and mic selection but especially because of the staff who do a terrific job of making sure that little or nothing gets in the way of the creative process. The entire facility operates with this awareness. Chief Technical Engineer Tim Vine-Lott should get recognition for heading up an incredible crew of technical support people.'

'This must be the foreseeable future for great quality recorded sound,' adds Dean. 'Combine the very best analogue equipment in a recording chain with a good sounding digital desk and split the mix out as digits at the highest possible bit-rate.'

For those lucky enough to be able to have stood in the middle of a full orchestra during a recording (as I now have) the sound is absolutely stunning. No recording can recreate that feeling of spaciousness of being 'enveloped' by the music. AIR Lyndhurst, however, allows you to get as close to that as possible, plus of course if you add a sprinkle of the Creative Dialogue teams 'fairy dust'. **S**

Instrumental Voices is released on CD in the UK during July.

CONTACTS

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Drake's pro

Shunning the opportunity to 'mature' from engineer to producer, Mike 'Spike' Drake has consistently been in demand as both for over a decade. **SUE SILLITOE** talks mixers, mixes and remixes

IT WAS SINGER and comedienne Tracey Ullman who gave Mike Drake his nickname. Sporting what he now describes as 'a stupid' haircut, he was brought in to assist with the recording of her 1985 album *You Broke My Heart In 17 Places*; Ullman took one look at him, renamed him 'Spike' and ten years on, the name remains the same. Although Spike Drake is also a producer, it is his mixing and remixing talents that have established his name and kept him in constant demand as a troubleshooter.

Since starting his recording career in the early 1980s, Drake has built up an enviable credit list covering a wide range of artists including The Cure, Babylon Zoo, Scheer, Lush, Manic Street Preachers, New Order, Dubstar, Adamski & Seal, the Pet Shop Boys, Audioweb, Robert Palmer, Wildhearts, Siouxsie & The Banshees and The Charlatans. He is currently mixing a new album for James which will be released later this year and has recently finished mixing the debut album from new Warner signing Rachel Stamp—a band he rates very highly.

So how does this versatile 33-year-old describe himself: as producer or engineer? 'I'd probably describe myself as both,' he replies. 'It depends on the project.'

To me, a producer is someone who sees the project through from the very beginning—from preproduction and working with the band at rehearsal to recording their material, getting everything on tape and then mixing it. Recording engineers don't usually have that level of responsibility. When you're engineering on a session, it's the producer who says when something sounds right and decides what gets recorded!

However, as a mix engineer—particularly one who is brought in to troubleshoot a difficult track—Drake has discovered that there is just as much responsibility involved.

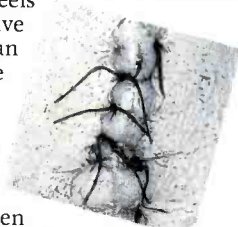
'I'm often brought in at the final stage by the record company because they haven't got the results they wanted from the original producer,' he agrees. 'Generally, it's just me in the studio. I might never speak to the original producer—let alone meet him—so it's up to me to get the record finished. Sometimes it's just a question of giving priority to different elements within the track, but on other occasions I might have to change the arrangement or do some additional recording in order to beef up what's already there.'

'I'm not afraid of remixing any producer's work, although there are producers I really respect and I might feel a bit awed if I were asked to remix their tracks. Chris Thomas,

then I feel it's my job to try and put it right.'

By coming in at the eleventh hour, Drake feels he can be more objective about the project: 'It can be very difficult for the band and the original producer to stand far enough back from the end result to see what still needs fixing,' he explains. 'However, when I'm asked to remix a track, I come in with a fresh pair of ears because I'm not as close to it as they are.'

Scheer's *Infliction*, mixed at Maison Rouge



'It can be very difficult for the band and the original producer to stand far enough back from the end result to see what still needs fixing'

for example, who has been in the business so long and done such a body of work that it's frightening. Or Bill Price whose name crops up on so many brilliant albums and Brendan O'Brien who did Pearl Jam, Red Hot Chili Peppers and Rage Against The Machine. To be honest I can't ever imagine having to work on their tracks because they are so good at what they do that I doubt they'd ever need me.'

Although he is unassuming—and on the surface, at least, quite shy—Drake says he has no compunction about changing another producer's work if he feels that he can improve the track: 'Quite often it's not just the record company that's unhappy, it's the band, too. If they are unhappy with the track

ORIGINALLY FROM BRISTOL, Drake began his career in music as a rock drummer but quit after a few years when tendonitis in his arms and 'lack of talent' put paid to that career.

'We didn't aspire to anything great but we did record a 4-track demo tape at a studio in Bristol owned by guitarist Liam Henshall. I was intrigued by the recording process and after I left the band I used to hang around his studio—which was 16-track by this stage—and he would give me lessons in recording technique.'

Drake regards the experience as invaluable because he learned so much using minimal equipment, a very simple desk and a tiny recording area. 'With such a small studio it was vital that we did the job properly,' he says. 'So many guys these days come into big studios and learn about recording through the gear rather than through the basic principles of miking and acoustics, but in my view starting with the basics has to be the best way to learn.'

After writing to virtually every studio in London, Drake landed a job at Sarm as night receptionist—the route all Sarm trainees take. 'It was wild in those days,' he recalls. 'The ZTT offices were there, Frankie Goes to Hollywood had *Relax* in the charts and all the early Propaganda stuff was out. Luckily a few people left so I quickly became a daytime tea boy and with the help of Stuart Bruce, who was house engineer, I learned a great deal.'

During his three years at Sarm, Drake engineered for a host of top producers including Julian Mendelsohn, Gary Langan, Steve Lipson and Trevor Horn. But by 1987 he felt in need of a change and with the encouragement of Shep Pettibone took off for Los Angeles where he remained for a year until both money and work ran out. Back in London he got a job with Advision as an assistant engineer.

'At that stage house engineers were not popular. There was no band scene as such and house engineers went out of fashion.'



ADAMSKI & SEAL

'WE RECORDED *NRG* in 1989 at Advision just as the Acid thing was happening. It was really exciting to be at the forefront of the current scene.

'We had an unusual way of working—Adam performed live and we recorded it straight to stereo, then used Advision's edit suite to edit it. With *Killer*, he performed all the music and Seal sang to the stereo which we had put back on to multitrack. It worked for Adam because there was a vibe and he's best when he's doing everything at the same time. It was fun—very immediate. We were knocking out 20-minute CDs in a couple of nights.'

gress

'Generally, it's just me in the studio. I might never speak to the original producer—let alone meet him—so it's up to me to get the record finished'

BABYLON ZOO

'I USED THE NEW FAIRLIGHT MFX3

which is fantastic. It frightens people because it looks very complicated and the manual isn't very good, but when I wanted to do anything, all I had to do was hit a few buttons and it was there.

'We used it on the *Spaceman* single to do all the complex tempo and tuning changes between the different sections. It was a really wacky track. I think the whole album is great and hopefully over a period of time people will realise it's not just that single. Some of the tracks are very different.

'I mixed the album with Clive Black [MD of EMI UK] which was a good experience because he's got a really good ear. He had signed the band and lived with it for a long time. Other people had tried mixing it but it hadn't worked out. Clive had a lot of ideas about how he wanted it to sound so between the two of us we got something quite special—especially the single.

'Since *Spaceman* I've been sent a lot of tapes from bands trying to get a break. It's very flattering that people feel they have heard something they like so much that they want your opinion.'





But you need people who know the studio and how to get the best results from it!

While at Advision, Drake met Stephen Hague and the two began a working partnership that is still going on today, but his progression from engineer to mix engineer and ultimately producer was quite blurred. 'For a long while I was working with Stephen as a recording and mix engineer, but then other people wanted me to produce or mix so we trained up new engineers to do the recording and he would bring me in just to mix his projects. That's where we're at now.'

On equipment and facilities, Drake's ideas are quite definite. He is fussy about the rooms he books and refuses anywhere that is badly kept and maintained. As part of the checking process he plays a couple of his own mixes through the main monitors and NS10s to see how the room sounds. 'The acoustics are important because I spend so long mixing,' he explains. 'But for the most part I think the science of acoustics—and acousticians in general—are a nonsense. In my experience if a live room is good, its good—often because no acoustician has ever been in the place.'

Monitoring-wise, Drake prefers to use close-fields for mixing rather than main monitors. He owns a pair of Acoustic Energy AE1s powered by a Focusrite Red 5 and these travel everywhere with him. 'I also use NS10s and Auratones because if a mix

NEW ORDER

'REMIXING SOME OF THE TRACKS for the band's 1994 Best Of album was a weird experience because although it was a fairly standard mix, I was revisiting tracks I'd done ages ago. One of them, "Round And Round", was originally mixed by me in 1988, so it was weird pushing up the faders.

'Over the years you change and you think in a different way.

In the late 1980s everything was so bright, but now everyone has got a lot more bass-orientated and chunky. I was able to incorporate some of that current thinking into the tracks but it was

difficult because it had been recorded in such a bright 1980s kind of way.

'It was also weird remixing "True Faith" because it was a track Stephen Hague had done years ago and it was one of my favourite tracks of all time. Changing something you love that much is really hard and you wonder if you're ever going to do it justice.'



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THE CURE

'THE CURE REMIXES were quite recent. I was approached to mix a few tracks—one is the current single, *13th*, and another, "Numb", made it onto the album.

'The Cure got lots of producers to mix various tracks because they wanted to see how we would approach it. It was a great way for them to get a fresh view because they had lived with the music for a long time so they were using the new mixes to help them understand what they wanted. It was an interesting way to work—a great idea, but expensive. Nice if you can afford to work that way, though.

'The recording sounded great. Steve Lyon did a marvellous job and it's a great album. The tracks really grew on me as I was mixing them which is always a good sign. I still haven't met Robert Smith, even though I mixed the second track at Loco Studios in Wales to be close to Bath where they were recording. We just both got so busy that we never met. We sent DATs back and forth and spoke a lot on the phone. He seems very knowledgeable and has a great sense of humour.'

sounds good through all three sets of speakers then it will sound good anywhere.'

As for desks, well it just has to be SSL—at least for mixing. 'I love SSL and I don't mix on anything else. I know a lot of people swear by Neve VRs but I hate

Moving Faders. I prefer SSL automation because I like a system that keeps something when I tell it to, rather than keeping everything which I find quite invasive.

'However, I wouldn't record on an SSL because I don't like to go through the desk twice. I've got a Focusrite 215 mic amp and EQ that I use

for recording—and if I'm recording an entire band I prefer a vintage desk such as an old Neve or an API.'

DRAKE ADMITS he is a great fan of Focusrite which he sees as the Rolls Royce of recording equipment. 'I couldn't do without my 215 now—in fact, all the bits of Focusrite I own are essential. The Red 3 compressor is a future classic because it's incredibly variable and gives things so much warmth and texture. It blows away virtually all other compressors.'

In spite of his enthusiasm for equipment, Drake isn't a collector and only buys things that he feels are essential and that aren't always found in studios—even big studios.

Mixing doesn't allow much scope for mic technique but Drake has two beyerdynamic M88s that are used for bass drums, bass guitar, guitars and occasionally vocals. 'Bernard [Sumner] from New Order always used an M88. I use them because they give more depth than some dynamics, but I also like old valve mikes like the

Neumann M50s and 47s.'

Another item of equipment Drake always looks for in a studio is a half-inch tape recorder—preferably a Studer or an ATR. He won't touch Otari because he doesn't like them for mix work and says he's dismayed because his favourite tape—3M 996—is being discontinued. 'I'm thinking of buying in bulk,' he laughs.

Spike Drake's attention to detail is summed up by his attitude to mastering which he feels is the last step in the creative process rather than the first step of the production process.

'A good mastering engineer—and I don't think there are that many—can make or break a track,' he asserts. 'Too many people see mastering as something to bosh off as cheaply as possible and never attend the session, but its amazing how much difference mastering can make to a track.

'When I mixed the Wildhearts album I had two cuts done—one in England and one in the US. The UK cut sounded really lightweight, but Ted Janssen's US cut sounded far tougher. It just goes to show that with mastering you can take something great and make it really great, or you can take something great and make it crap.'

Apart from taking time off to watch Euro 96, Drake says his future plans involve more production work—possibly with a couple of unsigned bands.

'What I see myself doing eventually is investing in something like the Fairlight MFX3 24-track hard-disk system that we used on the Babylon Zoo single *Spaceman*. I'd like to link it up with an old 8-track and record on analogue but transfer it into the Fairlight for manipulation.

'I'll always mix to half-inch because I think it's important to get that analogue feel, but the hard disk systems are great for editing. If I had one I could do vocals wherever the singer wanted to do them, taking it down through the Focusrite and into the back of the Fairlight.'

Drake thinks this is where the future lies—using studios for backing tracks and mixing but using more relaxed surroundings for the rest of the recording.

'You still need studios,' he concludes, 'but if you're not watching the clock you can afford to experiment and get much better results!'

STOUXIE & THE BANSHEES

'KISS THEM FOR ME was a breakthrough single for the band in the US and the one on *Superstition* that stands out most in my mind. We used so many diverse things—tablas, Indian chanting a cello and a dulcimer. I'm really proud of that record. I like it a lot.

'I first worked with Siouxsie and Budgie on *The Creatures'* *Boomerang* album, which was recorded by Mike Hedges. I did some overdubs and mixing on the old *Advision Harrison Series 10* which had its moments. It was a great-sounding desk, but it was prone to blow up. The album used lots of different natural sounds—marimba for instance. I remember thinking "How the hell do you mic that?"'

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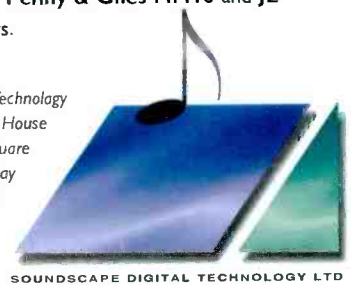
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Profit and loss

In the wake of the European Song Contest the winners are left counting the costs; while changes at the BBC cause concern writes **KEVIN HILTON**

It didn't take too long for the cracks to appear. 'So your lot did it again,' observed the editor of this esteemed organ a couple of days after the Eurovision Song Contest. I had to think whether this was merely a passing observation or a quietly gleeful dig at anyone of Hibernian extraction about the rapidly diminishing luck of the Irish. This is, of course, the fourth time in five years that the Republic of Ireland has won this bunfight for mediocre composers that was originally intended to show off a Europe-wide broadcasting network.

The more paranoid of us might think that the only unity shown this year was landing public-service broadcaster RTE with the headache, both financial and logistical, of staging the 1997 event. By coincidence my mother, a native of the West Coast, was staying with me at the time and wondered who was winning the contest. Not that we were watching, naturally. As the comedian Felix Dexter later remarked, you know that your life has reached an irrevocably sad stage when you find yourself in on a Saturday night watching Eurovision. It wasn't until the next morning, through the radio news, that we learned who was the reluctant victor. 'My God,' exclaimed Mum, 'what have we done to deserve that?' This probably echoed round RTE at the prospect of another £3 million extravaganza, on top of the existing £11 million tab for the previous stagings. RTE was already stretched when it staged the 1995 contest; equipment suppliers in both the Republic and Northern Ireland told me that the broadcaster had put the word out to borrow equipment, as it couldn't supply the gear necessary to put on the type of show now expected. Whether that would be enough next year is doubtful. RTE's Head of Programmes, Liam Miller, was quoted as saying: 'I think it's another challenge for us—it's one we are going to have to consider very carefully.' Readers between the lines interpret this as a hint that RTE may look to get out of hosting the 1997 contest; Ireland is soon to take over the presidency of the European Union and

government officials say that the country can't afford both. This would mean a major rethink for the EBU: allow RTE to hand over to another country, or just act as a basic technical service provider, or give permission for advertising to be sold. It is an issue that the EBU should address, not just to save the Song Contest (which perhaps isn't worth saving anymore), but to maintain some semblance of European unity, of which the Irish have been keen supporters. It'd be a bit of a disaster to lose the whole of the British Isles, after all.

JOHN BIRT'S been stirring it up again at the BBC and, from the way he tells it, it's all because of digital technology. The Director-General has unveiled a new higher management structure of the Corporation and made a series of major new appointments, designed to streamline the UK public service broadcaster, in both administrative and financial terms, as it heads into the digital sunrise. Many have voiced misgivings about the shake-up because it carries Birt's earlier policy of bringing TV and radio resources closer together, something that had been resisted by staff. The individual power bases of the BBC 1 and 2 TV channels and Radios 1, 2, 3, 4 and 5 Live have gone, replaced by a Director of Television and a Director of Programmes (in the case of TV) and a Director of Radio. The fear is that radio will lose out, with programming becoming more populist and resources, particularly money, held in short supply. Much has been made of the coming of DAB but dissenters see it as unnecessary, as the medium will be stripped of its creativity, which had been in retreat for a while anyway. One unnamed BBC radio producer has been quoted as saying that CD-quality sound won't be needed as the networks are put under pressure to produce cheaper programmes: 'We'll be making simpler, more basic programmes, which we could do perfectly well—and probably cheaper—on analogue, editing together with sticky tape.'

This fear is underscored by the appointment as Director of Radio of Matthew Bannister, the executive who tore into Radio 1's old guard and initially lost 5 million listeners. Critics say that he will impose more music sequences,

soap operas, news in bite-size chunks and lots of cheap phone-ins, with many resources shared across the networks. While Bannister obviously has a populist job to do, he has also brought some innovative programmes to RI, including the very successful surround-sound versions of such comic book heroes as Superman and Judge Dredd. These three-minute episodes are sourced from outside the BBC and use digital-audio editing techniques to make these effects heavy mini-dramas possible. And at £850 an installment, they're not exactly mega expensive, considering the size of

One unnamed BBC radio producer has been quoted as saying that CD-quality sound won't be needed as the networks are put under pressure to produce cheaper programmes: 'We'll be making simpler, more basic programmes, which we could do perfectly well—and probably cheaper—on analogue, editing together with tape'

the cast, the technology used and the involvement of an outside studio (in this case The Soundhouse in West London). The management changes are worrying; the move towards convergence could threaten the independence and identity of some departments but don't let them tell you that technology is the real threat. Of all the new digital formats, DAB could be the one to offer some real possibilities. It doesn't mean that analogue radio should die but don't write off the new just because it begins with a 'D'.

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Producers' choice

Personal preference plays a large part in the choice of much pro-audio equipment—and is one of the elements keeping valve-based equipment in the spotlight. **PATRICK STAPLEY** presents three unmarked valve DI boxes to three seasoned producers to gauge their response in a blind test

PRO-AUDIO'S APPETITE for valves shows little sign of being sated. Judging from the array of new valve products present at last month's AES Convention in Copenhagen, choice on the valve menu is more extensive than ever before. From mics to mixers, amplifiers to outboard, there is now a veritable feast for the valve-hungry to gorge themselves.

The latest tube trend that appears to be gathering momentum, is the valve DI (Direct Inject) box. Advertised as imparting warmth and mitigating the harshness of digital, valve

DIs have been receiving 'glowing' reports and making a marked impression in studios all around the world. Apart from their price—which is considerably higher than a standard solid-state DI—and the slight inconvenience of mains power, they appear to have received little in the way of criticism.

Studio Sound put three valve DI boxes to the test in order to determine exactly what they had to offer in practical terms. We also decided to try out a new approach in assessing them, and put together a special review panel made up from three top industry professionals: Geoff Emerick, John Hudson and Alan Parsons. The intention was to make this a hands-on, ears-on exercise, rather than a white-coat bench test.

The DI boxes were chosen to provide a cross-section of what is currently available: the Anthony DeMaria Labs ADL 200, and the Demeter VTDB-2B (both American units) and the UK-designed Gas Cooker from Ridge Farm Industries (part of Ridge Farm Studios). Interestingly, all three systems use

'The Gas Cooker produces the brightest sound, but I actually find the ADL produces the hardest sound which I like least on digital sources. The Demeter is the warmest of the three'

Geoff Emerick

the same type of valve: the 12AX7. Both the ADL and Gas Cooker are stereo boxes, while the Demeter is mono—so for our tests, two Demeter boxes were used. Demeter does make a stereo version, but unlike the other DIs this is in a rackmount unit rather than a stand-alone box, and is therefore not particularly suited for use on the studio floor.

It was important that tests were conducted in familiar surroundings, so we visited John Hudson at his Mayfair Studios, Alan Parsons at his new North London-based studio and Geoff Emerick at Abbey Road's Penthouse Suite where he had been mixing the Beatles Anthology albums over the last six months. It was important to have a reference point for these evaluations, and this was provided in each case by the studio's standard: solid-state DI box at Mayfair; a BSS AR 116 active DI, at Parsonics; an EMO Systems Dual passive DI; and at Abbey Road an in-house-designed passive DI.

To avoid any preconceptions, the three valve boxes were blind tested with all manufacturer references and logos covered over. It has to be said, though, that the distinctive 'retro' design of the Gas Cooker would immediately be recognised by anyone who had seen it before. Only one of our reviewers did recognise it but had



PHOTOGRAPH: CHRIS TAYLOR

GEOFF EMERICK

GEOFF EMERICK began his career at Abbey Road Studios in 1962 working with artists such as Cliff Richard and the Shadows, Matt Munro, Billy J Kramer & The Dakotas, Gerry and the Pacemakers and Freddie and the Dreamers. Here he formed a close working relationship with Producer George Martin recording a succession of hits for Cilla Black and then the Beatles from *Revolver* onwards. He left Abbey Road in 1969 to build Apple Studios where he worked for four years and enjoyed production success with Apple artists Mary Hopkin and Bad Finger.

In 1973 he joined Air Studios which was to be his base for the next 10 years and from where he made records with Paul McCartney, America, Mahavishnu Orchestra, Nazareth, and Kate Bush

among others. He also helped build the ill-fated Air Monserrat Studio.

Emerick moved to Los Angeles in 1983 teaming-up with Art Garfunkel to produce three albums. Although still resident in US, his work regularly brings him back to the UK as highlighted by recent projects the Beatles Anthology and production on Elvis Costello's new album. Over the course of his career, Emerick has been nominated for five Grammys, three of which he has won.

GEOFF EMERICK	DEMETER VTDB-2B	DeMARIA ADL200	RIDGE FARM GAS COOKER	REFERENCE DI ABBEY ROAD DESIGN
BUILD QUALITY	3	4	5	1
FACILITIES	4	5	5	1
ERGONOMICS	5	3	4	2
NOISE	4	4	2	5
AUDIO QUALITY:				
ANALOGUE RESOURCE	4	3	3	2
DIGITAL SOURCE	5	2	3	2
OVERALL ASSESSMENT	5	2	4	3



Anthony DeMaria's ADL200

never used it. In fact, none of the units had been used before by any of the reviewers. During the tests, the three boxes were referred to as A, B and C, but this has been changed in the quoted text to make things easier to follow.

We endeavoured to keep the number of variables to a minimum—although it must be appreciated that this was a practically based test and not a laboratory one. The same DI boxes were used for each test session, and their inputs and outputs were manually changed over to allow the same leads and the same console path to be used in each case.

For listening tests, a variety of analogue and digital sources were used including a selection of guitars (electric and acoustic),

'Quite often these days, especially with digital equipment, one is straining to hear minute subtleties, but the differences here were very marked.'

Alan Parsons

bass guitars, keyboards, digital samples and digitally recorded material including full mixes—an important consideration was to discover how the valve units affected a digital sound source. We therefore separated listening tests into analogue and digital.

Apart from verbal assessments, our panel was asked to give scores for each unit as a mark out of five for a number of different categories: '5' representing the best and '1' the worst. The reference DI was also included in the scoring chart to show direct comparisons between the solid-state and valve boxes.

All three review units offer the same basic facilities with input and through on 1/4-inch jack sockets, and balanced XLR outputs with ground lift switching. Both the Gas Cooker and Demeter units have valve buffered through outputs, while the ADL has switching to allow buffered or direct. The Demeter, additionally, includes a 2-position gain control (Unity or Boost) which increases output by 10dB.

THE MOST FULLY FEATURED unit of the three is the Gas Cooker, which includes

separate, unbalanced, line outputs on 1/4-inch jacks at the rear of the unit, and gain controls which allow these to be matched to the line input of a mixing console. The gain control also has the effect of increasing the

intensity of the valve sound and was set by our reviewers to a position which they considered represented a good average for each listening test. The gain controls have no effect on the through signal. However, as John Hudson discovered, a 20dB pad switch, which attenuates the input prior to the first tube stage, did.

'This seems a bit odd,' commented Hudson. 'I would have expected the through signal to the amplifier to remain direct, because in certain situations you may want to pad the DI down but keep the through signal high. It might have made more sense to put the pad after the amplifier output.'

Going on to consider the ergonomics of the three units, Hudson felt there was a universal design problem. 'They all suffer from the same problem—they all have the controls and sockets mounted on the front panel and are all designed to sit flat. This makes them awkward to use, particularly on the studio floor with masses of kit set up. It would be better to have controls mounted on the top panel, as with my solid-state BSS DI box, or have the option

for the boxes to stand upright.'

Hudson also disliked the way two of the front panels had been designed. 'The Gas Cooker is the best of the three in terms of being able to see controls clearly as it has a silver panel with black controls, the other two have black front panels with black controls which makes them extremely hard to distinguish in dimly lit conditions—very unuser-friendly for the studio and stage.'

Alan Parsons had some additional reservations about the practical use of the Gas Cooker: 'I would be a little worried putting the Gas Cooker on the floor in the studio in case the large gain controls got kicked, and in this respect it doesn't lend itself terribly well to live applications either. I wouldn't hesitate putting the Demeter and ADL boxes on the floor though.'

Geoff Emerick liked the robust nature of the Gas Cooker but agreed that it would have to be placed out of the way of passing feet. 'As far as build quality is concerned the Gas Cooker looks the most solidly put together and able to take a few knocks although the knobs are vulnerable. But for ease of use I'd go for the Demeter.'

Parsons additionally felt that the Gas Cooker's detachable European mains cable was a minus point: 'Apart from the fact that it can get separated from the unit and cause last-minute hold-ups, I personally prefer to see hard-wired units like the ADL and Demeter because of voltage differences between countries. I know from bitter

ALAN PARSONS

ALAN PARSONS started his career as an assistant engineer at Abbey Road Studios working on the Beatles last two albums. His list of credits grew quickly to include The Shadows, Roy Wood, and Olivia Newton John. Through maintained ties with individual Beatles, he went on to work with Phil Spector on George Harrison's *All Things Must Pass*, as well as McCartney's *Red Rose Speedway*.

He received a Grammy nomination for his engineering on Pink Floyd's *Dark Side of the Moon* which prompted move into record production and immediate success with *Pilot* and *Cockney Rebel*, followed by John Miles and Al Stewart.

He launched Alan Parsons Project in 1976, releasing 11 albums over the next 20 years earning him a further 11 Grammy nominations. Parsons is currently finishing a new album, called *Air*, which is being mixed in multichannel surround.



PHOTOGRAPH: PAUL SPENCER

ALAN PARSONS

	DEMETER VTDB-2B	DeMARIA ADL200	RIDGE FARM GAS COOKER	REFERENCE DI EMO SYSTEMS DUAL
BUILD QUALITY	5	4	4	5
FACILITIES	2	3	4	1
ERGONOMICS	4	4	5	2
NOISE	4	4	1	5
AUDIO QUALITY:				
ANALOGUE RESOURCE	4	5	2	2
DIGITAL SOURCE	3	4	2	3
OVERALL ASSESSMENT	4	4	2	3

experience that if you have a unit with a detachable mains cable which goes abroad—say to America—that there's a very high chance when it comes back that someone will forget to change the voltage, stick a mains cable into it and blow the unit. It's a much safer option to have a hard-wired lead with the right plug on the end!

On the issue of mains, when plugging up the three units Hudson could immediately feel that the Demeter unit was live. He subsequently tested it and discovered 130V AC sitting between the unit's chassis and the studio earth.

'It's potentially very dangerous and in my view totally unacceptable,' he said. 'When you start plugging stuff up in a studio you assume its properly earthed—something like this is really lethal!'

The same measurement on the other units revealed satisfactory voltages below 1V.

With both the American DIs, a drop in signal was experienced through the units—as much as 20dB for some high-impedance sources. The English Gas Cooker, on the other hand, produced a uniform response irrespective of the source and in this respect behaved more like the reference solid-state DI boxes—a point that all our reviewers felt more comfortable with.

Before listening for sound quality, we asked each reviewer to test the DIs for noise. The main output was checked with an input connected, and output levels matched between the units.

'The Gas Cooker suffers from what sounds like a lot of power-supply noise at 100Hz which indicates poor smoothing,' commented Hudson. 'The Demeter is much quieter, although there is a tiny bit of hum perceptible,

but the ADL is fantastically quiet and definitely comes off best.

Hudson also discovered that if one of the mono Demeter boxes was placed on top of the other, that it caused noise induction. 'With two mono units of this size, it wouldn't be unusual practice to stack one on top of the other for stereo use, but this would obviously cause problems,' he said.

Parsons was also concerned by the noise from the Gas Cooker: 'With a line-level source the Gas Cooker shows some signs of noise, but with a high impedance source the noise increases considerably and depending on the source could be almost unusable. The other two boxes, though, perform well in terms of noise.'

Emerick concurred with the others: 'The Gas Cooker is certainly noisier and if you listen carefully you can also here popping which could indicate a power stage problem.'

As would be expected, the two passive reference DI boxes were found to be quiet and scored top marks. However, John Hudson's active BSS DI showed signs of noise and he consequently gave it a very low score along with the Gas Cooker.

TO TEST FOR audio quality, Parsons went straight into his Amek Angela console, Hudson into an SSL 6000 desk via a Neve 1063 preamp bypassing the SSL preamp, and Emerick into the vintage 1969 EMI TG



Demeter's VTDB-2B

console which he used for the Beatles remixing. As mentioned a selection of sources were used to test the units response to analogue and digital signals starting with analogue.

Geoff Emerick began by listening to a Fender Precision bass—something that he claims not to do very often: 'I don't tend to use DI's on bass—I've never DI'd Paul [McCartney]'s bass for example because I always prefer the sound of a microphone. Listening to the EMI reference DI, I now understand why.

'It sounds very clipped and scrunched-up, actually quite nasty sounding. The Demeter on the other hand is less clipped than the reference and has a nice bright middle with a good bass end. In comparison, the mid

'On acoustic guitar the ADL has by far the best sound and it actually makes the other boxes sound as though they're losing something. It makes the guitar sound rich and punchy—gives it a really full sound.'

John Hudson

sound on the ADL is not as good and sounds a bit harsh, it also has less bass—don't like that at all. The Gas Cooker provides more highs although the bass is a bit duller—but not a bad sound. My favourite, though, for bass has to be the Demeter and I'd actually be quite happy to work with that sound.'

Also listening to a Fender Precision, John Hudson had a slightly different viewpoint. 'For bass guitar my preference would be the Gas Cooker which has more depth than the others. The Demeter is okay, but doesn't seem to do much to the sound although it, perhaps, adds a bit more air, while the ADL sounds as though it's going through a lot of electronics and suffers from thinness and lack of depth—it's like the sound is fighting to get out.'

On acoustic guitars



JOHN HUDSON

IN HIS THREE-DECADE CAREER, John Hudson has recorded and mixed over 160 top ten hits, been awarded two Grammys and a British Academy Award.

An ex-BBC audio engineer, Hudson came to fame during the UK's Glam Rock period in the 1970's, being responsible for engineering hits by Gary Glitter, The Bay City Rollers and Alvin Stardust. With wife Kate, he took over Mayfair Studios in the late 1970s building it up into one of London's top music facilities.

Hudson has a string of credits to his name including The Who, Cream, Mark Bolan, Ultravox, Tina Turner, A-ha, David Bowie, Cliff Richard, Take That and Wet Wet Wet. Recent projects include Pulp and the Pet Shop Boys.

JOHN HUDSON

	DEMETER VTDB	DeMARIA ADL200	RIDGE FARM GAS COOKER	REFERENCE BSS AR116
BUILD QUALITY	3	4	4	5
FACILITIES	4	4	5	4
ERGONOMICS	1	1	3	5
NOISE	4	5	1	1
AUDIO QUALITY:				
ANALOGUE RESOURCE	3	5	4	4
DIGITAL SOURCE	1	4	2	3
OVERALL ASSESSMENT	1	5	2	3

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TOTAL SCORES	DEMETER VTDB-2B	DeMARIA ADL200	RIDGE FARM GAS COOKER	REFERENCE DI
BUILD QUALITY	11	12	13	11
FACILITIES	10	12	14	6
ERGONOMICS	10	8	12	9
NOISE	12	13	4	11
AUDIO QUALITY:				
ANALOGUE RESOURCE	11	13	9	8
DIGITAL SOURCE	9	10	7	8
OVERALL ASSESSMENT	10	11	8	7

both Emerick and Hudson expressed a very different impression: 'The difference is quite staggering,' said Hudson. 'On acoustic guitar the ADL has by far the best sound and it actually makes the other boxes sound as though they're losing something. It makes the guitar sound rich and punchy—gives it a really full sound. The Gas Cooker, on the other hand, makes the guitar sound as though it's got bass boost on it and doesn't sound very open—the high end also sounds a little artificial. The Demeter box is closest to my solid-state reference DI, and although it may be a true representation of what's going in, it's not actually enhancing the sound in any way.'

Emerick also had no hesitation in choosing the ADL for acoustic guitar: 'ADL definitely comes out on top for acoustic—it gives me everything I need to work with across the frequency spectrum—a really good full working sound. The Demeter seems a bit nondescript and doesn't have the rich low-end that the ADL produces. The Gas Cooker is a bit disappointing, in particular the bass end which is what I would call a "dry bass"

lacking richness. Having said that though, the Gas Cooker sounds the best using a pick—it seems to really benefit from that extra mid'

For analogue sounds, Parsons preferred the ADL unit, and particularly favoured it for electric guitar. 'The ADL has a compressed quality about it producing a similar effect to analogue tape compression which is quite pleasing. It certainly works on the sound and gives it a different character which I like. The Demeter has a tendency to lose top end on guitar which could be considered as adding warmth, while the Gas Cooker is over bright and rather

nasty—it actually seems artificially bright to me almost as though there's an equaliser built into it.' Although ADL got Parson's overall vote for analogue, he also shared Hudson and Emerick's view that it didn't always produce the best sound. 'I think in an ideal world you would probably use both the Demeter and the ADL boxes for different applications—they definitely appear to suit different things,' commented Parsons. 'The ADL introduces coloration, but its nice coloration, which is probably the reason you'd want to use one of these boxes in the first place. The Demeter appears purer, and



Ridge Farm Industries' The Gas Cooker

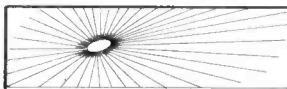
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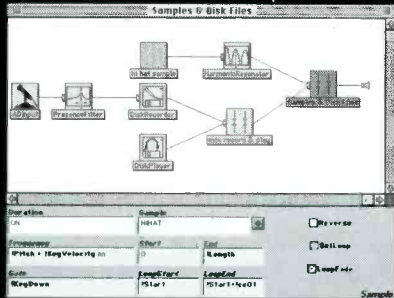
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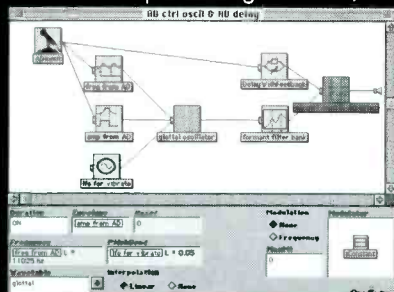
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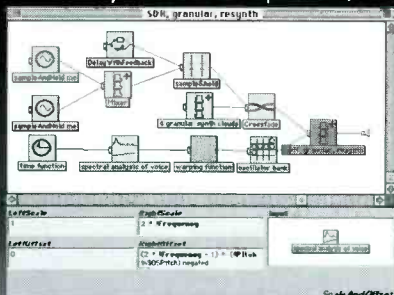
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'The ADL has a compressed quality about it producing a similar effect to analogue tape compression which is quite pleasing. It certainly works on the sound and gives it a different character'

Alan Parsons

It obviously has a high quality spec, and out of the three is nearest to my passive DI box, but then if you buy a valve DI box you might as well hear what the effect is and the Demeter can be quite subtle. The Gas Cooker suffers from high noise and sounds artificially bright—the noise, of course, could be causing a psychoacoustic effect and adding to the brightness but I'm pretty convinced the unit itself adds an edge to the sound which is accentuated by increasing its gain controls'

THE DI'S WERE next tested using digital sources, and this produced some slightly different opinions. Hudson started by listening to a digital mix he had recently recorded to Pro Tools.

'The Gas Cooker doesn't sound very natural, and again it gives the impression that it's got bass boost on it which makes the sound plummy. The top also sounds a bit unnatural and seems if anything to accentuate the digital "zizziness" rather than moderating it. The ADL sounds the most open and gives the impression of having more attack than the other units with plenty of space around the sound—again I get the feeling of some added punch here. The Demeter just sounds a bit nondescript, it's the most transparent of the three although that's probably not what you want from a valve unit.

Parsons also liked the sound of the ADL on digital sources. Used across a selection of digital mixes he commented: 'It's much more pleasant to listen to and on a hard digital recording it softens things slightly dulling-off the top end and rounding off harsh transients. The Demeter on the other hand has an edge to it which can produce a hardness on some digital recordings. The Gas Cooker still comes across as bright and this can exaggerate the 'digitalness' of the sound almost as though it were being equalised.

'I keep coming back to the ADL box as being the most pleasant to listen to,' he continued. 'On string samples, for example, it brings something out that the other units don't, however with drum samples and piano sounds the Demeter tends to fair better with more clarity, and a bit more punch.'

While agreeing with Parsons about the brightness of the Gas Cooker, Geoff Emerick's opinion differed for the American boxes. 'The Gas Cooker produces the brightest sound, but I actually find the ADL produces

the hardest sound which I like least on digital sources. The Demeter is the warmest of the three and has a lot of clarity, and in that respect I suppose it could be useful in taking some of the edge off a digital signal.'

Hudson, however, was sceptical about any of the boxes being used as digital 'moderators'. 'As far as improving the sound of something digital for the nondigital brigade—I don't think any of these units do that. In fact I'd go as far as saying that they could actually make things worse by adding high-end distortion and accentuating the "zizz" of the sound even though it might be a bit warmer. They certainly don't have the same effect as mixing to 1/2-inch analogue, which really does take off that digital edge. So I'm afraid I'm not sold on that concept.'

Tests were also performed to check the unit's effect on stereo imaging, and to check channel matching. This was found to be fully satisfactory in each case, and a particular good match was noted between the two mono Demeter units.

ALL THREE REVIEWERS agreed that the differences between the boxes were pronounced and that each produced different characteristics, which could vary depending on the source. 'The differences in sound was much greater than I would have imagined,' said Parsons. 'Quite often these days, especially with digital equipment, one is straining to hear minute subtleties, but the differences here were very marked.'

In each case our reviewers preferred the high-scoring valve DI boxes to the solid-state reference units. After completing the tests all three reviewers expressed a strong interest in using valve DIs in the future, and two were seriously considering buying them. UK prices exclusive of VAT are: £399 for both the Gas Cooker and ADL, while the mono Demeter box is £515. Ⓢ

Many thanks to Geoff Emerick, John Hudson and Alan Parsons for taking the time off very busy schedules to take part in this review.

Thanks to FX rentals for loan of musical instruments. See 'Soundings' for international rental developments.

CONTACTS

ADL200

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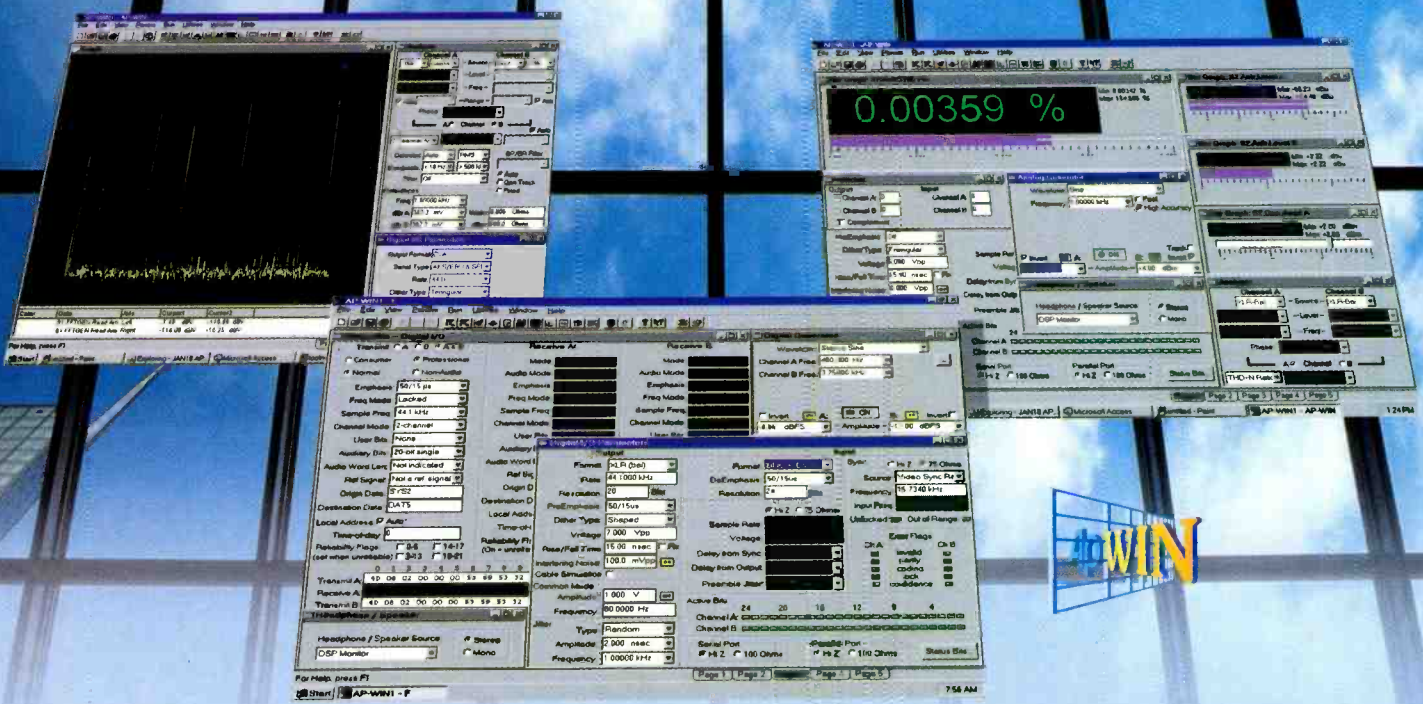
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Island life

Taiwan's music market is mostly dominated by MOR formula pop, most of which is generated from a brace of studios in Taipei.

NICK SMITH went to Taiwan to uncover the secrets of the formula and report on the technology behind it

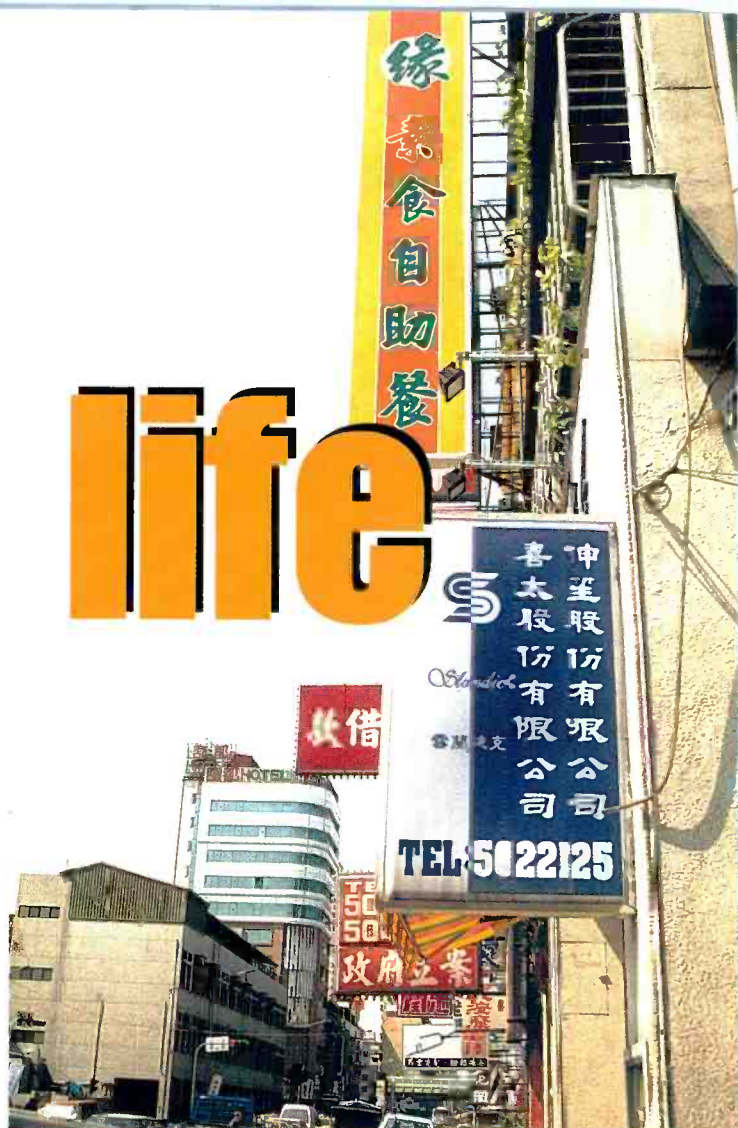
LET ME OPEN with a cliché: the island of Taiwan is a strange place. Officially it is a province of the Republic of China, and when you enter through immigration past the countless semi-automatic wielding

officials, 'Death to drug traffickers' notices and impenetrable red tape there seems to be absolutely no ambiguity about it—you are entering China.

It says on your passport 'ROC Entry Permit'. But as you buzz down the highway in a hired Mercedes-Benz (as opposed to a rickshaw) to Taiwan's capital, Taipei, you don't get any sort of sense of being in a communist country. And that's because you're not. You are in an officially communist country, with its own capitalist economy, its own government, aspirations to rejoin the United Nations and a people who consider

themselves about as Chinese as I, being Welsh, do.

At the time of my visit there were the elections, with predictions that the President



Premium's Manager Jerry Lin (left) and Platinum's President Chwei-Ching Yeh (right) with Premium's SSL SL9048j



SSL's Scenaria digital audio-video production system

would inevitably win, and, of course, there were the 40,000 Chinese militia lurking on the shores of the mainland casually lobbing bombs into the ocean in a government-endorsed move to make the Taiwanese think twice about where they were going to put their 'X' on the ballot forms. Couple this with Taiwan's nervousness over the impact that returning Hong Kong to China will have on its rapidly deteriorating economy, and you do have a very strange place indeed.

However, as the economy falters paradoxically the recording industry prospers almost as if it were some kind of underground resistance movement.

Unfortunately it's not half so romantic as this, as the development of the industry is a result of its deep-rooted conservatism and the astute business prowess of its prime movers. Of these perhaps the most influential is Chwei-Ching Yeh, President of the largest music recording complex in Taiwan. Called Platinum, the studios occupy one floor of an innocuous block in a back street of the business district in Taipei. It houses a total of six control and editing rooms decked out with an array of hardware that you, quite frankly were not expecting to see: a recently acquired AMS Neve Capricorn; an SSL SL4048G with Total Recall; an SL4072G with Ultimotion; a Scenaria,

another 4048G; and a Soundcraft DC2000. The arrival of the Scenaria coincided with the opening of one of Yeh's spin-out companies two years ago—First Video—an on-line digital video and audio post-

Although it looks like it could be, this isn't really an East-meets-West alliance story because it's simply a reflection of the fact that the high-end studio market is now truly international, and that SSL is taking the Taiwan market seriously

production studio. The sheer amount of equipment not only reflects the number of projects passing through the facility but also the philosophy of offering, according to Yeh, the maximum flexibility for the artist and producer. He doesn't want producers jumping ship just because he hasn't got the right desk for the job. And with some justification, because if ever there was a case of the producer defining the buying patterns of the market, then this is it, and

MANDARIN MUSIC: ISLE OF STRANGE NOISES

TO THE WESTERN EAR

Mandarin music is not unpleasant, it's simply too formulaic for Western disparate tastes. There's no punk rock, no rock 'n' roll, and there's absolutely nothing in the way of an anti-establishment bias that informs so much groundbreaking Western pop. In short, it's elegant fodder, which is okay as far as it goes, and you can see why it sells by the junk-load. You get the feeling Shakespeare must have been thinking of Taiwan when Caliban says in *The Tempest* 'Be not afeard. The isle is full of noises, sounds and sweet airs, that give delight and hurt not.' Not too sure about the giving delight bit: after all in many ways it's only an imitation of American middle-of-the-road politenesses such as Whitney Houston and Maria Carey. But it's an imitation that's gone a bit wrong, in the sense that it probably started off life wanting to sound like Whitney, but over the last few years has developed its own idiosyncrasies and idiosyncrasies, that for some reason have appealed and consequently stuck. Every record sounds irritatingly pleasant and even more irritatingly the same, with the obligatory Yamaha grand piano tinkling away right up your nose, thumping great big stadium drums banging you in the side of the face and the featureless beautifully groomed voice of a featureless beautifully groomed boy or girl warbling on about what lessons love and life have taught them. This is all neatly summed up

in the sleeve notes of a classic Lee Hom album which declaim 'Le Chanson et [sic] tres simple, les mots sont trop vrais'.

Philosophical stuff indeed, bolstered by a truly horrid version of Vera Matson and Elvis Presley's 'Love me Tender'—perhaps this is what makes him so attractive to his sponsor—a major eastern air-line.

One thing this music does have going for it, at least from the perspective of the recording industry, is that it sells in vast quantities to a critically undemanding public. It is an audience which seems to revere trite melodies and emotionally gawky lyrics, and from what I can gather, is terrified of variation. Little wonder then, that the studio-producer combination that hits the right formula can dominate the charts with apparent ease.

I asked one Taiwanese record producer if he thought this could ever happen in Europe, whereupon he promptly reminded me of Stock, Aitken & Waterman in the late-1980s in the UK. Yes, but surely that was all a bit of a joke, wasn't it? Wasn't it...

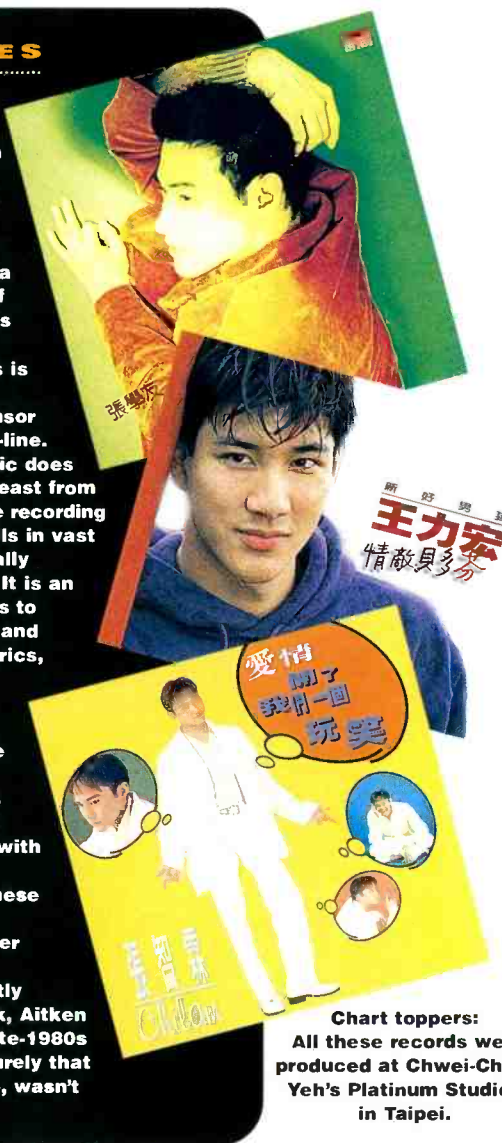


Chart toppers: All these records were produced at Chwei-Ching Yeh's Platinum Studios in Taipei.

FACILITY



PREMIUM

STUDIO F1

Solid State Logic SL9048j
with DiskTrack
Studer D827 48-track DASH
MONITORING
Amcron Macro Reference,
Studio Reference 1
Genelec 1031A
Sony SEM-5S
Yamaha NS-10M
Apogee AD1000 & DA1000
Studer D780 DAT
Panasonic SV-3700
Tascam 122 Mk.III
Studer D732

MICROPHONES

AKG C12VR, The Tube,
D112, D12, C451, C414
Audio Technica AT4050
B&K 4006
E-V RE-20
Neumann U67, U87Ai,
KM84, D47Fet
Sennheiser MD421
Shure SM-57, Beta 57

OUTBOARD

AMS RMX-16, S-DMX
Avalon AD2055, AD2044
BBE 662 Exciter
dbx PS-900
with 902 De-Esser
Eventide DSP-4000
Lexicon 480L, PCM-80
Nemesis FBS 1000
headphone system
Sony MU-R201
tc electronic M-5000
Tube-Tech CL-1B, PE-1C
Yamaha SPX-990

STUDIO F2

Solid State Logic SI4032E
with G-Series Computer
Sony PCM-3348
with MADI Interface

MONITORING

Amcron PSA-2,
Macro Reference
Sony SEM-5S
Yamaha NS-10M

MICROPHONES

AKG C12VR, The Tube,
D112, D12, C451, C414
Audio Technica AT4050
B&K 4006
E-V RE-20
Neumann U67, U87Ai,
KM84, U47Fet
Sennheiser MD421
Shure SM-57, SM Beta 57

OUTBOARD

BBE 862 Exciter
dbx PS-900
with 902 De-Esser
Lexicon 480L, PCM-80
Nemesis FBS 1000
headphone system
Panasonic SV-3700 DAT
Studer D732
Tascam 122 Mk.III
Tube-Tech MP-1A, CL-1B
Yamaha SPX-990

It's textbook stuff.

And if the textbook had a title it would probably be *Market Domination*—the exact statistics are as hard to pin down as they are to believe, but Yeh estimates that at any given point four out of five records in the chart will have either been either partly or fully recorded or mixed at Platinum. This is an incredible achievement, but the statistics only really sink in when you see for yourself the hundreds and hundreds of records that adorn the vestibule. It's busy here, and turning away business is not consistent with Yeh's world picture.

Rather than turn projects away Platinum has gone down the route of expansion, and quite literally set up again around the corner, only this time in a quieter residential part of town. With an alliterative neatness the new facility is called

Premium and is headed by former Platinum engineer Jerry Lin. Again, modest in outward appearance this new facility boasts the most advanced audio technology currently available, and the first Solid State Logic SL9000j in the Far East (at the time of going to press the news is breaking of a second 9000j installation—in a Hidley room at Hong Kong's Avon Studio).

THE LAYOUT of Premium is fairly standard, although there's obviously been a great deal of creative thought behind cramming two studios, a live area, offices and a rest area into the shell of a three floored apartment block. The ground floor mix room features a 48-channel SL9000 j-Series console linked to a 48-track DiskTrack, random-access, hard-disk recorder. Natural daylight (and lots of it) is a welcome feature of the room and there is also a private artists' lounge with a shower and a kitchen. The first floor studio is designed primarily for overdubbing and MIDI preproduction and is centred around a refurbished classic SL4032E console with G-Series Automation. Both studios, with isolated machine rooms, have a dedicated overdub booth and can link into the separate live and cool—in every sense of the words—recording area in the basement. Up on the top floor there is a lounge, offices and a maintenance area.

Lin's main responsibility is as Chief Engineer for the SL9000j room and has been using DiskTrack extensively on his sessions.

Recording Budgets in Taiwan mean that we are always trying to maximise productivity within each session. Replacing tape-based linear digital recorders with DiskTrack has had a dramatic impact in releasing more

One of the six control rooms at Platinum, housing its SSL 4000 and the ever-present Yamaha NS10-Ms

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C-1 Dual Valve Compressor
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PA-2 Dual Valve Mic Pre-amp/DI
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VI-5 8 Channel Switching Unit



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Alex Marcou - Abbey Road Studios (House recording engineer) - "The VI-1 makes hard sounding digital sound like cosy, rounded analogue - a joy to listen to. The control that the EQs, Pre Amps & Compressors give is excellent."



Andy Jackson - Pink Floyd (Sound engineer) - "All the lead vocals on the 'Division Bell' album mix were run through the EQ-1. I certainly prefer the EQ-1 to other Valve Equalisers for vocals. The new EQ-2 is probably the best all-round EQ I've ever used."



Chris Porter (Producer) - "Take That" - "I bought one of the first EQ-1s and I've enjoyed using it immensely. It gives a unique quality to the vocals in particular - 'Take That's 'Back For Good' is a typical example of the EQ-1 adding depth and presence to a vocal track."

Tom Lord-Alge (Dual Grammy Award Winning Engineer) - "The Indigo 2011 EQ has given me the ability to EQ with clarity, rather than just tone. I find it to be very musical. Any problem sound I have come across, I patch in the 2011 and it always me to add depth and clarity"

Stephen Coes (Producer, Arranger, Engineer) - Fleetwood Mac, Kenny Rogers, Jennifer Warnes) - "The Indigo 2011 EQ and 2021 Compressor are exceptional - both responsive and flexible. I can stomp or be subtle, hype a sound or just detail it. These are real tools for any level of music production"

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FACILITY

time for concentrating on the creative process, both in mix sessions and in vocal dubbing. I've been an SSL user for years and I've found the new features of the console and automation system immediately accessible, and my clients have been equally impressed with the clarity and depth of the mixes we've produced on the SL9000j!

Although you're 6,000 miles from Oxford you could be forgiven for thinking that you're back in SSL's demonstration rooms

TAIWAN: THE MARKET

THE TAIWANESE AND CHINESE music market is a statisticians heaven.

In a part of the world where there are more people, and dialect variations, than you could possibly imagine, 99% of (non-English language) charting music is Mandarin. The remaining 1% is Taiwanese music, which in contrast to Mandarin is a rather worryingly Wagneresque nationalistic folk-stomp. To get a No.1 hit in Taiwan you have to sell 1m units, and it necessarily follows that the record will be a monster success in China, probably to the tune of 1.5m units. There are no real threats from outside apart from the ubiquitous American ballad or movie theme, and there appear to be no plans to export this culture to the west. It is predominantly a self-contained and self-sufficient market.

Taipei's central business district: home of the Platinum Studio complex



at their facility in bucolic Begbroke. And although it looks like it could be, this isn't really an East-meets-West alliance story because it's simply a reflection of the fact that the high-end studio market is now truly international, and that SSL is taking the Taiwan market seriously.

It's no longer a novel observation that –like inter-national hotels–once you're inside a top-flight studio you could be anywhere in the world. Whether you're talking about acoustic design or choice of equipment, the same names crop up from Toronto to Tokyo—the standards are set and there's little room for quirky local gear if a studio expects to be able to attract engineers and producers from the other side of the globe.

Despite the problems facing Taiwan, and the nervousness generated by economic uncertainty and its position in world politics, the recording industry survives and flourishes

in its own xenolithic way. Yes this little island may seem remote and isolated, and the music may seem to have nothing to do with the rest of the world but writing as a journalist from one island culture about another, it suddenly starts to sound very familiar indeed. ☺

CONTACTS

PREMIUM STUDIO, No.3, Alley 14, Lane 16, Sec 1, Chung-Cheng Road, Shi-Lin, Taipei, Taiwan, 111 ROC.

Tel: +886 2 833 1812.

Fax: +886 2 833 2806.

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RADIO MICROPHONE SYSTEMS

Sound Designed



Radio mics

The last few months have seen massive developments in the UHF radio microphone sector.

ANDY WOOD brings us up to date on new equipment new technology coming into the market

IT'S GOOD NEWS, all this feverish activity surrounding radio microphones. But with so much new equipment suddenly at the prospective purchasers disposal, the area has become a minefield for the uninitiated. With options on price (in the UK) ranging from as little as £1,000 up to £30,000 for a full system, it is now sometimes difficult to ascertain exactly where the best options lie for a particular application. And—naturally—the manufacturers will all tell you that their system is the only one to do the job.

What is more, the more vociferous manufacturer's representative will not only explain the benefits of his system, but relay tales of doom regarding that of the competitors' and intertwine the whole

package with a level of audio alchemy that makes the magic of hi-fi look positively Disney. The basics behind radio microphones are relatively simple. You replace a good old fashioned lead with a RF signal. Easy—except that it's not.

In the first instance, you have to make sure that your system, whether it be VHF or UHF is set up correctly—and this basically means that you should ensure that the aerials have a line-of-sight contact with the transmitters—and that if remote aerials are used, that the cables are of a shortest length as possible. Sennheiser have a good first rule in their owners manuals: make sure the transmitter and receiver are in the same room. Items such as digital equipment; reinforced concrete;

neon lights and strip lights; loudspeaker drivers and lighting rigs the size of a small battleship are all to be avoided. Or at least, you should not place your aerials near these

THE FOLLOWING CHART outlines just some of the UHF units available on the market, together with information which could prove valuable when choosing a system. It is by no means definitive and should not be seen as such, as no doubt there are products and manufacturers not listed (unintentionally or due to product information not being available at the time of publication).

Manufacturer Product	Price (UK£) ex VAT	System Type	CURRENT UHF SYSTEM SPECIFICATIONS				THD	Additional Information (see Key)
			(Selectivity) Freq. resp	System Bandwidth	System S/N ratio			
AKG WMS 900 System Receivers								
SR800	1,599.00	Diversity	100Hz-20kHz	8MHz	86-96dB	<0.8%	S(12): R(1): H A: Receiver Module: S(12): R: H (on rack) A: Mini Receiver: R: S(12): B - 2 AA size (>4.5)	
SR900	2,899.00	Diversity	80Hz-20kHz	6-8MHz	92-102dB	<0.5%		
PR900	1,699.00	Single	100Hz-20kHz	8MHz	84-94dB	<1%		
Transmitters								
TM900	449.00	Module					A - Plug in transmitter module for use with hand-held/bodypack units S(12): B - IEC6LR61 (>5)(#) A - TM900 module plus C1000 capsule A - TM900 module plus C535 capsule A - TM900 module plus C5900 capsule A - Bodypack unit incl TM900 module : S(12): B - IEC6LR61 (>5)(#) : M: CK77, C417, CK97, C420: C-Lemo** A - Bodypack only A - Pair. Modules available in separate Channel configurations. Tunes entire receiver system to selected channel: S(12)	
C1000/TM900	899.00	Hand-held						
C535/TM900	899.00	Hand-held						
C5900/TM900	899.00	Hand-held						
PT900/TM900	899.00	Bodypack						
PT900 CV900AB	449.00 3,299.00	Bodypack Antennaverter						
WMS 300 Range Receivers								
SR300	599.00	Diversity	70Hz-20kHz max	20MHz	90-100dB	<0.8%	S(16): R(1/2)	
Transmitters								
HT300	299.00	Hand-held					S(16): B - 3 AA type (12): M: D3700, D3800, C5900 S(16): B - 3 AA type (12): M: CK77, CK97, C417, C416, C419, C420**	
PT300	421.00	Bodypack						
AUDIO LTD RMS2000 Series Receivers								
MX2000U	950.00	Single	50Hz-15kHz		96-104dB	<0.3%	A - Mini Receiver: S(2 built-in switchable): R : B - 3 DL123A lithium (>10): H:	
DX2000U	1,520.00	Diversity	As above					
Transmitters								
HX2000	575.00	Hand-held/Boom					S:(2 built-in): B - 1 DL123A lithium: M - AO2S, AC4. Also compatible with the Schoeps Colette range of capsules. S:(2 built-in): B - 1 MN1604/PP3: M - TramTR50, lemo plug connector**	
TX2000U	600.00	Pocket						



Manufacturer Product	Price (UK£) ex VAT	System Type	CURRENT UHF SYSTEM SPECIFICATIONS				TMD	Additional Information (see Key)
			(Selectivity) Freq. resp	System Bandwidth	System S/N ratio			
BEYERDYNAMIC								
U600 System Receivers								
NE600	1,585.00	Diversity	50Hz-20kHz (85dB)	100kHz	>100dB	<0.2%	S(16x4banks): R(1/2): H	
SEM681	1,599.00*	Hand-held					S(16x3banks): B - (12)(#): M - EM600, CM600, DM600, AH600, CV600	
TS600	1,175.00	Bodypack					S(16x4banks): B - MN1604/PP3 (12)(#): M - Compatible with Beyer headworn, mini and lavalier microphones.**	
RR7000 System Receivers								
EED700	799.00	Diversity	30Hz-20kHz	8Hz	>100dB	<0.5%	A - Receiver module: S(12): R: H (on rack)	
NE700	POA	Diversity	30Hz-20kHz	8MHz	>100dB	<0.5%	Two Diversity receivers in a single 1U case; S(12): H	
RR 7000 TG/12-2	39,999.00						A fully loaded 19" rack receiver system with monitor field featuring 12 EED700 receivers.	
Transmitters								
S700	999.00						S(12): B - (10)(#): M - CM186, EM186, DM190.60 (TG-X60), DM190.80 (TG-X80)	
TS900/1	999.00						S(12): B - (10)(#): M - Compatible with Beyer headworn, mini and lavalier microphones.**	
RR 7000 TG/12-2TX	53,187.00						A fully loaded 19" rack receiver with monitorfield Featuring 12 EED700 receivers and 12 transmitters (any mix).	
SAMSON UHF Synth Series Receivers								
UR-5 UK	1697.00	Diversity	40Hz-16kHz	(60dB)	150kHz	<0.5%	S(11): R(1): H	
UR-5D UK	2640.00						Two Diversity receivers in a single 1U case; S(11)	
Transmitters								
UH-5 UK	905.00	Hand-held					S(11): B - 9V (7): M - Shure SM58 (price quoted), EV757, Beta58, Beta87	
UT-5 UK	999.00	Belt-pack					S(11): B - 9V (7): M - Sony ECM44, ECM55, ECM77, Sennheiser MKE2, AKG C409, C410, Crown CM311, Countryman ISO.**	
SENNHEISER Receivers								
EK2014TV HDP	1,998.00	Diversity	60Hz-20kHz	3MHz	>110dB	<1%	A - Miniature receiver: S(2): B - 3AAA(5)(#): M - Supports most microphones	
EK4015-UHF	2,644.00	Diversity	60Hz-20kHz	24MHz	>113dB	<1%	A - Compact receiver: S(32)	
EM1031-U	650.00	Diversity					S(16):	
EM2004-UHF	2,884.00	Diversity	60Hz-20kHz	24MHz	>110dB	<1%	S(16): H:	
EM1046	4,017.00	Diversity	40Hz-20kHz(80dB)	24MHz	>108dB	<0.5%	A - Receiver module: H (on rack)	
EM20	POA	Diversity					A - Broadcast receiver for use with SER20, SER25 and SER 20F3 talkback transmitters	
Transmitters								
SKM1072U	680.00	Hand-held					S(16):	
SKM5000-UHF	1,630.00	Hand-held	70Hz-20kHz	24MHz		<1%	S(16): B - 2AA(5): M - ME5002,	
ME5004, ME5004ML, ME5005, ME5009, ME5005								
SK50-UHF	2,017.00	Bodypack	45Hz-20kHz	24MHz	>110dB	<1%	A - 50mW model: S(16): B - BA50 2AA, BA250 3AA(#): M - Supports Sennheiser MKE 2-4, 40-4 and MKE 102-4 mini modular system microphones**	
SK250-UHF	2,559.00	Bodypack	45Hz-20kHz	24MHz	>110dB	<1%	A - 250mW model: S(16):B - BA50 2 AA, BA250 3NiCd(#): As SK50	
SK1063-U	495.00	Bodypack					S(16):	
SER25	POA						A - Broadcast high power (25 watts) unit: R	
SER20	POA						A - Broadcast wide-band transmitter with talkback receiver (SR20F3)	
Systems								
1081	1,190.00	Diversity					A - Hand-held system: S(16): B - PP3: R:	
1083	1,190.00	Diversity					A - Bodypack system: S(16): B -	

items and expect things to work to full capacity. Several years ago I saw an installation where the receivers, with aerials attached, placed behind a chicken-wire grid. Oops.

Obviously, this type of information is brutally basic—some readers will already be aware of these issues and others will now be hastily pulling down vast expanses of chicken wire. However, when it comes to RF it should be recognised that a little knowledge is a

dangerous thing.

Help is at hand from Shure Bros who have now produced a supremely useful book (*Selection and Operation of Wireless Microphone Systems* by Tim Vear). Not only does this guide explain the subject in easy to understand detail, but it surprisingly refrains from ramming Shure mic options into your face. Copies can be obtained from UK distributor HW International.

So, let's presume that we've got a basic understanding of how to set up and use our radio microphone, surely there's no other pitfalls from there on in? Well, yes there are. Big ones. K2-sized ones.

You see, when you use radio mics whether they be UHF or VHF you are taking up a channel of RF and this is a bad thing. The airwaves are designed for the use of broadcasters, the military, James Bond and

The Shell:



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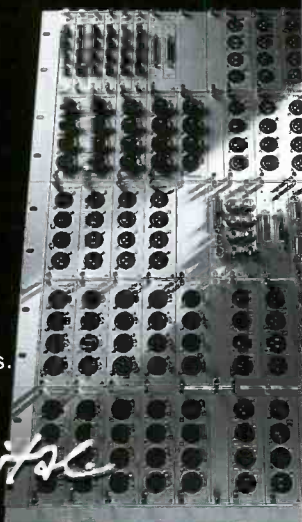
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CURRENT UHF SYSTEM SPECIFICATIONS

Manufacturer Product	Price (UK£) ex VAT	System Type	(Selectivity) Freq. resp	System Bandwidth	System S/N ratio	THD	Additional Information (see Key)
							PP3: R: M - MKE2
SHURE							
Receivers							
EU4S	1285.00*	Diversity	50-15,000Hz		>100dB	<0.3%	S(TBC): R(1/2): H
EU4D	1890.00*						S(TBC): Two Diversity receivers in a single 1U case; S(11)
Transmitters							
U2/	630.00*	Hand-held					S (TBC): B - 2 MN1500 (12): SM58 (price quoted), Beta58, Beta 87.
U1	595.00*	Bodypack					S (TBC): B - 2 MN1500 (12): Supports the full range of Shure lavaliers, headworn and instrument microphones.**
SONY							
WL-800 Series							
Receivers							
WRR810R	1245.00	Single	100Hz-15kHz(>60dB)	125MHz	>60dB	<1.0%	A - Betacam portable receiver: S(48): B - 2 AA-size (6)(#)
WRR860R	5175.00	Diversity	100Hz-15kHz(>60dB)	125MHz	>60dB	<1.0%	A - Betacam portable receiver: S(48): B - 4 AA-size (6)(#)
WRR855R	POA	Diversity	100Hz-15kHz(>60dB)	125MHz	>60dB	<1.0%	A - Betacam portable receiver: S(48)
WRR820R	1810.00	Diversity	100Hz-15kHz(>60dB)	125MHz	60dB	<1.0%	A - Single diversity unit S(48): R(1): H
WRR840R	2695.00	Diversity	100Hz-15kHz(>60dB)	125MHz	60dB	<1.0%	A - Two diversity receivers mounted in a 1U case: S(48): H
WRR850R	POA	Diversity	100Hz-15kHz(>50dB)	125MHz	60dB	<1.0%	A - Two diversity receivers mounted in a 1U case: S(48): H
Transmitters							
WRT810R	1125.00	Hand-held					S(48): B - 2 AA-size(8)(#); M - Sony Dynamic
WRT830R	1335.00	Hand-held					S(48): B - 2 AA-size(8)(#); M - Sony Electret condenser
WRT867R	1795.00	Hand-held					S(48): B - 1 AA-size(4)(#); M - Sony F-780
WRT820R	1025.00	Bodypack					S(48): B - 2 AA-size (8)(#): The unit supports all Sony models.**
WRT860A	1850.00	Bodypack					A - 20mW Bodypack for Sony



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S2 ADU
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DISTRIBUTION
SYSTEM

TRANTEC SYSTEMS

For ten years now BBM Electronics have been designing and manufacturing Trantec radio microphone and guitar systems. And, as you can see from the photograph opposite, we've been rather busy. In fact, we are now considered the largest and most successful manufacturer in Europe.

Our very first product was, not surprisingly, the System One. It was an instant success throughout the music industry. Reliable, hard-working and affordable, it set the standard that has now become the trademark of all Trantec products. It was also one of the first radio microphone systems to receive the DTI's legal approval (another feature that now exists across the entire Trantec range)

The System One was followed by the S2 Auto Diversity System. And, once again, the music industry applauded. But so too did broadcast companies, theatres and council chambers - in fact, praise came from everywhere that microphones are used.

From the economically priced S1000 (over 10,000 sold) to the professional broadcast S2 True Diversity System, BBM Electronics now produces a range of Trantec VHF products for the most demanding, and in some cases, unusual applications.

Last year, we added to our range by introducing our first UHF microphone system, the Trantec S5000. The S5000 combines superb audio quality with great looks and, at £2,250.00, is highly competitive. The S5000 has already made a considerable impact in the conference and theatre industries throughout Great Britain.

It all began with the System One. Who knows where it could end.

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CURRENT UHF SYSTEM SPECIFICATIONS

Manufacturer Product	Price (UK£) ex VAT	System Type	(Selectivity) Freq. resp	System Bandwidth	System S/N ratio	THD	Additional Information (see Key)
							lavaliere mics.**: S(48)
TRANTEC S5000 System Receivers							
S5000RX Transmitters	1,400.00	Diversity	50Hz-20kHz (85dB)	100kHz	>100dB	<0.2%	S(16x4banks): R(1/2): B(#): H
S5000DTX	1,100.00	Hand-held					S(16x4banks): B - MN1604/PP3 (12)(#): M - Trantec dynamic head
S5000CTX	1,200.00	Hand-held					S(16x4banks): B - MN1604/PP3 (12)(#): M - Trantec omni, wide cardioid and hyper cardioid electret options.
S5000LTX	1,100.00	Bodypack					S(16x4banks): B - MN1604/PP3 (12)(#): M - Compatible with most microphones via 4-pin Lemo connector.

* Indicates provisional price ** Transmitter may also support microphones from other manufacturers.

occasionally telecommunications. They are expressly not designed to be used by lazy audio engineers who cannot be bothered to plug a lead in just because a performer or presenter wants to move more than a metre from their mark.

WHERE IN THE WORLD you are determines how many of the airwaves you get to play with. In the US for example (The Land of the Free), users can basically clutter up huge expanses of the ether with radio

The problem with VHF is that the numbers of channels available are just not sufficient for large-scale use. Mr Bumble only gave us five workable frequencies in the UK

microphone systems the size of regional radio stations. In the UK, audio people have been given the last slice of the cake—well after the rest of the party has finished—with the result that everything gets rather crammed together in a corner and is a practical nightmare. Like Oliver, we may ask for more but quite frankly we should be thankful for what we've got.

This article is aimed mainly at the UHF sector, but to truly understand the UHF argument, you have to know the VHF side of the story. VHF was the beginning, and for some people with small systems it is still the answer. The problem with VHF is that the numbers of channels available are just not sufficient for large scale use. Mr Bumble only gave us five workable frequencies in the UK initially, so with spares that's not really going to work is it? Since then, the figure has now increased slightly, but is still not sufficiently large to mic up, say, a theatre production or a rock band with three guitars, vocals, backing vocals and spare channels.

Problems start because channels inter-modulate with each other, the most common problem being that of channels being too close together. This is closely followed by

KEY TO THE CHART


- A** - Description
- S** - Frequency selection (#). NB: Indicates number of frequencies that can be run simultaneously in the UK according to manufacturer/distributor specifications.
- R** - Rackmountable (U), or suitable for mounting in a proprietary system rack frame.
- B** - Batteries used and (battery life/hours) (#) Battery life warning circuitry.
- H** - Headphone monitoring output
- M** - Microphone options

third and fifth, seventh, and so, on level intermods. In layman's terms, this means that when various channels are used together, they create a problem elsewhere in the bandwidth and can therefore effect another channel. Luckily, as these factors are a known factor and as such any radio microphone system design can take these into consideration.

It follows therefore, that with VHF not quite cutting the mustard, UHF has become a suitable candidate for the large-scale application—more channels than you can shake a stick at being the concept. If you are in the US.

In the UK because the area handed over is relatively smaller, plus the same problems of intermodulation occur as in VHF, audio applications people have more channels, but still not quite as many as we would like. It is however a far better situation than it could be. And, let's be honest, it's suitable for most live and broadcast applications.

For the travelling crew, the situation is compounded in that many countries in Europe have different legal frequency allocations, so what is fine in the UK, could be a problem in say, Germany. Add to this the situation of CE approval...

Personally, I would decline any invitation to become involved in the arguments surrounding CE approval and stay firmly on the fence. The law in the United Kingdom quite simply is 

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that a system should be 'CE approved' for use in the UK. Anyone who tries to sell a system without CE approval is being extremely foolish, for whereas CE approval may be considered inconsequential in the design of a plastic toy car, in radio mic terms CE approval is not only a must, but is extremely quickly and effectively stamped down on when missing.

Staying in Europe though, it surely must be time to organise a standard set of frequencies for use throughout the EEC. It's being talked about, but that's about all, and the ramifications of not having an EEC frequency standard we'll deal with in a moment.

So, in danger of being shot down in flames, as a rule-of-thumb the difference between the two variations is that small applications are fine for VHF, larger multichannel projects should use UHF. Using that idea as a basis, UHF is therefore predominately the choice

of the professional user. More channels, less chance of intermods, less chance of a taxi cutting in.... (Sorry, I forgot to say that dodgy taxi firms love the DTI VHF frequencies, especially in Paris, where all taxis use them.)

WE'RE BACK with all the new UHF systems. These run to various types: those that are manufactured in the US and Far East, and those that are manufactured in the UK and Europe. All systems from the US have to comply to European regulations as opposed to the US FCC standard and have to be tweaked for each Euro sector. A system suitable for use in Germany is not suitable for use in the UK and vice versa for example. UK and European manufacturers have the same problem, except that their start point is slightly more defined in that it is Euro based. Note here that I am not saying that the place of manufacture is a major factor, I am just outlining the problems that the

COMPUTER CONTROL FOR UHF

WITH THE ADVENT of UHF microphone systems becoming more accessible to live sound and theatre operators, the need for control systems for large multichannel systems has become significant. This is especially so in theatre applications, where mute automation is now part of the standard audio practice.

One such system is manufactured by British company **BBM Electronics** which has developed a Windows-based control package for its **Trantec S5000 UHF** system. Currently in use at London's Vaudeville Theatre production of *Salad Days*, this system provides an invaluable means of control and monitoring for Sound Operator **Mark Cohan**. Cohan uses 15 channels of S5000 units with computer-controlled monitoring and control from the FOH position and at 'prompt corner', where a remote screen gives information to stage personnel.

Specified and installed by sound company **Orbital**, in conjunction with Sound Designer **Simon Whitehorn**, the system uses a multilayer screen design to give information on each channel's status (on-off, mute, frequency assign details plus a bar-graph indication of audio output) in real time. In addition, the system provides battery condition information. In use, channels can be easily activated or muted using a mouse, and scene design can be plotted away from the venue by the engineer and subsequently uploaded via 3 1/2-inch diskette.

On top of this, the system includes an RF plotting program which allows the engineer to plot and compare a system's RF reception around the stage to provide the optimum position for the remote aerials.

'I can immediately see the status of any of the microphones at any time, which is extremely valuable,' comments **Cohan**. 'Therefore, any glitches can normally be sorted out before they cause a problem for the production. Additionally, the prompt has the remote monitor so that if anything untoward happens, they can either react to it or contact me at FOH. In saying that, we have had no problems with the S5000s — it is the best system I have ever worked with for quality and reliability. But it's always good to know that backup information is there.'

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manufacturers have in trying to make one product suitable for all worldwide. A standard EEC frequency allocation-regulation now starts to make even more sense.

The big news is two-fold: in the first instance, the price of UHF is going down. Admittedly the full-blown professional units are still up there in the 5-figure mark for a basic rig, but new developments from AKG and Sennheiser are bringing UHF into the mid-price bracket and therefore making them

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It surely must be time to organise a standard set of frequencies for use throughout the EEC. It's being talked about, but that's about all

more accessible. Audio Technica are also allegedly bringing out a system soon.

The second is that, after waiting in the wings for several years Shure—the Microsoft of microphones—has now entered the UHF market with system launched at AES Copenhagen and due for imminent release

in the UK. Shure has also announced that it will no longer be supplying other manufacturers with its own capsules for use on their systems, therefore ensuring that if you want a Shure microphone capsule, you have to buy their system.

What it comes down to in the end is a series of choices base around the following: Price, the model of microphone you want to use, and the ability of a system to do the job required.

The first two considerations are relatively easily dealt with. The last can be based on everything from brand loyalty, service backup and previous experiences through to aesthetics and adaptability, that is interchangeable heads on the hand-held units, quality of the battery compartments, size of the belt-pack transmitters, ease of use and so on.

In the end, it's not easy—and don't look to me for recommendations. But remember, the truth is out there. **S**

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◆ July 7th

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◆ July 10th-12th

Pro Audio & Light Asia 96

World Trade Centre, Singapore.
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Fax: +65 227 0913.

◆ July 12th-14th

Summer NAMM

Nashville, US.
Tel: +1 619 438 8001.

August 1996

◆ August 7th-10th

Tha: Broadcast 96

Queen Sirikit National
Convention Centre,
Bangkok, Thailand.

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Tel: +66 2 361 6422-3.

◆ August 7th-10th

MacWorld Expo

Boston, US.

◆ August 15th-18th

Popkomm

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◆ August 26th-29th

Windows Solutions Expo & Conference

San Francisco, US.

September 1996

◆ September 3rd-6th

Broadcasting China 96 Exhibition & Symposium

Beijing, PR China.

Tel: -86 10 609 3775.

◆ September 4th-8th

CEDIA

Dallas, Texas, US.

◆ September 6th

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◆ September 7th-10th

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◆ September 8th-11th

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Fax: +44 181 897 3242.

◆ September 10th-12th

6th Australian Regional AES Convention

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Fax: +61 3 96820288

e-mail: aes96@icms.com.au

◆ September 12th-16th

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◆ September 16th-20th

Seventh International Symposium on Electronic Art (ISEA 96)

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◆ September 17th-19th

Interactive Multimedia Association Expo

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◆ September 18th-23rd

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◆ September 21st-23rd

cinema

MOC Events Centre, Munich,
Germany. Tel: +49 89 51070.

Fax: +49 89 5212 086.

◆ September 24th-29th

Live 96

Earls Court, London, UK.

Tel: +44 181 233 9306.

October 1996

◆ October 3rd-6th

International Music Yarmarok 96

National Exhibition Centre,
Kyiv, Ukraine.

Tel: +380 44 261 7546;

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Fax: +44 171 609 9478.

◆ October 9th-12th

The NAB Radio Show and World Media Exp 96

Los Angeles Convention Centre

Tel: +1 202 429 5350;

Fax-on-demand:
+1 301 216 1847.

http://www.nab.org/conventions

◆ October 24th-26th

Broadcast India 96 Exhibition & Symposium

World Trade Centre, Bombay,
India. Tel: +91 22 215 1396.

◆ October 30th

-November 1st

WirelessWorld Expo

Orange County Convention

Centre, Florida, US.

Tel: +1 301 986 7800.

◆ October 31st

-November 1st

ITS 8th Annual Magnetic & Optical Media Seminar

Mark Hopkins Hotel,
San Francisco, US.

Tel: +1 609 279 1700.

November 1996

◆ November 5th-7th

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Orange County Convention

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Tel: +1 301 986 7800.

Fax: +1 301 986 4538.

◆ November 5th-7th

Broadcast Engineering Society Expo 96

Hotel Taj Palace, New Delhi,
India. Tel: +91 11 371 9978.

Fax: +91 11 331 6674.

◆ November 5th-9th

PT/Expo Comm China

China International Exhibition

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Peoples Republic
of China.

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◆ November 6th-9th

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Tel: +44 171 208 5004.

http://www.apple-expo.com/apple

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AV & Broadcast China 96

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Beijing, China.

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21st Sound Broadcasting Equipment Show (SBES)

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Birmingham, UK.

Tel: +44 1491 838575.

◆ November 8th-11th

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Fax: +1 212 682 0477.

e-mail: HQ@aes.org

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BroadBand World Expo 96

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◆ November 15th-18th

Tonmeistertagung

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◆ November 21st-24th

LDI 1996

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◆ November 21st-24th

News World 96

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Tel: +171 494 1289.

Fax: +171 494 1287. e-mail:
all@newsworld.demon.co.uk

December 1996

◆ December 3rd-5th

Online Information 96

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Tel: +44 1865 730275.

◆ December 8th-11th

Broadcast Cable & Satellite 96 including Pro-Audio India

Lighting India and TV India,
Pragati Maidan, New Delhi,
India. Tel: +91 11 462 2710.

e-mail: india.exhibit@access.net.in

◆ December 8th-11th

Communications India 96 including Networks India and Wireless India

Pragati Maidan, New Delhi,
India. Tel: +91 11 462 2710.

Fax: +91 11 463 3506.

February 1997

◆ February 22nd-25th

Middle East Broadcast 97

Bahrain International Exhibition
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UK: +44 171 486 1951.

April 1997

◆ April

Entech 97

Melbourne Exhibition Centre,
Australia. Tel: +61 2 876 3530.

August 1997

◆ August 25th-28th

SMPTE

Sydney, Australia.

October 1997

◆ October 16th-20th

International Audio Video, Broadcasting and Telecommunications Show (IBTS 97)

Milan, Italy.

October 1998

◆ October 12th

-November 6th

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October 1999

◆ October 8th-17th

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Studio sound

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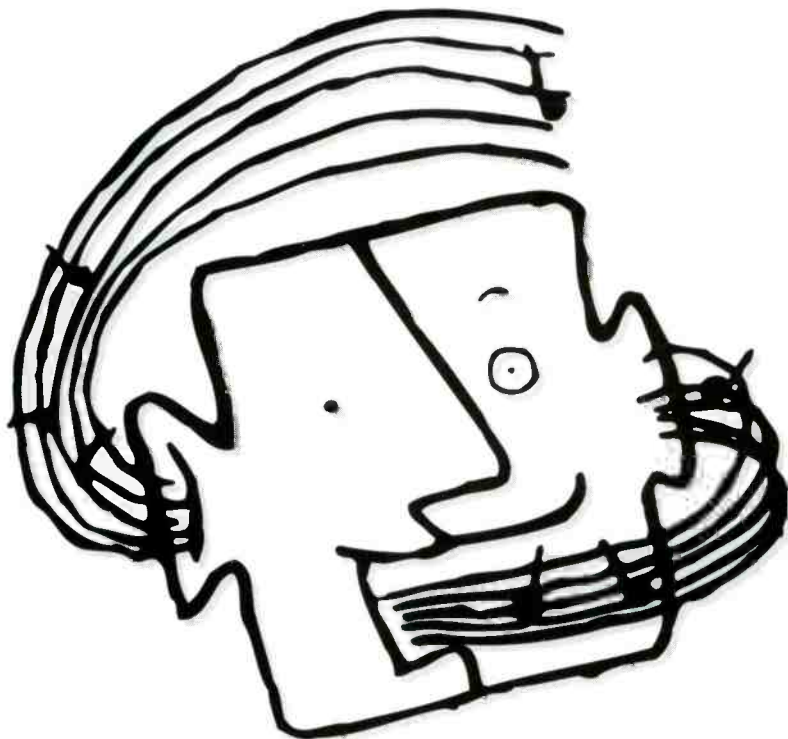


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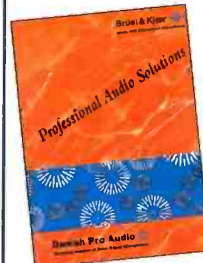
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Michael Gerzon

Audio innovator and industry icon Michael Gerzon died last May.

PHILIP NEWELL remembers his character and work

ON MAY 13TH this year I was *en route* from Lisbon to Vinnitsa in Ukraine, and had an overnight stop in Barcelona. Arriving at the hotel in mid-afternoon, I decided to take a walk and look for a newspaper. I bought *The International Guardian* and read Barry Fox's obituary of Michael Gerzon. The rest of my day was ruined.

When the history of 20th Century, music-related acoustics and psychoacoustics is reflected upon, among the names of luminaries such as Blumlein, Schroeder, Heyser and a handful of others, the name of Michael Gerzon will not be out of place.

Michael was a warm, gentle man whose generosity with his time and knowledge seemed to know no bounds. Sadly, he was dogged by debilitating illness for the last ten years or more. He suffered from asthma and extreme bouts of exhaustion which could render him comatose for days on end, yet as far as I am aware, nobody could find the root cause of it all.

Despite illness, once 'propped up' he could be a veritable fountain of wisdom. I called him many times—often from abroad—to be greeted with a friendly 'hello' and an apology that perhaps he would be of little help to me that day as he was feeling weak. Yet the conversation might end two, or even three, hours later. And the cost of these international calls was nothing in comparison to the stream of priceless knowledge which the conversation delivered.

I recall, a good number of years ago, when Keith Holland was doing his Ph.D at the Institute of Sound and Vibration Research in Southampton, when we hit a seemingly intractable problem and decided that it might be enlightening to bounce it off Michael. So I called him. He apologised for his condition but accepted an invitation to have lunch at a restaurant near his home (which, at the time was in Jericho, Oxford in the UK). Keith and I arrived at about noon and, after receiving a brief demonstration of his latest experiment in 3-channel stereo, proceeded to the restaurant. We ate lunch and continued talking. At about 8pm—still sat at the same table in the same restaurant—we decided to order dinner...

We left not only with a huge amount of light shed on our original problem, but also with a whole lot of other problems to ponder. Michael's ability to stimulate serious lines of thought in others was as great as his own ability to reason. Both were on the very highest level and—significantly—in many different directions.

Michael enjoyed a rare combination of talents—he was an Oxford University mathematics graduate, music lover, psychoacoustics genius and a very perceptive recording engineer who was equally at home with musicians, technicians and academics. Michael and I had many friends in common, and all had the deepest respect for him. I recall being outside the bar at the Institute of Acoustics with one, Quad's Allen Mornington-West, with whom I'd been engaged in heated debate for some considerable time. Michael arrived and listened intently for about five minutes and then became involved in the discussion, seemingly lending his support to my point of view. At this point, Allen good naturedly threw up his hands and said 'What more can I say? God has spoken!'

MICHAEL'S DEATH is a tragedy, not only for those close to him but to the audio industry as a whole. In so many areas he was way ahead of his time. In Barry Fox's obituary, he concludes by saying, 'and sometime around 2026, engineers will be trying to patent inventions that they think are new... and repeatedly finding that Michael Gerzon had got there first.'

As I write, I am in St Petersburg but when I left my home in Spain five weeks ago I had been planning to find the time (half a day?) to call Michael about some brainbusting problems concerning stereo perception. When I return home next week, it is going to hurt me even to look at the telephone. Why did I leave it too late?

Last year, before the publication of my book (in which there are numerous references to Michael), the publishers asked me to include a short explanation of who he was. I called him to ask him what he thought most relevant to say. Obviously, the work on Ambisonics and the Soundfield microphone were great landmarks but he seemed particularly fond of his work on dithered noise shaping. 'If you can only mention one thing,' he said, 'let it be that.' It should not be forgotten, of course, that much of Michael's work was conducted in conjunction with another major intellect, Peter Craven. Peter will now find himself having to keep the ball rolling without Michael's help.

Michael, you're gone; but be quite certain that you won't be forgotten—neither for your achievements nor for yourself. **S**



PHOTOGRAPH OF MICHAEL GERZON COURTESY OF THE AES



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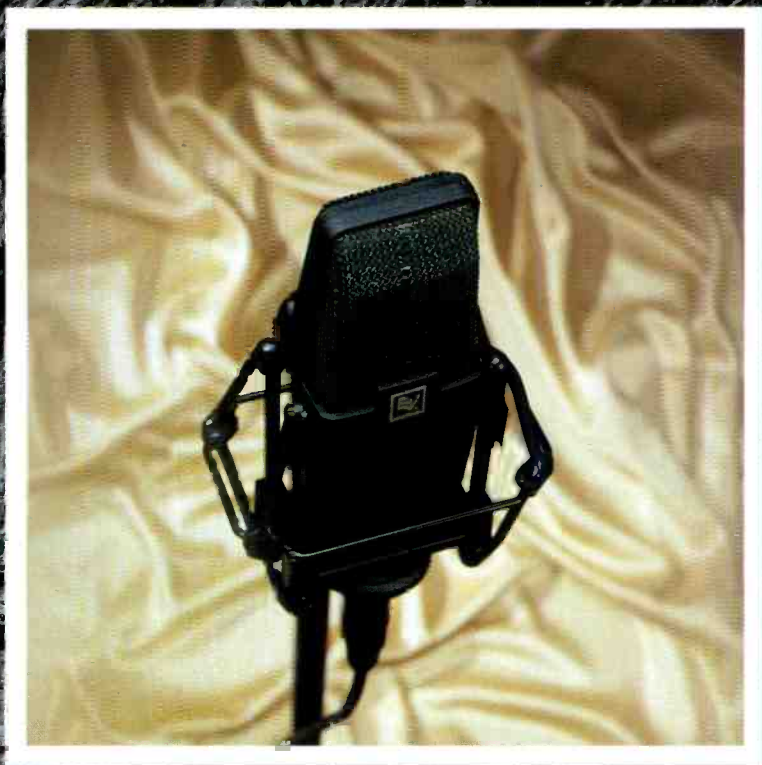
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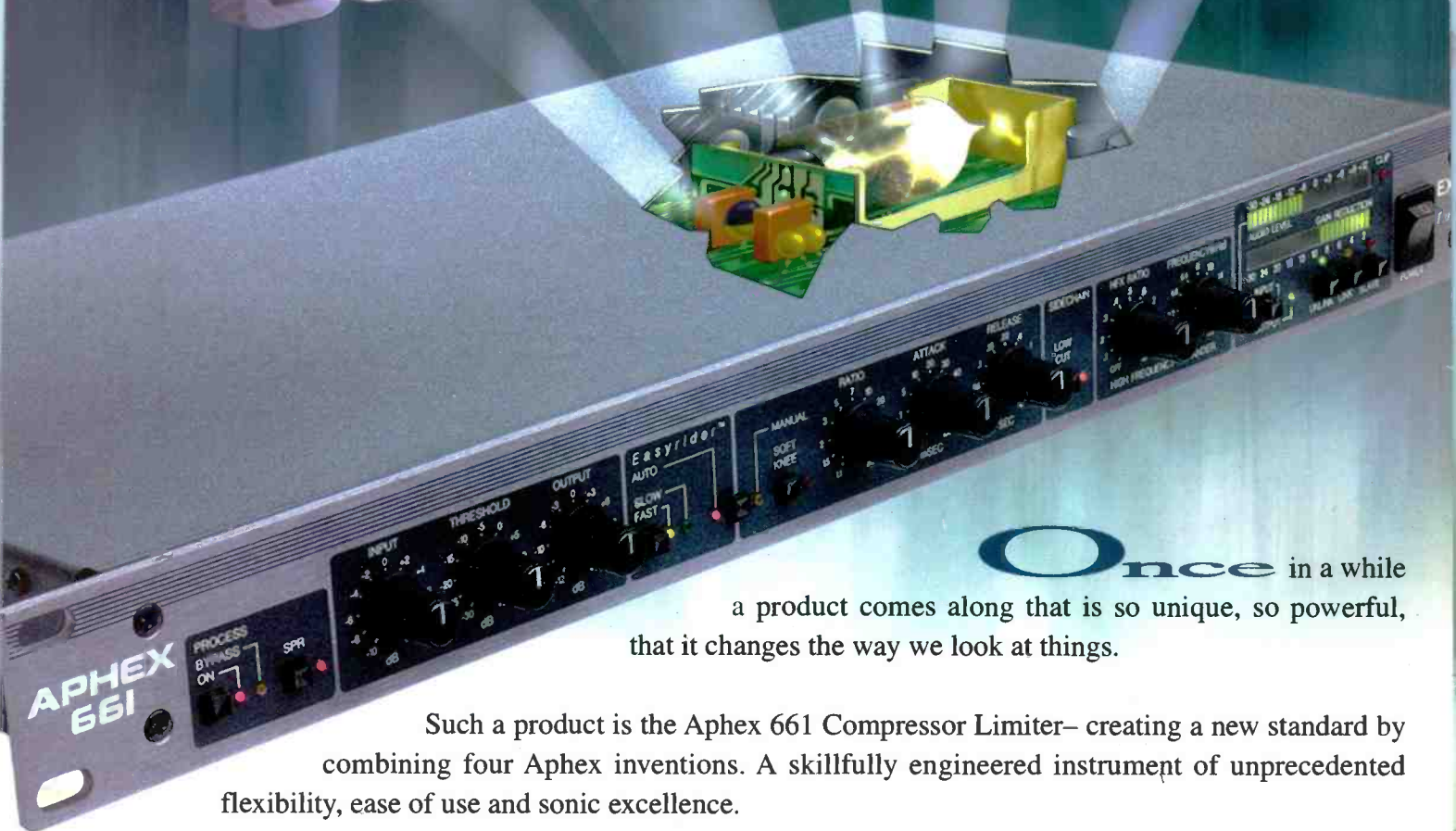
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