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Keith Emerson
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Korg X5DR Sound Module

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:Performer 5

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- 50 DNA Grooves
- MIDI Machine Control
- Enhanced Notation
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:Performer

UK Head Office: Klemm Music Technology
PO Box 4, Arlesey, Bedfordshire SG15 6AA
Tel: 0462 733310   Fax: 0462 733390

German Head Office: Klemm Music Technology,
Waldsteig 2, 371333 Friedland, Germany
Tel: 010 495 504 93590   Fax: 010 495 504 935922

Performer has earned an unprecedented four Mix TEC Awards and two MacWorld World Class Awards. Years of hit records, film scores and concert tours are reflected in the features and design of Performer 5.

Mark of the Unicorn, Inc.

leader

The Way
We Whirr

Major trade shows are invaluable in providing us with advance information on new equipment, plus they give us the opportunity to look smug and well-informed when we write our 'you heard it here first' news pages. However, the unsung heroes of these shows are the unseen engineers who design all this wonderful stuff.

Europe's major music trade show is the Frankfurt Musik Messe, and what I find particularly interesting when walking around this show is the way in which different companies apply technology to making and recording music. Analogue synths are still very much in fashion, but we've become so used to the massive polyphony and multitimbrality of digital synths that the original six- or eight-voice analogue instruments seem rather restrictive by comparison. Several companies, including Clavia and Korg, have addressed the problem by developing accurate digital simulations of vintage analogue synthesis systems. Theoretically, there's no reason why they shouldn't sound every bit as good as the real thing, but I feel there's something very perverse about using a state-of-the-art DSP chip containing tens of thousands of transistors to recreate a square wave that was originally generated by two transistors, two capacitors and four resistors. Similarly, the white noise that used to come from simply passing current through a leaky diode now comes from complex lookup tables which hold hundreds of pseudo-random numbers.

In the opposite camp, there's a well-known British amplifier manufacturer (and he knows who he is), who has two no-entry style logos inside his manuals proudly declaring, 'No Valves' and 'No DSP'! Of course, there are those who are equally as fiercely in favour of valves. When you look at the amount of valve studio gear currently in production, much of it is based on designs decades old. Yet it's obvious that this represents a very healthy sector of the market.

Hard disk recording is a definite no-valves area. We're now seeing far greater democratisation in the field of tapeless recording, largely due to the falling cost and increasing power of personal computers. Digidesign are releasing a software-only multitrack hard disk recording system which runs on a Power PC, without the need for additional hardware. OSC's *Deck* offers up to either 16 or 24 tracks on the same machine, depending on your choice of hard drive. Now that C-Lab have taken over the manufacture and marketing of audio-ready Falcon computers, there's a viable alternative to the Mac for hard disk recording. Although the PC platform is still rather less than settled, there's every sign that they will play a much larger part in the overall scheme of things musical in the very near future.

Sequencing and editing software are both a source of wonder and despair. New features are always impressive, but you just know that you aren't going to be able to get on top of all the upgrades before the next update comes along. Even more frustrating is the fact that each upgrade offers 50 more features that you're never going to use, whilst somehow avoiding the one minor feature that would make your life immeasurably happier!

So, will the show change your life, or will you resist the gravitational tug on your wallet for a little longer? After all, we don't actually need any of this stuff, do we? No, we don't, but we want it anyway, don't we? We want it so desperately!

Paul White *Editor*

ADAT
System 4
at a new low price

Keeps On Getting Better

ADAT System 4 now records over 62 minutes on a single SE-260 tape and provides expanded functionality with Digidesigns Session 8, Pro Tools and other ADAT Group products. In post production, System 4's Local Play Mode for the AI-2 Audio/Video Synchronisation Interface allows you to use ADAT as the master time code source.

Also new is Software version 2.03 for the BRC Master Remote Control with one touch punch-in, a wider MMC command set, a higher tolerance of

SMPTE inconsistencies and the all-new Park Point Offset feature for even better chase time to VTRs. It's still the only remote control with RandomTrak copy-paste digital editing capability. You can copy any part of any track from one ADAT to any part of any track on another ADAT to create composite edits like hard disc systems, but with the advantages and reliability of the ADAT tape format.

New Low Price

Now with the new low price there's never been a better time to see your authorised Alesis Dealer for a demo of ADAT System 4.

ADAT £2699 RRP INC VAT   BRC £1299 RRP INC VAT

ADAT is an 8 track modular 16 bit linear digital recording system using s-VHS® tape. Based on your needs you can configure an ADAT system from 8 to 128 tracks. The optional BRC Master Remote Control provides auto-location, time offsets, assembly editing and locks to timecode. ®Alesis and ADAT are registered trademarks, AI-2 and BRC are trademarks of Alesis Corporation. VHS is a registered trademark of JVC.

Sound Technology plc
Letchworth Point, Letchworth, Hertfordshire, SG6 1ND
Tel: 01462 480000 Fax: 01462 480800

ALESIS
STUDIO ELECTRONICS

○ Please send me literature on the ADAT System

○ Please can your product specialist contact me regarding the ADAT System and digital recording

MAIL TO:
Sound Technology plc.
Letchworth Point, Letchworth, Herts, SG6 1ND

Name

Address

Postcode

Tel.
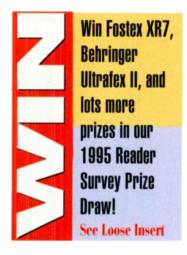
Lexicon LXP15 II p124
Designed to bridge the gap between Lexicon's budget products and their top end units, the LXP15 II reverb and multi-effects processor delivers some mighty appealing effects treatments with all the quality you'd expect from Lexicon.

WIN

Win Fostex XR7, Behringer Ultrafex II, and lots more prizes in our 1995 Reader Survey Prize Draw!

See Loose Insert

Roland VG8 p90
When is a guitar synth not a guitar synth? When it's Roland's innovative VG8 virtual guitar system. Check out our hands-on review...

REVIEWS

Fostex XR5 Multitracker p26
It's hard to find an edge in the low-cost 4-track cassette recorder market, but this latest unit from Fostex has a few neat features up its proverbial sleeve.

features

computer notes

Recording The Stone Roses p52
Simon Dawson explains how he recorded the latest album from The Stone Roses.

SOUND WORKSHOPS

Inside Mute Records p98
We take a rare look inside Mute Records' studio and talk to label founder Daniel Miller and Mute artists Nitzer Ebb and Renegade Soundwave.

regulars

Volume 10 Issue 7   May 1995

Clavia Nord Lead p80
From Sweden comes this technologically advanced Virtual Analogue Synthesizer to challenge the might of the Japanese and American manufacturers. Does it stand a snowball's chance in hell? Read on to find out...

Crosstalk

Send your letters, tips and comments to:
The Editor, Sound On Sound, Media House, St Ives, Cambridgeshire, PE17 4XQ.
Or email us — from CompuServe on 100517,1113, or from outside CompuServe,
on 100517.1113@compuserve.com

SAMPLE CDS. SETTING THE RECORD STRAIGHT

Further to Paul Farrer's review of the *Steve Stevens Guitar Sample Collection* in the April issue of *Sound On Sound*, we've had quite a number of customers asking us to clarify Paul's opening paragraph regarding copyright. I'm sure there are plenty of people put off the CD by his comments who won't be ringing us, so we're writing to try and clear the "muddied waters", as Paul so aptly called them.

Many people who read the review thought Paul was suggesting a writ might ensue if the samples were used by the original purchaser of the library in a commercial release. **This is definitely not the case.** This sample collection was specifically created for using in music without the purchaser having to pay any further royalties, or suffer any copyright problems. Paul obviously had good reason to mention the need to credit *Steve Stevens* samples when used in a recording, but we feel he viewed the whole subject in a very negative light: we'd like to give some of the (positive) reasons why a credit and notification of use is requested.

Companies such as ourselves have to do everything possible to reduce the chance of sample CD piracy. Many people seem to believe that sound developers are huge companies with incredibly large turnovers. The reality is completely the opposite: the business, though reasonably successful, is still very much a cottage industry. Record companies have been able to create additional income in some countries from things such as blank tape levies, to help compensate them for piracy; we cannot implement such financial back-up and would go out of business pretty quickly if sample CD piracy became a big problem. We request our customers credit the use of sample CDs *where possible* (we obviously understand that you can't credit their use on a TV ad) and apply for written permission if requested in the CD's small print, as it helps us to monitor who's using the sounds. All owners of a product are registered on computer and anyone found to be using a pirate copy of the CD/CD-ROM is, only then, likely to get into trouble. I'm sure some customers feel that crediting the libraries and contacting us when using them is a pain in the bum, but let's face it, it only takes a couple of phone calls.

I hope this helps people to understand that crediting the products is a positive thing, for them, in the long run. This whole crediting concept, although maybe not 100% perfect, has been implemented to make sure that the many customers who rely heavily on Time+Space (and other sound developers) for their sound sources, will have new libraries on tap for years to come. As I mentioned earlier, piracy could severely affect our company. If we go, the sounds go, and surely no-one wants that?

Jason Creasey
Zero-G Ltd (Time+Space)

Reviewer Paul Farrer replies:
Many thanks, Jason, for taking the time to clarify a number of important points concerning the purchasing and use of sample CDs. My remarks were in no way meant to confuse people, or put them off buying the excellent **Steve Stevens Guitar Sample Collection,** *or indeed any other of your products, and I'm sure your letter has helped clear the air with regard to the future of sample CDs. As we are all aware, CD sound libraries are a relatively new concept, and I'm sure that there are people with samplers who aren't sure exactly how 'safe' their samples are. It'll take more healthy debate before the situation is 100% clear, and until that time we can only be guided by what CD producers such as Time+Space tell us.*

We all agree that pirates are the lowest form of life, and any moves to stop them are, of course, welcomed, but what is really called for is a definitive, and understandable, set of guidelines which both users and producers can happily adhere to. In the meantime, I hope no-one will be put off by the lack of guidelines, and I'm sure that both Time+Space and other sound developers will enjoy a successful future. The guitar sample CD in question, by the way (as I said last month) is still absolutely terrific. ❏

Crosstalk

I currently have an Alesis D4, a Kawai K1 II, a Casio VZ8 and an Evolution EVS1; these give me a good range of sounds but I have problems with piano and bass. I know that I should be able to improve the bass sounds by programming, but piano is not so easy.

Ideally I'd like to get dedicated modules like the Proformance and the Peavey Spectrum Bass, but I have a limited budget. Could you suggest some modules that would offer me a selection of good piano and bass sounds?
Graham Owen
Email CompuServe100334,2150

Editor Paul White replies: *If you're really on a tight budget, you'll find that the old Yamaha EMT10 delivers an excellent piano sound, the only drawback being its relatively limited polyphony. You can find a secondhand one of these for around £100 — but I'm not selling you mine! However, looking at the synths you already own, I think you'd find a good General MIDI module useful because it would complement the sounds you already have. Assuming that you're using a sequencer to run everything, you could try to find a used Roland CM300 or CM500, both of which provide an excellent range of sounds, and because they have no front-panel controls for programming (everything is called up or edited via your sequencer), they are quite cheap. Expect to pay around £200 on the secondhand market. Included in the GM sound set are some excellent pianos and a small but useful selection of bass sounds. If you want more bass sounds (and you don't really say what type of sounds you're after), the Spectrum Bass might be something to think about later. It might also be worth putting in a Readers' Ad to see if anyone has come up with any good bass sounds for the EVS1; it's very capable in that area. As you're obviously an Email user, try asking around in the CompuServe MIDI Music forum — someone might have some EVS1 files you can download.* ❏

I bought a Sequential Prophet VS last year for £750. I'm really pleased with the synth and would like to buy another one as I like the sounds, the arpeggiator and

and many other VS users with V1.0 software, are asking is: where can we get this nifty upgrade? There is one company that offers definitive Sequential support, and that's Wine

the feel of the keyboard. My VS has V1.0 software; could you tell me the difference between V1.0 and V1.2?
Duncan White
Birmingham

Derek Johnson replies: *I guess you can't have too much of a good thing. The final V1.2 software for the VS comes on two chips and offers several refinements and fixes:*

- *An increment and decrement function so that very small parameter values can be easily made without using the data slider.*
- *Keyboard Local On/Off.*
- *Non-volatile program number that allows the last program selected at power down to automatically return at power up.*
- *The LFO is sync'd to key depressions.*
- *A transpose mode is available.*
- *You can save single programs to a RAM cartridge.*

Both chips are socketed, so no soldering is required. The unspoken question that Duncan,

Country Productions (1572 Park Crest Court, Suite #505, San Jose, CA 95118, USA; Tel 001 408 265 2008, Fax 001 408 266 6591, email WINECNTRY@AOL.COM). Not only can Wine Country supply V1.2 for the VS at $125 (plus $15 shipping to the UK), they can also supply operating system updates, manuals and spares for all Sequential instruments — including the Prophet 5, Prophet 10, Studio 440 and Prophet T8. The company also offer limited support for Oberheim, Moog and ARP instruments.
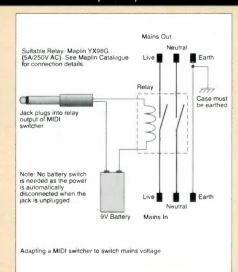
If you're now feeling crestfallen at the thought of sending cash to the States, worrying about your order taking ages or getting lost in the post, not to mention the possibility of your chips getting stuck in customs and hammered with VAT, worry not; ace service centre Panic Music Services is able to source Wine Country bits for you, and do any fitting that might be necessary. Panic can be contacted on 01954 231348. Thanks to David Sesnack of Wine Country and Mike Swain of PMS for their assistance. ❏
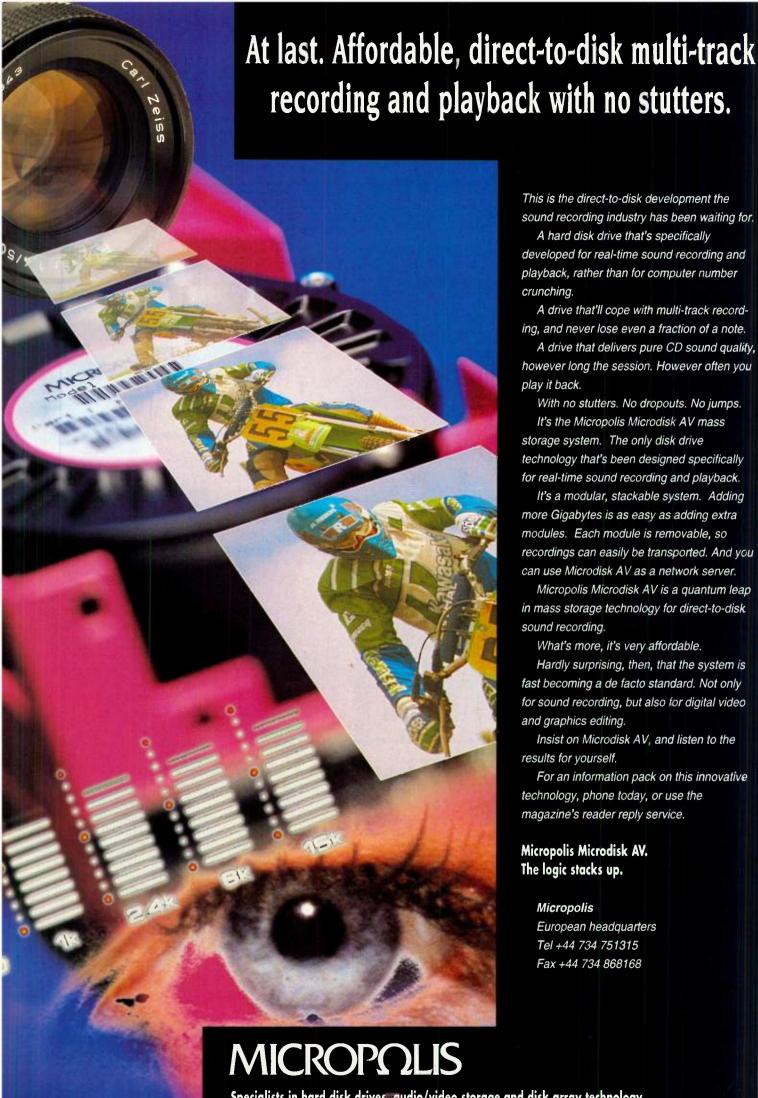
I read with interest the article in a recent issue of *Sound On Sound* about the interface for controlling lights via MIDI. Can you tell me whether there is a device available which will enable me to control a Kodak Carousel slide projector via MIDI? Also, more generally, a device which will control mains electrical switching (into which equipment running off domestic mains could be plugged)?
Patrick Stanbury
Woking

Editor Paul White replies: *I don't know of any MIDI boxes designed for precisely the function you describe, but there are MIDI-controlled switchers made for use with guitar amplifiers that you may be able to use with a little adaptation. What these boxes do is use MIDI to control one or*

Suitable Relay: Maplin YX98G (5A/250V AC). See Maplin Catalogue for connection details.

Mains Out
Neutral
Live   Earth

Relay
Case must be earthed

Jack plugs into relay output of MIDI switcher

Note: No battery switch is needed as the power is automatically disconnected when the jack is unplugged

Live   Earth
Neutral

9V Battery   Mains In

Adapting a MIDI switcher to switch mains voltage

more sets of relays, allowing external equipment to be switched on or off via MIDI, but all the models I've seen use relays which are only rated up to 100 Volts or so. However, you could buy a mains-rated relay from Maplin or a similar electronics supplier and use the MIDI switcher to turn this on and off. The easiest way to do this would be to use a battery to activate the external relay with the MIDI switcher's contacts wired in series with the battery and relay actuator coil (see accompanying diagram). If this makes sense to you, you should have no trouble building it, but if you're not sure of your ability to construct electrically safe equipment, you should find an electrician who's prepared to make it for you. The total cost of the components should be only a few pounds, but for the sake of safety, you should use a metal case which is connected to the mains earth. ❏

Shape of THINGS TO COME

By Derek Johnson & Jonathan Miller

Pictured here receiving a fabulous Ross RCS1602 mixer at his local music store, Machinehead Music of Hitchin, is *SOS*/JHS October 1994 competition winner Paul Foulsham (centre). Paul is a drummer/guitarist involved in the Access To Music project, which takes rock music workshops to colleges and schools. The mixer was kindly donated by John Hornby Skewes & Co, UK distributor of Ross products (0113 286 5381) and

AND THE WINNER IS...

Area Sales Manager Brian Cleary (right) did the honours and handed over the prize on behalf of JHS. Many thanks to Jeff Pumfrett, owner of Machinehead Music (01462 433305), for making his store available for the presentation ceremony.

We also have a winner for our 1994 Akai CD3000 competition. The lucky person in this case was Mr P McMurray of Cleveland, who's delighted with his CD3000, seen here with its new owner. Thanks to Akai UK (0181 897 6388) for donating the prize.

Roland launched several exciting additions to their product line-up at this year's Frankfurt Music Fair — you can read Paul White's review of the VG8 Virtual Guitar system elsewhere in this issue Also of particular interest is the XP50 (£1399 inc VAT), a 64-note polyphonic, 16-part multimbral music workstation featuring a sound source that is equivalent to the 32-bit RISC-equipped JV1080 (see review in December 1994's *SOS*).

The main features of the XP50 include:
- 61-key, velocity and aftertouch sensitive keyboard.
- 180,000 note, 16-track MRC Pro sequencer, capable of controlling up to 16 MIDI channels on each track, plus tempo track.
- Standard MIDI File and General MIDI compatibility.
- Groove Quantise and 100 key assignable user patterns.
- Room for up to four SRJV80 series wave expansion boards.
- 640 internal patch memories and 96 internal Performance memories.
- 10 Rhythm Sets.
- Built-in effects, including 40 insert effects.
- Built-in 3.5 inch DD and HD disk drive.
- 40-character, 2-line backlit LCD.

The DM800 multitrack hard disk recorder (£3975 inc VAT) is a dedicated direct-to-disk

ROLAND: THE FULL XP

portable recording system that offers up to 300 virtual audio tracks. All functions are hardware controlled, combining analogue-style familiarity with the advantages of digital editing. An easy to read visual display reveals the status of all aspects of the current project, while in traditional Roland S-series sampler style, the DM800 can also be connected to a monitor. All digital mixing operations, from audio recording, to editing and track bouncing, to final mixdown, are performed with full SMPTE and MIDI Time Code support. The feature list includes simultaneous recording on all tracks, comprehensive editing facilities (including time compression, pitch correction, editing by bars and beats, non-destructive cutting, copying, pasting and internal track bouncing), full automation, up to 24 track hours of storage on external hard disk, support for many removable media drives, backup to audio DAT or SCSI data DAT, and optional digital interfaces for Alesis ADAT and Tascam DA88.

Note also that Roland have relocated all musical instrument operations to their Swansea Distribution Centre.

> **A** Roland (UK) Ltd, Atlantic Close, Swansea Enterprise Park, Swansea, West Glamorgan, SA7 9FJ.
> **T** 01792 702701.
> **F** 01792 310248.

DIGITAL SOUNDSCAPING

Soundscape Digital Technology had a busy stand at this year's Frankfurt show; the largest of five demo areas featured a live demonstration for up to 30 people with a large back-projection screen. Gareth Bowen, keyboardist, engineer and producer, hosted up to nine public demonstrations per day on a 24-track system synchronised with Alesis ADATs. The four private demonstration systems included one featuring full lock-up to a pro video recorder for sound to picture editing. *Cakewalk*, *Cubase* and *Logic V2.0* were shown running with Soundscape on all systems.

Soundscape report sales of over 1500 of their SSHDR1 systems (£2500, including VAT) since it was launched 18 months ago. Version 1.16 software (free to registered users) is now available, giving 8-track audio scrubbing, 1000 named markers which can be inserted 'on the fly', real-time fades with volume contouring and selectable fade curves, new take directory index, new punch in/out mode, and a noise gate.

> **A** Soundscape Digital Technology Ltd, Crichton House, Mount Stuart Square, Cardiff Bay, Cardiff CF1 6DR.
> **T** 01222 450120.
> **F** 01222 450130.

MORE BANG FOR THE BUCK FROM EMU?

E mu are coming up with a steady stream of surprises — last year's launch of the competitively-priced ESI32 and the powerful EIV were amongst the highlights of 1994. The new year is barely three months old as this is written, and Emu have already pulled something out of the bag: announced at the Frankfurt Musik Messe early in March was the development of a new stand-alone 8-track digital audio hard disk recorder, code-named Buckeye. With a "low price point", Buckeye is said by Emu to offer true random access recording and editing at a price more usually associated with tape-based digital systems such as Alesis ADAT and Tascam DA88. We'll have to wait till later in the year to see Buckeye in action, but for now, Buckeye offers:

- 8 tracks of random-access digital recording and editing.
- Dedicated tape machine-style control.
- Dedicated jog/scrub/data wheel.

- 240X64 high-resolution display.
- Compatibility with a variety of internal or external hard drives or other external mass storage devices.
- SPDIF standard digital Ins and Outs.
- Optional internal 1Gb hard drive.

Emu have also announced V2 software and a digital In/Out card option for the ESI32; V2 includes S-MIDI compatibility for fast sample transfer via SCSI, allows a MIDI keyboard's pitch wheel to be used as a scrub wheel, and adds the ability to load individual presets and samples directly from floppy disks. It also allows for extra mass storage flexibility and Mac drive sharing capability. The EIV has also been enhanced; V1.1 software offers optimised control surface performance, improved voice architecture and individual sample export. The user-installable MIDI option card that increases multitimbral capabilities to 32 channels is also now available.

A Emu UK, Suite 6, Adam Ferguson House, Eskmills Park, Musselborough, East Lothian EH21 7PQ.
T 0131 653 6556.
F 0131 665 0473.

SOUNDTRACS' FOUR ON THE FLOOR

T he Frankfurt Music Fair provided the perfect platform for British audio mixing console manufacturer Soundtracs to introduce a new range of entry-level consoles under the Topaz banner, with prices starting at £275. Four models are currently available:

- The Topaz Mini (£323) provides four mono and four stereo inputs, plus two stereo effects returns into a stereo output. It's aimed at small bands, small clubs, conferences, keyboard mixing and stereo recording.
- The Topaz Macro (£429) provides 10 mono and two stereo inputs, plus two stereo effects returns into a stereo output — ideal for touring bands, fixed installations, mixing for larger keyboard configurations and MIDI-based studios. The Topaz Macro also features 3-band EQ and full PFL facilities, in addition to linear faders on all channels and master outputs.
- The Topaz Maxi is available in two configurations: the 24:4:2 (£1938) features 20 mono and four stereo inputs, and the 32:4:2 (£2291) has 28 mono and two stereo ins. A new switching arrangement enables the Maxi to convert from a four group output console into an eight group output console by adapting four of the eight auxiliaries. These mixers can therefore be adapted to either sound reinforcement applications or 4- and 8-track recording.
- Topaz Project 8 has now been available for a year, and is available in 24-channel (£2937) and 32-channel (£3877) configurations. Fader automation software (including a 1U hardware control unit) with quarter-frame accuracy and channel muting at twice the speed of MIDI is now available for Windows-equipped PC compatibles, respectively priced at £1410 and £1645 for the 24- and 32-channel Project 8 consoles.

A Soundtracs plc, Unit 21D, Blenheim Road, Longmead Industrial Estate, Epsom, Surrey, KT19 9XN, England.
T 0181 388 5000.
F 0181 388 5050.

YAMAHA SPEAKERS: COMPACT AND BIJOU

Y amaha's new S15 and S55 Compact Speaker Systems (£99 and £179 respectively) combine "exceptional good looks" with the kind of power handling capability and sonic performance you might expect from a speaker more than twice the size and twice the price, according to Yamaha. Both the 80W S15 and 140W S55 are two-way designs with a frequency range that extends up to 40kHz. Large magnets and extra-long voice coils allow extended cone excursion in the low-frequency drivers without breakup or distortion, and the tweeters employ large high flux-density magnetic circuits and titanium domes, for quick response to rapid transients and improved high frequency reproduction (the monitors top out at 40kHz).

Also available is a whole range of mounting options, including wall and ceiling mounting brackets, suitable for various professional, commercial and personal applications.

A Yamaha-Kemble Music (UK) Ltd, Sherbourne Drive, Tilbrook, Milton Keynes, MK7 8BL.
T 01908 369269 (enquiry line).
F 01908 368872.

DIGITAL RECORDING SYCO STYLE

S eminars are really catching on, with Syco following up their first Sampler Experience Day with The Digital Recording Day, to be held at Syco's London HQ on Wednesday 10th May. The seminar aims to help potential users to assess the different digital recording formats available.

The event will run from 10am to 9pm and will feature Digidesign's Pro Tools III and Session 8, the OTARI Radar, Alesis ADAT, Akai Dr4 and DR8 and Tascam DA88. Demonstrators of the above systems will be on hand, as will Syco technical staff, to offer advice and information. Refreshments will be provided, and a prize draw for a Lexicon reverb will be held.

Contact Syco Systems, marking your enquiry Digital Recording Day for more info, or to book a place.

A Syco Systems, Kimberley Road, London NW6 7SF.
T 0171 625 6070.
F 0171 372 7660.

BRING ON THE DANCING BEYER

Popular demand for Beyerdynamic to produce an entry-level range of microphones within the budget of the up and coming young musician has resulted in the introduction of the new XS range of vocal and instrument mics. There are five new mics in the series, all featuring neodymium technology to give more gain before feedback and good off-axis rejection. Prices are as follows:

- M01 — Vocals (£69.32).
- M02 — Vocals/Instrument (£81.07).
- M03 — Vocals/Instrument with built-in on/off switch (£92.83).
- M04 — Lead Vocals (£104.58).
- M05 — Lead Vocals with built-in on/off switch (£116.33).

The M01 features an ergonomically shaped barrel for hand-held use, whilst the others feature standard conical barrels; all are solidly built to stand up to the rigours of live use.

A Beyerdynamic (GB) Ltd, unit 14, Cliffe Industrial Estate, Lewes, Sussex, BN8 6JL.
T 01273 479411.
F 01273 471825.

ON THE CUTTING EDGE

Call and Response (aka Digital Slam) is the first in a series of new projects overseen by Digital Diaspora, an international network of multimedia artists, writers and media practitioners. The ICA in London and The Kitchen in New York, acting as host venues, will link up live for the first time on April 21 and 22 1995, using ISDN technology carrying video and audio signals. The aim is to explore the "cut and mix" of contemporary black culture with on-line collaborations by artists performing simultaneously in London and New York. The event will facilitate cultural exchanges between artists and audiences during the evenings — experience hip hop, jungle, techno-ambient, funk, poetry slams, scratch-video and a live transatlantic music collaboration and on-line art using the Internet's World Wide Web. There will also be a 'live' on-line debate between London and New York.

To date, sponsors for the event include Dolby Labs, who are supplying both venues with their Audio Fax system to facilitate the ISDN connection. For further information, contact Derek Richards or Marc Boothe at Digital Diaspora.

A Digital Diaspora, PO Box 4SX, W1R 4SX.
T 0171 287 1963.
F 0171 734 7470.

THE HOUSE THAT LARES BUILT

Acronyms continue to abound with the introduction of the Lexicon Acoustic Reinforcement and Enhancement System, or LARES for short. It's a new and possibly unique electro-acoustic audio system that can improve the acoustic quality of virtually any venue space without architectural alteration. In a nutshell, by utilising advanced digital electronics and patented digital signal processing techniques, LARES claims to significantly increase overall sound level, as well as optimising the level of reflected sound and reverberation. The diffuse field of ambience and reverberation that LARES creates envelopes the audience, ensuring that every seat in a venue has equal coverage. Preliminary pricing (excluding VAT) for the system is as follows: £8200 for the LARES Mainframe and £1370 for the LARC (it's those acronyms again) remote control, plus numerous associated equipment for an average installation, including monitor loudspeakers, power amplification, and mixing facilities. A software site license fee of $15,000 must also be paid directly to Lexicon.

A Harman International Industries Limited, Unit 2, Borehamwood Industrial Park, Rowley Lane, Borehamwood, Herts, WD6 5PZ.
T 0181 207 5050.
F 0181 207 4572.

Lord Pitt of Hampstead and actor Norman Beaton, both of whom sadly died last year, are to be honoured at this year's BASE (Black, Arts, Sports & Enterprises) Awards ceremony, together with a host of UK black celebrities, to be held at London's Hilton Hotel, Park Lane, on Saturday, 27 May 1995. The third BASE Awards provides a platform for the recognition and encouragement of black achievements in the fields of theatre, stage, entertainment and music (jazz, reggae, soul, African), to name but a few.

T Ticket information
0171 281 1916.

Pro audio retailers Natural Audio Ltd will be moving into new premises on 6th April 1995. The new location, just inside the M25 and near the A1, has good road and rail links, and convenient parking — perfect for avoiding stressful central London traffic.

A Natural Audio Ltd, Suite 6, Kinetic Centre, Theobald Street, Borehamwood, Herts, WD6 4SE.
T 0181 207 1717.
F 0181 207 2727.

The Music Corporation will be hosting a Roland Open Day on Thursday, 18 May, featuring the new XP50 Music Workstation, MS1 Sampler and VG8 V-Guitar System. The day offers a unique opportunity to experience all of these exciting new products within a working studio environment and runs from 10.30am until 7.30pm, with refreshments provided.

A The Music Corporation, The Market Place, Ringwood, Hants, BH24 1AP.
T 01425 470007.
F 01425 480569.

Our feature in the April issue on Mark Russell and his soundtracks for Radio 1 FM's comic books serials featured photography by Piers Allardyce... unfortunately, we missed off the credit for Piers. Sorry!

CURIOSITY GOT THE EMU

Service experts Central Sounds recently gave away an Emu Proformance piano module at a presentation ceremony held at the Novotel Hotel, Coventry and filmed by a local television company for future broadcast. The prize was donated by Emu's Musselburgh-based European division, whose European Service Manager, George Bell (photographed right) was present. Winner Tony Cosaitis (centre), a member of '80s popsters Curiosity, was drawn from just under 1000 *Sound On Sound* readers. The competition was open exclusively to readers who had taken advantage of Central Sounds' mail order repair services between November 1994 and January 1995.

Central Sounds specialise in mail order repairs of electronic musical equipment, computers and guitars anywhere in the UK, and they plan to run another competition in the near future. Keep an eye in the Services section of *Sound On Sound*'s classified ads.

A Central Sounds Entertainment International, 142 Coventry Road, Exhall, Coventry, CV7 9EW.
T 01203 643555.
F 01203 643555.

Heavenly Music have announced the release of a new series of jam files, entitled *Ultimate Blues*, in Standard MIDI File format. Volume 1 contains 10 blues progressions in both minor and major modes, featuring ballads, mid tempo and jazz/rock versions. Price is

GOOD HEAVENS

£16.99, and more volumes are promised for the future.

Also planned for immediate release is the new range of *Dr Beat Lite* drum and percussion pattern disks, which will share the same high quality of their Pro versions — just less patterns. On the plus side, all six volumes are attractively priced at £6.99 each. New to Heavenly's product range is a series of Learning Aids, including *Chord and Scale Dictionary*, *Riffs n Licks Dictionary* and a disk of vocal training MIDI Files. Prices to be announced.

A Heavenly Music Productions, 39 Garden Road, West Clacton, Essex, CO15 2RT, England.
T 01255 434217.
F 01255 434217.

TODAY MANCHESTER, TOMORROW THE WORLD!
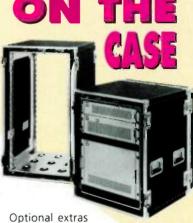
Scottish music merchants Sound Control continue their march southward with the opening of a new store in Manchester on 1st April. At around 6500 square feet, it encompasses all the elements of Sound Control's Modern Music Stores. The store is staffed with a knowledgeable team of musicians from all musical areas and offers a wide choice of equipment and accessories with full in-store servicing facilities.

Sound Control's Music retail operations have been further expanded by setting up three dedicated Professional Audio Centres, based within the flagship superstores in Glasgow and Manchester, plus the Newcastle store. These centres are fully equipped with the latest pro equipment, including digital audio, mixing consoles and outboard.

A Sound Control, Unit 5, The Red Rose Centre, Regent Road, Salford, Manchester, M5 3GR.
T Modern Music Store
— 0161 877 6262.
T Professional Audio
— 0161 877 6464.
F 0161 877 6363.

CP Cases have recently added 4U and 6U sizes to their anti-vibration Pro-Rack range of 19-inch rack cases, priced at £424 and £449 respectively. Pro-Racks offer a combination of strength and resistance, and are manufactured from top grade Finnish birch plywood, heat-bonded to vulcanised fibre, a process which produces a strong and wear-resistant finish. The lightweight pre-stressed steel frame is suspended by eight anti-vibration mounts fixed to the outer case by steel support brackets. The mounts are oriented towards the centre of gravity to ensure calibrated protection for delicate and valuable equipment against impact and vibration in transit.

Pro-Racks come with a standard rack-to-rack body depth of 500mm, with variations made to order.

ON THE CASE

Optional extras include a heavy-duty wheelbase, rear rack rails and support shelves.

A CP Cases, Worton Hall Industrial Estate, Worton Road, Isleworth, Middlesex, TW17 6ER, England.
T 0181 568 1881.
F 0181 568 1141.

Shape of THINGS TO COME

AN AUDIENCE WITH TOM OBERHEIM

I t isn't every day that you get the chance to meet one of the pioneers of analogue synthesizer design. But that's exactly what happened at the Soho Soundhouse/Turnkey Shop in London in the middle of March. As part of the post-Frankfurt promotional follow-up for his new Pro-Synth analogue synth module, Tom Oberheim spent an evening chatting about life, designing synths, and his new company, Marion Systems.

In a welcome change from the normal high-powered product launch, where legions of press and PR people listen to very loud and rather too lengthy demos of the new product, this was a much friendlier event. For a start, the public were welcome: notices in the shop said that all you needed to do was be in the shop at the right time, and ask if you could attend. Curiously, despite this open invitation, there were only a dozen or so of us in the demo studio deep under Charing Cross Road, and only three of those seemed to be journalists. After a brief welcome from the shop's manager, Rupert Pfaff, the rest of the evening was handed over to Tom.

Tom Oberheim's name is synonymous with analogue synths although, as he told us, losing your company to a lawyer and discovering that you can't then use your own name is not nice. (Much the same thing has happened to Robert Moog and Clive Sinclair). Tom's new company uses his daughter's middle name instead of his own, and this time, Marion Systems is a one-man company. He still

calls in other engineers, though — he told us that the software programmer who worked on the Pro-Synth's user interface used to work for Emu.

The Pro-Synth is an 8-voice, 8-part multitimbral analogue synthesizer in a 1U rackmounting case. Tom's aim has been to provide a classic sound and an easy-to-use front end. There are lots of MIDI features, lots of key assignment modes, some unusual control sources (like ramp generators and MIDI voice number) and some versatile control destinations (such as filter Q, which is rarely controllable in other synths). Tom also gave a few hints about new modules for the MSR2 (see review in *SOS* December 1994) — a two-slot rack which currently only has the ASM Analogue Synthesizer Module (a Pro-Synth on a plug-in module). Tom mentioned an imminent sample replay module, and a licensed Korg Wavestation SR module by the middle of 1995, with a DSP-based module and full sampler module in a year or 18 months. As I left, Tom was deep in conversation about the differences between the Matrix 6 and the Matrix 1000: two 'before' and 'after' Oberheim products...

Overall, a fascinating evening. It's definitely well worth keeping your eyes peeled for those little notices in music shops the next time you call. The Marion Systems Pro-Synth is well worth a look and listen too, and should be available soon for about £700 inc VAT. *Martin Russ*

MARION SYSTEMS PRO SYNTH
Analogue Synthesizer

£699

The legendary American synth designer Tom Oberheim's Pro Synth is today's analogue synthesizer. The eight part multi-timbral voices utilise 200 RAM patches, 200 ROM and 100 layers, with 2 high resolution oscillators per voice. The features include: ● Classic analogue waveforms - sawtooth, clipped triangle, variable pulse and square waveforms ● VCF with 2-pole/ 4 pole low pass response and resonance ● VCA and Voltage controlled PAN ● The Oberheim Modulation Matrix ● All this is housed in a 1U rack and at an incredible price of

EMULATOR IV
Digital Sampling System

CALL

Redefining digital sampling standards, the Emulator IV features 128 voice polyphony and up to 128mbyte of sample memory, giving up to 24 minutes of sampling time. A new icon based graphic interface makes it easy to use and powerful audio processing features include distortionless pitch transposition over a 10 octave range. Additional options include Flash RAM sample memory, 32 MIDI channel capability. **NEW SOFTWARE UPDATE** an additional 32 different filter types including band pass and morphing filters.

TASCAM DA88
8 track digital recorder

CALL

The Tascam DA88 has a place in most of London's professional environments establishing itself as the premier digital 8 track. A new addition to its already formidable features is out soon allowing direct MMC control from computer. A host of interfaces and accessories in stock.

PASSPORT Alchemy³

£599

The tool for sound design and sample editing.● Supports Akai, Emu, Kurzweil, Roland, Digidesign ● Analysis & Resynthesis

speck electronics MODEL 316 EQ

£749

3u high rack ● 16ch, 3-band semi-parametric EQ ● 2Hz to 200kHz bandwidth ● Wide input range ● Ideal for expanding EQ on a mixer

the right pieces to fit the picture...

Samples mean constraint, and virtually all new synthesizers use samples. You're tied to it's timbre or shape. With the Wave the constraint just isn't there. You have the freedom to create a sound, then shape it, whether it's creating your own wavetable by harmonically editing its 128 spectra, resynthesising a sound sample to then use as a wavetable or to shape timbre with true analogue dual stage filters, plus so much more. With it's unique front panel creating a sound does not need to take time - the Wave does not have a labyrinthine operating system. What's important though is that with a Wave you don't have to use the same sound that a 1,000 other musicians might be using at this very moment.
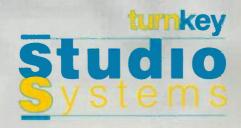
wave

Ultimate Wave CD Vol 1

Trying to describe a pair of monitors can be difficult: 2 way bass reflex , D'Appolito design, nearfield monitor, with a 52Hz - 20kHz +/- 2.5dB frequency response at 200w RMS. But would specifications on their own help you to decide which monitors to buy? Of course not. If you've heard Dynaudio, Genelec, ATC try out the Waldorf Blues too, and you may be pleasantly surprised. The White TV is probably the smallest coaxial monitor in the world, and with reverse bias magnets can be placed directly next to your computer screen. Each pair of speakers are individually matched, one of many features normally found in significantly more expensive monitors. If you need more power the Black TVs will suit and both can come active for added portability.

blues

34Hz

Black & White Monitors

The Microwave has been around for 10 years having achieved cult status in many areas of music making, and if you have already have one you'll know the reason why. Waldorf's version 2 update is now fitted as standard to new Microwaves but can also bring 32 new wavetables and a host of other features to existing users for only £79. There are now over 15 ROM sound cards ranging from the Classic PPG Wave sound sets, The Bass Card, Drum Card, Techo Card and the Signature Series range from programmers Claudius Brüse to Wolfram Franke. If you're still not convinced or are unable to get to the shop for a demo, call or send an SAE with £2.95 for a MicroWave demo cassette.

microwave

Micro Wave Software Update

Vers. 2.0

waldorf

MicroWave V2 Update

waldorf

turnkey studio Systems

COMPLETE CUBASE HANDBOOK
BACK IN PRINT

After a short break, the definitive Steinberg *Cubase* handbook is back in print. The second edition of *The Complete Cubase Handbook* by Udo Weyers is still filled with real-world applications and down to earth explanations of how to use all the powerful features offered by *Cubase* in all its forms. The book is now relevant to all three platforms (Atari, Mac and PC), and the main attraction of the revised text is its focus on *Cubase Score. The Complete Cubase Handbook* is an unmissable purchase for users of Steinberg's highly popular software. Its order code is B195, and it costs £29.95 plus postage (£3.95 UK).

A SOS Publications Ltd,
Media House, 3 Burrel Road,
St Ives, Cambs PE17 4LE.
T 01480 461786 (24 hours).
F 01480 492422.

Klemm Music Technology is now the exclusive distributor for Coda Music Technology in the UK. Coda's range of products includes notation software Finale, Finale Allegro and Music Prose. Klemm has been handling Coda products in Germany and other European countries for some time. All upgrade enquiries should also be directed to Klemm.
T 01462 733310.
F 01462 733390.
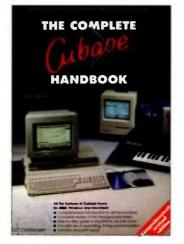
The first Oxford Music Show, organised by ABC Music Oxford and held in March at Oxford Town Hall, proved to be popular with visitors and exhibitors alike. The show was packed throughout the day, with Roland, Korg, Casio, Akai, Arbiter, Washburn, Stirling Audio and Harman Audio all reporting huge amounts of interest on their stands. ABC Oxford branch manager Bob Heath was delighted with the response to the show: "The turnout from the Oxford public has been fantastic — more than we expected. We would like to thank all our suppliers who supported the show and hope they will be back next year." In the meantime, ABC Music have confirmed that the Bristol Music Fair will take place at the Watershed on Sunday, 29 October.
T 0181 974 5505.

Garwood Communications have announced the M-Pack, a low-cost, hard-wired belt-pack monitor system at £399 plus VAT. Delivering the audio quality of their new PSRII in-ear monitoring system, the M-Pack belt-pack is connected by cable to any line level mix source. The PSRII itself offers a combination of high-quality audio, versatile control and advanced UHF technology in a robust package comprising a half-width 1U transmitter unit and a belt-pack receiver for £1749 (excluding VAT).
T 0181 452 4635.
F 0181 452 6974.

Digital Awareness, the company formed to distribute C-Lab Digital Media GmbH products in the UK — most notably the Falcon MkII and 270Mb removable hard drives — has added several other lines to its books. The first of these is Friendchip, already known for synchronizers like the SRC/AT. Amongst their new products at Frankfurt were the MM1 (£299), an eight MIDI Out expander for Atari ST and Falcon, and Digi-m'ax (sic), an 8-in, 8-out digital audio matrix for SPDIF, AES/EBU and ADAT protocols at £399.

From HB Button/Copson Data in Sweden comes Zero-X Pro, a Falcon sample editor which uses SCSI or MIDI to communicate with Akai, Roland, Ensoniq or Kurzweil machines. Retailing for £279, it allows drum loops to be cut into their indiviual components for tempo adjustment, as well

DIGITAL AWARENESS ENHANCE FALCON RANGE

as featuring good auto-loop functions and DSP processing for more traditional sample editing.

From California comes MediaVision, whose ReNo portable CD-ROM drive is a fast double-speed SCSI2 device which is equally at home with Falcon, Mac and PC computers or Akai, Roland, Kurzweil and Ensoniq SCSI-equipped instruments. MediaVision also produce a Professional Wavetable Upgrade card, a daughterboard which turns any Soundblaster-compatible PC soundcard from a humble FM device into a PCM device using the GM sound set from an Korg O5R/W (32-voice poly, 16-part multitimbral, with built-in reverb and chorus). Also from California is the pitch-to-MIDI conversion program *AutoScore* from Wildcat Canyon Software, which acts as an input device for many popular sequencers on both Mac and PC and costs just £116.

Other lines currently being imported on a non-exclusive basis include OSC's *Deck* 2.2 hard disk recording software, selling for £349 (or £449 bundled with the *Metro* 2.5 Mac sequencer).

A Digital Awareness, Eurotec House, 31-35 High Road, Chadwell Heath Essex RM6 6QW.
T 0181 597 2513.
F 0181 598 8984.

TSC SEMINAR SUCCESS

On March 6th, The Synthesizer Company held their busiest hard disk recording seminar to date. This was the second such seminar organized by TSC and co-sponsored by *Sound On Sound* magazine and it took place at Abbey Road's Studio 3. The event followed on from the Air Studios seminar in December last year and attracted a wide variety of people from within the music/post & media industry, offering them an opportunity to see, for the first time in the UK, the new software versions of their favourite audio MIDI sequencer used in conjunction with Digidesign's Session 8 and Pro Tools 3 hardware. As TSC are the only Apple Authorised Reseller involved in supplying Digidesign Hard Disk Recording Packages, Apple Computer's Head Of New Media was in attendance and able to demonstrate some of the forthcoming Multimedia Technology.

The event attracted over 300 people who were left with a greater understanding of MIDI integrated hard disk recording; many were also able to take advantage of special package pricing available to attendees on the day. The Abbey Road Seminar was co-sponsored by SOS Publications, Apple Computer UK, Digidesign Inc, Abbey Road Studios, Opcode Systems Inc and Emagic GmbH.

A The Synthesizer Company, 9 Hatton Street, London NW8 8PR.
T 0171 258 3454.
F 0171 262 8215.

Microtech Gefell UMT70S

Capacitor Microphone

Microtech's original UM70 set the affordable capacitor mic ball rolling, but now there's a transformerless version featuring a new housing. PAUL WHITE took it for a test drive.

When the UM70 first appeared on the market, it challenged the assumption that a good-sounding capacitor mic had to cost the earth. Though the build quality lagged a little behind what was considered normal in the West, the capsule, based on an original Neumann large-diaphragm design, delivered stunning sound quality that many users felt sounded very close to Neumann's own U87. Since then the build quality has improved and the price has also increased, but compared to the big-name European mics, the UM70 is still a very attractive proposition.

The latest mic in the Microtech range is the UMT70S, a transformerless version of the UM70 offering three switchable pickup patterns: Omni, Cardioid and Figure-of-Eight, though a cardioid-only version is also available in the form of the MT71S.

The new housing feels heavier than the original, featuring a slimmer body, and finished in black matte nickel, though champagne-colour is an option. The overall standard of design and construction seems a lot better than that of the original UM70, an example of which still resides in my mic locker.

Pattern switching is achieved by rotating the bevelled flange below the mic basket, while a recessed DIP switch arrangement provides for bass cut and a 10dB pad. Curiously, there is no model number at all on the mic body — just the manufacturer's logo and country of origin (Germany). The transformerless preamp is a relatively new design and features a symmetrical output stage. The benefits are lower noise, better transient response and lower susceptibility to RF interference. It is also claimed that this mic has a wider dynamic range than the original.

The frequency range of the mic is quoted as being 40Hz to 18kHz, though there is no pretention that the response is flat over this range. From the frequency response plot, it can be seen that there's a very gentle LF roll-off below 1kHz which pulls the 50Hz point down around -4dB. Above that, the response is nominally flat to around 15kHz, except that there's a deliberate presence peak at around 7kHz, giving a lift of around 3dB. Above 15kHz, the response rolls gently away and is around 6dB down at 20kHz.

IN USE

Comparing the mic with the original UM70, the sensitivity seems comparable, but there's a noticeable increase in HF detail, no doubt attributable to the improved transient response. The sound is still very warm, but somehow there's more 'air' around the top end. The self-noise of the mic is also a little lower, but then noise was never a problem with the original, as most studio applications involve relatively close miking anyway.

At a retail price of over £900, the UMT70S can't really be considered a budget mic, but might be better regarded as a serious professional mic with a very competitive price tag. Most of the big names can only offer cardioid-only mics at this price, and if you only need a cardioid mic, you can opt to pay less and buy the MT71S. I must say that I'm very impressed with the constructional quality of this mic as well as the sound, and it's hard to believe that this mic and my old UM70 were made by the same company.

It's evident that Microtech Gefell have outgrown their bargain-basement image, and the UMT70S is a serious pro capacitor mic by any standards. Microtech Gefell no longer build the cheapest mics, but I think it's fair to say that they still build some of the best value mics around.
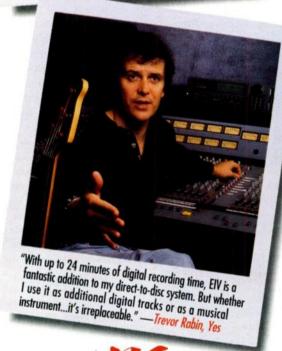
BRIEF SPECIFICATION

Polar Patterns	Cardioid; omni; figure-of-eight
Frequency response	40Hz-18kHz
Sensitivity at 1kHz	13mV/Pa +/- 3dB
Max SPL	134dB (144dB with 10dB pad)
Equivalent Noise	14dBA
Phantom Power	48V (3mA)
Nominal Impedance	150 Ohms
Dynamic Range of Preamp	120dB
Connector	balanced XLR
Dimensions	Head diameter 42mm; body diameter 21mm; total length 217mm.

If 128 Voices Ain't Enough for You, We'll Add Two More.

"For recording or performance, it's taken sampling to the next level. The sound quality, the sample memory, the polyphony... it's all there."—*Tony Banks, Genesis*

"With up to 24 minutes of digital recording time, EIV is a fantastic addition to my direct-to-disc system. But whether I use it as additional digital tracks or as a musical instrument...it's irreplaceable."—*Trevor Rabin, Yes*

Redefining Sampling Power...Emulator IV means business.

The company that pioneered digital sampling technology now redefines it for the fourth time with unparalleled functionality, elegance, and brute force power. But don't just take our word for it; Emulator IV speaks for itself.

Start with 128-voice polyphony, 128MB of sample memory, 128 6-pole digital resonant filters and compatibility with EIII, EIIIx, Emax® II and Akai S1000/S1100 16-bit sound libraries. And you'll have absolutely no question as to who is on top of the sampling food chain when you consider EIV's other cutting-edge standard features–including a new icon-based user interface; graphic waveform editing; resampling while you play; load while you play; virtually distortionless pitch transposition over 10 octaves; AES/EBU digital I/O and dual 50-pin SCSI ports–and that's just the beginning.

Emulator IV is designed to allow for easy hardware and software upgrades. Planned options include a second MIDI interface for 32-channel multi-timbrality, built-in digital effects, non-volatile flash sample memory (up to 16MB!), or an 8-channel multitrack digital audio interface.

EIV's power truly lies in what it will do for you. EIV's massive polyphony virtually eliminates voice rip-off limitations, while enormous sample memory and load-while-play functions radically reduce load time during studio or performance gigs with instant access to your sounds. And of course, EIV features the same pristine, warm audio resolution that professionals globally have come to depend on from the Emulator family.

But, hearing is believing. Take a trip down to your local EIV dealer and witness one being unleashed today.

Total Number of Voices

EMULATOR FOUR

E-mu Systems, Inc.

Korg X5DR

Synth Module

*More notes, more waveforms,
but more money...
Is this new module from
Korg just more of the same?
DEREK JOHNSON finds out...*

I t can't have escaped your attention that Korg have recently been smoothing their way into the forefront of synth development; the Wavedrum, Oasys and Prophecy (see preview on page 32 of this issue) are using cutting-edge DSP and physical modelling technologies to inject something new and different into the marketplace. Unfortunately, it's a fact of life that cutting-edge technology does not come cheap, so it should come as no surprise that Korg are continuing to support their established AI2 family of 'sample + synthesis' instruments.

05R/W (reviewed January 1995 and October 1993 respectively). The DR is packaged in an identical box to the 05R/W, and is backwards compatible with both machines. But the X5DR does offer a couple of significant enhancements. First of all, double the polyphony — a rather impressive 64 notes — and hyped-up waveform ROM of a jaw-dropping 8Mb (as opposed to 6Mb on the 05R/W and X5). This translates into 430 Multisounds (Korg-speak for basic waveforms) and 215 drum sounds.

INSIDE STORY

We've established that there are no surprises on the looks front — the user interface consists of an immediately familiar selection of small parameter buttons to one side of a small display. As with the 05R/W, this makes editing the DR a slightly fiddly business. Audio and MIDI connections are at the rear and are joined by the now rather familiar PC/Mac interface, immediately saving you the expense of buying a MIDI interface for your computer.

We've introduced Korg's AI2 synthesis technology so many times that there is little left to say about it; but for the tyros amongst you, here's the *Coles Notes* version. The basic building block of every AI/AI2

The latest AI2 machine is the X5DR, a 16-part multitimbral, General MIDI-compatible half-rack sound module that has rather a lot in common with the X5 and the

instrument, going back to the M1, is a multi-sampled waveform called a Multisound. Each basic Program (patch) uses one or two Multisounds, although using two

Multisounds halves the available polyphony. There follows a range of fairly traditional synth parameters, including a pitch envelope generator, VDF (Variable Digital Filter), VDA (Variable Digital Amplifier), and various modulation options. Note that the filter lacks true resonance, with a 'Colour' parameter instead. The X5DR also implements Korg's quality digital effects: there are two processors, with 47 effects to choose from. Several are dual effects in their own right, and in combination with a variety of routing options, this makes for quite complex effects possibilities. In common with the X5 keyboard synth, the DR has a wide range of alternate tunings, which is always welcome.

Up to eight Programs can be used in what Korg calls a Combination; the Programs can be split, layered or used multitimbrally. The DR's extended polyphony really shines here, since very complex, layered Combis won't compromise polyphony to the extent of earlier machines. Compare this to the venerable M1's 16-voice polyphony.

Last of all, there is a single Multi(timbral setup), just like the X5. This is ideal for producing full 16-part multitimbral arrangements and for playing back MIDI Files in GM format. As with the X5, any settings made to the Multi are lost on power down, so you'll need to get the hang of using program changes in your sequences.

WHAT'S NEW?

To take full advantage of the extra 2Mb of waveforms, Korg have provided the X5DR with two banks of factory presets, each containing 100 Programs and 100 Combis, although only one bank can be loaded at a time. One bank is totally new and takes advantage of the additional waveforms, while the other bank is identical to that found on the X5 and 05R/W. Individual Programs and Combis can be loaded from either factory bank to create a custom bank (again, of 100 Programs and 100 Combis), and it is possible, of course, to edit fresh Programs

SOUND STUFF

As mentioned earlier the X5DR has been enhanced with regard to polyphony and extra waveforms. On the waveform front, the first 340 Multisounds (and 164 percussion sounds) are identical to those found on the X5 and 05R/W. The remaining 90 Multisounds and 51 percussion sounds include a motley, but entirely useful, collection of extra organs, drums, tuned percussion, basses, winds, synth textures, and a piano. Some of these are brand-new samples, but many are taken from previous Korg instruments and their card libraries, making the DR a very good way of obtaining the sounds of Korg synths from the M1 to the T-series, 01-series and Wavestation. Needless to say, the aforementioned piano is *the* famous M1 piano. Especially interesting are the sound effects: drills,

cork pops, jets, harp glissandos and the like abound, not to mention coughs, grunts and squeals produced by sundry animals and people. It really is an excellent source of sonic raw material, though it has to be said that certain of the new sounds may become cliches if over-used in anything like their untreated state.

For anyone who hasn't heard the sounds that Korg's AI2 synthesis produces (and where exactly have you been for the last 10 years?), the X5DR is typical of the family: the basic sample set is uniformly good, and the factory preset Programs and Combis get high marks for instant playability. Highlights appear amongst string sounds, synth pads, basses and impressionistic, ambient textures, while Combi mode offers even more potential for creative sound layering.

and Combis from scratch. Note that your custom bank should be saved over SysEx (no card slot, I'm afraid), since re-loading either factory bank will overwrite your work. And, of course, there is an independent bank of preset General MIDI-compatible Programs — you can tweak these and save them.

IN USE

Operationally, the main problems with the X5DR are, inevitably, due to its size. This isn't Korg's fault especially, but is common to all sound modules in such small packages. Apart from that, navigating the X5DR is fairly logical and straightforward, although dedicated sound designers will be crying out for a software-based remote editor or mixer map. The one functional oddity I discovered was a lack of an Edit/Compare facility.

As a desktop music tool, the computer interface (plus Korg's optional connection kit) makes the X5DR ideal for compact systems where GM playback is a must; the more demanding will like the fact that this is a fully-functioning Korg AI2 synth with added waveform ROM, in a box that won't take up much room in the studio. Sonically, I have no complaints: benefiting from the latest generation of AI2 technology, the DR's basic samples are clean and smoothly looped, and the new waveforms add to an already impressive set. If it's instant gratification you're after, check out the two sets of factory Programs and Combis, plus the General MIDI sound set, which is very high quality indeed.

CONCLUSION

Until very recently, 64-voice polyphony on *anything* would have been cause for major gold stars. However, though this kind of polyphony isn't quite ubiquitous yet, it's certainly not the impossible dream it once was (indeed, it's a real pity that the excellent X5 keyboard, released just a few months ago, was not blessed with the DR's extras — why not?), and a synth can't rely on this bonus alone to make it successful. I feel that Korg could have made the X5DR a little more individual by adding, for example, an extra MIDI In and 32-part multitimbrality (a la Roland SC88 Super Sound Canvas and Yamaha MU80), and seeing it stretched out into a full rack box might have added to its perceived

FEATURES

- AI2 synthesis.
- 8Mb sample ROM: 430 Multisounds and 215 percussion sounds.
- 64-voice polyphony.
- 16-part multitimbrality.
- 100 User Programs.
- 136 General MIDI programs.
- 100 Combinations.
- 1 Multitimbral setup.
- 2 independent digital multi-effects with 47 effects.
- Alternate tunings.
- Computer interface for Mac and PC.

value (it can be difficult to come to terms with paying almost £700 for something so small), as well as providing extra space for a larger display and more buttons. However, once you accept that the X5DR is simply a repackaged, enhanced version of existing technology (and therefore low on excitement level), it presents good value for money, with a built-in computer interface, bags of extra waveforms which add up to some very high-quality and usable sounds, and so much polyphony that even if this was your only sound source, it would be some time before you hit the polyphony log-jam common with less well-endowed instruments. Korg tell us that this baby is positively walking off retailers' shelves, and in the context of the aforementioned advantages, it's not hard to see why. ■ SOS

Fostex XR5

4-Track Cassette Recorder

Though recording technology is turning increasingly to digital, there's still a ready market for the fun and easy to use analogue cassette multitracker, and Fostex have just released three new models. DEREK JOHNSON looks at one of them.

After a fairly quiet period on the cassette 4-track front, Fostex have broken the silence with the release of three new multitracks, the XR3, XR5 and XR7, in ascending order of price and sophistication. We're looking here at the XR5, which the musician on a budget will find a comprehensive, no-nonsense machine, offering just enough facilities for the more ambitious beginner, whilst remaining relatively simple to use.

BUILD & FACILITIES

Pick up the box from your friendly hi-tech retailer, and you'll notice one thing right away: the XR5 is very light, though construction seems sturdy enough. As with any cassette multitracker, the XR5 is divided into two sections: the tape transport, and the mixer. The transport offers double-speed operation (recording on up to two tape tracks at once), Dolby B noise reduction, and clunky mechanical (rather than soft-touch electronic) controls. The mixer is a deceptively simple 4-in/4-out affair, although, rather unusually, the XR5 really scores on the output front — apart from the main stereo out, there's a separate stereo monitor output (so you can feed your mastering deck monitor amp independently), a mono foldback output, and individual outs for each tape track, which allow you to add an external mixer at a later date.

Each mixer input features the following, from bottom to top:
- Input jack socket.
- Input fader.
- Level switch (Inputs 1 and 2 only): High, -10dB; Mid, -30dB; Low, -50dB.
- Channel select switch: selects signal from tape or mixer input.
- Foldback knob: turn left to monitor the input jack signal, and right to monitor tape playback.
- Pan pot, for stereo placement and track assignment.
- Low EQ, 100Hz, +/-10dB.
- Hi EQ, 10kHz, +/-10dB.
- Aux send: turn left for aux 1 and right for aux 2.
- Aux send select switches, for using auxiliaries on main channel or foldback signal.
- Insert point (Inputs 1 and 2 only).

Global controls include a master fader and level controls for the two aux returns and monitor output (with a switch for selecting the option to monitor the foldback, main mix or both together); a varispeed control offers a shift of approximately two semitones up and three down. You'll also spot a noise reduction defeat switch (global) and a pair of record select buttons. All that remain are the meters (they can monitor all four tape tracks or the overall mix plus two aux sends), a mechanical tape counter, and the tape compartment.

So far the XR5 looks like — and certainly is — a straightforward, and well-featured machine. However, since it is aimed at the entry-level market, it may be worth pointing out where the budget cuts have struck. First of all, the transport offers double speed only, so you won't be able to play back normal-speed tapes, as you can with many other 4-tracks. I found this particularly galling, since my first multitrack was a Yamaha MT44, and I have a collection of old single-speed, Dolby B 4-track tapes that I would have liked to remix. The XR5 does offer a tape sync facility, but I haven't mentioned it so far because there are no dedicated controls. Input 4 is used to record a code, and individual output 4 is used to play it back. There doesn't seem to be any way to disable noise reduction on track 4 (unless you use the global noise reduction defeat switch), but neither does it seem to impede the use of a sync code. Also lacking are a return to zero facility, and rehearsal modes.

IN USE

Using the XR5 is not difficult, but if you're new to multitracking, check out the manual, which explains all basic multitrack techniques — plus a few advanced ones — quite clearly, although it's cluttered up with some over-busy diagrams. Recording is as simple as plugging a signal into an input, setting the level, selecting which tape track you want to record onto and pressing record. To monitor or mix down, set the input(s) to Tape.

Although I prefer dbx on cassette multitrackers, there were no real problems with the Dolby B noise reduction. Overall sonic peformance was good, if a little dull, and I was able to bounce a couple of generations before noise became at all obvious. Effects and processors can be used in a number of ways — in-line at the handy insert points or via the aux sends; the signal from the aux returns can be recorded to tape live or during bouncing.

On the subject of noise, however, there are a couple of small points worth airing. When listening critically, with the volume turned up, there is a certain amount of crosstalk between tape tracks; I also noticed that when erasing a track, there is some residual signal left on the erased track. However, pull the volume back down to normal levels, start recording, and these problems are not so noticeable. Results are certainly par for the medium.

Operationally, there isn't much to complain about, although complain I will.

FOSTEX XR5 £379

PROS
- Light & compact.
- Affordable.
- Sounds fine.
- Nice EQ.
- Surprisingly flexible mixer at this price.

CONS
- Some crosstalk.
- Only records on two tracks at once.
- Only one pot for two auxiliaries.
- Transport hums a bit.

SUMMARY
Not much to criticise here; if the above cons don't cause you to break out in a sweat, you'll probably be happy with an XR5. A good first machine.

First of all, the transport tends to hum a bit, and hums even louder when you go into record. I'd rather it didn't. One of the strangest things about the XR5 is that every rotary pot on the input channels is centre detented (there's a gentle click at the centre of each pot's travel) — except, that is, for the pan pot, the knob which could arguably most benefit from this feature. Strange. And for me, the foldback knob is in the wrong place. It's quite easy, initially at least, to mistake it for the pan pot when working quickly.

THE BOTTOM LINE

There's a strange phenomenon I notice whenever I get back to using a cassette-based multitracker: I have fun, not to mention finishing tracks more quickly. With units such as the XR5, you don't have loads of inputs, aux sends and tape tracks, so you just cut the crap and get recording. The planning and bouncing stages may seem to use up valuable time, but this could be illusory: if you have more inputs, auxiliaries, EQ, and general parameters to adjust, chances are you'll spend time adjusting them.

Though the majority of buyers of the XR5 will probably be entry-level musicians, experienced recordists looking for a scratchpad could also consider the XR5. Price-wise, it's pretty good value, although it's in the same price range as Tascam's Porta 07 and Yamaha's MT50, so it's not without competition. Overall, it seems built well enough to withstand a fair amount of use, the mixer is very flexible for such a budget unit, and the sound is perfectly acceptable.

So the bottom line is that the XR5 offers just enough features to get your ideas onto tape, with plenty of options to keep it relevant as and when your setup expands. **SOS**

FURTHER INFORMATION

£ XR5 £379 inc VAT.
A SCV London, 6-24 Southgate Road, London N1 3JJ.
T 0171 923 1892.
F 0171 241 3644.

EXTRA INPUTS?

Although the XR5 seems to offer a simple 4-channel mixer, with adequate expansion opportunities — either of the stereo aux returns could be used to patch in line-level signals or an external mixer, for example — there is one sneaky way to get yourself four extra line inputs for nothing. Basically, use the monitor output as your main mix (ie. plug the monitor out into your cassette deck rather than your amp), set the monitor switch to Stereo + Foldback, and plug your extra four sound sources into the main mixer inputs, using the foldback knob to set each input's level. The downside is that your new inputs are mono, and that although you could add effects, these can only be used on either off-tape or input signals. OK, so it doesn't turn your XR5 into an SSL G Series desk, but it does help extract just a little bit more from a budget machine.

Nevaton MC51

Capacitor Microphone

PAUL WHITE intercepts another incoming Russian microphone, this time from Nevaton Ltd in St Petersburg.

You might be forgiven for wondering why it is that so many Russian mics are appearing on the market at the moment, but the truth is that AS McKay, the company currently importing Oktava mics, specialise in trade with former Eastern Bloc countries, and certain members of the family have a special interest in recording equipment.

The Nevaton mic under review is a current (as opposed to vintage) model, built in St Petersburg, but unlike the unashamedly utilitarian Oktava 219s, the Nevaton MC51 could easily be mistaken for a serious European mic. An examination of the insides shows a decent standard of engineering and workmanship, again noticeably ahead of the Oktavas, but perhaps less elegantly finished internally than you'd expect a Western European mic to be.

The MC51 is based around a large-diameter, dual-diaphragm capsule which may be switched to provide four pickup patterns: Omni, Wide Cardioid, Cardioid and Figure-of-Eight. The pattern selector switch is a thumbwheel affair built into the body of the mic, just below the grille, and a similar switch on the other side brings in a a 10dB pad. A recessed red LED on the business side of the mic serves the dual purpose of showing that the phantom power is turned on and that you're singing into the right side of the mic.

Technically, the mic appears to use transformerless preamp circuitry, and the capsule construction is conventional in that the diaphragms are made of ultra thin, gold-coated plastic. Standard 48V phantom power (plus or minus 4V) is required to power the mic, and the overall current consumption is around 10mA. The capsule itself is supported on top of a stalk inside the two-layer wire grille, the outside layer of which forms a conventional protective basket, while the inner layer has a finer mesh to help keep the capsule free from dust.

The mic's frequency response is quoted as being 20Hz to 20kHz, but as no limits are specified, this on its own is meaningless — the response could be 20dB down by these two points for all this tells us. However, printed response curves are supplied for the four different pattern settings, and these show the response to be essentially flat between these two extremes, with the exception of a gentle presence rise above 10kHz. For example, in wide cardioid mode, the response is flat within 3 or 4dB from 20Hz to 10kHz, and the presence peak is in the order of plus 4dB at around 12kHz.

You can learn a lot from a spec sheet, but you can still be surprised when it comes to the listening test. In the studio, the MC51 comes over as having the classic honesty of a good capacitor mic, but it also has the open, detailed top end often associated with transformerless mics. As with most well-behaved capacitor models, it performs very well with vocals, sounding both full and detailed, though most engineers will have a selection of mics to choose from so that they can match vocal characteristics to mic characteristics for the best results. (The reason I include this comment is that I'm frequently asked what's the best vocal mic to buy: the answer to that particular question depends largely on the vocalist.) Tested on instruments, the MC51's detailed sound really works in its favour, especially when you want a sound to cut through a mix. The mic works particularly well on acoustic guitars and ethnic instruments — my rainstick has never sounded so good — and I've also attended a session where one of these mics was being used on a grand piano to good effect.

There's no doubting that this a very good microphone, but why should you buy it instead of one of the other equally good capacitor mics on the market? At around £500, the MC51 costs more than the Oktava 219 or the AKG C3000, both of which are excellent-sounding, low-cost capacitor mics, but the advantage of the MC51 is its multi-pattern capability. Normally you'd expect to pay rather more for a switchable-pattern mic. Of course, not everyone needs a variable-pattern mic, but it's useful to have at least one in the locker for those occasions when you want to do something out of the ordinary, such as setting up an MS stereo pair or working in omni mode instead of cardioid.

During the brief time I've spent working with the MC51, I've thoroughly enjoyed its warm, revealing sound and its versatility. It costs just a little more than a budget fixed-pattern capacitor mic, but at the same time, it performs as well as some of the top-name capacitor mics costing over twice as much. To sum up, it's a strong all-rounder, it's attractively priced and it doesn't look like a piece of shrapnel! If you're after a new mic, make sure that this one gets a look in before you make up your mind. **SOS**

BRIEF SPECIFICATION

Polar Patterns	Cardioid; wide cardioid; omni; figure-of-eight
Frequency response	20Hz-20kHz
Sensitivity at 1kHz	12 +/-2 mV/Pa
Max SPL	140dB (150dB with 10dB pad)
Equivalent Noise	17dBA
Phantom Power	48V (+/-4V)
Nominal Impedance	50 Ohms
Connector	balanced XLR
Dimensions	Head diameter 51mm; body diameter 30mm; total length 219mm

FURTHER INFORMATION

£ MC51 £587 inc VAT.
A AS McKay Ltd, 6 Bridle Close, Surbiton Road, Kingston-Upon-Thames, Surrey KT1 2JW.
T 0181 541 1177.
F 0181 546 2779.

Technics SX-WSA1
Acoustic Modelling Synthesizer

With their background in home keyboards and high-quality electric pianos, it came as something of a surprise that Technics should enter the mainstream synth market with a physical modelling instrument. SOS attended the world preview.

A couple of years ago, nobody but a handful of researchers would have made anything of the term physical modelling, but at the Frankfurt Musik Messe '95, four different companies demonstrated working instruments, with further announcements expected from other major manufacturers at any time. So far, the only models you can actually go out and buy belong to the Yamaha VL range, but by the end of the year, you should be able to buy physical modelling synths from Yamaha, Korg and Technics plus a physical modelling guitar system from Roland, ranging in price from around the cost of a typical keyboard workstation up to the price of a small car. Technics' projected price for the SX-WSA1 at the moment is £2199, but as usual, this is subject to change!

Unlike the essentially monophonic or duophonic Yamaha VL-series machines, the Technics SX-WSA1 offers a maximum

instrument being synthesized without the need for conventional oscillators. The more accurately the algorithm describes the real instrument, the more realistic the instrument will sound, and more importantly, the more it will react like a real instrument. Take the flute model comprising a pipe and a blown mouthpiece — depending on the nature of the virtual breath used to blow the virtual mouthpiece, the character of the sound will change in much the same way as it would on a real instrument.

MODEL TYPES

The SX-WSA1 utilises six basic types of modelled resonator, based on the behaviour of strings, flares, plates, cylinders, cones and membranes. Rather than use a breath controller to articulate the sound, a built-in trackball-type controller may be used to control multiple parameters, such as the position of plucking or striking, and after the basic sound has been modelled, it

set up sounds that metamorphose from one kind of sound to another.

To make use of the relatively large 7olyphony, the SX-WSA1 has two sets of MIDI connections, enabling it to work over 32 channels, and there's also an on-board 16-track sequencer. The large custom display makes use of icons for simplified control and sound editing, and although the technology inside the machine is no doubt incredibly complex, from the user's perspective the SX-WSA1 seems no more complicated than a conventional keyboard workstation.

Judging the sound of the SX-WSA1 was quite difficult, because the demonstrator tended to play it like a conventional keyboard, rather than trying to get 'under the skin' of the instrument he was trying to recreate. Consequently, anything sounding vaguely like jazz piano came across very well, while the more esoteric sounds tended to suffer. However, we did hear enough to appreciate that there is a lot of real-time control potential, and you don't seem to have to use a breath controller to articulate the sounds effectively.

Realistically, we shouldn't expect to see the SX-WSA1 in the shops much before Autumn. Technics emphasised that this was really a technology preview, which (reading between the lines) probably means the price, the delivery date and the final spec will be subject to revision before the product is finally launched. In any event, it's great to see a company with the technological potential of Technics getting into the serious synth market, and

of 64-voice polyphony. The sounds themselves are based on a physical modelling principle which describes the instrument being synthesized as a resonator and a driver. In other words, the player puts energy into the system (for example, by picking, blowing or hitting), so causing a part of the instrument to resonate — whether it be a string, a drum head, a pipe or whatever. By mimicking these physical drivers and resonators using mathematical algorithms, it is possible to generate the output waveform of the

can be further modified using conventional filters, envelope amplifiers and effects. Numerous parameters may be controlled at once, using existing MIDI real-time controllers, and more driver sources may be added in the form of an optional Wave Expansion Board.

Because the various modelling parameters may be combined in ways that would not normally occur in nature, the SX-WSA1 isn't limited to emulating real instruments, and because of the degree of real-time parameter control, it is possible to

I for one would like to see what else they could bring to an industry where it's becoming more and more difficult to tell the different manufacturers' products apart. **SOS**

FURTHER INFORMATION

£ Projected pricing £2199.
▲ Panasonic UK Ltd, Panasonic House, Willoughby Road, Bracknell, Berks RG12 8FP.
☎ 01344 853175.
✆ 01344 861656.

Korg Prophecy
Solo Synthesizer

Two months ago, Korg unveiled their OASYS high-end physical modelling synth, and already, a low-cost spin-off is just around the corner. SOS staff were amongst the first to hear it.

Korg's OASYS, previewed in March 1995's *SOS*, is a high-end, polyphonic synth, capable of emulating any kind of synthesis, including physical modelling. Now Korg has unveiled another brand new instrument, the Prophecy, at the 1995 Frankfurt Musik Messe.

The Prophecy is a monophonic solo instrument with a projected price that puts it into the 'I gotta get one' bracket (at the time of writing, this would appear to be in the region of £1200). Unlike Yamaha's VL1, which takes a highly sophisticated approach to emulating wind instruments, the Prophecy encompasses a greater breadth of sound types, but I suspect that the sophistication level has been constrained to make the instrument both affordable and more manageable.

The Prophecy actually looks quite small with its 37-note keyboard, but it can sound as huge as you like. One of the benefits carried over from the OASYS is the capability to handle several different types of synthesis —

analogue, VPM (Korg's approach to FM synthesis) and physical modelling. The modelling section covers brass, reed, and plucked instruments, and the real-time articulation comes from two control wheels and a ribbon controller, plus MIDI modulation sources, including velocity and aftertouch. No breath controller is built in, although those who want one can patch in something like an Anatek breath control box. The Prophecy also includes an effects section which can provide distortion, wah, parametric EQ, chorus/flange and delay/reverb. Because all the controllers use conventional MIDI data, the output of the Prophecy can be recorded into and replayed from a MIDI sequencer in the usual way.
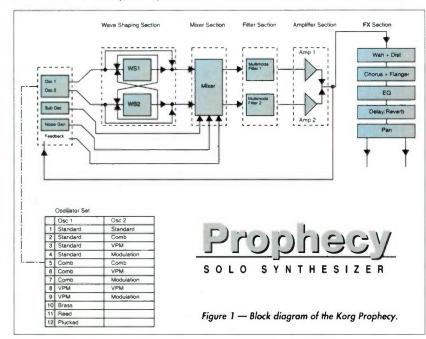
You might ask how a DSP-based synth handles analogue synthesis, but from what we've heard, there are no worries in this area. The two main oscillators are augmented by a sub-oscillator, a noise generator and extensive modulation facilities, including LFO, oscillator sync and other analogue stalwarts. The filter (which may be set to high-pass, low-pass, band-pass or band-reject modes) sounded very analogue, and we were treated to a variety of 'bass sounds to kill for' — searing Moog-style leads and filter sweeps. If I hadn't been told this was a digital machine, I would have accepted the analogue sounds without question. The FM — sorry, VPM — sounds produced all the classic 'metal things being hit' that the DX7 was so famous for, as well as some big, angry, modulated sounds reminiscent of someone

dismantling a corrugated iron shed with a chainsaw, monitored through a flanger. No worries there either.

Finally came the modelling, and considering that the player wasn't dribbling into a breath controller at the time, the wind sounds were very convincing. The plucked sounds also worked well, especially the fretless and slapped bass.

Looking at the block diagram (Figure 1), the physical modelling side of the Prophecy seems unusual; instead of modelling the entire instrument, it would appear that an oscillator generates the basic waveforms, and these are fed through a waveshaping section, where the tonal articulation associated with modelling is applied. From there, the signal passes through the conventional filters, VCAs and effects, for further tonal shaping. I would imagine that this simplifying of the modelling process is what makes it possible to produce the Prophecy at such a low cost. The simplified modelling also makes the Prophecy relatively simple to program. There are 128 programs, and an arpeggiator with five preset and five user patterns. Further patterns and program data may be stored on a data card. Considering this was a pre-production instrument, it seemed very close to completion, but we'll have to wait until summer before we can have one. I don't think *I* need to be a prophet to predict that the Prophecy is going to be in demand. It could change the face of your Barclaycard statement forever! **SOS**

Figure 1 — Block diagram of the Korg Prophecy.

Prophecy
SOLO SYNTHESIZER

Oscillator Set	
Osc 1	Osc 2
1 Standard	Standard
2 Standard	Comb
3 Standard	VPM
4 Standard	Modulation
5 Comb	Comb
6 Comb	VPM
7 Comb	Modulation
8 VPM	VPM
9 VPM	Modulation
10 Brass	
11 Reed	
12 Plucked	

It's official... after living in the UK for most of his life, Keith Emerson has finally emigrated to California. And, after a difficult couple of years during which he has had to cope with the break-up of his marriage and a potential career-destroying illness it is, in his own words, time for a clear-out. Keyboards, mixers, speakers, tape machines, stage clothes, tour jackets, photos, knives... all are for sale, and all are expected to attract huge interest from his loyal fans. I tracked Keith down during one of his brief visits to these shores, and asked him how he felt about releasing so much personal and musical history.

"Following my divorce, and the selling of my house, the gear was costing me a fortune to keep in storage. I've always been a hoarder, but it was such a shame to see it all just sitting there. Instruments need to be used and played, not buried in dark warehouses."

Why did you accumulate so much equipment?

"When I had the house I built a studio in my barn. I never quite finished it, although it was used for a number of small projects. But I found that having a studio was a bit like having a swimming pool or a tennis court. People who have them never swim or play at home — they always go to clubs or to friends' houses. It was a bit like that for me — I rarely used my own facilities, and I would always end up recording elsewhere. It's much more of an event to go to a band called Buzz Tonic, which has a CD soon to be released on Ace of Base's label, Mega Records. A while back he came to ask my help in tracking down a genuine Moog synthesiser. Maybe it's because they look good on stage. After all, showmanship is a very important part of music. Wrestling with an old synth, pulling patch leads in and out, has far more impact than simply pressing a button to select the next patch. Seeing someone leaping around is a show, and being theatrical makes playing much more enjoyable. Modern keyboards are not as impressive, and they don't involve the audience as much. Compare the wonderful Yamaha GX1 to a modern synth...

"Another reason may be more obvious. Digital synths are tamer than analogue ones and, as I know from experience, they can blow out speakers. I once discovered that the Moog lines on 'Lucky Man' were being played in hi-fi shops to demonstrate the robustness (or not) of domestic speakers."

You recently suffered an Entrapment, a potentially crippling complaint affecting the nerves in your right forearm. Rumours persisted that you might never play again.

"It was the most traumatic event of my life, and I still need a vast amount of recuperation. As a result, I'm only slowly getting back to playing, and I'm having to learn a new approach and new techniques."

So will you become more involved with MIDI and start to use sequencers as performance tools?

"I'm happy to rely on sequencers when I'm

top GEAR!

KEITH EMERSON'S KEYBOARD CLEAROUT

commercial studio — you meet people with different views and different methods of producing music, which means that you end up thinking more. So, despite my good intentions, I accumulated a lot of equipment that was never properly used — although, when I think about it, most of it featured somewhere on either a film soundtrack or an ELP recording."

Is everything going under the hammer?

"No. There are some instruments which are too personal to let go: the Hammonds, the Moog Modular, and the Moog Constellation being the best known of them. In addition, some of my keyboards are still, technically, owned by Korg, so they're not for sale."

Does that mean that you value older keyboards more highly than their modern equivalents?

"I'm fascinated by the resurgence of interest in vintage keyboards. My eldest son, Aaron, is in a composing, because it's like working with several musicians, and I love the freedom to experiment with parts and orchestrations to see if they work. But I won't go out and use sequencers on stage. I did it once, for charity, and I hated it. After all, if you're not actually performing, what's the point of being there? No... I won't do that again. Consequently, although the hand is improving, this may be the end of my stage career. I won't play live unless I can offer 100%."

So when and where are we going to hear Keith Emerson again?

"There are many reasons why I've moved to California. I like the weather, many friends are here, provided that you avoid Los Angeles it can be a great place to live... and there are opportunities that I want to pursue. One of these is in Hollywood, where the film budgets are so much larger than in the UK. In many ways the British film industry is better than the American, but there you are...

"I'm also negotiating with Sony Classical in France to record an orchestrated ELP CD, which would be a collection of our pieces performed by an orchestra, with me conducting. In addition, there's a chance of resurrecting some unreleased material by The Nice, and I'm even contemplating writing and recording some new material using the original members of that band. There's also the possibility of writing and recording the soundtrack for the next Brad Pitt film, and there's some music I did for an American TV series which I'm thinking about releasing on CD. I'm also in the process of completing an autobiography which will come complete with a CD of previously unreleased material. When I think about it, there's an awful lot going on at the moment."

But what about ELP?

"I'm not sure when the next ELP project will begin. I was disappointed with the reception given to *In the Hot Seat*, but the whole industry is in disarray at the moment. There isn't a lot of money around, and there's a lot of despondency about. A lot of the blame can be attributed to the radio stations, most of which are extremely reluctant, or even refuse, to play anything longer than three minutes. In the '70s stations would play entire sides of LPs, but now all they want to know is 'where's the single?' It's all going to backfire on them soon. Bands like Dream Theatre, returning to longer pieces and more complex arrangements, are the start of a revolution. And New Age music will continue to grow, although it's being marketed all wrong at the moment. After all, how many people want to buy their CDs from shops selling crystal pendants and joss sticks?"

So what instruments will you be playing when all of these have been sold?

"If you're a musician you should be able to perform on almost anything. Nevertheless, I expect that Korgs will remain very much top of my list, because the company is producing some very good

Intermanual Rescue: L-R, Tony Nocito, Chris Newman, and John Brown.

keyboards at the moment. I'm also starting to become involved with Ensoniq, and I might try some of their newer instruments. And, of course, I'll still have my Moogs and Hammonds. But fundamentally, it's out with the old and in with the new. I may well curse myself in the future, but whatever Chris [Newman, who is co-ordinating the sale of the instruments] has is for sale. It's time for a new life."

INTERMANUAL RESCUE

Intermanual Rescue are Chris Newman, John Brown and Tony Nocito. I met them in the back room of a house tucked away in a small village in Suffolk. A strange place to find a workshop and storage area full of keyboards and modules, this is where Keith's keys are being refurbished prior to ▶

KEITH'S KEYS

Intermanual Rescue have already mailed the following list to a number of potential purchasers. But don't worry if you've got your eye on a particular piece — you haven't missed out. Everything is being offered on a 'best offer secures' basis, rather than 'first come first served'. Every item listed will, apparently, be supplied with a signed certificate of authenticity.

• Ensoniq	KS32	Digital workstation
• Hammond	XB2	MIDI Organ
• Hohner	Clavinet D6	Classic keyboard with real strings
• Hohner	Clavinet L	1968 vintage
• JBL	Cabarets	Stage monitors and bass units
• Korg	01/W Pro X	Digital workstation
• Korg	BX3	Twin manual organ
• Korg	DSM1	Rackmount sampler (x2)
• Korg	EX8000	Rackmount analogue/digital hybrid synth (x4)
• Korg	KMX32	Rackmount mixer
• Korg	MonoPoly	Analogue polysynth
• Korg	MS50	Monophonic analogue expander
• Korg	PS3200	Analogue polysynth
• Korg	RK100	Sling-on remote keyboard
• Korg	SQ10	Analogue sequencer
• Korg	SQD1	Digital sequencer
• Korg	T1	Digital workstation
• Korg	VC10	Vocoder with integral microphone
• Kurzweil	250 Expander	Digital workstation (x2)
• Kurzweil	MIDIboard	MIDI controller keyboard
• Oberheim	DPX1	Rackmount sample replayer
• Oberheim	Matrix 12	Hybrid polysynth
• Otari	MX5050	8-track analogue recorder
• PPG	Wave2.2	Hybrid polysynth
• Revox	A78	Amplifier
• Roland	A80	MIDI controller keyboard (x2)
• Roland	SVC350	Rackmount vocoder
• Shure	SM90	PZM microphone (x2)
• Simmons	SPM82	Rackmount audio mixer (x2)
• Soundtracs	M-series	16-track mixer
• Steinway	Grand piano	7ft MIDI grand piano
• Tannoy	Super Reds	Pair of studio monitors
• TEAC	A3340S	4-track analogue recorder (x2)
• Yamaha	GX1	3-manual analogue polysynth
• Yamaha	GX1	For spares only?
• Yamaha	KX88	MIDI controller keyboard
• Yamaha	MCS2	MIDI control station
• Yamaha	TX816	Digital rackmount polysynth

The real prizes may well be the memorabilia: acetates, white label pressings and direct cuts from Trident Studios; test pressings from Sterling Audio in New York; test pressings of Keith's solo album, *Honky*; The Nice recordings and acetates of the first ELP album on the Beatles' Apple label; plus a number of signed LPs and gifts from Keith's personal record collection. Unfortunately, the ravages of time and mould have damaged many of these. Maybe collectors will be safer buying the music books, T-shirts and photos, many of which are now in the possession of Intermanual Rescue.

KEITH EMERSON'S KEYBOARD CLEAROUT

being sold. I asked Chris and John how they became involved in selling the collection.

"It all came about because of a personal recommendation by one of Keith's associates. We had a meeting with Keith at a storage warehouse, and just looked at what was there. It was clear that the first thing we had to do was find out how much equipment there was, and how much it was worth. It was incredible — synths, amps, mixers, pianos, monitors, modules, memorabilia, stage clothes and all sorts of knick-knacks. We started compiling a list of what was there. Some things were 240v, some 110v, some in good nick, some crap... the roof had leaked, and some of the cases looked completely oxidised. We uncovered things and Keith said 'I forgot that I had that.'

"We agreed to sell the equipment, but it was clear that much of it needed repairing, so we arranged for it to be taken out of storage and transferred here. We brought back what we could, but there's no room at Intermanual Rescue for the really big synths like the GX1s and we have a barn in the village for those. God only knows the condition the GXs are in, but we know that they don't work, so we'll have to have them here at some point. The black one is still in its Led Zeppelin flightcase and we're pretty sure that we can get that one up and running. The white one is also flightcased, but it's been shipped all over the world, and there's lots of work to be done there. Apparently, a gardener drove a tractor straight through the wall of Keith's home studio, running over the the white one. Amazingly, it was rebuilt and worked again. Some Korg Poly800s and a Polysix on the keyboard stand next to it weren't as lucky, and had to be written off. Still, we've got all the Yamaha's spares and accessories — programmers, cartridges, speakers and seat (although maybe not the pedal board) and fully-functional both synths are going to be worth a lot of money. Even in their current conditions we've already had offers approaching £5,000 for each, but we would rather sell them as working units.

"Unfortunately, everything in the collection needs some degree of refurbishment or service, so every piece will need to be fully checked before we sell it. But we're already faxing potential buyers in Norway, Switzerland, Japan... all over the world, although we're happy to sell the equipment to anybody who wants it. We've also put the list onto the Internet, and that's generating

a lot of enquiries. When we accept an offer, the buyer will pay us, we'll take our agreed percentage, and pass the balance onto Keith. We'll certainly earn our pennies — can you imagine how much work will go into all of these?"

So how do they feel about having rooms full of Keith's gear?

"It's absolutely fascinating" offered John. "Having been a fan since the early '70s, I find it quite incredible to have his Hammonds in my dining room. There are four of those, but they aren't for sale, so we'll just refurbish them and ship them on to Keith in the States. Chris doesn't

Korg BX3: is there an organ doctor in the house?

feel the same way because he was only in primary school when the '70s were happening." "It doesn't grab me by the guts", is Chris's view, "although some of this equipment is quite rare and some

people would kill to have it. In fact, a couple of synthesizer museums have already made serious enquiries, perhaps because these were Keith's keyboards. But, then again, they also buy and sell keyboards for profit, so they may be interested in dealing in them. I don't really understand why, because the only genuine one-off is the Moog Constellation, which was used on the 1973 Brain Salad Surgery tour. But that isn't for sale. Keith wants us to refurbish it and ship it back to the States."

What about the other keyboards?

"In addition to the Korg PS3200 there should also be a PS3100 and a couple of PS3300s, but they're not here, simply because we don't know where they've been stored. If we can find them, they'll also be for sale. The Kurzweils aren't working, but the PPG is up and running and, even though we had to bring it into the house to get it back to normal temperature and humidity, the Matrix 12 seems fine now that we've replaced a few components. There's lots more Korg equipment, including a battered BX3 with missing keys. Keith is a very heavy player, so maybe he just whacked the Korg and they fell out...? The Minimoog and ribbon controller have seen better days, but they can be restored and sold. The Clavinets are in pretty bad shape after storage, but Tony reckons that they too can be restored.

"What you can see is a tiny fraction of the gear, and the rest is still in various ELP warehouses up and down the country. These include Greg Lake's and Carl Palmer's redundant gear, some of which may be for sale in the future. The one in Brighton includes two Steinway pianos including a 1905 7ft grand with a Forté MIDI kit installed. There's also Keith's 9ft grand. These are also for sale, but first they'll be restored and renovated by qualified piano technicians. One of the warehouses has lots of equipment from the 1992 tour — more Korgs, more Hammonds, lots of modern gear. It's all for sale. There's also some music, plus manuscripts for both published and unpublished pieces. There are also loads of ELP flightcases — some over 20 years old.

"We've got stage clothes, lots of interesting photos, T-shirts, leather jackets, tour jackets, waistcoats, daggers, swords, music books, user manuals and service manuals, spare parts, books full of ELP's autographs, videos with clips I've never seen before..."

And what happens if any of the gear remains unsold?

"It will probably go back into storage, although it's possible that some pieces will go to auction. But it's very early days yet." **SOS**

interested in 'quick sales' and didn't take the time to market it correctly. Nevertheless, it was a hugely important keyboard. The one for sale is the original prototype."

• YAMAHA GX1 (1975)
"Bob decided to leave Moog Music, and I felt that, if I couldn't deal with him, it was hardly worth continuing with the company. It was around this time that I heard of the GX1. It was the first true polyphonic, but even today it's a glorious synthesizer! There's still only one instrument that makes that sound. My first GX was a turning point for ELP. It looked great, and I always felt a certain confidence standing behind it. But it took

eight roadies to move it, and it was such a burden on tour. Later on I had it MIDI'd, but one day I went for a cup of tea and came back to find a thick cloud of smoke hovering above it. Purely by chance, John Paul Jones (Led Zeppelin) called a while later and offered me his GX, and that's the black one that I'm also selling. That one should still be functional, whereas my white one has remained dead. I wonder what they're worth now? Even if it's a lot I'm very reluctant to let them go."

• KORG PS3200 (1979)
"I first started endorsing Korg products in 1978, and I've been doing so ever since. This relationship came about largely because of the friendliness and responsiveness of the company. The 3200 was one of the first synths that they supplied to me, and I used it on my first solo album, Honky.

• YAMAHA TX816 (1984)
The TX816 is an incredible machine, a very creative tool, and the sound it can make is amazing. I had one particular sound which was great for writing ballads. You couldn't play it without coming out with strong melodies and emotional arrangements. Inspirational."

The Korg PS3200 used on Honky.

• OBERHEIM MATRIX 12 (1986)
"The Matrix 12 was also brilliant! I used it on the 1986 Emerson, Lake & Powell tour. In fact, I had it connected to the MIDI'd GX1 to augment the tracks 'Fanfare for the Common Man' and 'Pirates'."

Korg MonoPoly, Oberheim Matrix 12 and PPG: three instruments Keith wasn't known for using.

Tools of the Trade

GRM TOOLS VERSION 1.5 • HYPERPRISM • MAC SOUND PROCESSING PLUG-INS

MIKE COLLINS gets to grips with GRM Tools and compares it to the latest incarnation of Hyperprism.

GRM Tools is a set of sound-processing and synthesis algorithms operating in real time with Digidesign cards on the Mac. It was designed and developed by the Groupe de Recherches Musicales of the Institut National de l'Audiovisuel (Paris) by Hugues Vinet, based on 15 years of research and development. This sounds like it should be hot stuff — so let's see...

The GRM Tools package was developed using Apple's HyperCard software, so it employs a number of different 'cards' on screen to control each algorithm. Fourteen algorithms are provided, offering everything from time-stretching to Doppler effects and various unusual time-based signal processing algorithms. GRM Tools was initially developed as a set of experimental tools for composers, but will be of interest to any musician or producer looking for new tone colours or transformation effects.

SYSTEM REQUIREMENTS & FACILITIES
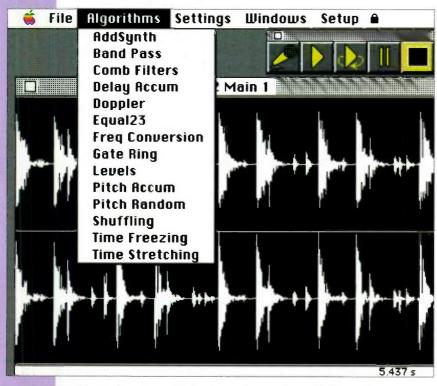
If you have a suitable interface with your Digidesign hardware, you can work with direct inputs, either analogue or digital, to record and play audio files in SDII format. Version 1.5 of GRM Tools supports Sound Accelerator II, Audiomedia II, and Pro Tools cards. You can use the earlier Sound Accelerator I Rev A and Rev B cards, but only if you fit extra memory chips. The Rev A cards need six Cypress CY7C198 45PC RAM chips, and the Rev B cards need three Cypress CY7C198 45PC and three Cypress CY7C199 45PC RAM chips — these can be supplied via Digital Music Archives. Of course, you also need a 680x0-based Macintosh with a free NuBus connector, and at least 8Mb of RAM!

A specific set of algorithms has been developed and optimised for each of the different Digidesign cards. For instance, the equaliser offers 14 filters on the Audiomedia II, but has 23 with Pro Tools and Sound Accelerator II. The early Sound Accelerator I card is mostly monophonic, the Sound Accelerator II and Audiomedia II cards are stereophonic, and some real-time quadraphonic uses are offered with the Pro Tools card. The software can handle up to 24-bit files, and simultaneous playback and recording are possible in stereophonic mode, except in some cases with the Sound Accelerator I. The sound sources may be either real-time inputs (analogue or digital, depending on the interface you're using), or SDII format files.

START ME UP

To get started, you first select the Levels algorithm to set the input levels and generate a test signal. Once everything is OK, you can choose from the excellent selection of creative algorithms to process your sound. Algorithms available are:
- AddSynth (enables you to generate a sound using additive synthesis)
- Band Pass/Reject Filters
- Comb Filters
- Delay Accum (accumulated delays)
- Doppler effect
- Equals 23/14/8 (a bank of linear-phase graphic equalisers, with the number of available bands depending on your hardware)
- Freq Conversion (a sampling rate converter)
- Gate Ring (a noise gate)
- Pitch Accum (harmonisation and re-injectable delays)
- Pitch Random (random, oscillator-controlled pitch transposition)
- Shuffling (random micro-splicing)
- Time Freezing
- Time Stretching (time compression/expansion with harmonisation).

GRM Tools Waveform Envelope: You can display the waveform envelope, with different dimensions to suit the screen size you're using, and make a partial selection within this display if you only want to process a particular region of the file. The Input (or controls) Palette has Play, Loop, Pause, and Stop buttons to control playback of existing files, and the Microphone icon lets you select the audio input when you want to record from an external source. The various algorithms are all selectable from the menu bar.

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GRM Tools • Hyperprism
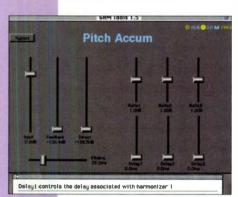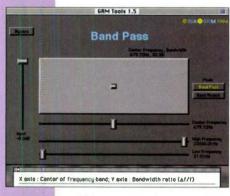
• The PITCH ACCUM algorithm combines two to three harmonisation channels and delay lines. On the Sound Accelerator I card, the algorithm includes two processing channels whose outputs are sent to outputs 1 and 2. The algorithms associated with the other cards include three processing channels, sent to the left channel (channel 1), to the centre (channels 1 and 2) and to the right (channel 3), respectively. The Ratio controls are used to set harmonisation values for channels 1, 2 and 3. The Delay controls are used for separate control of the delay time on each channel. The Feedback control operates after delay and harmonisation and can be used to produce an arpeggio effect on the signal. Factory settings 10-15 produce chords, 20-22 produce phasing by feedback effects and small delays, and 30-38 produce arpeggiation effects by delays/transposition + feedback.

• The BAND PASS algorithm allows you to vary its centre frequency and bandwidth graphically using the two-dimensional controller, or alternatively you can set the parameters numerically if you option-click on the graphic area. A slider control is provided, which allows you to vary just the centre frequency, and there are also slider controls to let you filter the high and low frequencies and adjust the input level.

USING THE TOOLS

The simplest way to get into action is to load the factory settings for your particular Digidesign card using the Menu selection in the Settings Menu. Then you can open a Sound Designer II file using the Open Playfile option in the File Menu, and choose Draw or Show Waveform from the Window Menu to draw the waveform display into a rectangular window. Finally, you choose your algorithm and adjust the available parameters to get the effect you want. Each algorithm has parameters controlled by sliders and buttons, and a Help Mode is provided to give you a brief description of the purpose of each button, control or display.
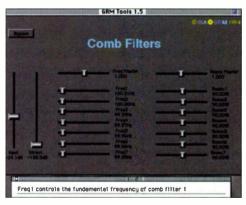
Once you've determined the desired settings for the algorithms you want to use, you can save these for future use. The Import Settings dialogue box lets you open a second settings file and merge some of its algorithms in the open settings file. If you've selected Enable Keyboard Control from the Settings Menu, you can even load settings 'on the fly' by pressing preset keys on the Mac keyboard. While you're recording audio into GRM Tools you can apply different effects in real time by hitting these keys in turn, to call up different settings. So, for instance, you could apply progressively longer delays, or different EQ settings, or whatever you like.
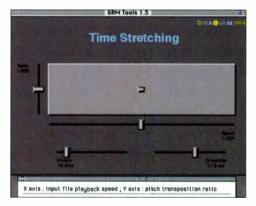
Most of the algorithms have a bypass button, an input level control which allows up to 12 dB of boost, and a direct level control to set the balance between direct and processed signals. You can click on the displayed values of the slider controls if you want to set the value numerically (with total accuracy) rather than by dragging the slider. There is also a graphic area on many of the algorithm control windows with a button which you can drag around to set the values of one or more parameters.

The different cards have different amounts of RAM available. The Audiomedia II card has enough RAM to hold 92.8ms of audio at 44.1kHz, the Pro Tools and Sound Accelerator II cards can hold 371ms of audio in RAM, and the older Sound Accelerator I card with extended RAM can hold up to 743ms of audio. The reverb time can actually be set as long as 10 seconds on a Sound Accelerator I card with extra RAM fitted, which gives this setup an advantage in this respect. More memory also offers extended possibilites for algorithms which provide delays — so, for instance, the old Sound Accelerator I card again offers the most elaborate algorithms in terms of feedback.

When you use a sample file as a sound source, this requires more

• The COMB FILTERS algorithm has six or seven filters per processing channel. The comb filter amplifies at a given frequency and at all harmonic frequencies (integer multiples of the fundamental) of that frequency. This comb filter bank offers a wide range of resonances — harmonic, in tune, with phasing, and so on. At low resonance values, the processed sound has the characteristic coloration observed in a tube (valve). Factory settings 10-13 produce reverb and low resonance effects, 20-29 produce musical chords, and 30-33 produce high-pitched resonances.

• TIME STRETCHING is a phase-locked time expansion/compression algorithm combined with a harmonisation algorithm (to give pitch transposition without change in duration). Together, they allow de-correlation of the pitch and duration parameters of a sound. By its nature, time-stretching can only operate on a pre-recorded sound, hence the control is inoperative on external inputs. Harmonisation is possible on any type of input.

computing power than when you use an external input (microphone on the input palette). Recording in a sample file uses additional computing power. For this reason, simultaneous playback and recording of sound files are not available in some algorithms. One way to get around this is to use sound files in input and record the sound output onto DAT. You also need to bear in mind that more computing power is used at 48kHz than at 44.1kHz. When using a sample file as sound source, you should use internal sync for the hardware interface, as this requires less computing power than the external sync mode.

CONCLUSION

Richard Gonski of Digital Music Archives commented: "I have recently been working on a couple of compositions where I have used a vocalist on one and a violinist on the other, and have recorded them to DAT improvising through GRM Tools with the comb filter and other effects. Then I take these into GRM ▶

GRM Tools • Hyperprism

Tools and *Turbosynth* to create a range of processed audio files, which I can edit using Pro Tools, to incorporate into my compositions. I feel that *GRM Tools* gives me just the quality of sound that I'm looking for, where the filters process the sound extremely cleanly, giving a 'digital' sharpness and brightness which I find works very well." So real-time processing of sounds is one area where *GRM Tools* is particularly strong. You can regard the software as a sophisticated effects processor through which you can feed 'live' audio, or via which you can process existing material.

To sum up, I believe that *GRM Tools* is an indispensable set of software 'tools' for creative sound processing, which anyone involved in creating special effects for records, films, video or radio will be interested in. I would like to see this software available as a plug-in for all the different MIDI and audio packages I use, such as *Sound Designer II*, Pro Tools, *Studio Vision*, *Premiere*, and so forth. Coming in the next software revision, which is due in about three months, will be several new algorithms, plus MIDI control of various parameters. Meanwhile, I'll just have to be content with using version 1.5 — which I have already been able to put to good use creating special sound effects for a multimedia project.

HYPERPRISM VERSION 1.1
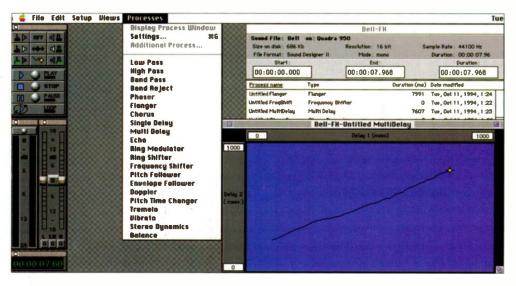
Edgar Varese spoke about his 1923 composition 'Hyperprism' using these words: "The universe of possible musical forms is as unlimited as the number of external forms of crystals."

Georges Jaroslaw, a French musician and composer, was inspired by these words to design *Hyperprism* for the Macintosh — a highly flexible, real-time effects processor which lets you 'play' effects in real time. *Hyperprism* offers interactive graphical control of up to two effect parameters in real time. You move a pointer within the screen to trace out a path, thus changing parameters according to the pointer's position along this path. The centre point of the screen is the position of no change, and any other point you choose applies changes to two parameters of whichever effect algorithm you are using. If you simply wanted to apply a static effect, you would click the mouse button once to set a particular point on the screen, which would apply the effect parameters of your choosing. Drawing a path on-screen provides for more interesting dynamic (moving) changes to the sound. *HyperPrism* has quite a bit in common with *GRM Tools*, but is sufficiently different that it makes sense to consider buying both of these programs if you're serious about sound design.

The software has plenty of features which make it a pleasure to use. You can use two effects simultaneously — one fixed delay and one time-varying effect. Multi-pass processing lets you apply any number of effects to a single sound file. The software uses non-destructive processing, so your original sound files are always safe. The Thru mode lets you process 'live' sounds — with no limits on the duration of the sounds. A couple of functions in the File Menu let you analyse the pitch or the envelope of any sound file, and then use these pitch or envelope settings to process any other file, using the Pitch Follower and Envelope Follower processing algorithms. *HyperPrism* will not only work with all the Digidesign cards, but, interestingly for some, with the RasterOps MediaTime card also.

So far, well-known users who have bought the software include Lucas Film, Hanna Barbera, Brian Eno, and the Yellow Magic Orchestra. Clearly this software is of interest to people working with sound for films and cartoons, or in more experimental areas of music. I've heard an advert on TV recently which sounds exactly as though the audio has been processed using *HyperPrism*, and, if not, *HyperPrism* would have been the idea tool to use! The playback speed (and hence the pitch centre) of the audio is moving in time as the advert plays — an effect which could easily be created with HyperPrism's Pitch Time

GRM Tools Settings Control Window: The control settings can be saved here for each algorithm. A useful selection of factory settings, which you can load into this window, is provided on disk.

Hyperprism: The main screendump shows the open Processes Menu, which lists all the available effects. To the left of this are the Playback settings and controls. Underneath this are the Peak Meters to the left and the stereo Faders to the right, with the Time Display at the bottom. At the top right can be seen the FX window, containing a sound file of a bell. Several effects processes have been tried out with this file, and are listed in this window. Double-clicking on any of these brings up a Process window containing the settings for the effect. At bottom left is a Process window showing a MultiDelay effect. The line drawn in the blue part of the window varies the horizontal and vertical parameters as the bell sound plays back. In this case the two parameters are the delay times for two delay effects which are applied to the sound file.

I t wasn't supposed to be like this. When the Stone Roses' self-titled debut LP hit the shelves of record shops in early 1989, and became an enormously influential commercial success, no-one realised that the follow-up would take almost six years to make, or that it would involve the work of no less than three producers. Simon Dawson, the last of these, was the man who steered the recording sessions for the modestly-titled *Second Coming* LP to a successful conclusion. But as he now cheerfully admits, this fact is down to luck more than anything else — he

coming up roses

SIMON DAWSON
• RECORDING THE STONE ROSES' SECOND COMING

just happened to be the house engineer at Monmouth-based Rockfield Studios when the Stone Roses began the sessions for their second album there. As time progressed, a series of coincidences (see the 'Brief History' panel for more details) resulted in him becoming the producer of the LP. I spoke at length to Simon about the dual philosophy behind the recording of *Second Coming* — the determination to capture the feel of a live performance coupled with a healthy resolve to make the most of the technology available.

IN THE BEGINNING...

A life-long Monmouth resident, Simon's association with Rockfield Studios goes back a long way, as he explained: "I first walked in when I was about 12 — my dad took me. There was a guy in there doing a DJ promo. They had all this valve gear in there, and they cranked it right up. It was the first time I felt my ribs shaking, and I just knew it was where I wanted to be!".

Seeking experience, Simon got a job with a local PA company when he left school, and, through this position, progressed to handling live PA sound for Birmingham-based reggae bands on European tours.

Outgrowing the local firm, he started work with a London-based PA company in the early '80s. "I toured around Europe, America, Africa and Japan with that company, first doing festivals, and then some of their larger people — Ozzy Ozbourne and The Stranglers. I finished in '87 — the last band I did were T'Pau, in America."

By sheer coincidence, Simon returned to Monmouth just as Rockfield was undergoing a reorganisation, and landed a job there as House Engineer in 1988. He met the Stone Roses for the first time in 1990, when they came to Rockfield to record their 'One Love' single. He acted as Assistant Engineer on that session (along with one Paul Schroeder) to the Roses' producer John Leckie, who had produced the group's by-then highly successful debut album.

Despite this connection, Simon was *not* involved with any of the initial pre-production work on the Stone Roses' second album, which began with John Leckie carrying out pre-production in various studios in Wales and Manchester. However, when Leckie chose by chance to return to Rockfield in early 1993, Simon was booked in to engineer for him as before. In July of that year, John Leckie quit as producer ("I think he felt that they didn't have enough songs") and the band remained in Rockfield. Simon continued to engineer until Leckie's replacement, Paul Schroeder, left too, in February 1994.

STATE OF PLAY

At this point, Simon took over as producer, a move he stresses caused few problems. Although the band had been working with John Leckie in different studios, only a few parts of what he had recorded were kept — notably the long intro to the first track, 'Breaking Into Heaven', and the preliminary drum tracks to 'Ten Storey Love Song' and 'How Do You Sleep'. I first asked Simon if he had encountered any problems blending the feel of this older material with the tracks *he* was laying down: "No, that wasn't a problem at all. In terms of feel, the way the guys had been recording was very live, and that's where I was coming from, so *that* wasn't difficult. *Technically*, yeah, it was a bit of a feat getting the crossover at the mixing stage between the intro of 'Breaking Into Heaven' and the actual song — just getting it to sit." As far as the material Paul Schroeder had recorded was concerned, the problems were less acute. Some of what had been recorded was scrapped and re-recorded, and the material which *was* reused had been recorded originally at Rockfield anyway, so there were fewer technical differences to match up. And, as Simon explains: "Over the time I was engineering for Paul, I think the guys came to respect my opinions. So, when he left, it seemed like the natural thing to take over".

LIVE PHILOSOPHY

Simon also maintains that the various comings and goings in personnel did not affect the philosophy behind the LP. Even before he had taken over as producer, the plan had been to construct the LP from jamming and live playing as a group: "We wanted it to sound more live and real, and we tried throughout the making of the record to preserve as much of the band's live sound and feel as possible. You see, you very quickly realise with these guys that they *love* playing and jamming. I've never played keyboards professionally, but one of the first things that the band got me to do was jam along on the piano with them. It was really exciting for me". The band came to Rockfield with all but two of the numbers that made it onto the final LP already written ('Straight To The Man' and 'Your Star Will Shine' were written while there), and spent hours jamming the material in the studio, usually without click tracks, so that they could change tempo and feel at will. Occasionally (for example, when recording 'Your Star Will Shine', and 'Driving South') they would jam to sampled percussion loops. "Reni's great at drumming to loops — you never get any flamming or anything, because he sort of drums around them. He's got a nice, loose, groovy feel, and it always works really well". In such cases, the band all used headphones to monitor the loop so they could stay in time. "We did try using PA wedges to monitor sounds, but they didn't work — we couldn't get them loud enough for the band without generating feedback,

so we stuck to headphones." The results of the lengthy jams were, of course, recorded, as Simon went on to explain: "The whole record started with them jamming live to DATs — in fact, Ian has got a pillowcase full of DATs from those sessions — because they like to capture anything they can get".

Much of the feel of the new LP derives from the 'live' philosophy. One song, 'Tightrope', was

The Stone Roses seemed fit for world domination at the end of the '80s, but after releasing a successful debut album, they disappeared for nearly six years. MATT BELL talks to the producer of their new album, Simon Dawson, about his approach to recording the all-important follow-up.

jammed almost entirely around one mic, allowing for no mistakes to be made while recording. Several of the final vocal and guitar parts used on the album are 'one-take' run-throughs — for example the vocal on 'Tears', the backing on 'Daybreak' ("that was done completely live, except the vocal, which we did afterwards") and the main guitar part on 'Good Times'. Indeed, Simon sees 'Good Times' as an excellent example of what they were trying to achieve: "'Good Times' is very live. As I've said, the band don't usually play to clicks or anything, and 'Good Times' is a classic example of a song which speeds up all the way through, without it

▶

jarring on you. You never think "Oh, they're speeding up" — the track just seems to grow naturally into that *great* guitar solo at the end".

The 'keep it live' philosophy was even followed to the extent that technically problematic takes could be used in the final mix if the performance was deemed worth it: "Sometimes Ian'd pick up a tambourine when he was singing, and that could cause problems. You can hear it a bit on the beginning of 'Tears', because that was a one-take vocal which had him with the tambourine and a harmonica all on one track. We happened to capture that one day and we thought it was quite good. There were places like that where we thought, 'oh, we should fix that bit' — but for the sake of the performance, we went with what we had."

"TECHNOLOGY WORKS!"

Despite the drive to preserve the live feel on the album, Simon and the Roses were certainly not above using the technology that was to hand in Rockfield to get the most out of the performances they recorded. One of the keys to the way the album was recorded was the studio's Neve mixing desk, with built-in Flying Fader automation. One anecdote shows how they worked to best effect, jamming to create something interesting (with a DAT machine in record), and then using the desk facilities to place that material in the final mix. "On 'Breaking Into Heaven', the song was going to be faded out at the end, but during one of the takes, instead of finishing the song, the band suddenly dropped down into this brilliant groove right at the end. I think it's probably the best eight bars on the album. That just *had* to go on. It was such a great groove that I took that

Simon Dawson with the Neve console at Metropolis Studios, where the album was mixed.

eight bars and edited it in at the front of the song as well. That's how the main part of the song starts now — the vocal used to come in straight away, but now you get that great eight bars first."

The Neve played a vital part in the sound, mixing and construction of the album, as Simon explained at length. "I'm definitely a Neve man, having done most of my work at Rockfield — they're really warm desks, and I know them really well."

"The Recall facility on the Neve was really useful for storing settings. For example, the EQ on some of the rhythm loops we used was really important. Over a long period of time, you might forget what you were after when you first set the EQ — so being able to instantly recall the settings helped to establish continuity in the mix. The reason I used the computer the whole time — and in fact, the main reason we went 48-track on a lot of the material — was to build up the album. I didn't like to lose anything, any of the vocals or guitar. A lot of people compile guitar tracks from lots of different takes, and wipe out what they don't use, but we archived more or less everything. I'd do mixes on the computer using mutes and faders, and then if at any later stage John [Squire] said "oh, I remember doing something great with feedback *there*", I had the freedom to come back to it. We could play about with takes and decide which ones to use later."

I asked Simon whether the album had been recorded to analogue or digital: "I'm an analogue man, because that's my experience, and digital machines are still extremely expensive."

SI AND THE FAMILY STONE — RECORDING THE ROSES

The guitar sound on *Second Coming* is much harder than on the first LP, on tracks like 'Love Spreads' and 'Driving South' particularly, and there is more use of distortion. Asked about the overall sound of the album, Simon is quite forthcoming. "Sonically, the album *is* much bigger than the first album. The guys *are* quite into distortion — different kinds of distortion. John, for example, likes digital distortion out of an Akai S1000. To most people, it sounds awful, but it's actually quite an interesting sound. Reni often likes the whole thing to sound distorted."

Despite the changes, there are still strongly recognisable elements from the Roses' first LP — for example, the backwards samples of drums and guitar, and John Squire's wah-wah guitar. Simon is matter-of-fact about this: "For me, the Roses' sound is the one that works with the kind of rhythms Reni plays, or the loops they use — that sort of groove-based, soul kind of stuff they play". Simon then points out how simple the setup and sound was for each of the band during the sessions — nothing radical, using mostly equipment the band members already owned.

• **John Squire — Guitar**

"The basic guitar sound is dead easy really. All you need is a '59 Les Paul guitar, a nice old Fender Twin amp that's been hot-wired, and a Shure SM57 and Sennheiser 421 to mic up each speaker. You send it through a dbx 160 compressor, and then straight into the desk. Oh, and you need ▶

MIXING

For the mixing of the album, Simon Dawson handed over the reins to studio veteran Bill Price, best known for his work with the Clash and the Jesus And Mary Chain. Why did he feel *he* didn't want to do it? "Well, some of the guys wanted me to do it, because that was the natural thing, but I wasn't keen, because I'd spent 14 months in the studio with them and felt really close to it all. I really wanted to stick around, but get someone in with a fresh pair of ears, and see what he came up with."

To this end, Simon remained present while Bill worked, even at the final cut. "He was *really* good.

He came in to do a couple to see how he got on, and did 'Ten Storey Love Song'. Everyone was really pleased, so we were happy to let him do it. That took the pressure off me, but in the end, it was still very much a team thing — Bill didn't come in and take over. As I've said, it was quite complicated by that stage, because we'd built everything up using the computer on the desk, and there were so many takes running in the computer that I needed to be around to tell him what was going on — there were mutes that he needed to keep, and EQ settings on some of the loops that were important."

MIX TO DIGITAL MULTITRACK ANYWHERE

LIVE RECORDING AND MIXING

RECORDING ANYWHERE

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MAIN FEATURES

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- Solo indicator
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ProTracker is the perfect live recording partner for affordable digital multitracks such as ADAT* and DA-88**; and, like digital multitracks, you can link several ProTrackers together for additional tracks. Each channel is equipped with our best-ever mic preamp and a balanced line input with direct instrument capability, so you don't have to use any noisy DI boxes. A High Pass Filter on each input cuts mic popping and stage rumble. With ProTracker, you can not only record to multitrack but you can also make and monitor a 2-track DAT master at the same time.

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pro TRACKER

> someone who can play, of course!

"We tried various setups, but that was the one that gave us the sound we were happiest with. I think if you've got a nice guitar, and you can play, it'll sound good! We didn't use any special tricks to get the sound like that, and we didn't really spend much time getting the sound right either. For most of the album, that's all it is. John's got some pedals as well — an old Echoplex, and an Electric Mistress. They were used quite a lot, but the basic sound was really simple. Nothing was added at the final mixdown — once it was recorded, that was it. We also used an Orange amp and Orange cab for some of the more distorted sounds, the Hendrix-type bits, and John also used a Pink Strat, but those were his two main guitars. All that's his backline gear, what he normally takes with him."

• Mani — Bass

"Mani used a Rickenbacker bass for just about the whole album, which he sent through a Mesa Boogie amp and cab. For miking the bass amp, I used an AKG D112 and a KM84, and he was DI'ed as well. Mani's also got a Sansamp, which we used a bit, and that was great for creating something a bit more special than a DI sound."

At this point, I asked Simon if there was anything else that *he* had bought into Rockfield that he felt was necessary for a good sound — but once again, it seemed that a familiar setup was the favoured one. "Mani likes his bass to be round and warm-sounding — he's quite into the Reggae bass sound, so I did think at one point, why not get an Ampeg in? We tried it for a bit, but it just didn't seem to fit as nicely, so we went back to the Mesa."

• Reni — Drums

"Reni's got a Gretsch kit. I used an AKG D112 and a Neumann U47 FET on the bass drum, an SM57 for the snare, and an AKG 452 for the hi-hat. The toms were all miked with Sennheiser 421s. The whole thing was a pretty standard setup really — I normally find you get pretty good results from it. We did try the odd experiment — we had an acoustic tunnel on the bass drum for

some of the time, but we liked the live sound, so most of the time we didn't use it. I put a stereo mic, a Telefunken SM2 valve mic, in the corridor outside the studio to give the sound some ambience, too. The overhead mics on the kit were Neumann 56 valve mics — I think they're the best-sounding ones for overheads, really good. I also had a pair of Neumann U87s in the room as well. We wanted the kit to sound like a real, live kit in a funky-sounding room — just like it was, basically!"

• Ian Brown — Vocals

"Ian used his own vocal mics, two Groove Tubes valve mics. We used whichever one sounded best on the day. Again, we did try other mics, but we kept coming back to the Groove Tubes. They *do* sound good — lovely and warm, and Ian likes his voice to sound quite warm and thick, so he felt most at home with those, I think. We stuck Ian in a vocal booth at the back, which I called 'The Dogbox', and when the guys were jamming, he would be scatting and stuff. There's a bit of that on 'Breakout' [the 'Love Spreads' B-side], which he made up on the spot and we kept."

• Simon Dawson — Keyboards

"Putting keyboards on the record wasn't my idea. It was always just 'can you try this, Simon, give this a go' — which was great. I never felt like I was under any pressure, and it was really enjoyable to do. We mainly used the piano in the studio, a Yamaha acoustic. That's what's on 'Love Spreads' and 'How Do You Sleep'. I used a Wurlitzer electric piano on Ian's song, 'Straight to the Man', and there's a bit of it played backwards at the start of 'Tears' — that was my idea, I think. John also had the idea of using a Hammond on the end of 'Daybreak', to try and create a sort of Doorsy kind of feel. It's all from the original keyboards — we didn't see a synth the whole time!"

Ah. Synths. This, it seems, is one area where Simon's interest in technology refuses to enter. Asked if he has any at home, he reacts sharply: "Not at all. I don't play synths at all, I don't particularly like them. My dad plays pub piano, which is where I picked up playing. I like real pianos — they're ▶

The Stone Roses debut album.

The Stone Roses (Ian Brown, vocals; John Squire, lead guitar; Gary 'Mani' Mounfield, bass; Alan 'Reni' Wren, drums) formed in the mid-1980s. After the release of their highly successful eponymous debut album in 1989, and a string of equally successful singles which culminated in March 1990's 'One Love', the group became tangled in a lawsuit whilst attempting to free themselves from their contract with the Silvertone record label. During this time, they were not allowed to record any new material, and

THE NEW STONE AGE: A BRIEF HISTORY OF *SECOND COMING*

their planned second LP had to be indefinitely shelved

The band finally won their case in May 1991, signed immediately to US-based label Geffen for the rumoured sum of £20 million, and took the rest of the year off. In March 1992, the group vanished into the depths of Wales with John Leckie, producer of their first LP, ostensibly to begin recording the follow-up. Little concrete news emerged for another year, and various rumours began to circulate: that the Roses had lost the plot, that at least one of them had developed an expensive drug habit, and that the new songs John Squire had written had been rejected by the rest of the band.

As 1993 progressed, the stories got worse — John Leckie quit as producer in August. Reports suggest that he felt the budget was getting out of hand, and that not enough of the album had been completed for the money that had been spent. Leckie's replacement was

Paul Schroeder who had produced 'Fool's Gold', the November 1989 single that had seen the Roses approaching the peak of their success. In February '94, Schroeder quit in turn, leaving the project's engineer, Simon Dawson, to slip into the producer's shoes. Once again, all news concerning the state of the long-awaited follow-up ceased.

At last, the Stone Roses broke their four-and-a-half year-long silence at the end of November '94 with a smash hit single, 'Love Spreads'. This was rapidly followed at the beginning of December by the new LP, *Second Coming*, which reached number four in the album charts — no mean feat in the pre-Christmas sales rush. At the time of writing, the Roses are enjoying a hit with the second single from the album, 'Ten Storey Love Song'. They plan to release a radically remixed and extended version of the album track 'Begging You' later in the year.

▶ great instruments to sit and tinkle with. But I'm *not* a professional player — for example, I'm not a Hammond player. I was just playing around with it." What, then, was the strange pinging noise on Ian Brown's song 'Straight To The Man', if not a synth? The answer, it appeared, was a Jew's Harp.

"That was quite funny. It was just lying around in the control room the whole time, and I picked it up and started playing it in the control room. Ian went "oh, that sounds good — go in there and put it on. And that was that."

> *"Computers and synths weren't a major part of the album. But the guys aren't against all that — they're into using all the tools they can to get the sounds they want."*

• Outboard gear

Simon has a simple answer when asked about the processors and reverbs used on the album. "We just used the stuff in the racks at Rockfield — we didn't hire any gear in at all. For reverb, we're lucky enough to have natural chambers down there — four main reverby rooms, which we used mainly for the guitar and vocals. Also, there's a drum room next to the studio, which we built a few years ago, but it's a bit too live for drums — the cymbals end up sounding way over the top. But it *does* sound great if you put a speaker in there, play your stuff through it and mic *that* up. I used the pair of Neumann 87s for that. So we used that room like a fifth chamber. We hardly used digital reverbs at all. We've got a Lexicon 224, which I used a bit, but it was just that and the chambers really. I know that Bill [Price, who was called in to mix the album] used quite a lot of Lexicon 480 in the mixes — he had two of them, because we moved on to Metropolis Studios in London for the mixing, and we didn't have chambers there."

• Sampling

"The band have got an Akai S1000 which they use mainly in the writing process, for recording loops, slowing them down, turning them round, to create a groove to write around [both 'Driving South' and 'Straight to the Man' were written in this way]. They haven't felt the need to upgrade to anything newer because it does the job for what they want. They just use it to create basic loops, and get them onto their Portastudio.

"In the studio, our main sampling workhorses were the two TC Electronic 2290s sampler/delays, which have got 32 seconds of sampling time each. You can stereo-link them, and they're really good quality."

• Computers

"I'm quite into PCs — I've got a laptop at home, and I'm hoping to get a big one any day now, so I can do some music on it... However, the only time we really used the computer was for 'Groove Harder' on the twelve-inch of 'Love Spreads', and that was mainly Paul Schroeder's bag. He took a couple of samples from 'Good Times', messed with them a bit, and ended up triggering them from a keyboard.

THE STONE ROSES
Second Coming

SECOND COMING: TRACKS

■ 'TEN STOREY LOVE SONG'
"We created the intro and the outro to this around what John Leckie had already recorded, partly at Loco Studios, where we went for a couple of weeks, and partly at Rockfield. There's an old Moog analogue synth on it, actually. There's a particular kind of synthy noise at the beginning and the end of that track, although you hear it more at the end now, I think. I didn't play that, though! That was from a late night session with Reni and Paul Schroeder, before he left. The Studio Manager at Loco had this Moog at home, and he bought it in for us to play around with."

■ 'TIGHTROPE'
"This was done all around one mic. The band did try an electric version when they were still recording with John Leckie, which actually works pretty well too, but they wanted a more laid-back kind of vibe to it. For me, the finished version conjures up a picture of a guy sitting in a flat or something with some coffee, picking at his guitar, and then somebody picking up some bongos and joining in. You can hear things dropping on the floor, and the singing's a bit out of tune, but it's a great song."

■ 'BEGGING YOU'
"This was really the main one for sample loops. The loops were done before the group came to Rockfield, by a guy called Brian Pugsley, who structured the loops they had created. John had them on disk, and I think Brian

just got them in the right place and at the right time — quite a lot of work,.I think. Brian also programmed a bass pulse, a sample of an oscillator generating a sine wave at a low frequency, which we ended up using in the verses of the song. Mani had come up with a bassline, but we liked the pulse. It was quite difficult though — because the pulse was a straight sine wave from an oscillator, it had no harmonics, so we had quite a problem at the mix getting it so you could hear it. We were cutting from the bass to the pulse, and matching it up was quite tricky. You can hear it when you've got a really nice pair of speakers.

"Other than that, there are a few different loops in there — old soul loops running backwards, slowed down — so no-one can recognise them — and there's also a backwards guitar riff, which John had to learn to play in reverse. We turned the tape over so it ran the opposite way, then John experimented over the backwards music until we found something that worked when we turned the tape back over. It became the main riff, and we decided to triple-track it, so John had to do it the same three times, which is quite hard to do over backwards music! There are also some jets in the middle of the song, which John Squire recorded at an air show with his DAT player holding his mic up in the air, and which we layered in."

■ 'YOUR STAR WILL SHINE'
"This was written at Rockfield, by John. He demo'ed it in his bathroom with his Portastudio, so the acoustic

had this very bright sound to it which we really liked. We tried to recreate that in the live room at Rockfield, using Nashville tuning on his acoustic, which sounds very bright, and added some chorus from a TC Electronic effects unit. This was one of the ones we used a sample to keep in time on. The clap noise is a real clap — three guys clapping, heavily EQ'd. We sampled them into the TC and then triggered the best one so it's smack in time, just to create a bit of percussion. There's also a floor tom, which is supposed to sound like one of those Irish drums, a bodhran.

"At first, we were just going to use the version we recorded as a proper demo. Reni wanted to play percussion at the same time as John was playing guitar, so we put him in the corridor. They came in and listened to it, and really liked it. I thought, 'we can't go with that', as it speeds up a little at the end of the intro. But they decided to go with that version, and we finished it really quickly, in three or four days."

■ 'LOVE SPREADS'
"They did this in pre-production with John Leckie, and when it came to Rockfield it was completely different

"We had an Atari in the room, but the main thing I thing I used that for was for triggering the TC samplers... I know *Cubase* and stuff, although we normally get a programmer in to do anything complicated. I use computers all the time to generate click tracks for other bands. But I couldn't do that all the time here, because not much of the stuff was done to clicks — the only sort of click we ever had were the occasional loops. Computers and synths weren't a major part of the album. But the guys aren't against all that, you know. They're into using all the tools they can to get the sounds they want."

LOOKING BACK

With the album finished at last and in the shops, I asked Simon whether he had exhausted the vaults of finished material, or whether there were more as-yet-unreleased tracks? Sheepishly, Simon admits that there's "loads of ideas, not actually finished songs. There's a couple of new tracks for B-sides on the new single ['Ten Storey Love Song'] which grew out of the album sessions: 'Moses' and another one which we did in London at the start of January called 'Ride On'. We did that very quickly, in just three or four days, because the guys had to go to the States, but we did it, and it sounds great".

I wondered whether Simon has a favourite track, looking back at the finished product. "It's very difficult to answer that. I've got a special feeling for 'Love Spreads' and 'Your Star Will Shine', because they were ones I did with the band from scratch. 'Breaking Into Heaven' I think is a really great song, and I like 'Begging You' because it's different to the rest of the stuff. 'Tightrope' is a great song, 'Good Times' is so live and real, and 'How Do You Sleep' and 'Ten Storey Love Song' are good pop songs! I think there's something there for everyone. The guys are all coming from different places, as any four different guys will, you know, so I felt that one of my main jobs as producer was pulling together all these different elements, and getting one thing out of it that everybody was happy with." **SOS**
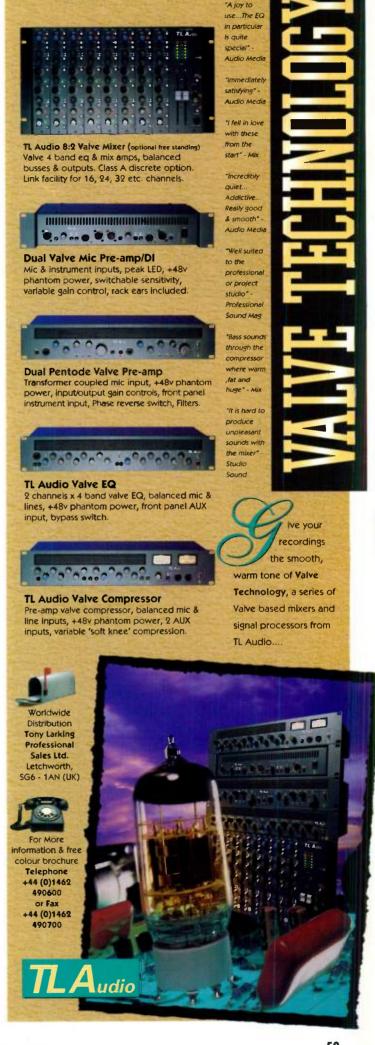
— quite thin-sounding. We decided to redo it with Paul Schroeder, before he left, and spent quite a lot of time trying to get it right. John added some guitar, and I didn't think the riff was right for it. After Paul Schroeder had gone, we ended up scrapping it completely. We started from scratch *again*, and just had the band play in the studio until Reni came up with something that sounded quite groovy with Mani. John detuned his guitar and came up with the riff that goes through the verse, which I thought was great. We worked from there.

"The end was quite a problem for a while — where it all breaks down and then builds back up again. I had the idea of building up a lot of backing vocals, lots of lines and harmonies, and it was difficult getting it all to sit. John had a guitar idea from one of the earlier versions which the band really liked, so he put that it in about three-quarters of the way through the build-up. But he wanted something similar to echo that at the *start* of the build-up. So that's how you got the piano coming in at the start of that build-up. For quite a while, the ending sounded quite messy, but it all came together in the end."

■ THE HIDDEN TRACK

"This was nothing to do with me at all — it was something they did before they came to Rockfield. I know I'm credited with the keyboards, but I didn't play them on that! I think Reni played the piano, Ian played the violin, and John was playing the mandolin. It was something they did late one night when they were with John Leckie and he'd wandered in with his DAT player — it was just a bit of a joke, I think.

"I don't think it was supposed to be found that easily — it was supposed to shock people who'd left their CD playing while they were studying or whatever. The working title was 'The Foz' — well, I say working title... that was what was written on the box, anyway..."

Another fine Messe

FRANKFURT MUSIK MESSE REPORT 1995

MATT BELL and PAUL WHITE report back from the overwhelming enormity of the Frankfurt Musik Messe to keep you abreast of new products, new technical innovations, and new treatments for sore feet!

The Frankfurt Musik Messe is *big* — you might think the music shows at Olympia are large, but they would fit into the acoustic piano area at Frankfurt. Next to the Messe, even Deep Space Nine looks like an Austin Allegro, and to add insult to falling arches, somebody decided it would be a good idea to double the floor area of the show this year by opening up another three halls, each the size of a 747 hangar! Undaunted, we donned our most comfortable shoes, girded up our brochure bags, and hit the Messe.

A PRESS-ING PROBLEM

One thing that always surprises me at shows like this is the varied treatment you receive as a member of the press. Some of the smaller companies (who look like they haven't a Pfennig to spare on the press) shower you with lavish press packs, containing detailed product information, photos and prices. At the other end of the scale, many of the people working for the major internationals (who have stands the size of tennis courts) just stare at you blankly as if they'd never heard the term press before. I used to think this was due to the language barrier, but Matt, who speaks fluent German (and is great at lists) met the same uncomprehending response. The best they ever seem to do is to direct you to a partly depleted brochure rack, where there is no indication at all as to what is new and what has been around for the past three years. The software companies consistently provide good information — both Steinberg and Emagic provided useful data on either floppy disk or CD-ROM — but then as data is their business, maybe that was to be expected. But enough of these minor gripes — you just want to know what's new and how much of a battering your credit card is going to take over the next few months, right?

GENERALLY SPEAKING...

Software continues to become ever more sophisticated by the month, and this trend was apparent at the show. If you're thinking of moving into 'Audio plus MIDI' sequencing, you'll find some staggering new facilities in all the major programs we saw displayed. It's also evident that the PC is being taken far more seriously as a music computer, with Steinberg planning to introduce their own soundcard to support *Cubase Audio*, and Digidesign going in a similar direction with a PC equivalent of the Audiomedia card. Finally, it seems that audio software designers are beginning to target product at AV computers, making it possible to have audio with MIDI, but without the need to buy additional (and often costly) hardware.

THE FUTURE OF SYNTHESIS?

Physical modelling is still favourite as the future of music synthesis, and as of now, Technics have joined the runners alongside ▶

Frankfurt Musik Messe Report 1995

▶ Yamaha, Roland and Korg — take a look (if you haven't already) at the preview of the Technics SX-WSA1 on page 30 for more details. Check out the preview of the Korg Prophecy on page 32, as well — this looks set to be the most affordable modelling instrument yet.

As ever, there isn't enough space to go into detail on the many new products we encountered, but we can assure you that we'll be bringing you in-depth reports and reviews of the tastiest items just as soon as the first shipments land. In the meantime, here's a quick overview of the new attractions. Naturally, we did our best to cover everyone and compile an exhaustive list, but as with packing to go on holiday, we've almost certainly missed out something important. Apologies are therefore due to anyone who we've inadvertently missed out!

THOSE FRANKFURT PRODUCTS IN FULL (ISH)

MANUFACTURER	PRODUCT NAME	DESCRIPTION	PRICE (inc VAT)	PROJECTED AVAILABILITY
KEYBOARDS / SYNTHS / EXPANDER MODULES				
CLAVIA	Nord Lead	DSP-based 'virtual' analogue synth — available in rack and keyboard version	£1295 (r)/£1495 (k)	Out now
DOEPFER	A100	Analogue modular synth system	TBA	Summer 95
DOEPFER	MS404	Analogue monosynth	Price + release date unavailable at time of going to press	
KORG	Prophecy	DSP monosynth — see preview on page 32 for details	About £1300	Summer 95
KORG	X5DR	X5-in-a-module, including classic Korg library sounds	£675	Out now
KURZWEIL	K2500R	Rackmount sampler from K2000	Around £3000	June 95
KURZWEIL	K2500	Keyboard version	TBA	September 95
MARION SYSTEMS	Pro Synth	1U rack stand-alone analogue synth	£1000	TBA
QUASIMIDI	Cyber 6	Master keyboard with onboard arpeggiator and sequencer	TBA	May 95
QUASIMIDI	Raven	Techno-orientated synth with Quasar-based voices	TBA	May 95
ROLAND	RA30	Realtime Arranger	£499	Out now
ROLAND	RA95	Realtime Arranger	£869	Out now
ROLAND	XP50	Synth workstation	£1499	Out now
STUDIO ELECTRONICS	SE1 v.2.0	Upgraded operating software for SE1 monosynth	TBA	TBA
STUDIO ELECTRONICS	SE6	6-note polyphonic synth	TBA	Second half of 1995
TECHNICS	SX-WSA1	Acoustic modelling synth — see preview on page 30 for details	About £2200	Autumn 95
WALDORF	Custom Line	Custom versions of the Waldorf Wave synth	Prices vary	Available now
YAMAHA	MU50	XG-compatible synth module	£399	Out now
YAMAHA	MU80	XG-compatible synth module	£699	Out now
YAMAHA	QS300	Keyboard version of QY300 music sequencer	TBA	July 95
SAMPLERS				
AKAI	Remix 16	Hardware sampler for DJs	£849	Out now
AKAI	U40	Variable tempo/constant pitch phrase recorder (up to 16 seconds recording time)	£169	TBA
EMU	EIV v.1.1	EIV operating system upgrade	£4800	Out now
EMU	E64	64-voice, 64-note polyphonic sampler	£2649	June 95
EMU	ESi32 v.2.0	ESi32 operating system upgrade	TBA	May 95
COMPUTER HARDWARE / SOFTWARE				
AKAI	MESA	Sample editing software to be bundled with all forthcoming Akai products	n/a	Out now
CREAMWARE	TripleDAT	Digital soundcard for PC	Less than £950	Out now
DIGIDESIGN	Audiomedia II (PCI)	Audiomedia II card for Windows	UK price to be set	July 95
DIGIDESIGN	DAE for Windows	Digital Audio Engine development platform; now for Windows	TBA	TBA
DIGIDESIGN	DINR v.1.01	Mac noise reduction system; now available for Audiomedia II and Session 8	TBA	TBA
DIGIDESIGN	Masterlist CD v.1.1	CD PQ-encoding software; now for Audiomedia II and Session 8 Mac systems	TBA	TBA
DIGIDESIGN	Session	Software-only digital audio recording program for Windows	Free with Audiomedia II PCI	TBA
DIGIDESIGN	Session v.2.0	Software-only digital audio recording program for Mac	TBA	TBA
DIGIDESIGN	Session 8 upgrade	Upgrade from Session 8 to Pro Tools III systems for Mac	UK price to be set	TBA
DIGIDESIGN	Sound Designer v.2.8	Mac sample editing software upgrade; now supports Session 8 Mac systems	£432	Out now
EMAGIC	Logic 2.5	Sequencer upgrade for Mac	£399	Out now
EMAGIC	Logic Audio 2.5	Sequencer/Digital Audio recording software upgrade for Mac	TBA	Out now
EMAGIC	Logic 2.0	Sequencer upgrade for Windows	£349	Out now
GENERALMUSIC	Sound Engineer II	Digitally-controlled mixer hardware package with PC-based front end	UK price to be set	Out now
JUPITER SYSTEMS	Infinity	Mac sample looping software plug-in for Sound Designer and TDM	TBA	TBA
JUPITER SYSTEMS	MDT	Multiband dynamics software plug-in for Sound Designer and TDM	TBA	TBA
JUPITER SYSTEMS	JVP	Voice processing software plug-in for Sound Designer and TDM	TBA	TBA
MOTU	Digital Performer v.1.5	Sequencer/Digital Audio upgrade; now has QuickTime and Digidesign DAE support	£599	Out now
MOTU	Digital Timepiece	Digital audio synchroniser	About £1200	Autumn 95
MOTU	Freestyle for PC	Sequencer for Windows	About £180	June 95
MOTU	Unisyn for PC	Editor/Librarian for Windows	About £245	June 95
MOTU	WaveEdit v.1.0	Editor for Akai DR4d hard disk recorder	TBA	Out now
OPCODE	Digitrax 1.2	Digital audio recording and editing software for Power Mac	About £450	TBA
OPCODE	OMS Movie Player	Mac application for playing QuickTime movies locked to SMPTE	£15	Out now
OPCODE	Overture 1.1	Notation software upgrade for Power Mac	About £45	TBA
OPCODE	Studio Vision v.3.0	Sequencer/digital audio recording package update	About £800	June 95
OPCODE	OMS for Windows	Integration of Open Music System into Windows95	n/a	After Windows95 ships
QSOUND	QSys	Stereo processing software plug-in for TDM on Mac	Price + release date unavailable at time of going to press	
ROLAND	MPU401AT	PC MIDI interface	£109	Out now
STEINBERG	Cubase Audio 3.0 TDM	TDM-compatible upgrade to sequencer/digital audio recording package for Mac	£799	June 95
STEINBERG	Cubase Audio for Windows	Sequencer/digital audio recording package for PC	TBA	May 95
STEINBERG	Cubase Score v.2.0	Notation software upgrade for Mac	£499	Out now
STEINBERG	Cubasis Audio	Sequencer/digital audio recording package for use with PC soundcards	£249	May 95
STEINBERG	Cubasis for Windows	Entry-level sequencer for PC	£149	Out now
STEINBERG	DeClicker	Denoiser plug-in for TDM	TBA	Autumn 95
STEINBERG	PC MIDI 3	PC MIDI interface	£169	May 95
STEINBERG	ReCycle! for Windows	Sample manipulation software for PC	£199	May 95

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Frankfurt Musik Messe Report 1995

MANUFACTURER	PRODUCT NAME	DESCRIPTION	PRICE (inc VAT)	PROJECTED AVAILABILITY
COMPUTER HARDWARE / SOFTWARE Continued				
STEINBERG	Virtual FX Rack Vol.1	Wide range of effects plug-ins for TDM	£249 (for whole package)	June 95
TC ELECTRONIC	MD2	Professional multi-band digital mastering dynamics package for use with TC M5000	£475	Out now
WAVES	S1	Mac stereo imaging plug-in software for Sound Designer II and TDM	£399	Out now
WAVES	Waveshell RT	Mac software allowing real-time control of other Waves plug-in processors	£159	Out now
WAVES	TDM plug-ins	TDM versions of all previous Mac plug-ins; various bundles available	Prices vary	Out now
YAMAHA	CBXD3	Hard disk recording system	£799	July 95
RECORDING				
AKG	K200 and K300	Headphones	£70/£80	Out now
ALESIS	Matica 500 and 900	Power amps	£500/£649	Out now
ALLEN & HEATH	GS1	8-buss mixer including meter bridge	£899	Out now
ART	460	Guitar mic preamp/digital effects processor	TBA	Summer 95
ART	465	Guitar signal processors	TBA	Summer 95
ART	Eight-Gate	Digitally-controlled analogue noise gate	TBA	Summer 95
ART	MDM8L	Compressor/limiter	TBA	Late summer 95
ART	Tube MP	Mic preamp	TBA	Late summer 95
AUDIO-TECHNICA	AT873R	Remote-powered condenser mic	£199	June 95
AUDIO-TECHNICA	AT4050/CM5	Multi-pattern studio capacitor mic	£925	Out now
BEHRINGER	Composer	Multi-band compressor	£342	Out now
BEHRINGER	MX8000 Eurodesk	48/24 dual input mixer	£2200	July 95
BEHRINGER	Eurorack MX2802	2-bus mixer	£699	October 95
BEHRINGER	Eurorack MX2642	4-bus mixer	£699	October 95
BEHRINGER	Ultracurve	20-bit EQ/feedback exterminator/signal processor	£599	July 95
BEYERDYNAMIC	M-series (M01-M05)	Vocal and instrument mics	TBA	May 95
BEYERDYNAMIC	MCE83	Studio condenser mic	TBA	May 95
DIGITECH	GSP2101	Tube guitar preamp/processor	£1000	Out now
DIGITECH	Studio 5000	Studio multi-effects processor	TBA	May 95
DIGITECH	Studio Vocalist	Vocal multi-effects processor	£1000	Out now
DIGITECH	TSR6	Reverb	£300	May 95
DIGITECH	TSR24S	TSR24 with 10 extra presets and widened mixer	£800	May 95
DIGITECH	Valve FX	Guitar preamp/signal processor	£700	Out now
EMU	Buckeye	Hard disk recording system	Less than £3000	TBA
FOSTEX	D25	Professional DAT recorder	£5047	Out now
FOSTEX	D10	Professional DAT recorder	£2227	Out now
FOSTEX	D5	Basic DAT recorder	£1199	Out now
FOSTEX	XR7	Cassette multitracker	£499	Out now
FOSTEX	XR5	Cassette multitracker	£379	Out now
LA AUDIO	MX2	Dual mic preamp	£249	June 95
MACKIE	SR24-4	4-buss mixer with connections for 8-track recorder	£1495	May 95
MARSHALL	JFX1	24-bit guitar FX	£495	Out now
PEAVEY	RSM2462	24-channel rackmount mixer	£1599	TBA
PEAVEY	SDR 20/20+	18-bit stereo digital multi-effects	TBA	TBA
PEAVEY	PVMT9000	Tube mic	TBA	TBA
PEAVEY	TubeFex	Combined tube guitar preamp and 24-bit multi-effects unit	TBA	TBA
ROLAND	DM800	Digital Audio Workstation	£3975	Out now
ROLAND	G800	64-voice workstation arranger	£1999	June 95
ROLAND	GP100	Physical modelling guitar preamp/processor	£799	June 95
ROLAND	MX5	Stereo 4-channel mini-mixer	£145	Out now
ROLAND	RE800	Digital echo	£239	Out now
ROLAND	RSS10	2-channel 3D DSP sound space processor	£2200	May 95
SOUNDTRACS	Topaz Mini	12:2 mixer	£323	May
SOUNDTRACS	Topaz Macro	14:2 mixer	£429	May
SOUNDTRACS	Topaz Maxi	24:4:2 or 32:4:2 mixer	£1938/ £2291	May
SPIRIT BY SOUNDCRAFT	Protracker	8-channel, 3U rackmount mixer	£763	Out now
SPIRIT BY SOUNDCRAFT	Studio	24-channel mixer	£1999	Out now
SPL	Mike Man	2-channel mic preamp	TBA	May 95
SPL	Pro Mike	Professional 2-channel mic preamp including variable high- and low-pass filter	TBA	May 95
TASCAM	M5000 automation	Mixer automation with Mac front end	Price + release date unavailable at time of going to press	
TASCAM	MX4	4-channel mic preamp	Price + release date unavailable at time of going to press	
VISCOUNT	EFX3000	24-bit digital signal processor	Around £1000	TBA
VISCOUNT	MM8ER	8-channel 3U rackmount mixer	£299	Out now
YAMAHA	MT4X	4-track cassette multitracker	Price + release date unavailable at time of going to press	
YAMAHA	RM800	16-channel or 24-channel mixer	£1499 (16) /£1899 (24)	May 95
ZOOM	2020	Guitar processor pedalboard	£279	Out now
ZOOM	4040	Twin-pedal guitar processor pedalboard	£449	Out now
DRUM MACHINES				
YAMAHA	RY8	Drum machine with auto-accompaniment	£225	Out now
SEQUENCERS				
YAMAHA	QY22	Music sequencer with auto-accompaniment	£449	June 95
MISCELLANEOUS				
ACCESS MIDI TOOLS	MicroWave Programmer	Hardware editor/programmer for Waldorf MicroWave synth	TBA	May 95
ACCESS MIDI TOOLS	Matrix Programmer	Hardware editor/programmer for Oberheim Matrix 1000 synth	TBA	May 95
BLUE CHIP	Axon NGC66	Guitar pitch-MIDI converter	UK prices and availability to be confirmed	
ROLAND	GI-10	Guitar/MIDI interface	£450	Out now
ROLAND	VG8	Physical modelling Virtual guitar system — see review on page 90	£1999	Out now
AWARD-SESSION	Sessionmaster JD10	Guitar amp simulator	£200	Out now
AWARD-SESSION	Sessionette 112	Guitar amp with speaker simulator	£299	June 95
TC ELECTRONIC	ATAC	Remote controller for M5000 Digital Audio Mainframe	Price + release date unavailable at time of going to press	
VISCOUNT	RD70 MkII	Data Filer	£239	Out now
WALDORF	Gekko Chords	Simple MIDI Chord Memoriser	£69	TBA
WALDORF	MiniWorks 4-pole	Free-standing 24dB low-pass resonant filter	£276	Out now
WALDORF	Gekko Trigger	Simple MIDI Chord Trigger	£69	TBA

Duncan Browne
Songs of Love & War

Labour Of Love

both a technically and emotionally challenging task, for much of the original work had been started on 'old tech' equipment, most of which I no longer own, and the greatest problem presented was that of re-synchronising the tracks to accommodate my present setup.

As for the remainder of the album, it was decided to include a selection of previously unreleased tracks, chosen to highlight the diversity of Duncan's musicianship. These were also to undergo some 'tweaking' to bring them in line with the sound and feel of the whole album.

The experience was not without its humorous side, however. Duncan was a man of high ideals and scrupulously good taste; this meant that certain artistic decisions had to be considered most carefully. The curious thing was that whenever I had serious doubts about a particular course of action, the piece of equipment involved in the decision almost invariably broke down or crashed — as if in response. Somehow I knew I was not alone!

Each track brought its own set of problems to solve, so they are grouped here by type, with brief descriptions.

- *Misunderstood*
- *Love Leads You*

Both tracks are well suited to the golden larynx of Colin Blunstone on guest lead vocals, being similar in mood to songs of the Alan Parsons genre. 'Love Leads You' particularly demonstrates Duncan's wonderful feel for electric as well as acoustic guitar, with a brief but beautiful solo that still gets the back of my neck tingling.

The untimely death of musician Duncan Browne part-way through an album project spurred keyboardist NICK MAGNUS on to complete the recordings. Here Nick tells the inside story of how he accomplished it.

The Making Of Duncan Browne's 'Songs Of Love & War'

Whilst probably best remembered for his 1972 hit 'Journey', singer/songwriter/guitarist Duncan Browne also produced a series of nine albums, both under his own name and that of the band Metro. His writing partnership with Peter Godwin in Metro also produced the song 'Criminal World', made famous by David Bowie on his *Scary Monsters And Super Creeps* album. Always keen to diversify, Duncan wrote the music to numerous television and film productions, including the BBC1 series *Travelling Man* and BBC2's period drama series *Shadow Of The Noose*.

May 1993 saw the tragic loss of this talented musician and composer, after a three year battle against cancer. At the time of his death, Duncan and I had been working on his next solo album, some of which had reached demo stage and some of which had yet to be written. Thus I undertook to complete the album, albeit in the absence of the principal artist. This was

The treatment applied to these tracks was fairly straightforward. Since no multitracks existed, the original demo quarter-inch stereo masters were used and transferred to DAT. These were fortunately recorded to an acceptably high standard, so the only processing employed was courtesy of an SPL Vitalizer.

Compared to current listener expectations, the

SPL Vitalizer.

top end was relatively dull, and vocal diction suffered slightly. Using the Vitalizer to accentuate the high mids at around 2.5kHz, and the harmonics control to restore missing sibilants, lyrics regained clarity, and backing vocals which were hitherto almost lost became quite audible. This process ▶

Duncan Browne

▶ also revealed hidden details in the drum parts. Subtle bass end enhancement was also employed to restore the balance between the two ends of the audio spectrum.

Finally, the stereo width enhancement control was set around its 12 o'clock position, to separate the instruments and remove any remaining muddiness. Comparison with the untreated original was extremely gratifying, and the result was copied across (via the analogue connections) to a second DAT.

• Rainer
• High Windows

'Rainer' is a song inspired by the great German film director, Rainer Werner Fassbinder. Getting off to an atmospheric start, and sporting some rather Brian Wilson-esque backing vocals, it develops into an anthemic chorus lavish with billowing Mellotron. 'High Windows' has intensely filmic lyrics, putting one in mind of unrequited love in deserted, rain-soaked Eastern European streets. Musically, however, it is warm and reflective. Duncan sings lead vocal on both tunes.

Fostex A8.

In common with various other tracks on the album, these songs were originated on an 8-track Fostex A8 reel-to-reel machine. Since I had long since sold the A8 and replaced it with a Fostex R8, the first spanner in the works had arrived. Tapes recorded on my A8 turned out to be quite incompatible with the R8. Even though the A8 and R8 are biased and lined up for Ampex 406 and 456 tape respectively, Fostex assured me that tapes should be compatible across their entire 8-track range. Evidently, my attempts to re-align the A8 as it grew older had caused it to drift into another

universe; possibly through ignorance on my part. The problem was solved by the great kindness of stalwart *SOS* contributor Gordon Reid, who lent me his Fostex M80 for the duration. Fortuitously, the tapes seemed to sound even better on the M80 than my memory of them on the A8.

Synchronisation was the next hurdle I encountered. The backing tracks had been sequenced on my trusty Roland MC500 (which I still use in preference to a software sequencer). Clearly it would be better to run the sequenced instrument tracks live wherever possible, rather than use the 8-track recorded versions, thus presenting the opportunity to make improvements in both sounds and performances. Problem was, the sync code on the tape was FSK (frequency shift key) code, which contains no song position data. This was obviously unsatisfactory; I had no intention of starting from the top of the song just to check out something at the end!

To solve this, the SRC/AT SMPTE-to-MIDI synchroniser was used. This unit has the wonderful ability to 'learn' a tempo map, via MIDI, to 1,000th of a BPM accuracy. First off, the FSK code (which also contains tempo changes) was played from tape into the MC500, which in turn generated MIDI clock information which was sent to and 'learned' by the SRC. Next, SMPTE timecode was striped onto a spare tape track (tip: never erase your original code!).

Finally, to find the correct SMPTE start time offset, the SRC once again supplied the solution. A single cowbell beat, placed at the start of the sequence, 'was patched to the audio input of the SRC unit. The ▶

Friendchip SRC AT.

Duncan Browne

SMPTE was then striped onto track 8 and then the difficult part began; creating a tempo map in the SRC synchroniser. Using its audio input, I initially tried tapping out the tempo in time to the track. This proved to be quite insane, so I tried another approach.

Since the tempo of the track is fairly constant, I programmed a regular, quantised cowbell beat into the MC500. The tempo of this was matched as closely as possible to the track and then played into the SRC (in audio trigger learn mode) as the track ran, while making tiny manual adjustments to the tempo whenever it seemed to drift slightly. The SMPTE offset was then set as described earlier, and the new instruments (12-string guitar, 6-string guitar and pad, all from a JV880) were running in sync. Finally, the stereo track was Vitalized to bring out the vocals, and a gentle 4:1 soft-knee compression applied with an Alesis 3630 to tame the occasional 'hot' bass notes.

• The Small Hours

A distinct Eastern European influence is evident here; a subject which always fascinated Duncan and I. Belonging to that musical genre of 1960s spy thriller themes synonymous with John Barry, this is an entirely keyboard generated instrumental, programmed on the MC500 sequencer. After making improvements to sounds and tweaking parts to suit, the whole thing was run live to DAT.

• Sarabande
• Romantic Comedy

'Sarabande' is a very classical sounding acoustic guitar and orchestra instrumental, reminiscent partly of an Albinoni Adagio, partly of a study by Roderigo. 'Romantic Comedy', also an instrumental, has a warm, whimsical character.

Both tracks feature Duncan's nylon guitar (known as 'the Spaniard') recorded on the A8. Once again, the M80 came to the rescue here. Synchronising the FSK-coded tracks was now no longer a problem (see 'Rainer' and 'High Windows'). However, the guitar on 'Sarabande' had been recorded in sections, and the tuning varied from bar to bar. To remedy this, all the individual guitar phrases were sampled into the Roland S770, and assigned their own keys. Each sample was tuned correctly, but with some the inevitable happened — the timing went astray. The S770's Timestretch function, together with some cut-and-splice editing and a dollop of intuitive guesswork, provided the necessary adjustments. Each phrase was then placed into approximate position within the MC500 sequence. To preserve the feel and timing of the original performance, these phrases were compared with the off-tape performance while listening in sync with the MC500, and then re-positioned precisely, one by one.

'Romantic Comedy' had no tuning problems,

but the guitar track ended abruptly and rather too soon. Remember, these tracks started out as demo takes, and we had no idea they would eventually have to be used for real.

The task here was to extend the piece, which of course is no problem if it involves only MIDI instruments. Basically, the final theme needed to be repeated, which meant writing a modulation to get back to the correct key. This done, the relevant section of guitar was sampled into the S770 and spun in on top of the new ending. The final result sounds quite natural.

Final treatments to the guitar on both tracks were a touch of 250-300Hz and a little 6kHz EQ to warm and brighten the sound of the PZM mic, and some fairly severe hard-knee compression to bring out the body of the guitar sound. 'Medium Room 8' on the Peavey Multifex again provided the guitar reverb. All the MIDI instruments for both tracks ran live.

• The Wild Places

This track is the odd one out, as it was previously released both as a single and as the title track of Duncan's 1978 album, The Wild Places, produced by Ray Hendriks. Featuring Tony Hymas on keyboards, John Giblin on bass, and Simon (Mr. Double Bass Drum) Phillips on, er... drums, it became a hit in Europe and the US, and was covered by people as diverse as Patti Smith and (allegedly) Barry Manilow! Since this slinky rocker is generally regarded as a seminal Duncan Browne track, its inclusion seemed justified.

Tweaking of this track was restricted solely to some Vitalizing of the top end (to reveal hidden details and to bring it in line with the rest of the tracks), and some bass end enhancement from the same unit using the 'tight' setting. Oh, and a touch of stereo width enhancement.

Roland S770.

EPITAPH

The finished album, *Songs Of Love & War*, is available on CD and has been released on the Zomart label. I'm both pleased and honoured to have had the trust of Duncan Browne, his family, friends and publisher to complete the project. **SOS**

FURTHER INFORMATION

In a synth market dominated by the Japanese and American manufacturers, it's a pleasant surprise to be looking at a synth made in Sweden — especially when it's as technologically advanced as the Nord Lead. GORDON REID sees red...

like surprises. In fact, I love them. Burst into the room and tell me that I've won the national lottery, or that *Star Trek VIII — The Search for Kirk* is now in production, and I'm all smiles. Give me a box with a new synth inside and then watch as I discover that, instead of crumbly polystyrene, the box contains a flightcase with a new synth inside, and the effect is much the same. Open the case and... it's time for surprise number two. This is one weird-looking synth. It's decidedly hi-tech. It's bright red. It's very sexy. It's undoubtedly digital. And one end is covered with knobs and buttons bearing legends such as 'resonance', 'pulse width modulation', and 'envelope amount'. This is getting interesting...

KING CRIMSON

Clavia Nord Lead Synthesizer

two-oscillator-per-voice system with sawtooth, triangle, and pulse waveforms, the latter with pulse-width modulation. Equally clearly, the instrument has two LFOs, low-pass and high-pass filters with resonance, two ADSR envelope generators, and an independent AD modulation envelope generator. The top panel also hints at substantial arpeggiation, MIDI, voice allocation and system capabilities, although many of these seem to be hiding behind the skirts of a dreaded 'shift' key.

Internally, the Nord Lead couldn't be simpler or better designed. A tiny main board hosts the DSP (of which more later), a Motorola 68331 processor, some RAM, the software EPROM and ROM, and fewer than a dozen support chips. It also hosts all the connectors. The power supply is mounted on a separate board. The top-panel controls are mounted on a third (and, for the moment, final) board affixed directly to the upper side of the case. This almost certainly hosts a multiplexer and analogue-to-digital

BACKGROUND

If there's any litmus test for a 'classic' sound it has to be that players still lust after it years or even decades after the keyboard that produces it was discontinued by its manufacturer (which may well be discontinued itself). Very few sounds have stood the test of time that well. The 'Moog' sound is one such but, if you craved it, there was, as little as two years ago, no alternative other than to find (and pay an exorbitant price) for a vintage instrument. But recognising the considerable commercial potential that exists in emulating classic keyboards, the industry has turned its attention to recreating the sounds and features (with a little additional '90s polish) of the original items: witness the Hammond XB3, the proposed re-launch of a limited edition Mellotron, the Studio Electronics SE1 and the Clavia Nord Lead.

Clavia Digital Musical Instruments AB are a Swedish company, better known for the ddrum range of electronic percussion. The Nord Lead is their first foray into the arcane world of synthesis, and the instrument itself (which they call 'nord lead' in a lower-case typeface chosen to look suspiciously like the old Moog logo) is what they call a VAS, or Virtual Analogue Synthesis instrument. This, they claim, combines classic ideas with today's technology.

Setting the synth up couldn't be simpler: connect the mains, outputs, and MIDI (if required) and start playing. The top panel controls show that the Nord Lead emulates a
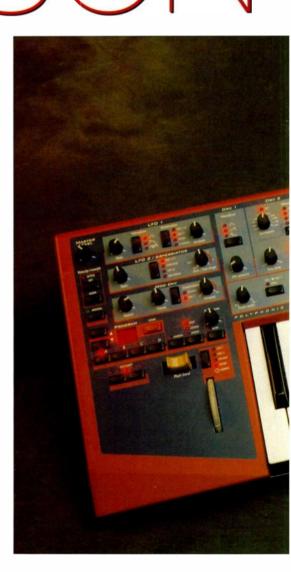
converter to enable the main board to poll the positions of all the knobs and switches. It's very neat, well laid out and (I'll stick my neck out here) it looks as though it will be extremely reliable. There is also room for a fourth board — a memory and voice expander — which will soon become available.

The heart of the synth is its Motorola 56002 DSP, the latest generation of the 56000-series of integer-mathematics digital signal processors. This is capable of performing over 12 million (!) calculations per second, some with a resolution of 56 bits. Whilst not as powerful as a floating-point processor, this is the chip used in many digital workstations (typically in banks of four or eight) and is ideal for calculating FFTs (Fast Fourier Transforms) and digital filters. FFTs are the mathematical operations upon which many digital audio tasks are based. More specifically, they convert waveforms into a form of frequency information which can easily be modified by digital filters. After such modifications, a further FFT then re-converts the data to a new audio signal. Compare the 56002's resolution to that of a CD player or DAT machine with (at best) 18-bit maths. The audio units look primitive by comparison. Of course, the Nord Lead doesn't output 56-bit audio. An 18-bit DAC converts the DSP's output to an analogue signal which is, as one might expect, crisp, dynamic, and silent when no notes are being played.

IN USE

The Nord Lead has clearly been designed for traditionally monosynth duties. The four-octave keyboard, which is velocity sensitive but not aftertouch sensitive, is clearly too limiting for demanding polyphonic playing. Having said that, there's a lot of keyboard work revolving around chordal playing or simple accompaniments which would fit quite comfortably within its limited range. To help matters, there's a five-position octave selector, making a total range of eight octaves available (even without oscillator tuning). In practice, the range extends from sub-sonic to super-sonic, so you're never going to run out of audio spectrum.

The patch functions are controlled using the aforementioned top-panel knobs and switches, and this is where it becomes apparent just how 'analogue' the Nord Lead is. There is none of the stepping and glitching associated with other digital, and digitally-controlled analogue, synths. This is due to the sheer processing speed of the DSP which, while stepping like any other digital processor, does it so quickly and with such tiny quantisation that the effect is imperceptible. The knobs themselves are very tactile, positive in action, and invite fondling. Similarly, the buttons are clearly labelled and positive. But the best feature, for me, is the wooden 'pitch stick' which, alongside a more conventional modulation wheel, ▶

"This is a '90s synth that offers much of the presence and sonic power of the Moog it seeks to emulate."

Clavia Nord Lead

▶ replaces the traditional pitch wheel. The stick is beautifully sprung, its range is programmable, and it has two unusual attributes: it has no dead spot, and the effect increases logarithmically as you move it further from the centre. Clavia claim that this makes it ideal for natural vibrato, and

they're right. It's superior to any pitch controller short of a Yamaha ribbon controller. The top panel is permanently 'live', making editing immediate and intuitive, and there is a manual editing mode which allows you to start editing from a set of user-defined basic values. The Nord Lead also features three important facilities common to '70s monosynths, and which further reinforce the analogue feel of the instrument — sample & hold; portamento; and arpeggiation.

The S&H is implemented in a novel fashion: one of the three LFO1 waveforms is a quasi-random histogram-shaped wave which may be routed to either of the oscillators, or to the filter. This offers three distinct effects. The first two are

traditional: filter S&H, and random pitch S&H. But a far more interesting effect can be obtained by applying the output of the LFO to oscillator 2 only, and syncing OSC1 to OSC2. This modulates the harmonic content of the note (or notes) but leaves the pitch and filtering constant. Very effective.

Portamento is difficult to implement smoothly on a digital synthesizer, yet the Nord Lead offers two portamento modes. 'Normal' is the type of portamento that you expect to find on any monosynth, while 'Auto', when applied within Mono and Legato playing modes, applies portamento only when the instrument is played legato.

The arpeggiator lacks the 'random' function of the revered Roland Jupiters (which is how, for example, Duran Duran created so many of their quasi-sequenced backing tracks) but has 'up', 'down', and 'up and down' modes that can be made to play over 1, 2, 3 or 4 octaves. The speed of the arpeggio is controlled by LFO2, which is disabled for other duties when arpeggiation is selected. There is no arpeggiator latch, but there are two ways to overcome this — one of which is undocumented, and probably a fluke of the programming rather than a planned feature. This involves selecting Local Off, which latches the arpeggio, although, of course, it also renders it impossible to modify the notes being played. Setting Local On again does not cancel the latch and yet allows you to play melodies over the top of the arpeggio! Using an external pedal in Sustain mode also latches the arpeggio, but makes it impossible to play simultaneously because each new note is included in the arpeggio. In addition, the Local On/Off method also allows you to use the pedal input to control the modulation wheel functions whilst the arpeggio is running... for example, changing pitch, sweeping the filter... in fact, anything that you can do whilst playing normally. Neat.

THE SOUND

Those of you fortunate enough to have owned or extensively played a Minimoog will know that it's a very simple synthesizer with remarkably few facilities which has nevertheless remained for 25 years the standard by which other synths are measured. However, unlike the all-analogue Moog, and the digitally-controlled analogue SE-1, the Nord Lead is pure digital. Nevertheless, it differs from nearly all other digital synths in one important respect. While virtually every other keyboard and module currently available uses some variation of sample + synthesis to generate its sound, the Nord Lead's DSP is actually generating its final signal waveforms in real-time, much as the sawtooths and square waves on a D50 were generated in its non-PCM modes. Hence the 'No Samples' logo ▶

FAVOURITE SOUNDS

Unfortunately, the Nord Lead lacks a decent screen, so patches only have numbers, not names, but if you're in the vicinity of your local music emporium, you may like to try some of the following. My favourite has to be #55 — an enormous oscillator sync'd, velocity-sensitive, detuned, filter-swept monster of a sound: instant death to a mix but glorious in isolation. I can't get this from even a GX1! Another fave lies right alongside... #56 is a perfect 'popping' bass patch. Again velocity sensitive (and all other sorts of good things too), it's the perfect answer for those of you dissatisfied with the limited and limiting TB303. Another classic is #82 which, had it been featured on a '70s Roland, would have been called 'Singing Voice'. In fact, this sound was featured on '70s Roland monosynths, and was called 'Singing Voice'. The name says it all. Patch 83... a bell that reeks of FM, and which no true analogue could emulate. Patch 84... an English hunting horn. Patch 85... a wonderful harpsichord that has you playing the theme from *Randall and Hopkirk* before your street cred has a chance to kick in and stop you sounding like a complete prat. Twenty years ago you might have bought a synth for this sound alone. Number 86... no! I refuse to list every sound. There are the obligatory fat basses, screaming leads, tearing oscillator sync sounds, delicate flutes, farting brasses... but, ladies and gentlemen, you'll just have to try them for yourselves.

Digital audio comes down to earth
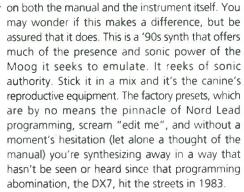
NEW NORTH
LONDON
LOCATION

When you wish to produce a result by means of an
instrument do not allow yourself to complicate it by
introducing many subsidiary parts, but follow the
briefest way possible.

Leonardo Da Vinci 1452-1519

Natural *audio*

Clavia Nord Lead

on both the manual and the instrument itself. You may wonder if this makes a difference, but be assured that it does. This is a '90s synth that offers much of the presence and sonic power of the Moog it seeks to emulate. It reeks of sonic authority. Stick it in a mix and it's the canine's reproductive equipment. The factory presets, which are by no means the pinnacle of Nord Lead programming, scream "edit me", and without a moment's hesitation (let alone a thought of the manual) you're synthesizing away in a way that hasn't be seen or heard since that programming abomination, the DX7, hit the streets in 1983.

Pretty soon you'll discover a couple of facilities that have never been seen on a pure analogue synth. The first (which, in fact, was implemented in an almost identical way on the Oberheim Matrix 6) is frequency modulation, with OSC1 acting as carrier and OSC2 as FM modulator. The second is the hugely flexible velocity sensitivity of the instrument. Any continuous parameter can be made velocity sensitive, and in addition, the maximum and minimum responses for each can be defined within the patch. Going even further,

the Nord Lead allows you to control the velocity-sensitive parameters via the modulation wheel, giving what Clavia call 'Morphing'. In practice, the effect isn't genuine morphing in the Emu and Lexicon sense because the fundamentals of the sound remain constant. Nevertheless, it's a useful tool and, because it leaves the velocity sensitivity of the filter unaffected, can be used to even further control and modify sounds that can still be played dynamically from the keyboard itself.

VOICES, POLYPHONY & PERFORMANCES

There are 99 patch locations on the unexpanded Nord Lead, of which 40 are programmable. Any four may be placed in each of locations A, B, C and D, and this makes monstrous layering possible. Each voice, within the limitations of the total number of oscillators, may also be played in unison, and this is digitally implemented as four slightly detuned but otherwise identical versions of the voice spread across the stereo image. Though this is not really what happens in an analogue synth, it still has a 'thickening' effect that many ▶

COMPARING THE NORD LEAD

The following table compares the Nord Lead to what is, in many ways, its closest rival, the Studio Electronics SE1, a rackmount monosynth modelled closely upon the original Minimoog. Indeed, since the Moog is such a yardstick, I've added its specification just for comparison.

FEATURE	MINIMOOG	SE1	NORD LEAD	FEATURE	MINIMOOG	SE1	NORD LEAD
OSCILLATORS:				Linear response	Yes	Yes	Yes
Polyphony	1	1	4 - 12	Exponential response	No	Yes	No
Audio Oscillators	3	3	8 - 24	**LFOs:**			
Number of voice modes	1	1	4	Dedicated LFOs	0	3	2
Number of waveforms	6	Unlimited	Unlimited	No. of LFO destinations	2	15	6
Pulse Width Modulation	No	Yes	Yes	Number of waveforms	6	6	3
LFO Pitch Modulation	Yes	Yes	Yes	Sample & hold	No	Yes	Yes
Audio frequency Pitch Mod.	Yes	No	Yes				
Oscillator sync	No	Yes	Yes	**ARPEGGIATOR:**			
Sync modulation	—	Yes	Yes	Arpeggiator	No	No	Yes
Fine Tuning	No	Yes	Yes	No. of modes	—	—	3
Ring Modulation	No	Yes	No	Range	—	—	1-4 octaves
Noise	Yes	Yes	Yes				
Pitch bend	Yes	Yes	Yes	**MIDI:**			
				MIDI capability	No	Yes	Yes
PERFORMANCE CAPABILITIES:				MIDI channels	—	16	16
Number of notes	44	—	49	Multi-timbrality	—	—	4 part
Velocity Sensitivity	No	—	Yes	SysEx functions	—	Yes	Yes
Modulation wheel	Yes	No	Yes	Functions controlled by MIDI	—	16	5
Pitch controller	Yes	No	Yes	Controller ranges	—	0% - 99%	0 - 100%
				Velocity sensitivity	No	Yes	Yes
FILTERS:				Aftertouch sensitivity	No	Yes	No
24dB/oct LP filter	Yes	Yes	Yes				
12dB/oct LP filter	No	Yes	Yes	**MISCELLANEOUS FUNCTIONS:**			
High pass filters	No	No	Yes	Portamento (Glide)	Yes	Yes	Yes
Band pass filters	No	No	Yes	Transpose +/- octave	No	Yes	Yes
Filter resonance	Yes	Yes	Yes	Trigger modes	1	2	3
Filter oscillation	Yes	Yes	No	Note priority modes	1	3	1
Filter tracking	4 options	Infinitely variable	Yes				
				STANDARD MEMORIES:			
				Patch memories	None	99	99
ENVELOPES:				Performance memories	None	None	1
Dedicated Envelopes	2 x ADSD	2 x ADSR	2 x ADSR				
Assignable Envelopes	None	2 x ADSR	1 x AD	**EXPANDED MEMORIES:**			
No. of Envelope destinations	2	12	4	No. of patch memories	None	None	697 per card
Envelope inversion	No	Yes	AD only	No. of perf. memories	None	None	100 per card

Clavia Nord Lead

players will find pleasing. The amount of detune can be set, but is global for all patches.

However, Mono, Legato and Unison are only three of the four voice allocation modes available, the other being Poly. On an unexpanded Nord Lead this allows you to play a single patch with 4-voice polyphony, two patches with 2-voice polyphony, or a mixture of Unison and mono sounds up to the 4-voice limit. You can also access all four parts via MIDI and treat the Nord Lead as four monosynths. Portamento still works in Poly, but one shortcoming of the mode is the way in which the LFO is applied to all four voices simultaneously. So, for example, if the LFO is set to be velocity sensitive, adding notes to a chord can send the whole thing screaming off into insensibility, or alternatively return it to normality or gentle vibrato. This is either a pain in the a**e, or a stunning effect, depending only upon your perspective.

A four-patch arrangement is called a Performance, and this also contains the MIDI channel information for each patch, the layering information, pitch-bend, output mode and unison detune setting, and a number of 'special' MIDI settings. Unfortunately, the unexpanded Nord Lead can only store one of these Performances. Which brings us neatly to...

MIDI

The Nord Lead has an extensive performance and bulk-dump MIDI implementation which need not be agonised over here. Nevertheless, there are a number of refinements worth mentioning. For example, all movements of the front panel controls are transmitted as SysEx, enabling you to record a knob-twiddling performance as a sequence. (The last synth I owned that could do this was a Juno 106, which explains much of the classic little Roland's enduring popularity.) Other notable inclusions are the five 'special' functions: LFO1 to MIDI clock synchronisation; LFO2/Arpeggio to MIDI clock synchronisation; external triggering of the filter envelope; external triggering of the amplifier envelope; and external velocity control, which

enables the 'morphing' function via MIDI. Whilst not approaching the power and flexibility of some of the SE1's MIDI functions, these offer a number of exciting possibilities — none more so than the ability to synchronise the arpeggiator with an external sequence. In addition, the LFO syncs are 'soft' rather than 'hard' — i.e. MIDI only defines the start point of the LFO waves, not the speed at which they run between start points. This means that polyrhythms and complex arrhythmic arpeggios are but a few programming steps away.

LIMITATIONS

Of course, not everything in the Swedish garden is rosy. For example, the Nord Lead's filter looks great, offering 24dB/oct and 12dB/oct low-pass modes, 24dB/oct high-pass, and 24/24dB/oct band-pass modes. But, whilst it will ring convincingly at maximum resonance, you cannot persuade it to self-oscillate. Perhaps the most glaring deficiency, this is the one that most distinguishes the Nord Lead as a digital, rather than analogue, synth. Indeed, it's very difficult to get a digital filter to exhibit the kind of overdriven warmth, distortion, and eventual oscillation exhibited by 50p-worth of well chosen analogue components, so Clavia should be applauded for achieving as much warmth as they have. Nevertheless, it's not impossible to design a progressively non-linear digital filter, so Clavia are to some extent culpable for the fact that, when placed alongside a Minimoog or Moog modular, the Nord Lead is impressive, but can be somewhat cold by comparison.

Another niggle is the omission of an 'off' position for the oscillators. Of course, with no external input and no filter oscillation, there would be no sound if both A and B were switched off. Nevertheless, the only means to mute an oscillator — by turning the 'mix' knob fully clockwise or fully anti-clockwise — isn't really satisfactory.

More serious is the omission of a 'compare' function, so any edits can only be compared to an original patch by saving the new voice to another

SECOND OPINION

With the Nord Lead, Clavia have managed to capture that feeling of quality that they distilled into their ddrums — when you sat behind a ddrum kit you just knew things were right, even before you'd turned the power on. The same is true of the Nord Lead. It looks great and has a kind of aura that you don't get from today's run-of-the-mill synths. This synthesizer has a name, not a number.

The Nord Lead has a good solid synth sound, of the analogue variety (hooray, no wavetables), such that I would have difficulty distinguishing it (in monophonic mode) from, say, an ARP Odyssey. I'm not sure if it's quite managed to capture the full Moog sound, but it does have a powerful bottom end, perhaps more akin to that of the OSCar.

Having all the main controls instantly available on the main panel is brilliant, and again this helps to

make this a desirable 'dance'-orientated product. Every function has a knob — and Clavia have ensured that all the knobs have a very high scanning resolution, so there's no zipper noise to give you that sad digital feeling. But the facility that makes the Nord Lead so powerful and pleasing to use is its morphing ability. You select a sound and then set two levels (a maximum and a minimum) for one or more of any of the parameters. By playing with increased velocity, or using the modulation wheel, you can control the setting of one or all of that voice's parameters — and you can do this simultaneously for up to four voices. Using this feature, it's even possible to coax a form of speech synthesis from the synth.

The Nord Lead can be MIDI controlled, obviously, but Clavia have gone a stage further, giving the triggers to the envelope generators a separate MIDI

channel ID, so it's possible to programme the synth to produce complex polyrhythms — which could be useful, especially, again, for dance cuts. In fact, it's probably in the European techno area that this synth will do best, especially since it also has an arpeggiator.

I feel that the instrument is a bit too expensive — not surprising for a Swedish product; for me, the 'Pitch Stick' (the Nord Lead's pitchbender) is not as useful as a standard wheel, and being made of wood is not in keeping with the overall design of the instrument; the synth would benefit from separate outs for the four voices; and it would be nice to have a pressure-sensitive keyboard included for this kind of money. Apart from these minor quibbles, this is a magic piece of electronics, a synthesizer of pure genius. Clavia designed, built and shipped this instrument in less than 10 months — what are these Swedish guys taking? *David Crombie*

patch location. Otherwise the edits are lost when you re-select the original. Serious bummer...

Worse still, unlike the voice programming (which is clearly laid out and intuitive), many of the system, MIDI, and special functions are contained within an arcane system of Shift functions, multi-key-punches, and parameter edits. To make matters worse, the two-digit LED screen has to resort to little dots to indicate some values and identify some functions. Why? Indeed, why Clavia should have displayed the best and worst extremes of user-interface design is quite beyond me — especially since there is enough panel space for every function to have its own controls. And at the asking price I don't think a decent screen is too much to ask for.

Finally, the Nord Lead offers four independent outputs for the parts A, B, C and D. Just when you get into using the Nord Lead as four independent and hugely powerful monosynths you realise that, at best, you can only direct A and C to the left, and B and D to the right outputs. It rather defeats the object of 4-part multitimbrality.

CONCLUSIONS

When I first heard that I had the opportunity to review the Nord Lead, I was worried that the four evenings that I had would be inadequate to fully plumb its depths. I was right, but no matter — within 10 minutes of lifting it from that rather encouraging flightcase I knew that, whereas many keyboard manufacturers have spent years attempting and failing to emulate the timbral quality of early monosynths, Clavia have been much more successful. And, as a bonus, the eight oscillators, polyphony, layering and multitimbrality take the Nord Lead into territory unexplored by any mono-(style)-synthesizer.

Nevertheless, you're probably still wondering who is going to rush out to spend £1500 on a quirky 4-octave, 4-voice, 4-part multitimbral synth with no effects processors, no ultra-realistic piano PCMs, no drums or percussion, no sequencer, and no disk drive. Ah well... you haven't heard the Nord Lead, whereas I have. And, if this is the only one in the country and I get my selfish way, you never will. Until my CD comes out, of course. [SOS]

FURTHER INFORMATION

£ Nord lead £1495; £1295. Prices inc VAT.
A Key Audio Systems Ltd, Unit D, Chelford Court, Robjohns Road, Chelmsford, Essex CM1 3AG.
T 01245 344001.
F 01245 344002.

magnetic pickups, but these impart a different quality to the sound depending on the brand, whether the pickups are single-coil or humbucking, and where they are positioned relative to the end of the string. If two or more pickups are used, the tonal and phase differences between the various pickup outputs combine in a complex way to produce a new sound.

Once the sound has left the guitar in the form of an electrical signal, it is subjected to further modification by the tone circuits and overdrive section of the amplifier into which it is plugged, and after that, the sound is again coloured by the type of speaker used, how *many* speakers are used,

VIRTUAL

PAUL WHITE gets truly virtual with Roland's new physical modelling guitar product — and no, it's not a guitar synth!

ROLAND VG8 VIRTUAL GUITAR SYSTEM

ROLAND VG8 £1999

PROS
- Huge range of classic rock sounds.
- Hex distortion.
- Bass and 12-string simulations.
- Exemplary user interface.

CONS
- No acoustic instrument simulations other than sitar and banjo.
- Some HRM sounds can sound glitchy and buzzy, though it's claimed that the latest software improves this situation.
- High cost of the technology.

SUMMARY
A unique and imaginative approach to creating new guitar sounds that gets around the limitations imposed by guitar synthesizers. It's not perfect yet, but then what new technology is?

Roland's Virtual Guitar was first announced in January at the American NAMM show, where it attracted a huge amount of interest, and earned itself a brief preview in March's *SOS*. We're all pretty much used to leading-edge technology popping up in the keyboard sector, but aside from the odd partially-successful guitar synth, all the guitarist has had to show for the last couple of decades of progress are programmable effects boxes and locking tremolo systems (which, from what I can see, mainly mean that you can't change a string unless you have a socket set!). The VG8 is designed to change all that, but it isn't a guitar synth and it isn't a multi-effects box — so what exactly is it? To answer that question, we first have to ask what makes up an electric guitar sound.

Unlike the acoustic guitar which is, well, acoustic, the electric guitar's sound is a complex synthesis of many different elements and parameters. The sound starts life as a vibrating string, but the vibration is influenced by the way the guitar body and neck resonate, and even a solid body has a noticeable effect on the sound. Next, the sound is picked up by means of

and the type of cabinets the speakers are mounted in. When the sound leaves the speakers, it interacts with room boundaries, which produce reverb or ambience, and in the studio, there are further differences introduced by the type of mic used to record the sound, and its position relative to the speaker cabinet. No wonder, then, that it's so difficult to duplicate a guitar sound that you've heard on record — there are so many variables, and that's even before the studio engineer starts to add EQ and more effects.

VIRTUALLY SPEAKING...

The idea behind the VG8 is to collect the raw vibrations from the guitar strings using a Roland GK2A split pickup (included in the VG8 package), then use DSP processing to emulate all the other links in the chain, right through to the recording microphone. This process is known by the catchy name of VGM or Virtual Guitar Modelling, and is based on a system developed by Roland known as COSM (Composite Object Sound Modelling). Using VGM, you can 'virtually' select the type of pickups to use, decide where on the virtual guitar body to put them, choose a type of virtual amp (or

even emulate a virtual Boss effects pedal), and then pick from three types of virtual speaker cabinet. You can even pan individual strings.

Once you've done that, you can position a virtual mic at a virtual distance from your virtual speaker cab, and if the engineers back at Roland have got it right, you should end up with much the same sound as if all those individual elements had been the real thing rather than the creations of the DSP chip. In theory, you should be able to recreate the sound of just about any type of guitar plugged into any type of amp and speaker setup, and miked with any one of several mic setups. The VG8 also has a separate pitch shifter for each string, which enables it to imitate 12-string guitars, basses, guitars with alternate tunings and so forth (for live use, the speaker and mic simulators can be switched out). On top of that, you have conventional chorus, delay and reverb effects. But that's not all.

The other metaphorical string to Roland's virtual bow is HRM or Harmonic Restructure Modelling, another facet of COSM. Again, this works on the original string vibrations of the

HRM ALGORITHMS

• **ARTICULATED:** A brassy timbre which can be modified by means of the filter settings. Bend can be used to change the tone of the sound.
• **BOWED:** As the name suggests, a slower attack is used to simulate bowing. Again, the filter provides a means of fine-tuning the timbre of the patch, and string bends may be tied into timbre.
• **SYNTHETIC:** Similar to an analogue lead line synth. Basic filter control and touch sensitivity is provided.
• **DUAL:** A curious mixture of individual string distortion and pitch glide. Parameter control of filter and glide parameters is provided. The result is somewhere between fuzz guitar and an analogue brass sound with portamento.
• **FILTER-BASS:** The name says it all here; it's a synth bass sound with a resonant filter. Parameter control include the filter characteristics, Decay and Colour.
• **PIPE:** This is a very interesting setting, and sounds like a morph between a distorted guitar and a blown pipe. Control is basically of filter parameters, note pitch bend, and dynamics.
• **SOLO:** A soft lead instrument sound with options to adjust the filter, tonal colour and dynamic response. The attack of the sound still sounds much like a guitar, but what follows is more like soft synth brass.
• **RESONATOR:** This patch is used to emulate stringed instruments that contain an element of buzz — for example, sitar, banjo and so on. This algorithm gives access to the attack characteristics
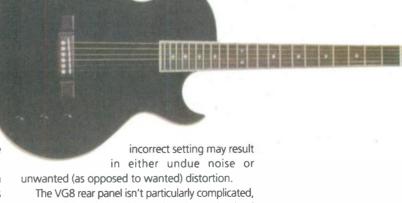
of the string, the type of body resonance and even sympathetic strings. The banjo is excellent.
• **PWM:** A simulation of the classic analogue synth with pulse width modulation sound. Parameters include filter resonance and cutoff, PWM depth and rate, and dynamics.
• **CRYSTAL:** A bright, ethereal sound which seems to include an element of pitch-shifting to provide an upper octave. The user can adjust the attack characteristics of the sound, the modulation and the dynamics, as well as the level of the sustained sound.
• **DRAWBAR:** Another hybrid sound, this time bringing together the organ and guitar. Three drawbars are provided for unison, plus one octave and minus one octave.
• **CAVITY:** Not a dentists' drill, but an algorithm for producing pad sounds with subtle vocal characteristics. About all you can change are the filter settings and the dynamic response.
• **COMPLEX:** A weird harmonic restructuring algorithm that provides control over attack and timbre, but does not include a conventional resonant filter. Good for weird, buzzy sounds.

HRM COMMON PARAMETERS
Individual strings may be panned anywhere in the stereo field. Additionally, the same three effects, modulation, delay and reverb used in the VGM section may be implemented. The three-band EQ and master volume section is also functional in HRM mode.

guitar, but this time these are separated into their harmonic components, which are then used as building blocks to create new sounds. Because the harmonic content changes depending how you play the guitar, the sound responds in much the same way as a guitar would — but the sounds themselves can be very unlike a guitar, falling midway between a guitar and a conventional synth, and retaining characteristics of both. Various synth-like processes help shape the sound, including resonant filters, modulation and pitch-shifting.

OUT OF THE BOX

There is of course a *non*-virtual, physical reality to the VG8 — it's a tough-looking steel pedal unit that looks not unlike the doorstep from a Stealth bomber. There are six pedals along the front for Patch, Bank and Group selection, and rest of the interface comprises the Value knob and a surprisingly small number of buttons huddled around the display, as if desperate for each other's company. I'm not sure about the wisdom of black buttons on a black background, but at least the legending is white! A 3-digit LED display provides a highly visible readout of the current Patch and Bank, while a backlit LCD looks after all the clever graphical icon

stuff (see the 'User-Friendliness' box for more details) while you're editing, and displays the patch names and patch information during performance. As it stands, the VG8 holds 64 preset patches and has room for 64 user patches. Further patches may be stored on a RAM card.

To use the VG8, you must fit your guitar with the Roland GK2A pickup system or equivalent (some guitars from Godin, Fender and Ovation now come with them built-in). The first thing to do with the system (after tuning up using the in-built tuner, of course) is to set the string sensitivity, and this is carried out with the help of a dedicated display mode, which registers the energy level from each string as you pick. This setting up is important, as an

incorrect setting may result in either undue noise or unwanted (as opposed to wanted) distortion.

The VG8 rear panel isn't particularly complicated, and you'll be glad to know that the mains lead goes directly to a socket — there are none of those nasty power supply thingies that are so impractical ▶

ROLAND VG8

on stage. Less satisfactory is the fact that the mains socket isn't a standard IEC type, so if you lose your mains lead at a gig, you could be in trouble.

A multi-pin socket accepts the lead from the GK2A pickup, and a separate output is provided for the regular guitar sound. A short lead connects the output of your guitar to the VG2A, allowing the ordinary guitar signal to be routed down the main multicore. This serves the dual role of doing away with the need for an extra cable, and allowing the original guitar and VG8 sounds to be switched or added using the selector switch on the GK2A. Two regular jacks (which may be used balanced or unbalanced) carry the stereo output from the VG8, though you can work in mono by plugging into just the left output. Two more jacks function as auxiliary inputs, allowing an external stereo signal to be fed into the VG8. One application for these is to to use the regular guitar output to feed an external effects unit, then return the effects unit outputs to the VG8 via the two Aux inputs. A headphone output is provided for practice, and two further jacks allow an external pedal and external switch to be connected. The switch is used to change patch groups or to access the tuning mode, and the pedal may be assigned control a variety of functions in real-time, such as level changes, pitch-shifting, and so on. A RAM card slot takes a standard Roland memory card, enabling a further 64 user patches and one global setup to be stored.

There are just two MIDI sockets; MIDI In is used when controlling VG8 patches from an external source or receiving patch dump information, and MIDI Out sends patch change commands or patch dump information. No MIDI note data is output, because the VG8 isn't a synth, and doesn't have tone oscillators. When the product was first announced, there was some uncertainty as to whether a simple pitch-to-MIDI interface would also be included (probably along the lines of Roland's recent GI-10 guitar synth), but it seems that no such provision has been included. Given that most of the hardware is already in place, this seems a little remiss.

THE SOUNDS

And now the bit that really matters: the sounds. The VG8 is really two instruments in one, insofar as it uses VGM to recreate traditional (and some less traditional) electric guitar sounds, and HRM to create guitar/synth hybrid sounds (see the diagram on P.94). Many of the VGM preset sounds have thinly-disguised patch names that leave you in no doubt as to what they are supposed to sound like. For example, there's 'Hey Joe', 'PurpHaze', 'D.Purple', 'OldBeck1', 'ALman LP' and '8MilesHi'. This tells us a lot, not least about the type of person who's done the programming. Most of these sounds are classic vintage rock, ranging from the early '70s to the present day, and what's more, most of them sound very much as you'd expect them to. Most of the classic rock sounds are extremely good, though I don't think they have quite the same 'feel' as the real thing. As any guitarist will tell you, the guitar itself feels different when you've got a singing amp on the end of it, but with the VG8, the player/instrument relationship doesn't seem to be quite so intimate. I think the best way to describe it is to say that what you get isn't an *exact* simulation ▶

CREATING GUITAR SOUNDS

The first step to setting up a sound is to define your virtual guitar. The Inst button opens the instrument screen, and here you can choose your guitar body and pickup configuration. Not only do you get a choice between humbuckers or single-coil pickups, you can also change the angle of the pickups and their relative positions, even to the 'unreal' extent of placing them half-way up the neck. The other 'impossible' thing you can do is create a long, angled pickup that starts close to the bridge on the top string, but winds up half-way along the neck for the bottom string. Pickup phase may be switched, and you can even select a piezo bridge pickup, to give something closer to an acoustic tone.

The pitch-shifting section works independently for each string, and sounds much cleaner than conventional pitch-shifters. This section includes some useful presets, such as a 12-string patch that places the top two strings in detuned unison and the remaining four strings in octaves. Other presets cover bass guitar emulation and guitar/bass splits, as well as providing the facility to set up open tunings.

One feature carried over from the GR300 guitar synth is the hex overdrive facility, which allows a separate overdrive circuit to be used on each string. This sounds quite different to normal overdrive, because there's no intermodulation between strings, so no matter how weird

the chords you play, all the notes will play clearly, just as they would on a synth. With the VG8, you can choose to use conventional overdrive, where the string outputs are added before the overdrive stage, you can use hex overdrive, or you can have a mixture of the two.

Once you're happy with your basic instrument, you can call up one of five Boss pedal emulations, which provide Compression, Limiting, Metal, Overdrive or Distortion. The VG8 display emulates the control panel of the pedal selected, and the cursor control is used to select which of the virtual knobs you want to turn. Value adjustments are made using the Value knob.

Amplifiers are accessed in a similar way, and there's a choice of American Tweed, Classic Stack, Studio Lead and Studio Rhythm, all of which have controls for changing the drive to different parts of the amplifier. There's also EQ, much as you would find on a real amplifier — bass, middle, and treble control is available, as well as Presence and Bright controls. Additional, global EQ is also available, in a separate block (see below). Speakers may be selected from a choice of a 1 x 12 open-backed, a 2 x 12, or two 4 x 12 cabs in a stack, and these choices are represented on screen by cute little icons. From here, you can choose small or large dynamic mics or a capacitor mic, and then 'virtually' set this mic up close, distant, or at an angle to the cab.

The EQ/Vol button gives access to the aforementioned global three-band EQ section, with parametric mid and a master level control, while the Effect button provides reverb, delay and modulation, with a choice of variable parameters for each effect type. All three effects types may be used simultaneously or individually turned off. Each patch has its own noise gate parameters which can be adjusted for threshold and release time. I found the setting on some of the presets tended to choke the sustain of the sound slightly, but resetting them and copying the patch to a user memory helped. As you can see, setting up the VGM guitar sounds is at least as easy as using a conventional programmable guitar preamp, but setting up HRM sounds is, if anything, even easier.

Because the HRM sounds are based on a finite number of algorithms, it's a matter of picking one that sounds as if it's roughly what you're after and then experimenting with the relatively small number of variable parameters available. These parameters are slightly different for each algorithm, but largely relate to filter cutoff and resonance, the interaction between the guitar-playing dynamics and the filter, and the effect of bending a guitar string on the timbre of the sound. It's also possible to determine how much the sound level is affected by picking intensity. A list of all the HRM algorithms is included in another box elsewhere in this article.

ROLAND VG8

of the real thing, but a very convincing caricature. In the context of a mix, the sounds work extremely well, and all the usual playing nuances are translated flawlessly, but the sound doesn't sing out in quite the way it does with a real amp. In fact, most of the conventional rock sounds are comparable in quality with what you'd get out

The VG8's two modes of sound production.

of a good guitar processor such as a Zoom unit, although admittedly the difference with the VG8 is that you can change from a single-coil guitar to a humbucking guitar, or even to a 12-string or bass, all using the same physical guitar.

Where the sleight of hand starts to show is when you set up guitar sounds that move away

from the conventional. For example, the 12-string emulations sound great, but heard in isolation, you can hear that unmistakable sheen that digital pitch-shifting invariably introduces. Similarly, some of the out-of-phase pickup settings require very powerful harmonic restructuring, and you can hear a hard, digital edge to the sound which isn't quite natural.

On the whole, though, the VRM side of the machine works well, and the range of electric guitar sounds you can get out of the VG8 is almost unbelievably wide — there's even an E-Bow patch. I also very much like the hex distortion facility (see the 'Creating Guitar Sounds' box), and though it doesn't emulate anything that already exists, it's a very useful sound in its own right. Aside from the pitch-shifting and radical EQ artifacts that are sometimes evident on more extreme settings, there's really no clue as to the fact that you're hearing a digital preamp.

To me, the main disappointment is the lack of any serious acoustic simulations. VGM seems to be the ideal technology to allow electric guitarists to switch to steel or nylon-strung acoustic guitars, upright basses, or even other plucked instruments such as harps, mandolins or even Chapman Sticks. Maybe VGM hasn't been developed enough to do this convincingly, but it's an area I think Roland should give priority to exploring. After all, there are any number of good guitar multi-effects preamps that can give you a good range of rock sounds, but none of them offers a palette of acoustic simulations.

Moving onto the HRM sounds, I found many of these tonally interesting, and all combined the character of the guitar with something vaguely synth-like, but they didn't seem so well-behaved as the VGM sounds. For example, innocent hammer-ons were often accompanied by clicks or glitches, and even playing very carefully and cleanly, the VG8 threw up the odd unpredictable noise. I had noticed a few of these glitches when the instrument was being demo'd at NAMM, so I contacted Roland, who informed me that they were aware of this, and that a new software update had significantly improved the situation. ▶

USER-FRIENDLINESS

One aspect of the VG8 not to be underplayed is the user interface. The VG8 may look like a pedalboard, but it's designed to be extremely simple and intuitive to both use and program, despite the complexity of what's going on inside the box. The manual might be over 90 pages thick, but most of the time you can just use it to stop the VG8 scratching your coffee table as you play with it. Like most programmable instruments, there are hierarchical menus, but the use of the graphic icons (or Object

Figure 1: Positioning the 'virtual' guitar pickup.

Oriented Interface for the jargon-lovers out there) allows you to go straight to where you want to go. There are six buttons beneath the display, each relating to an icon or value in the display, and once you get to the parameter you want to change, the rotary Value dial takes care of it. In most cases, instead of boring parameter windows, you get icons of knobs with the value written underneath, and when you turn the Value knob, the on-screen knob turns as well. The same is true when you're 'virtually' moving the guitar pickups — you turn the knob and the pickup icons

Figure 2: Choosing a 'virtual' open-backed 1x12 cab.

move along the body icon to show you what's happening (see Figure 1). When you choose a speaker cab, you get a tiny picture of either a 1 x 12 cab, a 2 x 12 cab or a dual 4 x 12 stack — it's that simple (see Figures 2 and 3). Some of the facilities require more than one page, but there's a dedicated Page button to take care of that. In short, multifunction inscrutability is not something this device suffers from.

Figure 3: Choosing a 'virtual' 4x12 stack.

X

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ROLAND VG8

▶ Unfortunately, they were not in a position to get it to me before our deadline!

It also seemed to me that the harmonic content of some of the HRM algorithms wasn't too far removed from distortion or noise, which gave some patches the tendency to sound very 'fizzy', even when played gently. On balance, I think HRM is a great idea with vast potential, and some of the patches are quite wonderful, but in its present incarnation, I still feel it is only partly successful.

CONCLUSION

For the session player who wants to get just about any guitar sound from one guitar, the VG8 is in a category of its own, and its ability to mimic 12-string guitars, electric basses and even sitars and banjos is most impressive. The general sound quality is the equal of the better preamps currently doing the rounds, but rather more flexible. The HRM side of the instrument is, I think, less well advanced, but then this *is* a new technology, and may well lead to greater things. The best aspect of HRM is that the sound still comes from the guitar string, so if you pick in a different place, damp the strings or hit harmonics, all of that comes over quite naturally. Some of the HRM algorithms sound ethereal and wonderful, while others are notably less enchanting!

I don't think that the VG8 replaces the real guitar and real amplifier in the same way that Rory Bremner doesn't replace all the people he impersonates, but in situations where you need a lot of tonal variety from one guitar and one box, it achieves a great deal of what it sets out to do. I have to confess that whatever its shortcomings, playing with the VG8 is a lot of fun, and I found it very hard to leave it alone!

Because this is not a synth, the output can't be recorded via MIDI, but I would imagine that the guitar player buying this unit might also be the type of person likely to have a casual interest in MIDI guitars, and if that's the case, it's a shame that a pitch-to-MIDI interface wasn't built in alongside the VG8 system.

On the one hand I must applaud Roland for taking yet another brave step to provide the guitarist with a new means of musical expression, but on the other, I feel the unit concentrates too much on rock guitar sounds — and there are plenty of preamps around that do great rock guitar sounds, even if they are less flexible than the VG8. It would have been different if acoustic emulations had been built in as well, but as it stands, the most significant, unique aspects of the VG8 are the hex-distortion, the HRM sounds and the ability to mimic 12-string guitars and bass guitars. The facility to use open tunings without retuning is also intriguing, and may well appeal to live players who don't want to be forever changing guitars, but if you don't need these features, you you may do better to wait a while until Roland's physical modelling guitar preamp, the GP100, comes on line.

A one-line conclusion has to be that the VG8 is a very impressive unit, but it isn't quite perfect. But since when *has* any new technology got it all right first time around? **SOS**

FURTHER INFORMATION

mutati

NITZER EBB • RENEGADE SOUNDWAVE • DANIEL MILLER

NIGEL HUMBERSTONE gets a rare glimpse inside Mute Records' in-house studio, talks to Mute bands Nitzer Ebb and Renegade Soundwave, and interviews the label's elusive and influential founder, Daniel Miller.

Mute Records is one of those independent labels that has survived the test of time and endeavoured to develop a diverse catalogue of artists (with stunning chart success), whilst at the same time retaining its autonomy and identity.

Something that the majority of Mute bands have in common is Worldwide Studio, the in-house studio set up to accommodate the recording needs of Mute artists. Nick Cave & The Bad Seeds, Laibach, Martin Gore (Depeche Mode), Inspiral Carpets, Renegade Soundwave and Nitzer Ebb have all recorded or mixed at the fully equipped studio situated above Mute's Harrow Road offices. I talked to both Renegade Soundwave and Nitzer Ebb about their current work and equipment, and managed to obtain a rare interview with Mute founder and musician Daniel Miller about the house studio and his own home setup.

aspect to it. So as soon as we toured there I felt a great affinity for the place and it was almost inevitable that I'd end up going there — and the band took off there way before it did here. The clubs had no barriers about our music, they just played it and got into it."
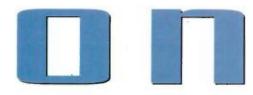
I wondered whether Harris had noticed any difference between American and British studios.

"They've got a very different way of working. I mean you can go to University over there and get a degree in sound engineering and it counts! Whereas over here if you went into a studio, you'd start as a tea boy. That type of situation doesn't exist over there, and like most things, you get protected, there's a union, and you get paid a fair

Nitzer Ebb's Bon Harris, photographed in Worldwide Studio.

NITZER EBB

Since touring America with Depeche Mode and again in their own right, Nitzer Ebb have found favour (album sales in excess of 200,000) with the US market. As a result, band members Douglas McCarthy and Bon Harris have spent a great deal of time in the States, deliberating, writing and preparing their follow-up album to 1991's *EbbHead*. Bon Harris, now based in Chicago and getting married in the summer, explains what, for him, is the attraction of American culture.

"I think that a lot of things that I was into as a kid, starting with Marvel comics and going through to skateboarding, had a real American

on

• MUTE RECORDS STUDIO

of not only repeating ourselves, but also repeating a lot of common mistakes and cliches of bands that grew up with electronics and technology. So we were trying to re-invent our approach and in doing that we were exploring a lot of different avenues. some of them which we almost knew would end up as bullshit, but you still had to get that out of your mind. We started off in Chicago and that went horribly wrong. We then spent a long time in California where a few good things came out in terms of the approach, but not musically, and it was the same when we went to Lake Tahoe in Nevada."

The band eventually relocated to the middle of America (in Donna Summer's old house) where there were less distractions. and this paid dividends with a host of new songs which were then brought back to England to finish off.

"Around that time we incorporated Jason Payne as the new drummer, involving him in the process. But really the first visit back here in November '93 when we worked with Flood, was the turning point."

Producer Flood had joined the band towards the ▶

rate. A knock-on effect from that is that a lot of things that engineers do are born out of theory and not from experience, so they know the correct way to turn an EQ knob — but you think 'use your ears, man, and not a textbook!' I do get frustrated with them sometimes, because they don't seem to work off their instinct."

It would appear that the making of Nitzer Ebb's latest album has been fairly fragmented over a couple of years, and this could have made it difficult fo the band to retain a sense of continuity. Harrsi responds:

"Not really. The album has been fragmented, but basically once we'd done *EbbHead* we were starting to feel constrained and there was a danger

Interior of Worldwide Studio.

WORLDWIDE INTERNATIONAL EQUIPMENT
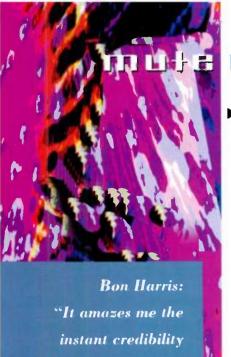
STUDIO ONE:
- Alesis ADAT 16-track with BRC
- Alesis Quadraverb Effects
- Amek Hendrix 56-input console (all channels with Virtual Dynamics)
- Amek Super True Automation
- ATC 200 Main Monitors
  - Climax Guitar Valve Pre-amp
  - dbx Boom Box
  - Drawmer DL221 Compressor
  - Drawmer DS201 Dual Gates (x5)
  - EMS Vocoder
  - Eventide H3000 & H3000E Harmonisers
  - Focusrite Dynamic Processors (x2)
  - Joe Meek Compressor
  - Kenton Pro-2 MIDI-to-CV
  - Korg DRV3000 Reverb
  - KRK 9000 Monitors
  - Lexicon PCM70 Reverb (x2)
  - MXR Pitch Transposer
  - Otari MTR90 2-inch 24-track with Dolby SR
  - Otari MTR12 half-inch 2-track
  - Roland SDE330 Delay
  - Roland SRV2000 Effects
  - Sony PCM2500 A/B DAT recorder
  - Summit Tube Dual Pre-amp
  - Symetrix Noise Reduction
  - TC Electronic Parametric EQ
  - Valley people 610 compressor
  - Yamaha NS10M Monitors
  - Yamaha SPX1000 Effects
  - Yamaha SPX90 Effects (x2)

STUDIO TWO
- Alesis 3630 Stereo Compressor
- Alesis ADAT 16-track Digital
- Alesis Midiverb
- Amek Einstein 52-Input Console
- Amek Super True Automation
- Drawmer DS404 Noise Gates (x4)
- KRK 1300B Monitors
- Otari DTR7 DAT Recorder
- Studer A80 Mk3 2-inch 24-Track
- Yamaha NS10M Monitors

mute records

end of their time in Los Angeles, and then (following his work with U2 on *Zooropa*) full-time from Lake Tahoe onwards. Flood has worked with Nitzer Ebb on previous albums, and I wondered what it was about his input that the band valued. Harris:

"Projects tend to come together when Flood is sitting in the producer's chair. As a human being he is very good-natured and well-balanced. And probably the bottom line is that he is incredibly intelligent. He's been in a lot of intense situations with bands having problems, and his knowledge of technology, music and human temperament is vast, plus he's got the temperament to sort it out. To replace him in the studio I think you'd need three human beings. He's just that kind of bloke. At times it's been like he's almost another member of the band.

"The mixing was where Flood was so important. The arrangements that he did on the board made the difference between a track that was mediocre — a lot of good ideas but not very focused — and a great track. But on this album the mixes were much more conventional, in terms of balance and sweetening. We took a lot of care with this album to put things down to tape as we wanted them, and I think that set the trend for the way we're going to work in the future.

"We're going to be using a more 'live' format from now on — simple things like having a guitarist use an effect at the front end. Like I'll have my synths going through the SE70 or the H3000 all the time. so quite often I'm putting sounds down with delay and reverb all over them."

Speaking of guitars reminded me of the distinctive guitar processing on the new Nitzer Ebb track 'Living Out Of A Bag'. I asked Bon how this was achieved.

"There's various guitars in there, and again a lot of the bizarre guitar treatment comes from Flood because he's worked with a number of guitar bands. As with most of the guitar parts on the album, they're multi-layered, and one part was done with an electric fan held against the strings and using open tunings. The track would be written in a conventional fashion with chord changes and then to get the sound that we did, we

> **Bon Harris:**
> "*It amazes me the instant credibility that people often attach to any stringed instrument. I find it quite sad that people still look upon synthesizers and people that use synthesizers as somehow inferior to other musicians.*"

NITZER EBB EQUIPMENT

SYNTHS	SEQUENCERS:	GUITARS:
• ARP 2600	• ARP sequencer	• Fender Musicmaster bass
• EMS synthi	• Atari Stacy 2 / Cubase	• Fender Mustang
• Roland system 100M	• Mac Quadra/ Digidesign Pro Tools/ *Cubase Audio*	• Gibson ES335
• Roland system 700M		• Gibson Les Paul
• Korg MS10		• Gibson Thunderbird bass
• Moog series 3 modular		• Paul Reed Smith bass
• Oberheim Xpander	EFFECTS:	
• Roland SH101	• Boss SE70	
• RSF Kobol	• Eventide DSP4000	DRUMS:
	• Eventide H3000	• DDrum pads
SAMPLERS:	• Jim Dunlop Cry Baby Wah	• Drumkat MIDI controller
• Akai S1000 & S900	• Yamaha SPX90	• Gretsch kit
• Kurzweil K2000	• Zoom 9010 & 9002	
• Lexicon Jam Man		

just used equivalent open tunings that would fit in with the chords, did separate passes, and then Flood would arrange it with the desk mutes. On another pass the drummer might play the guitar neck with sticks, so it wasn't so much the processing but how the guitar was treated."

I wondered who came up with the idea of using an electric fan..

"That was something that Blixa Bargeld first used on a Bad Seeds track, he wanted a constant strum feel and there it was — get a propeller in!"

Is there any special approach to recording the bass guitar?

"If we're leaving it fairly untouched, we'll just use tube compression and EQ to give warmth, and then pretty much the sky's the limit. I like putting the bass through the pitch shifter an octave up and totally misusing it. On the album, we fell back on the overdrive and fuzz. On 'In Decline', Flood had a tuned and pitch-shifted delay from a DSP4000 that went over everything — drums, bass, the whole lot. That was one of those tracks where we were searching for a bit of a direction. Flood slapped on this tuned delay and that just contributed an enormous amount to the initial vibe that we all worked off.

"It amazes me the instant credibility that people often attach to any stringed instrument. In some ways I find it amusing, but in other ways I find it quite sad that people still look upon synthesizers and people that use synthesizers as somehow inferior to other musicians."

STUDIO X

In Chicago, Bon has a small rented space at a place called Studio X.

"It's just something that I've built up. The main synths I use are old modular analogue things so obviously you need quite an area to house those in — and this studio offered me some space, at which point I decided to get some more stuff, like a Soundcraft 600 board, which is pretty ropey but does the job. Then I've got a couple of ADATs and a Session 8 with the ADAT interface, so that they can all lock together and keep everything within the digital domain. A couple of DMP7s are used for automating the ADATs. Then there's various outboard equipment, compressors, gates, an Eventide H3000 and Digitech GSP2101, and super sound manglers like the Boss SE70, which I use all the time.

"Then I've got a Kurzweil K2000 sampler and various keyboards, but I've tended to shy away from buying much gear in the past because it

would just sit there between albums while I was on tour. I'm still learning about the K2000 and I don't know it as intimately as I do the Xpander, for example. I don't feel I can 'subconsciously' use it at the moment, but in terms of its architecture and the philosophy behind it, it's pretty much the type of instrument I like."

Bon Harris has been engaged in an almost constant search for a sequencing package that he's happy working with. What would the credentials have to be for his 'ideal' system?

"I think something that precludes any form of editing, unless you want to edit, and definitely you should never have to stop it if you don't want to. Very manually controlled — I'm currently talking to this guy in New York who's developed something for the Amiga, and eventually the Macintosh, called *HyperChord*. And that's based on a grid, much like the editing page of *Cubase*, where you can just put the notes in a square and then go over to the play page where you've got a graphic representation of the keyboard which can be mouse or MIDI operated. Then along the bottom of the page you've got lots of different scales, so you can have your sequence playing and then hit, say, the Major 6th button, and the whole thing adjusts to that scale — and at the same time you can go from C to F. So if you know what your guitarist is playing you can do the changes with him. Often working with the old modular step sequencers, which is part of my style, you get something that you like the rhythm and dynamics of, but in order to change the key of it you need to manually adjust it or sample it. So to be able to change things 'on-the-fly' and 'perform' more is what I'm looking for. Something where it's more intuitive, so that you don't have to sit there thinking 'right I need to chop this, move it here, transpose this, transpose that' — because a lot of the time that's not how you naturally make music; you don't think about what you're going to do, you just do it.
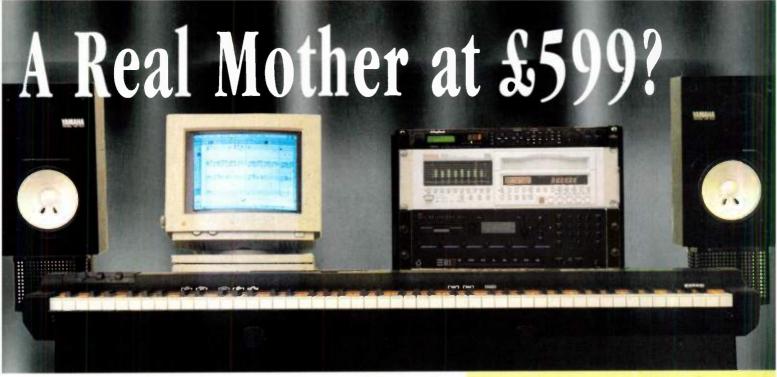
"So everything for me now has got to be geared towards real-time manipulation. As a result, I'm now using the Lexicon Jam Man all the time. I do a lot of stuff with that where I just sit at home; I make music now like I used to when I was 16, when I used to sit upstairs in my room making synthesizer noises and not record a note. I'd do it because it sounded good and I enjoyed it.

"The Jam Man allows you to do a lot of different things and encourages you to think about things in a different way. Oberheim are set to release their version of the Jam Man, called the Echoplex, which is more advanced."

One of the drawbacks of the Jam Man is that once you've overdubbed there is no turning back. So in order to stay one step behind, Bon keeps a DAT player constantly running so that he can backtrack and access previous takes.
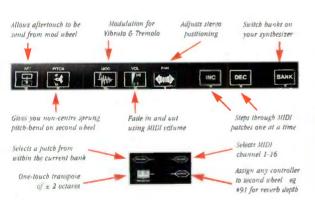
Returning to the new album, how does Harris think hardcore Nitzer Ebb fans in Europe are going to react to it?

"It's difficult to say. When we did *Showtime* I was convinced that it was unique and individual ▶

and people would dig it, and I guess our hardcore fans did, although they took a while. And again with this album I feel like that, that it's a very honest piece of work. I can see a thread and see how it's relevant and true to everything that we've done. And a lot of our fans are obviously very perceptive and intelligent people, so I think they'll see the thread as well. But there's always the hardcore techno German element who want everything at 1000 BPM and overloaded!
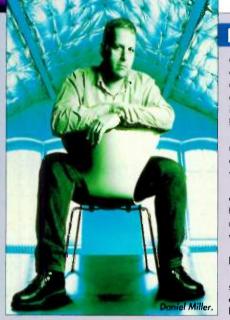
"It's also strange that I've been outside the European sphere of influence for quite a long time, so I really don't know what the barometer is any more. And because we've made so many changes ourselves within the band, I don't even know what a Nitzer Ebb gig is like at the moment because we've never done one in this format — although yesterday we performed on MTV and we did the single 'Kick It', with some sequences, but live drums, bass and guitar. So that was a departure.

"I was probably as nervous as when we did our first gig. It was the first time that the four of us had played together in public and we chose to debut in front of a potential 59 million people! So if you're going to find out that you're a crap bass player then that's the way to do it."

Nitzer Ebb's new album, Big Hit, was released on the 27th March.

DANIEL MILLER & WORLDWIDE STUDIO

Daniel Miller.

Daniel Miller's enigmatic leadership of Mute Records stems from his underlying passion for electronic music. Applying independent record label values learnt at Rough Trade, Miller (under the guise of The Normal) launched Mute's debut release in April 1978 — with the cult hit single 'T.V.O.D' and 'Warm Leatherette'.

Miller's active role within the Mute label has continued, and as a musical director/producer/remixer he has earned a rare loyalty from the artists he has signed — artists such as DAF, Depeche Mode, Vince Clarke, Nick Cave and The Birthday Party, Nitzer Ebb, Renegade Soundwave, Einsturzende Neubauten, Laibach and The Inspiral Carpets.

Miller originally set up an 8-track demo/pre-production studio at Mute's former Kings Cross offices (where Erasure's backing tracks for 'Sometimes' were recorded). I asked him about the philosophy behind setting up Worldwide Studios.

"Well, initially as an 8-track it was just at the time when synthesizers were getting a bit more programmable and the concept of pre-production was introduced. So the idea was for artists to work out ideas, do demos, and somewhere for me to mess about in as well.

"But when we moved to our current premises in 1986, I specifically looked for somewhere that would have space for a studio and that's when we decided to build the 24-track studio. The idea was to create a high-quality recording and working environment but at a reasonable price, which wasn't a commercial studio and therefore didn't have to keep up to date with new equipment in order to compete. Over time it's like anything — you get more and more bits and pieces, but if a new £10,000 Lexicon reverb came out, we don't have to get it."

Roger D'Arcy of Recording Architecture was responsible for the design of Studio 1. As a minimal and functional workspace the interior is very distinctive: what was the brief?

"At the time it was very innovative and not at all like other studios. I wanted it to look fairly neutral and as flexible as possible, so that whoever was in there could make it their own space; I didn't want to impose my vision of what the studio should be like."

Are there any artists who don't like working in an 'in-house' environment?

"I think people like working there, but as with any studio they like to move on and very often they'll go away, do an album at another studio and then come back. It's a good working environment, the price is good and we have good staff. We also have a room with ProTools digital editing, which is used for everything from editing 12-inches to preparing albums."

Are the studios for the sole use of Mute Artists or are they commercially available?

"Originally they were for Mute artists only, because I didn't want to be in the position where I had an outside client in for three months and one of our artists wanted to record there and couldn't. But because the workload of the artists who work there is relatively uneven, we go from being extremely busy with backlogs, to the point where there isn't anybody in for two months. So it can be available to outside clients although we haven't actively advertised it — it tends to be friends or artists from other labels that we know, like Beggars Banquet."

Like Vince Clarke, Daniel Miller is also an obsessive collector of weird and wonderful analogue equipment. How did the collection start?

"I've never really collected — it just grew. But then I consciously went out and got a couple of older things that I really wanted to get. I suppose one of my prize possessions is an old Moog modular system and a Roland system 700. For rarity value I've got an EMS Synthi 100 (acquired from the University of East Anglia's Electronic Music Department), which is like 10 VCS3s in one big unit the size of a 48-channel SSL desk. It's ridiculous that it's so massive, but it's an amazing synth with two huge pin matrixes.

"Another favourite piece is a Synton Syrinx, which at first glance looks like a Pro One, but it's a Dutch synthesizer which has very flexible internal patching and three filters, each with its own envelope generator. So you can get incredibly sophisticated sounds with it."

Having your own home studio, do you ever release any of your recordings?

"No — well, it's my hobby now. I'm not saying I never will, but I do it to relax, really — I think electronic music is very relaxing and can be very relaxing to make, especially if there's not a record at the end of it. Working on sounds can be very hypnotic — almost like meditation. I suppose I do it like other people do fishing and gardening. I very often don't use the computer, so I'm running off analogue sequencers. And obviously the nature of them is that they are fairly repetitive — so it's like my own ambient environment."

Other equipment at Miller's home studio includes two ARP sequencers, Minimoog, Korg MS20, Korg 700S (his first ever synth), Roland System 100M, TAC Magnum desk, Korg Wavestation, RSF Kobol expander, three MPU101 MIDI-to-CV converters, Roland 8M, Roland MKS80 with programmer, Akai S1000, Doepfer MIDI sequencer, and a Macintosh Duo 270c laptop computer running *Vision*, with an Opcode Studio4 interface.

"I tend not to use the sampler much these days, although I used them a lot when doing record production. But I've also got an AKS suitcase synth and I use the S1000 mostly for sampling unrepeatable sounds from that and the EMS synth.

"I've got a little portable setup that I take away with me on trips, because I travel a lot as part of my work. That consists of the Powerbook, Novation BassStation and a Korg O5R/W and it's very relaxing to be able to use that in the middle of a stressful business trip."

How do you manage to balance the interests and needs of artists like Depeche Mode and Erasure, with those of less successful ones?

"Well, obviously from the success of major artists you invest in developing new artists. But it's important that the people who work at Mute have a broad interest in music, so that they can work with different artists.

"Rightly or wrongly, I sign artists because I like them and their music. And inevitably they may not be in fashion, but you make a commitment and stick with them. As long as the investment is financially realistic and they continue making good music, then that's fine by me. I suppose that's what part of having your own label is about really."

► ## RENEGADE SOUNDWAVE

Renegade Soundwave's new album, *The Next Chapter Of Dub*, is a return to the radical dub technologies found on 1990's *In Dub* but features a number of reworked tracks from their last album, *Howyoudoin?*. The majority of recording work has again been done at Mute's own Worldwide studio, though Danny Briottet, the technician in the band, does a lot of preparatory work at home, where he has a small and simple setup consisting of S1000 samplers, Allen & Heath GS3 desk, and Quadraverb effects, all running with an Atari computer/*Cubase* sequencing configuration. Briottet: "I've also got a little Tascam 8-track cassette which I transfer the vocals onto that we've done in the studio. I'll stripe one channel of a DAT with code and the other with the vocals, so that when I get home I can dump it all onto the 8-track and work on it."

Even with this relatively modest setup, a lot of pre-production work can be done:

"I can do pretty much everything, but I can't make a lot of noise, and really you need to just get in the studio and blast the bass line. In the early years we never worked with NS10s or any nearfield monitors — we just had the big main monitors on all the time, all day and all night, and I used to come home with a splitting headache. But after a while you tone down. We use the KRKs in here a lot of the time and they're really nice because they're in between the two and you can feel the sounds around you, rather than with the NS10s where the sound is just 'there'. Sometimes we don't use the main monitors at all unless we're doing a club mix.
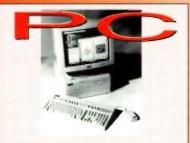
"I think it's even good to do club mixes on NS10s, which I never would have said a few years ago, but it's because so many club PAs are such rubbish. The bass sounds good but you lose everything else."

Bass is obviously important to the Renegade Soundwave sound. Where do the ultimate bass sounds come from? Briottet: "It's often a collection — the Juno is a pretty good and reliable source. We've also got some nice live bass samples with the strings plucked, then there's the old MiniMoog and Prodigy.

"Sometimes in the mix we'll filter a lot of the bass frequencies off. We'll do several mixes and at the end of the day the best mix will be the one with the bottom end filtered off the bass."

The new album contains a large number of re-mixes of tracks from *Howyoudoin*. How do the band go about re-interpreting their own material?

"We've always done that — even with our first singles back in the '80s. There's always been a lot going on in our tracks and sometimes one mix isn't enough. Often we feel we can take a track in a different directions and with this dub album we've had live percussion put on some of the old tracks as well as live guitar.

"With some tracks you say, 'well, that's the mix', but with others we can probably get three or four mixes. I like to cut things in a lot of the time, do little stabs of sounds on the desk."

And this is a technique that Briottet utilises for live shows, as he explains:

"I run two S1000s (8Mb each) and I loop everything off the multitracks and have everything running round through the 16 channels. Then I bring everything in and out manually rather than having it all sequenced up. So basically we can remix the tracks every night, and if it's a club night rather than a set gig you can follow the vibe of the crowd.

"We also have a DJ who mixes things in, a drummer/percussionist, a guitarist, and Gary doing the vocals. The basic parts are coming from my desk but everybody else is playing with it so we can jam and make different arrangements. All the stuff is dumped from *Cubase* onto a [Alesis] Datadisk which works really well and never crashes. And I've got a little DAC Optical Drive which keeps crashing and giving me loads of problems. It works well because we'd EQ'd all the sounds before we put them in the samplers, so in essence it's studio-quality stuff that I'm blasting out." **SOS**

The Next Chapter Of Dub is released on 24th April.

Renegade Soundwave's Danny Briottet (left), and Gary Asquith.

SAMPLING

Akai S3200
Akai's most comprehensive sampler to date, providing 32 voices, multiple analogue outputs, digital I/O, SCSI interface, SMPTE reader/generator, 8Mb RAM (expandable to 32Mb), and hard disk recording software ALL AS STANDARD!
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CD-ROM – Drives from Apple and Sony.
Max Optics – 5.25" Optical drives featuring an extremely fast access time coupled with the ability to read & write cartridges from 650Mb to 1.3Gb
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MountainGate – New, IncreMeg and VideoGig removable hard disk drives for massive audio data storage

AKAI DR8d
Eight channels of hard disk recording; this modular system allows you to add more channels when you want. There's a great optional remote controller, plus MIDI, SMPTE, and further digital/SCSI options.
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Keyboards and modules with built-in auto-accompaniments have always been treated as a bit of a joke by serious musicians, but are those attitudes now out of date? Ketron Lab have been making musical instruments for many years, mainly for the home and cabaret markets, but with the introduction of the MS series, they may have come up with a line deserving of a wider audience. The MS40 sound module under review offers an 'instant gratification' Style generator/creator, scads of wonderful sounds (even the usually mundane

What you have here is the ability to set up voices so that harmonisation effects are possible. In other words, one finger down, one voice, the next finger gives another voice, and so on. Duet provides alternating voices, while Trio changes in groups of three. There's even a floating keyboard split-point option that, once again, can be saved to disk.

The drum section has seven distinct parts, all of which have separate controls for volume, reverb and pan. There is also a 'real-time' on/off for each section, along with provisions for a user-defined drum set utilising any of the 192 high-quality

SOLTON MS40

MICHAEL ANTHONY

plays Orpheus in the underworld of home keyboards in an attempt to discover what level of technology lies beneath their distinctly untrendy exteriors.

MULTIMEDIA MUSIC STATION

GM set is worthy of attention), a generous backlit 40x2 display, basic MIDI recording, and an integral DSDD disk drive.

Looking at the sound generating capabilities first, there are 256 PCM/algorithm voices plus 192 percussion sounds spread over 12 drum sets (including one user drum set). The MS40 is also a 'real' synthesizer in that sounds can be edited, albeit in a slightly limited way. Available sound editing parameters comprise: DCA and DCF (attack/decay/release); Cut-Off; Resonance; LFO Rate, Depth, Delay; Aftertouch; Reverb; and Chorus. There are four dynamic curves, with aftertouch assignable to modulation, pitch and volume. Portamento, portamento speed, a global transposer function, octave down function, keyboard split, a special user-configurable scale section called Arabic scale, and the full chord facilities are also included.

The 256 'Multi-Synthesis' voicings are arranged into two banks and boast 28-note polyphony. No description of the synthesis method is provided, but the instrument obviously employs a sample-based synthesis system of some kind, and the overall sound quality is very clean. Almost all user parameters can be saved to disk.

One very welcome feature is Program Mode. Similar to what other units often term as Combinations, this function allows for 128 user programs with three selectable modes: Patch, Duet, and Trio. All three provide four-voice splits or layers with separate volume, pan, detune, octave shift, sustain, reverb and chorus/Leslie rotor control for each voice selected. Dynamically controlled velocity switching, which works in conjunction with a variable threshold, is also provided. With this option engaged, you can assign your choice of voices dynamically, allowing you to trigger different sounds the harder you play. The Duet and Trio functions are quite a neat little addition, reminding me of my old CZ101.

percussion sounds included. Another innovative feature is accessed by pressing a dedicated button entitled 'Registration'. Almost every panel parameter can be recorded as a setup file into any one of 64 memories and saved to disk in a special user-named file. For live gigs, this would be very useful indeed. I personally found it of particular benefit for memorising session work configurations and panel settings.

CONTROL LAYOUT

I happen to be a big fan of buttons, and the MS40 has 111 of them, along with 62 LEDs. All the control pads are made of a rubber-type material which is both comfortable and responsive. Grouped around the display are the eight main function buttons which control all the primary status menus and sub-menus. To the left of the display are the inevitable Page and Value increment/decrement buttons, along with most of the style and editing controls.

Below centre you'll find the Style-Select keypad, Stop/Start buttons, tempo adjustment, arrangement plus master volume slider, and the individual Parts Level buttons. To the right can be found all primary drive access settings, along with the remaining arrangement pads. The voice, registration and programme bank selection keypad is in the upper right-hand corner. Also on the top edge is a small cut-out for a reasonably quiet cooling fan.

Inputs and controls across the back include the AC socket, On/Off switch, foot switch/volume pedal/video interface connectors (more on that last one later), two MIDI inputs (one regular and one that connects directly to the GM system), and MIDI Thru and Out. One nice touch, in a unit ostensibly aimed at the non-professional market, is the provision of four separate audio outputs. In addition to the usual left/mono and right sockets are outputs 3 and 4, which can have both drum and section voices assigned to them, allowing

SOLTON MS40 £1499

PROS
• Warm, delicious sounds throughout.
• Elaborate, but well thought out, user-friendly control surface.
• Solid construction and design.
• Loads of usable Styles.
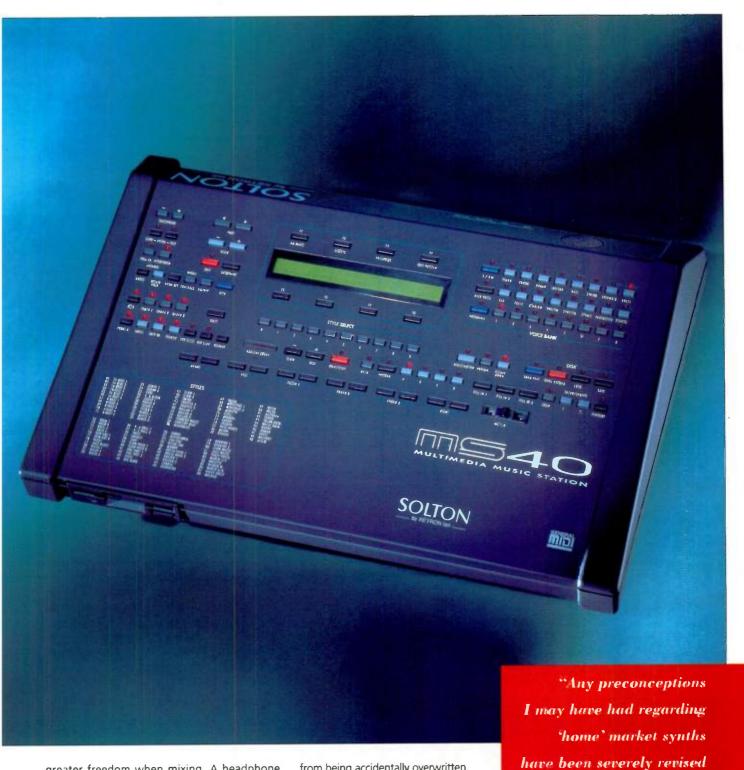
CONS
• Fairly basic effects.
• The elaborate control surface can be quite daunting initially.
• Frugal sequencing capabilities.

SUMMARY
To paraphrase, no synthesizer can be all things to all people, but the Solton MS40 does come very close. With its wide palette of gorgeous sounds and scores of exceptional features, you'd be hard pressed to find anything that gives you more punch for the pound.

greater freedom when mixing. A headphone socket in the far right corner and the front-edge-mounted drive rounds out the package.

STYLES

The notion of in-built accompaniment styles is one with which some people feel uncomfortable, but remember that they do have an off switch! There are 99 styles on offer and, surprisingly, many of them are actually quite useful, though I doubt if 'Weiner W' or 'Polka Ober', will be in great demand in the pop world. In addition to the on-board styles, there are also 24 user style locations. You can either programme your own or purchase Styles, Songs, Grooves and PCM sounds from the extensive factory disk library. It's also possible to 'lock' styles once they're entered, in order to prevent them from being accidentally overwritten.

Styles consist of any permutation of the following: two intros, three fills, four main section arrangements labelled A to D, and two different endings — more than enough to create some quite impressive compositions. One neat feature causes the arrangement to 'jump' from one main pattern to another following use of any of the three fills on offer.

The style system has five main parts: Drums, Bass, Chord 1, 2 and 3, plus a lead channel that can be configured in different ways. Key Start and Key Stop do exactly that, and there are a number of Arranger modes. These include Easy Chord (one or two notes plays it all), Pianist (the other sections accompany you, observing correct harmonic intervals), and ▶

▶ Dynamic Arranger/Retrigger. These functions lend a more personal feel to your playing. Other modes include Bass to Lowest (note), Bass Sustain, Octave Hold, Swell to Right, Restart, the all important Hold, Auto Crash (the Arranger will automatically insert cymbal crashes at pre-determined points), and an Automatic Tempo function. The included Auto Fader allows the entire mix to be remotely faded in or out. As this function can be enabled through MIDI, I found it quite useful while engaged in some of my more complex mixes. Other goodies closing out this section include the aforementioned Arabic Scale which allows you to experiment with customised tunings. Not only can you create your own unique templates, you can save them to disk with the Registrations.
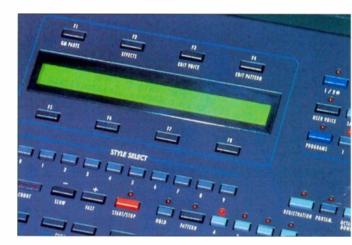
There is a complete GM assignment page allowing for temporary or permanent changes to the current 16 MIDI parts on line. Available parameters encompass Voice, Volume, Pan, Reverb, Chorus, Key Shift and MIDI channel. Pattern (aka Style) editing is comprehensive. You can even designate your preference between 'Parallel' or 'Close' chord structures (Parallel signifies that when changing key, transpositions are done in a parallel manner, whereas Close uses the closest inversions possible). And finally, it's possible to play any piece of music in 'real time' and record directly to disk. Playback of the resulting Standard MIDI File from disk is automatically engaged when you exit record.

SOUPED ON SONICS

The sound department is where the MS40 absolutely shines. With few exceptions, the 256 voices, the 192 percussion sounds and the factory-loaded programmes are of a uniformly high quality. Aside from a bit of noise or a slight truncation fudge here and there, I found very little to complain

about (see side box for faves). Ultimately, the best description of the MS40, in a word, would be 'warm'. In turning off the effects, I was struck by the overall realism of the sounds. Rosin rubs, guitar string slides, boxy thumps — all of the expected 'live' chunks are here. Besides an excellent 128 GM sound set, there are another 128 adventurous voices which seem to comprehensively explore

other sonic possibilities. The sounds are divided into 16 families: Pianos; Chrom (instruments such as Celeste); Organs; Guitars (sample the gritty electrics); Basses; Strings (Singles and multis); Ensembles; Brass; Saxes; Flutes; Lead/FM; Pad/FM (awesomely lush!); Synt/FM; Ethnic; Percussive; and Effects (check out the 'James Brown' grunt!).

Glueing this all together is an onboard digital effects processor. Although this is reasonably adequate, with 15 reverbs, Chorus 1&2, Pan Chorus, Rotor (Leslie effects), Rotor fast/slow, Delay 1&2 and Echo Repeat 1&2, I would have been happier with a bit more in the way of multi-effects and parameter control (the tempo of Echo repeats, for example). In general, though, the internal DSP is well-behaved and quiet. In fact, I'd have to say that ▶

MS40 SPECIFICATION

- 2x40-character Backlit Display
- 256 PCM/Multi-Synthesis Voices
- 192 Percussion Voices in 12 Drum Sets
- 128 Programmes (Combinations)
- 128 User Voices
- 28-note Polyphony
- 16-part Multitimbrality
- 99 Built-in Styles
- 24 User Patterns (Styles)
- 23 DSP Effects
- 256K Sample RAM
- 3.5-inch DSDD MS-DOS Disk Drive

Connections include:
- MIDI In (x2), Out, and Thru
- 4 Audio Outs
- Volume Pedal Input
- Video Interface Input
- Footswitch/Pedalboard Input
- Headphone Input
- Sustain/Piano and Sustain Pedal Inputs

THE SOLTON OF SOUND (OR A FEW OF MY FAVOURITE THINGS)

Any preconceptions I may have had regarding 'home' market synths have been severely revised following my exposure to the MS40. I was also pleasantly surprised to learn that changes made to the patch banks only take effect when the next note is played and don't interfere with currently sounding voices. Here's a list of my personal faves. Take a copy with you when you go to check the synth out.

NO/BNK	VOICE	COMMENT
01/2	Concert Grand	A warm, full, articulate sound. All the pianos are excellent.
19/1	Rock Organ	Shades of Uriah Heep. Switch on slow rotor for the full effect. There are some nice organs hiding in Bank 2 under Pad/FM.
23/1	Harmonica	Lovely stuff. With a bit of bend, it's Breakfast in America.
34/1	Fingered	Good, all round bass sound. All the basses are brilliant.
34/2	Fing Bass	A real rocker!
38/2	Techno Bass	Fat and useful.
85-88/2	Basses all	Called Pop, Sinus, Bourdon and Sub bass, I'd suggest you remove china from high shelves when using these sounds. Bombastic!
25/1	Nylon Guitar	Luscious, very authentic, and if used with correct phrasing, quite believable. Also try 25/2 Spanish.
29/1	Stopped Guitar	Excellent for chunking. Another to try is 29/2 Stop 5th.
31/1	Rocklead	
30/2	Bluelead	I loved both of these electrics (actually all the guitars are great. In bank 2 under Synt/FM there's another eight crankers to try.
43/1	Cello	All the strings are fantastic, but in the singles category this one takes the prize.
65/1	Blowsax	If I only could pick one sax ever, this would be it! You can hear the spit 'n' smoke.

Finally, of the programmes, be sure not to miss Philarmo, Orchestr, Fantasy 1-8 and Rave. Have fun!

SOLTON MS40

▶ the MS40 is a low-noise unit in almost every respect.

In addition to the onboard sounds, there is provision to load in PCM samples and grooves (essentially drum loops — see side box), though at the moment, you're restricted to the use of the Solton disk library. Orchestral voices, special effects, ethnic instruments and drum grooves are presently on offer. The sample/loop occupies a special memory slot, ever ready for incorporation into one of your *meisterwerks*. There's even a multi-task mode that permits the loading of samples while playing. All of this, claim Solton, will help obviate the obsolescence often associated with electronic musical instruments... er, right...

MIDI

MIDI implementation on the MS40 is fairly good. Besides the individual GM MIDI input and full observance of the General MIDI protocol, you can program style patterns on an external sequencer, then transfer them into the MS40. All the MS40's auto-accompaniment features are also transmitted over MIDI, so you can come up with something spontaneous using the auto-accompaniment and beam it over to your external sequencer for polishing. The MIDI section also provides for System Exclusive, Control Changes, Clock In/Out, Dump, Special transmit channels for Registrations/Programmes, and so on. For the tech-y types, an excellent serving of Non-registered Parameter Numbers (NRPN) are on the SysEx menu, mainly dealing with effects and assorted drum options; utilising an external sequencer, you can address these parameters directly. While the on-board recorder can be used for 'real-time' data entry, since the MS40's disk drive also has the ability to read and write MIDI files, for serious work an external system would be a better choice (see box on MS40 sequencing). The disk drive can load and save user Drum Sets, User Voices, Style Patterns, Registrations, and Programmes, along with Format, Pattern chains, and so on.

One further feature you're bound to love (or not!) is the VI 1 Video Interface — Karaoke! Of course there are those sad people who actually like Karaoke, and for them there's very little anyone can do, but there are some less frivolous applications for the technology which enables you to insert lyrics and chord names into standard MIDI files using an external sequencer. Let's say you've got a session going with a group of singers, or perhaps even a live gig where not everyone is sure of their words. Just set up a video monitor with the interface, sync up the unit to either tape or sequencer and let her rip. Now you have scrolling lyrics and chord charts. One band I know use this system both in rehearsal and at gigs! Personally, I like the old method of writing lyrics down, but at least a TV monitor doesn't rustle as you turn the pages.

Accessories provided are a demo disk, a Music Support (to prop up your music), and the Owner's manual. Options include a six- or 13-section User Programmable Pedal Board, the Video interface, and various other pedals (Volume, Sustain, and so on). There's also a hard case and the disk library.

RAPPING IT UP

I have to admit to liking the MS40. I have a friend who swears he can identify the lineage of a synth simply by hearing a patch, but the MS40 proved too much of a challenge even for him. The point is that most of the currently popular synths with any real merit come from a very small pool of manufacturers, so if you want something unique in the way of sound, you need to look further afield than the usual big names. In the case of the MS40, not only is the sound quality very good, but the GM sounds are just that little bit different to everyone else's GM sounds, which gives the instrument a character of its own.

Obviously the MS40 was designed for the shadowy world of cabaret, Karaoke and whatever species the home organist has currently evolved into, but that doesn't make it any less valid an instrument. If you use synthesizers to provide live backing at gigs, then you could do a lot worse than the MS40, and even if you're the type of musician who wouldn't be seen dead playing live to an auto-accompaniment system, there's no arguing that practising with an in-time, perfectly-behaved robot backing band is infinitely better than trying to practise on your own. In the studio, the MS40 is a worthy GM synth in its own right.

Auto Styles can also be very useful in the early stages of songwriting, so don't just write them off as something 'nasty'. Whatever you think of home keyboards and their spin-offs, it's a fact that technology becomes cheaper as the market becomes wider, and I'm sure that in years to come, some of the best bargains in electronic musical instruments will come with built-in speakers, auto styles, and probably even Karaoke lyrics bouncing across their LCD screens. **SOS**

SYNGROOVE

Simply stated, Syngroove is an exclusive Solton feature that enables any Groove file that is loaded into the MS40 Pattern (Style) section to be automatically synchronised with the internal clock. Any change to the tempo will be reflected by a corresponding change in Groove tempos. Grooves are essentially specially-prepared percussion sample loops, similar in most respects to the drum loops found in profusion these days. The only real difference, outside of format, is that they contain certain timing code info required to engage the MS40 sync circuits.

MS40 SEQUENCING

Solton have realised that most serious studio users these days use some kind of computer system for sequencing, and have consequently decided not to include a full sequencing system in the MS range. You can overcome this limitation, however, by utilising the Song Record facility in conjunction with Pattern Edit mode.

Song Record mode will faithfully record and send back out of the MIDI port all notes, control and program change data, either from hands-on playing or from internal/external sources. By utilising Pattern Edit mode as a phrase recorder on up to nine MIDI channels (options include any one of five instruments, Tempo, Quantisation, number of bars up to 16, chord table and Metronome on/off), you can perfect the phrases required for your sequences on both a punch-in and overdub basis.

Once satisfied, you can enter Song Record mode and record the results while playing your lead line. Obviously, no step-entry mode is available, which means that you'd better either be very good or very patient! Eventually a song can be achieved using this method. Personally, I'd like to see the inclusion of an overdub feature in Song Record mode. Perhaps in an update?

The best option is still the use of an external dedicated sequencer, though this system works reasonably well in a pinch.

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PART 3: *The syncing of MIDI sequencers with multitracks is an important part of modern recording and can help you make the most of a limited equipment budget. In the third part of this series, PAUL WHITE looks at the various ways of running multitrack tape and MIDI equipment simultaneously.*

PLANNING YOUR FIRST HOME STUDIO

While MIDI sequencers make an excellent job of allowing you to create a fully orchestrated backing track, unless you go to the expense of adding hard disk recording facilities or buying a sampler with a huge amount of memory, you can't use a sequencer to record vocals or 'real' instruments. While I'd be the first to accept that in the context of pop music, MIDI instruments are often just as useful as the real thing, even the most skilful synth player will find it difficult to emulate the virtuoso performance of a solo guitarist or sax player.

So when it comes to capturing a 'real', as opposed to virtual performance, tape is still first past the post for cost effectiveness. Both multitrack tape and MIDI sequencers have their strengths and weaknesses, so rather than playing one off against

the other, it's far more useful to make them work together. You could just mix your MIDI sequence, in stereo, to two tracks of your Portastudio and then overdub your vocals or solos on the remaining two tracks, but that isn't the most effective way to work. There are far greater advantages in making the tape machine and sequencer run side by side, in sync, so that the MIDI instruments never have to be recorded onto multitrack — and you only need a little relatively inexpensive hardware to do this. What are the advantages? Probably the most significant benefit is that, because you don't actually record the MIDI instruments to tape at all until the final mix, you can change the balance of the instruments, select different patches and set up different effects, right until the last minute. You'll also find that the end result is cleaner because

you're avoiding one generation of tape. Adding a 16-track sequencer to a 4-track cassette multitrack effectively gives you a 19-track recording system (you lose one tape track to time code).

If there's a disadvantage, it's that you'll need a mixer with enough inputs to handle both your taped sounds and your MIDI sounds, and if you have several MIDI modules, you might find that the mixer stage of your cassette multitracker doesn't have enough inputs for the job. If you're using an open-reel machine, you don't have the same limitation, but you still need a mixer with enough channels.

While it's technically quite easy to control the playback speed of a MIDI sequencer, it isn't quite so easy to control a typical semi-pro multitrack recorder, so the most practical option is to make the sequencer run in sync with the tape machine rather than vice versa. In other words, the tape machine sets the pace and the sequencer follows. This involves getting the sequencer to start at exactly the right time relative to the tape machine and, once it's running, to keep it in time until the tape is stopped.

So far, I've described what working in sync has to offer, but how does it work in practice? How is the sequencer able to start at the right time and keep in time with the tape machine? The answer is time code — a series of electronic markers or signposts that are recorded onto one track of your multitrack. You can think of time code as being the electronic equivalent of the sprocket holes that guide cine films through projectors, and though you lose one track of tape to hold the time code, you can use it to sync up as many 'virtual' MIDI tracks as your sequencers and sound modules can provide.

FSK SYNC SYSTEMS

The simplest form of sync is known as FSK (Frequency Shift Keying), a system which records a series of electronic tones (usually 1kHz and 2kHz bursts) onto tape, at a tempo related to the tempo of the song you're working on. These tones are derived from MIDI clock, which is based on sub-divisions of the song's tempo. Many drum machines have FSK sync built in, which means that even if you don't have a sequencer, you can still sync your drum machine to tape.

Once you've sorted out your song arrangement, the starting tempo, and any subsequent tempo changes, it's simply a matter of playing back your programmed song and recording the code to tape. Because the code is tempo related, if the song speeds up, the code speeds up, so there are no conversion processes or other complexities to worry about.

Once the code is safely on tape, the output of the code track is fed back into the sync input of the drum machine (or whatever MIDI device you're using), the drum machine is set to external MIDI sync, and you're in business. Providing you start the tape before the start of the song, the drum machine will receive a MIDI start command and run in perfect sync with the tape.

Here's the procedure for working with a drum machine or sequencer equipped with FSK:

• Program the complete drum machine part or, if you're using a sequencer, the rhythm part of your sequence, including any tempo changes.
• Record the sync code output from the drum

machine (or sequencer) onto one tape track, (usually the highest-numbered track), while allowing the drum machine to play the piece you have just programmed. The drum machine is set to internal sync during this process.

Note: Some tape machines have dedicated sync ins and outs, while with others, you have to use the audio ins and outs. In the latter case, bypass any noise reduction and EQ, if possible, as leaving them switched in may make the code read unreliably.

• After the code has been recorded, plug the output from the sync track into the Sync In socket on the drum machine. Switch the drum machine to Tape Sync, and play the tape from just before the start of the time code.
• The drum machine will start when it receives the sync code from the tape machine and will stay in time with the tape until you stop the tape machine.
• After checking that the code is being read reliably, you can now go on to record your tape tracks while monitoring the sequenced parts.

Important: make sure you don't accidentally erase the sync code, otherwise you won't be able to get the song sync'ed up again.
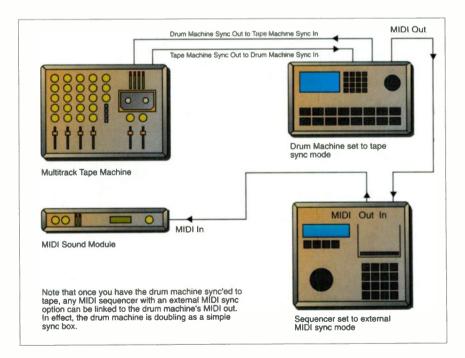
The main disadvantage of simple FSK is that whenever you stop the tape, you have to wind back to the start again to restore sync, which can be a real pain when you're working on the end of a long song.

Other MIDI equipment with external MIDI sync capability can be sync'ed to the drum machine via MIDI, which means that you could use your drum machine to sync a MIDI sequencer to tape. Figure 1 shows a practical way to do this. Note

Drum Machine Sync Out to Tape Machine Sync In
Tape Machine Sync Out to Drum Machine Sync In
MIDI Out

Multitrack Tape Machine

Drum Machine set to tape sync mode

MIDI Sound Module

MIDI In

MIDI Out In

Note that once you have the drum machine sync'ed to tape, any MIDI sequencer with an external MIDI sync option can be linked to the drum machine's MIDI out. In effect, the drum machine is doubling as a simple sync box.

Sequencer set to external MIDI sync mode

Figure 1: Sync'ing via a drum machine.

that when working with FSK, you can't record new parts onto the sequencer while you are sync'ed up because the sequencer's MIDI In is occupied by the drum machine's MIDI Out. If you must work on your MIDI parts while listening to the tape parts you've recorded, you'll need to buy a MIDI merge box to combine the MIDI Out of

Your first home studio
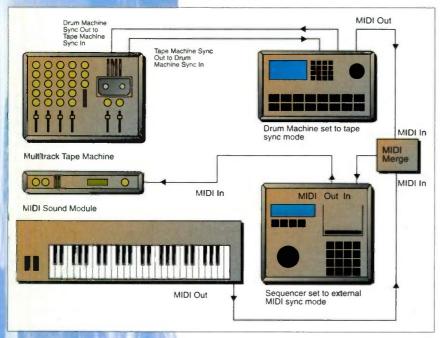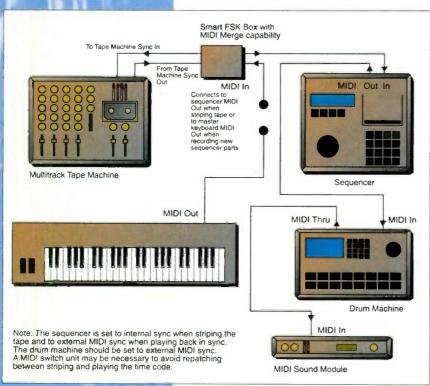
Figure 1b: Incorporating a MIDI Merge unit.

Figure 2: Sync'ing via a smart FSK unit.

your master keyboard with the MIDI Out of the drum machine. Figure 1b shows how this works.

SMART FSK

The basic FSK system works fine, but its weak point is its inability to establish sync unless the song is started from the beginning every time. An enhanced version of FSK, known as Smart FSK, gets around this very neatly, providing that the sequencer or drum machine being locked up recognises MIDI Song Position Pointers (as most modern units do). Smart FSK may be used in exactly the same way as basic FSK, the difference being that you can start the tape anywhere in the song and you'll be sync'ed and

running within a second or two.

Smart FSK is used by some external sync boxes, and even if your system has basic FSK sync, it may well be worth buying a Smart FSK box just for the luxury of being able to start your song anywhere you like. Some of the available Smart FSK units (such as the JL Cooper PPS II) include a MIDI merge facility so that new sequencer parts can be recorded while you're running in sync. Figure 2 shows a system using such a Smart FSK box. In this example, the drum machine is running as a slave from the sequencer's MIDI Out, but providing your drum machine recognises Song Position Pointers (SPPs), you could equally well sync the sequencer to the drum machine. If you're not working to picture, Smart FSK will give you all the practical benefits of SMPTE but with fewer complications.

SMPTE

SMPTE (pronounced simp-tee), is a highly sophisticated time code developed originally for soundtrack work in the film and TV industries. Unlike the previously-mentioned FSK systems, which rely on the tempo-related nature of MIDI clock, SMPTE places a stream of electronic markers on tape, each marker containing coded timing information relating to elapsed hours, minutes, seconds and frames of film or TV picture. The code is quite independent of musical tempo, and there are several versions of SMPTE in use to accommodate the different frame rates of film, PAL TV or NTSC TV. Though it was developed for soundtrack sync'ing, SMPTE may also be used for non-picture related applications, and now that all the hardware is available on a single chip, it has become practical to use this time code for general audio sync. SMPTE has been used for a number of years for sync'ing two multitrack tape recorders, but its affordability in recent years now makes it a viable option for use in MIDI studios.

Because SMPTE isn't related to tempo, a whole tape can be recorded, or 'striped', with code before any recording or programming starts. However, as SMPTE measures time, not tempo, a conversion is necessary to translate a SMPTE location to a bars and beats location if it is to be musically useful. This may be done by the computer used to run the sequencing software, or by a microprocessor inside a stand-alone SMPTE-to-MIDI sync box. To do this conversion, the system needs to be given the start tempo of a piece of music, the precise time at which the sequencer is to start, and information about the locations and values of any subsequent tempo changes. This data must be stored as a 'tempo map', and this tempo map must be loaded each time the song is worked on. A general-purpose SMPTE-to-MIDI box will normally expect the user to furnish the information needed to build a tempo map, but some of the leading sequencer manufacturers offer dedicated SMPTE sync units which handle the creation and storing of tempo maps for you via the sequencing software.

If SMPTE offers no practical advantages over Smart FSK and also requires you to deal with tempo maps, why bother with it? A good ▶

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▶ question. I'd say that unless your sequencer has a piece of related hardware, such as E-Magic's Unitor, which makes the procedure transparent, or unless you need to work to picture, you don't need to bother — stick with Smart FSK. If SMPTE has a practical advantage for music-only use, it is only that it allows you to stripe the tape at any time rather than having to wait until the song is programmed. The only time you're really forced into using SMPTE (see also MTC) is if you're doing work that has to be sync'ed to TV or film.

MTC

A comparatively recent offshoot of SMPTE, designed specifically for use with MIDI equipment, is MIDI Time Code, or MTC. As far as the user is concerned, MTC behaves much like normal SMPTE except that it can be piped along a MIDI cable and read by any MTC-compatible sequencer or drum machine. You still need an electronic box to interface the MTC signal with tape, but because the code is handled in the computer rather than by the external box, the sequencing software can look after all the tempo mapping for you. Because MTC is a standard, there should be no restrictions on which MTC sync box you use with your sequencer, and virtually all current MIDI sequencing software is MTC compatible. Even when working to picture, it is now common practice to use a sync box that converts SMPTE to MTC. For example, for Mac users, MOTU's MIDI Express reads and writes SMPTE, generates MTC, functions as a multi-port MIDI interface, and still finds enough time to double as a MIDI routing system. Opcode's Studio series of MIDI interfaces also perform similar tasks. MTC now seems to be the standard sync system supported by the majority of hardware and software manufacturers, so if your equipment supports it, the message is that you may as well use it.

RECAP

• **Basic FSK** will get you up and running, locked to tape for little expense — or none at all if your drum machine or sequencer has a sync function built in. On the whole it's easy to use and reliable, providing you bypass any noise reduction systems, especially dbx, and follow the manufacturer's instructions regarding the best level of time code to put onto tape. However, it does have the one major weakness that you have to start your song

> "*Both multitrack tape and MIDI sequencers have their strengths and weaknesses, so rather than playing one off against the other, it's far more useful to make them work together.*"

from the start in order to achieve sync. Once you stop your tape, you have to wind back to the start.

• **Smart FSK** is a great improvement, because you can start the tape anywhere you like and the sequencer or drum machine will still come in right on cue. With any time code system, smart or otherwise, that ties up the MIDI in socket on your sequencer, you'll need a MIDI merge box if you want to record new MIDI parts while still sync'ed to tape. However, some sync boxes have MIDI merge built-in, so check this when you're shopping around for one. You may have to pay a little more for a unit with built-in MIDI merge, but the chances are it'll still be cheaper than buying a separate merge box.

• Technically speaking, **SMPTE** is a sledgehammer to crack a nut, but if your hardware takes care of all the tedious stuff like tempo maps, there's no reason not to use it. On the other hand, if you're working to picture, you'll have to get involved with SMPTE or MTC.

• **MTC** has become the musical sync standard in recent years, but you still need to use a sequencer that can deal with tempo maps. Fortunately, all the current major sequencing software packages do. For example, sequencers such as *Cubase* or *Logic* work out their own tempo maps based on the current song data and store the tempo map information as part of your song, so you don't even have to think about the process once you've set a start time. Such systems are almost as simple to use as Smart FSK, though when using either SMPTE or MTC, you should take care to ensure that the song starts well after time zero, the so-called midnight hour. A great many SMPTE systems get very confused if you play through time zero (00:00:00:00) so it's best to put in an offset of between 10 minutes and one hour.

When you run a sequencer in sync, you don't need to put the MIDI sounds onto multitrack at all, though many people still do, either for added security or because they don't have the polyphony do play the whole arrangement in one pass. Avoiding going to tape, especially with bright or percussive sounds, avoids a generation of quality loss, which can be significant if you're using a cassette multitrack. Mastering to DAT can give near CD-quality results, even when your vocals and lead guitar have been recorded on a budget multitracker. **SOS**

t seems ironic that it took over six million years of evolution for man to do with technology what nature managed to do perfectly well with just a few large rocks! Reverberation is simply the result of sound bouncing back and forth between reflective surfaces, but trying to duplicate the effect, substituting thin slices of silicon for big chunks of stone, is no simple task. Though Lexicon would be the first to admit that even they haven't quite caught up with nature, they're still the undisputed big name in artificial reverberation, and the LXP15 II is their latest product.
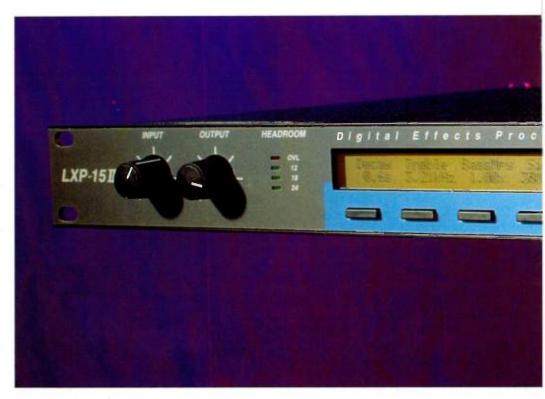
and some of the algorithms allow parameters to be linked to the envelope of the incoming signal to provide effects such as ducked reverb.

Some multi-effects units can be quite challenging if you want to use them to their fullest extent, Lexicon's own PCM80 being just one example, but the LXP15 II is designed to be very straightforward to use. There are hidden depths to explore, especially if you want to make the most of the MIDI facilities, but in the main, you can get just about anything you want out of this unit after just a few minutes' exploration.

LEXICON LXP15 II REVERB AND MULTI-EFFECTS PROCESSOR

SPACE STAT

PAUL WHITE looks at the latest incarnation of the LXP15 and finds that it neatly bridges the gap between Lexicon's budget products and their top-of-the-range pro reverb units.

The new unit appears to be based on the original LXP15, but with the addition of new effect algorithms, so though the hardware may be familiar, when it comes to sound, much of what you hear is brand new. The LXP15 II is a multi-effects processor but its processing power is directed towards quality rather than quantity, so don't expect to be able to string a dozen or more effects together in one patch. As you might expect, the main aim of the unit is to provide high-quality, versatile reverb treatments, and a high proportion of the 128 factory presets are studio reverb settings. The remaining patches rely mainly on modulated or unmodulated delays and pitch shifting, often in combination with reverb. Extensive real-time MIDI and footpedal/switch control is offered over various effects parameters,

All the effects are based on algorithms, an algorithm in this case being a preset combination of effect types and parameters. To create a new effect, it's easiest to use a factory preset as a starting point, and after the necessary parameter changes have been made, the edited version can be stored away in one of the 128 user memories, or 'Registers', as Lexicon prefer to call them. You can still change algorithms while editing an effect, but this method may not be quite so intuitive.

Physically, the LXP15 II has a very straightforward front panel based around an LCD window that shows up to five parameters at one time. Rather than using cursors to navigate around the page, Lexicon have arranged five 'soft' buttons beneath the window so that parameters can be selected directly. Value changes are made with the large

'Adjust' rotary encoder, and the various display pages are selected via the 'Page' 16-way switch. Separate input and output level controls are provided, along with a simple four-section input level meter; dual-function controls are noticeably absent.

The rear panel of this extremely deep unit features a full complement of MIDI In, Out and Thru sockets, along with two pairs of signal inputs and outputs on standard, unbalanced jacks. Stereo inputs are provided so that the dry part of the signal can be kept in stereo, but for studio use where the unit is to be fed from an Aux send, either input may be used as a mono feed. Similarly,

soon as you select it. As loading takes half a second or so, it is usually easier to use the Pre scan mode and then hit load when you find the patch name you want.

To help make the presets easier to navigate, they are divided into studio effects and stage effects. The first 64 of the presets are designated as studio effects and contain a large number of specific reverb types, while the remaining stage effects tend to be a little more flashy. However, the descriptions 'stage' and 'studio' are somewhat nominal, and all the effects could really be used in either context.

Once a preset has been loaded, it may easily be modified by turning the page knob to the name of the effects type (Delay, Pitch/EQ, Reverb, Level, Mod or Alg) that you want to edit. For example, if you select Reverb, you'll get the option to adjust the Decay, Treble, Bass Multiply (relative bass

> "I love the vocal reverbs, which have that amazing quality of being able to totally transform a sound without ever seeming to get in the way."

ION

you can plug in only one output jack and get the effects in mono, but it's my opinion that anyone doing so should be locked up for their own safety! The remaining five jacks are reserved for foot controllers which may either be passive pedals (nominally 50kohms) or switches. How you use five foot controller at the same time is not explained in the manual — perhaps you need a friend and a one-legged roadie to help?

THE TOUR

The best place to start when first using the LXP15 II is with the factory presets. With the Page knob turned to Setup, you can either opt to scroll through the preset names and then load one using the Load button (actually, the soft button below the word Load), or you can have a preset load as

decay time), Size, and Diffusion. Other pages allow the patch to be named, the user patch destination to be selected, and also access global functions such as MIDI receive channel, memory protect status, display contrast, and so on.

The effects themselves are based on just five algorithms: Delay Reverb, Pitch/Delay, Gate, Plate and Chorus Delay. Using the delay algorithms, it is possible to set up Glide delays, which start with the delay either sharp or flat and then glide back to the correct pitch. Modulated delays produce all the conventional chorus, flange, phase and vibrato effects, and some algorithms, such as Delay/Reverb, include two blocks of delay — one for the Glide effect and one to provide reverb pre-delay. The maximum delay time available is just over one second.

▶

LEXICON LXP15 MKII

▶ Pitch shifting effects are available from within the Pitch/Delay algorithm, which has a range of plus one octave to minus two octaves. This algorithm also includes EQ and delay modulation and the pre-delay block can be switched so that it will continually loop the stored sound for the creation of special effects. Separate delay blocks are provided for the left and right channels, with the left delay being fed back to the input of the pitch shifter for spiralling pitch effects. This is actually a very versatile algorithm capable of anything from a subtle chorus to a sci-fi cacophony of sound.

CONTROL

Lexicon go in for control in a big way, and the creative use of control can significantly enhance the artistic effect of signal processing. Any sensible effects parameter can be assigned to either MIDI or pedal control, and pedals can be customised and their settings stored. Up to 78 possible control sources can be used, including MIDI velocity, MIDI clock (for tempo-related effects), MIDI channel pressure, and even the last note played. These are in addition to the more usual continuous controllers such as bend, breath control, MIDI volume, and so on. Using these features, it is also possible to control the pitch of the pitch shifter directly from a MIDI keyboard.

The unit can be set up so that MIDI program changes access either the Presets, the user Registers or a patch map of selected patches created by the user.

THE EFFECTS

After recently using the PCM80, I found the effects produced by the LXP15 II more 'straight ahead', but that's not to imply that they are in any way uninspiring. You don't get the PCM80's resonant chord programs and there aren't quite so many opportunities for audio pyrotechnics, but what you do get is a good selection of classic Lexicon reverb sounds, ranging from bright, aggressive percussion treatments to smooth, natural hall simulations. Amongst my favourites are 'Tiled Room' and 'Splattered', both of which are great on bright, percussive sounds, though I also love the Vocal reverbs, which have that amazing quality of being able to totally transform a sound without ever seeming to get in the way.

The delay and chorus effects are first rate — very clean, plenty of movement, smooth and richly warm. Even the pitch-shifter works better than most mid-market offerings, though it still isn't quite as smooth as a top-end, dedicated pitch shifter. Nevertheless, knowing how difficult seamless pitch shifting is, especially when the hardware budget is limited, what you get is useful with the proviso that it is always mixed in with something else and not left

> *"Reverberation is simply the result of sound bouncing back and forth between reflective surfaces, but trying to duplicate the effect, substituting thin slices of silicon for big chunks of stone, is no simple task."*

completely exposed.

Other effects worthy of note are the excellent ducking delays and reverbs, which provide lots of excitement in the spaces without ever making the mix sound too busy. 'Delay Cloud' is a good example of this. I also like the neat pan and MIDI tempo delay effects, as well as 'LFO Guitar', where the LFO controls the amount of chorus and the input level modulates the LFO speed. A nice one for fretless bass.

SUMMARY

One of the problems when reviewing Lexicon products is that you know you can never mention all the details, because their MIDI implementation alone could be the subject of a complete article in its own right. The LXP15 II falls into the middle of the Lexicon range, coming above the Reflex and Alex, but a little below the PCM80, and significantly below the more costly flagship reverb units. It's described as a multi-effects unit, but I feel that most users will buy it on the strength of the reverb sounds, as that's what still sets Lexicon apart from the competition. Technically, the reverbs are not quite as clean or as dense as on the flagship models, but the overall character is similar and the subjective difference isn't usually that great in the context of a mix. In other words, your ears will still tell you that you're hearing a Lexicon. In fact the reverbs are simply superb, and with enough variety to cover everything from rock and pop to flowing classical or New Age sounds. The multi-effects are also designed to be musically useful rather than being to overtly gimmicky, and though you only get two or three effects at once, that doesn't in any way detract from the richness of the sound.

The operating system is a doddle, and for most routine applications you won't even need to open the manual. Even so, it's worth reading it through at least once, so that you'll know what the device is capable of. For example, the tempo-related (MIDI clock) delays can be very useful in the context of a piece of music with tempo changes, but if you don't read the book, you may never discover them.

So, who needs a Lexicon LXP15 II? In the larger studio, the LXP15 II makes a great second or third reverb unit, and the fact that it can handle all the nice chorus and delay treatments really adds to its versatility. In the project studio, it would make a wonderful main reverb for those whose budgets don't run to a PCM80, but for whom the Alex and Reflex don't offer quite enough variety. In all, this is a very well conceived product that combines excellent sound quality, ease of use and affordability in just about the right proportions. **SOS**

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TOP KAT

BILL KATOSKI • KAT INC.

PAUL WHITE caught up with Bill Katoski at a recent trade fair, where they discussed the ideas and influences behind KAT's range of innovative percussion controllers.

The drumKat percussion controller, with its instantly recognisable 'Mickey Mouse'-shaped playing surface, has won over many a professional percussion player, as well as numerous gigging drummers. It's also a familiar sight in studios, where it can be used as an infinitely more satisfactory interface than a synth keyboard for entering percussion parts. But what is it that makes the drumKat stand out from other percussion controllers?

As a drumKat owner myself, I can confirm that the drumKat is much more than just a pad-to-MIDI interface. The pads are pressure sensitive, making it possible to send controller information such as pitch bend by pushing on the pad, and each pad can be programmed in a variety of novel ways. For example, instead of 'one hit, one sound', you can opt to step through a series of sounds, either in order or randomly, complex velocity switching can be set up, or you can even run short arpeggios from the pads. As if that weren't enough, longer sequences, or Motifs, can be stored and triggered, and more complex arrangements can be set up so that, for example, hitting one pad transposes an arpeggio being played on another pad, while striking yet another pad resets it.

The drumKat isn't only useful as a percussion controller either; you can use it to drive any MIDI sound module, again using the pads to sequence through a series of notes or even play four-note chords; once you've tried these melodic modes, you realise that using the drumKat instead of a keyboard once in a while can be quite inspirational. It was with some personal interest, therefore, that I asked Bill Katoski how he'd come up with the idea for this product, and what he was planning to do next.

KAT Inc's Bill Katoski.
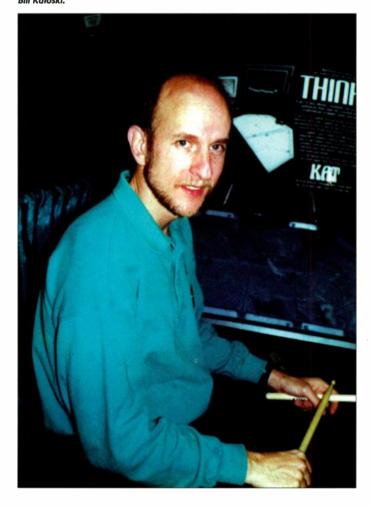
BEGINNINGS

"Our first product was the MalletKat. I used to work at Synare electronic drums in the late '70s, and one of the last products I worked on was a big mallet synth. When they went out of business, I bought the rights to the product and carried on working on it in my spare time. I sold four of them — and then MIDI happened, closely followed by the DX7 synth. That's when I realised that I didn't have to compete on building synths — I could use other people's sound sources and drive them via MIDI.

"Mario, who you met on the stand, and myself, plus my wife, Maria, started the company. Mario is a mallet player and principal percussion player at Radio City music hall, and he encouraged me to build the first MIDI MalletKat. He was also the person who really got us going on the sales front. He asked how many we'd sold in New York, and we admitted we hadn't sold any. So he said, 'let me have New York City'. He started selling them into Manny's and Sam Ash, and then he came back and asked for the rest of New York State. Two months later he had the whole country, then he asked what we were doing about the international enquiries that were coming in. Inevitably, he became sales manager.

At that time my wife and I were building these things in our basement, and Mario was selling them

out of his. I still had another day job, but then we saw the potential of the drummer market out there. We saw Roland's Octapad, and at the time, there was no competition for it. I felt I could come up with something more interesting, and that would feel better to play, but at the same time I realised it wasn't going to get done in my spare time. So, I quit my job, took out all my savings, and spent the next year designing the drumKat, after which we found our own facility so we could all work in the same place.

"About six months earlier, Simmons came out with their PortaKit, so we had a look at it and made a couple of changes to match what they'd done. Actually the approach was very similar, and they even used FSR transducer technology, as we did, rather than the more common piezo pickups."

PAD TECHNOLOGY

The FSR technology is one of the fundamental engineering points that makes your triggering more reliable and consistent. How did you come across it?

"I went to a NAMM show in 1986 to show the first prototype of the MalletKat before it was even finished, and at the time, I was using piezo film technology and it was impossible to get this to work properly without the pads interacting with each other. We'd already reserved space at the show, and I almost cancelled it, but my wife talked me out of it. So I went to the show with these hollow shells that didn't work, and — to my surprise — still got several orders. While we were there, we visited the Interlink booth, where they were showing their FSR film technology — and it was perfect for our application.

"FSR is a system of plastic sheeting with a series of interlinking resistive fingers deposited on the sheets. The harder you push, the better the electrical connection, so the processor we have inside the drumKat looks across these things and is able to read how hard you hit it. The other thing about this technology is that it can take the physical abuse of drumming, and because it is force sensitive rather than vibration sensitive, crosstalk between adjacent pads is eliminated. Also, whereas a piezo drum pad is most sensitive directly over the transducer, FSR has the same sensitivity right across the pad's surface."

So you had your pad technology, and you added a natural rubber playing surface, so I guess the next move was to decide what to put in the software.

"Every time we buy something, six months later it's out of date, so we decided at the outset that this product was going to be user-upgradeable. As you go on, you find better ways of doing things, and if there's some way of making that available to the people who supported us in the early days, I feel we owe it to them to do that. Even the earliest drumKats can be brought up to date, and that includes adding the latest rubber playing surfaces, as well as software and minor hardware changes."

PERFORMANCE MODES

Where did the ideas come from for some of the amazingly complex things you can program these pads to do?

"Some of the performance modes are generated internally, within the company, but there's a whole variety of outside people, including Greg Irwin, who bring us ideas. Some of his ideas have been brilliant and include many of the Motif ideas, such as the Slice modes.

"I'm not a drummer, which may seem a bit bizarre, but everyone else in the company is. Mario is a fabulous musician, whereas I have no preconceptions about what electronic drums should or should not be able to do, so I might think of things that a drummer wouldn't. Sometimes I'll try something and the other people in the company will tell me that it's stupid, and when I'm done, they might be right, but there are also times when they have to agree that it turned out to be a great idea. We also have to be able to be honest about our products, so if we try something that doesn't work out, we have to be able to acknowledge that and try something else."

But the drumKat has gone far beyond being a drum pad interface; some of the programming modes that let you set up chords or arpeggios

are great when used with regular synth sounds.

"The drumKat didn't start out to be all these things, but as you grow, you start to think about what else you can do with what you have. For example, FSR has other advantages, in that you can generate a Note On as long as you press down on the pad. Also, you need to strive to be different from the competition, because when people like Roland and Yamaha are chasing you, their footsteps are very loud. We had to try to find niches where our product would do something that theirs wouldn't, otherwise we wouldn't still be here today.

"The melodic modes came about because of feedback from our users, and once we found out what they were doing, we tried to think of ways to make it easier and more flexible for them. When we first launched the drumKat, we sent out hundreds of questionnaires to see what the owners thought of the product, and I wasn't too sure about doing that because I thought we were going to get back hate mail. After all, satisfied customers don't bother to write back, do they?

"I was very pleasantly surprised because we only got back two letters that had any negative comments, and the rest were so gloriously positive that when times got tough, we'd take them out and read them again! One comment was that the first couple of weeks of the learning curve were

▶

BILL KATOSKI

kind of tough, after which the product was easy to use, so we decided to make those first couple of weeks easier by doing a tutorial video.

"Drummers are very different to keyboard players, in that keyboard players don't seem to align themselves to any single company by just playing Yamaha or just playing Roland or whatever. Drummers, on the other hand, tend to play a specific brand of drum kit, and knowing that, we've tried very hard to keep their loyalty. We know that if we don't betray their trust, they're more likely to continue to buy our products."

Because all the editing is done using the pads themselves as data entry and cursor buttons, it can sometimes take a while to set up a program, especially if you're using some of the more complex performance modes. Has anyone developed any editing software for computer?

"Mark of the Unicorn are just finishing a very nice editor which works from within their *Unisyn* package, and that makes the drumKat very easy to get into. We have no plans to do anything like that on our own — we're very happy for third-party companies to offer this kind of product."

How much further can you take the drumKat with the limitation that everything you do, you also have to be able to do to existing models?

"There can be another reasonably significant upgrade to the machine that will require the processor to be changed, but we use the same circuit board, and there's also an unused memory socket on that board that we can take advantage of. We want to do some real upgrades to the Motif generator, because there's a lot of power there that we haven't been able to properly tap, so the kind of thing we intend to offer some time in '95 is more than double the number of kits, and probably five or six times as much Motif memory. For those unfamiliar with the idea of the Motif generator, Motifs are short repeating sequences or patterns that have been programmed in advance and that can be triggered from one of the pads."

TRAPKAT

The drumKat has not been superseded, but anyone going to the show must have noticed your TrapKat, which is physically much larger and has a greater number of playing surfaces. What can you tell us about this, and how it sits in the marketplace alongside the drumKat?

"About a year and half ago, we had several

products we were working on at the same time, and we didn't really know what was going to be the next major thing until the TrapKat started taking shape. It is, in effect, a much bigger drumKat with 24 FSR trigger surfaces, and it was inspired to some extent by seeing Bill Bruford playing at a Yes reunion concert where he had a wall of Simmons pads set up behind him.

"So the initial idea was to make something large that the drummer could play vertically, but when it came down to discussing what the product was really about, and how big we could practically make it, the current TrapKat was the end result. It's like a one-piece drum kit, and part of the idea came from our PoleKat, which is a kind of rim-shaped sensor you hit with the shoulder of your stick. We added those around the perimeter of the TrapKat.

"The other thing we did was make the playing surface even more comfortable to play on by making the rubber 50% thicker than on the drumKat. There are fewer performance modes than in the drumKat 3.5, but there's still a lot more in it than was originally envisaged. 'Feature Creep' is always a problem in our company — you start off with a design and the features keep creeping into it, because it's hard to control yourself when you know you can do something. With this product, we've tried to hide most of them under a special footswitch to keep the initial approach simple, but the way things are heading, people are bound to ask, 'Will this thing ever do what a drumKat does'? Undoubtedly we'll end up with a TrapKat Pro which has all the drumKat features — probably some time in '95. If you look under one of the black labels on the back, there's a whole line of jack holes — we've made sure there's plenty of scope for hardware upgrades."

For all the technological advances made in drum machines, do you still find most drummers like to use real cymbals, even when they're happy with the sampled drum sounds?

"In the past, certainly, but now with CD-ROMs, cymbal sounds are getting better. We have produced our own sample CD-ROM to go with the TrapKat, and I think that one thing that's kept people out of electronic drums for a long time is that electronic drums didn't feel right, they didn't respond in the right way and they didn't sound right. Drummers also seem to be more conservative than most other musicians.

"With our pad technology, the surfaces feel right and respond nicely, but until very recently, the sounds still weren't right. Sound modules are made by keyboard manufacturers who don't understand what a drummer wants. They'd build these things with monophonic drum sounds, but with drums, when you hit a snare drum and then hit it again, you want the first sample to continue playing, otherwise you get the 'machine-gun' effect. For years we kept praying that somebody would build a sound source that did things right, but every time somebody came close, it would either have terrible sounds or would fall short in some other way. But now, with CD-ROMs and samplers, you can really get the best of both worlds.

WHAT DRUMMERS REALLY WANT

"The trouble with drum machines is that the manufacturers compete on the number of sounds they can cram into one box — 200 sounds, 300 sounds — they'd be going to Africa and China to get more sounds to put in there. But drummers don't necessarily want 1000 sounds; they'd rather have just 10 good drum kits that sound like acoustic drums. The way to do that might still be to have 1000 samples, but not of a whole bunch of different drums. Instead, sample the same drum soft, sample it medium soft, sample it medium hard, sample it hard, find a smooth way to put those samples together and now it sounds like a real acoustic kit. What usually happens is that they sample one drum and then play that sample back loud or soft, which isn't the same thing at all."

And, of course, the cymbals especially will sound better if you can trigger a selection of samples rather than just keep re-triggering the same one.
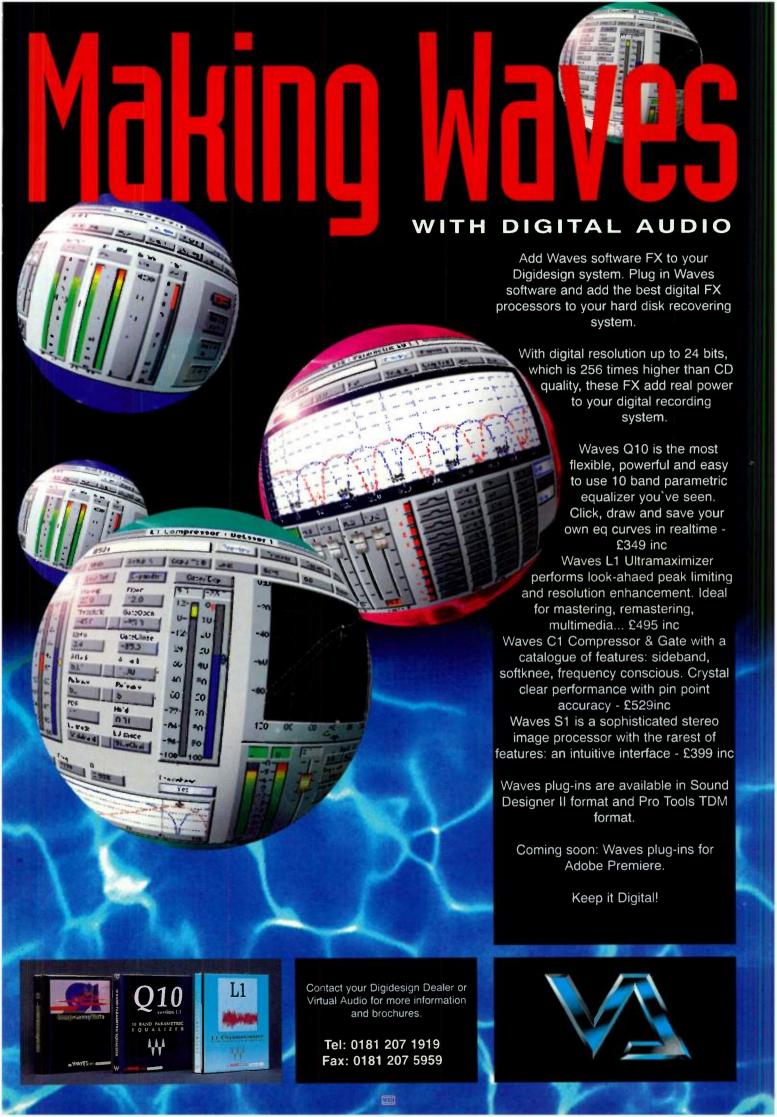
"Right, and now that memory isn't such a limitation, you can sample the cymbals longer rather than either looping or using an artificial decay contour to save memory. Now we have cymbals that last around 10 seconds and sound beautiful."

Where do you see the future of drum machines going? Do you think there would be a benefit in someone building a CD-ROM-based drum sample player that was designed specifically with the requirements of drummers in mind?

"One new product we have that helps capture the nuances of playing is the ProPad; it has 24 zones on one pad, so you can have different samples triggered depending on whereabouts you hit the pad. On an acoustic drum, you get a different sound if you hit the pad in a different place. This is obviously a more expensive solution than simple pads, and it means you also have to be able to handle a lot of samples, but again it's something I think we'll see more of in the future.

"There's a huge market out there for when electronic drums finally get it right. With electronic drums, you can practice at home without driving the rest of the family nuts, you can play quieter if you want to, and you can switch from one drum kit to another in a millisecond. At the moment, it's a different instrument — you can get close, but it's not an accurate substitute for acoustic drums.

"A dedicated CD-ROM-based drum sound module of the type you've just outlined has to be the sort of thing we're looking towards in the future. We've always waited for somebody else to build the right thing, and we've always been disappointed, and it may be that in the future, we'll have to team up with somebody to make the right sort of box, because the keyboard companies on their own just don't want to make the effort that's needed to do something that drummers really want."

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THE Logical Solution

CUBASE LOGICAL EDIT EXPLAINED

In the concluding part of this series, SIMON MILLWARD explains how to create MIDI effects like auto-pan, tremolo and gating using Logical Edit.

This month, I'm concluding this three-part series with a look at some logical manipulations of various kinds of Controller data. Most readers will be familiar with Pitch Bend and Modulation and the wheels that control them, found on most synthesizers. These effects could also be controlled from Logical Edit, but they're probably best left to the dedicated wheels and other functions of *Cubase*. However, there are a number of more exotic Controllers in the MIDI specification which aren't really suited to wheel manipulation. Logical Edit can manipulate this kind of Controller data in a way that would be difficult to achieve in real time.

Imagine trying to record a fast, accurate MIDI auto-pan effect in real time; nearly impossible. But with Logical Edit you can tackle this kind of thing reasonably quickly. What you need is a kind of Logical Edit Controller Toolbox and a way of working with it which can be applied to different Controllers. The examples below will outline, above all, ways of 'inserting' Controller events after the notes have been recorded. I'll start with auto-pan, but I'll also be going on to discuss tremolo and key gate effects, all created with the help of Logical Edit.

Common to some of the tools will be the need to pre-fill the part with a dummy Controller. Why? Because we will be using the 'Insert' function of Logical Edit and the data to be inserted needs something to latch onto. 'Insert' adds new events to a part only in relation to events already in existence. If a part is empty, 'insert' has no function! Hence, pre-filling the part with dummy events ensures that we can add new events at the required intensity. All will become clearer as we go on, I promise!

Before going on to specific examples, let's just take a moment to understand a little theory. When we set the EVENT TYPE to 'Control Change' in the FILTER or PROCESSING sections of the Logical Edit page, the VALUE 1 and VALUE 2 columns assume different meanings. Instead of the MIDI note number, the VALUE 1 column corresponds to any one of the available Controllers in the MIDI specification (Modulation is specified as Controller number 1, Volume is Controller number 7, Pan is Controller number 10, and so on). Instead of velocity, the VALUE 2 column defines the setting of the chosen Controller. Both columns may assume values of between 0 and 127.

Now let's get down to business.

- To pre-fill the part with dummy Controller data, choose or create a part on the Arrange page and go into List Edit.
- Set the 'Insert' line to Control Change and set SNAP to 8.
- Use 'Fill' in the Function menu to insert dummy Controller events at 1/8 note intervals. Leave the Controller events at their default value of 0. Controller 0 is the Bank Select Controller and if this is not convenient for your setup, change it to one of the General Purpose Controllers between 16 and 19, for example, using Logical Edit.
- 'Keep' the part and then go into Key Edit.
- Open the Controller display and select the appropriate Controller icon; a line of dummy Controller events should be visible. These events should have no effect whatsoever on the actual music; they are simply used as the framework to which we can attach other Controller data which WILL have an effect on the music. The dummy events will be deleted after editing has been completed.

You're now ready to create the first tools for your Logical Edit Controller toolbox.
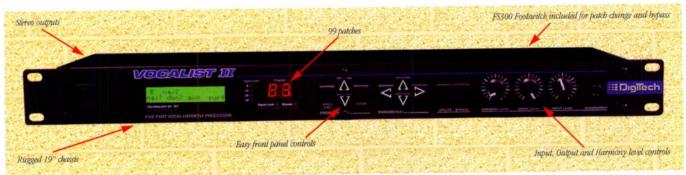
SETTING UP AUTO PAN

The auto-pan effect requires the creation of five Logical Edit presets. These will be named as follows: - 'Pan L to R', 'Pan R to L', 'Select Pan', 'Speed Up' and 'Slow Down'. The use of these presets requires the part to be filled with dummy Controller events, as described above. MIDI specifies Controller 10 as pan. A value of 0 for this Controller pans the sound to the extreme left, and a value of 127 pans to the extreme right. The first preset, 'Pan L to R', does simply that — it pans the chosen track from left to right in the stereo image. To create the first preset, go into Logical Edit in expert mode and proceed as follows:

- In the FILTER section, set the EVENT TYPE to Equal Control Change and the VALUE 1 column to Equal 0.
- In the PROCESSING section, 'Fix' the VALUE 1 column to 10, set the VALUE 2 column to a 'Dyn' setting of 0 to 127 and set the POSITION column to 'Divide' by 2.
- Set Logical Edit to 'Insert' mode and store as a preset under the appropriate name (Figure 1). This preset inserts an ascending value sequence ▶

Figure 1

Figure 2.

Figure 3.

Figure 4.

▶ of Controller 10 events for every dummy Controller event it finds.

For the second preset, 'Pan R to L':

• In the FILTER section, set the EVENT TYPE to Control Change and the VALUE 1 column to Equal 10.

• In the PROCESSING section, 'Fix' the VALUE 1 column to 10, set the VALUE 2 column to 'Invert' and set the POSITION column to 'Plus' 768.

• Once again, set Logical Edit to 'Insert' mode and store as a preset under the appropriate name (Figure 2). This preset will use the Controller data created by the first preset to insert an inverted version of the events, half a bar (768 ticks) later. (Users of Atari Cubase 3.10 may find a bug with the POSITION part of this exercise, but it works fine with Version 3.01 and I presume the bug has been fixed in the Score 2 version).

For the 'Select Pan' preset, proceed as follows:

• In the FILTER section, set the EVENT TYPE to Equal Control Change and the VALUE 1 column to Equal 10.

• Ignore the PROCESSING section, and set Logical Edit to 'Select' mode and store as a preset (Figure 3). This preset simply selects all pan data in the part.

For the 'Speed Up' preset, proceed as follows:

• In the FILTER section, set the EVENT TYPE to Equal Control Change and the VALUE 1 column to Equal 10.

• In the PROCESSING section, set the POSITION column to 'Divide' by 2.

• Set Logical Edit to 'Transform' mode and store as a preset (Figure 4).

The 'Slow Down' preset is created in the same manner, except that 'multiply' by 2 should be entered in the POSITION column. These presets double or halve the speed of all pan events they find in the part.
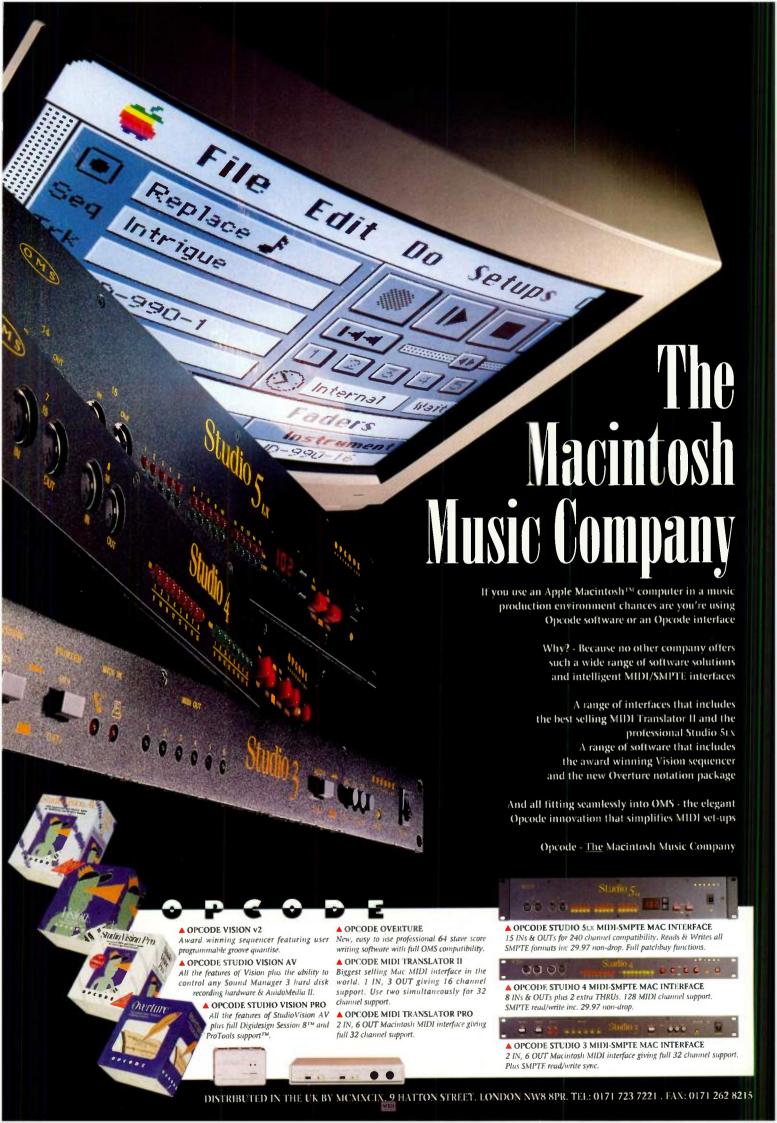
Before using the presets, we need to create one more general-purpose preset which will be used to delete the dummy Controller data initially recorded into the part. We'll name this 'DelDummy' and create it as follows:

• In the FILTER section, set the EVENT TYPE to Equal Control Change and set the VALUE 1 column to Equal 0.

• Ignore the PROCESSING section, and set Logical Edit to 'Delete' mode and store as a preset. You must, of course, adapt your preset if you have used a differently-numbered dummy Controller.

USING AUTO-PAN

That's the set of auto-pan tools assembled — now it's time to use them.

• Create a new 2-bar part on the Arrange page and fill it with dummy Controller events as described above.

• Set the track of the new part to the appropriate MIDI channel — i.e. the same MIDI channel as the track to which you wish to apply an auto-pan effect.

• Select the new part and go into Key Edit.

• Select the pan Controller from the menu in the Controller display by clicking on the Controller icon.

• Next, set a 1-bar loop by clicking and dragging the mouse pointer in the Position Bar. Make sure that the pop-up Event 'select' menu, (next to the GOTO menu), is in 'Looped' mode.

• Action the first auto-pan preset, 'Pan L to R', from the pop-up Logical presets menu found in the main Functions menu. A number of pan events will be inserted into the first half of the selected bar.

• Now go back to the Logical presets menu and action the second preset, 'Pan R to L'. This takes care of the second half of the bar with an inverted copy of the first half. The first two presets have been designed to work with a looped 1-bar section in 4/4 time. You should now have a 'pyramid' shaped pattern of pan ▶

CUBASE LOGICAL EDIT EXPLAINED

▶ events visible in the Controller display (Figure 5).

This 'pyramid' is the essential building block of our auto-pan. At the moment it will smoothly pan a sound from left to right and back to left again, over a length of one bar. What we need now, however, is a way of repeating the pan over the length of the part and of managing the speed of the auto-pan. This is achieved with a combination of the Logical Edit auto-pan tools and other functions of *Cubase*.

Figure 5.

• To repeat the pan, first select all pan events using the 'Select Pan' preset.

• If you have created a part of four bars or more, make sure that the pop-up edit 'select' menu is in 'Selected Looped' mode and use 'Repeat' found in the pop-up 'FUNCTION' menu of Key Edit. The selected looped section, (i.e. the pan events alone), will be repeated to the end of the part.

• If you have created a 2-bar part, as recommended, it is easier to use the Copy and Paste functions found in the Edit menu to repeat the data.

• To change the speed of the auto-pan, de-select the loop and use the 'Speed Up' and 'Slow Down' presets.

• Continue to use Key Edit's 'Repeat', or 'Copy and Paste', with the Logical Edit speed presets to arrive at the desired result. Very fast, perfectly-formed auto-panning is possible (Figure 6). This kind of effect is difficult to achieve without the Logical Edit auto-pan toolbox. Finally, when you are completely satisfied with the result, use the 'DelDummy' preset, as described above, to delete all the dummy Controller events that were input at the beginning of the operation and leave Key Edit using 'Keep'.

Figure 6.

Remember that you shouldn't create a very long part full of pan data, as this kind of effect can become very memory hungry (a 2-bar part is usually sufficient). Once you're back on the Arrange page, you can create ghost parts of the original and repeat the auto-pan for as long as desired. Remember also, however, that this kind of effect is pushing a lot of data all at once down that poor old MIDI cable, so, if your set up allows it, separate things to different MIDI outputs. As with all juicy effects, beware of the tendency to over-use.

MIDI TREMOLO

We'll now look at assembling some Logical Edit tools for the creation of a MIDI tremolo effect. This is really very easy, since the tremolo presets are almost exactly the same as the auto-pan presets.

Tremolo is rapid variation of the volume of a signal at a fixed rate and depth — the rate and depth are usually adjustable to produce the desired intensity and effect. To create this effect with MIDI, we'll need to manipulate Controller 7 (Volume) data. Proceed as follows:

• Load in or create the auto-pan presets (if they are not already in memory) as described above and go into Logical Edit.

Every time you see a 10 (Pan) in the VALUE 1 column of either the FILTER or the PROCESSING sections of each preset, change this to a 7 (Volume).

• Store the new settings under new preset names and then follow the procedure for using them as described for the auto-pan operation. The only difference is that this time you'll be working on Volume data and not Pan data, so you'll need to be looking at Volume data in the Controller display of Key Edit. Remember also that, in order for things to work properly, you
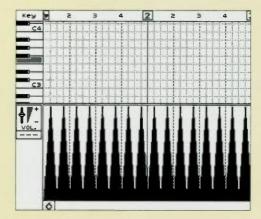
Figure 7.

must pre-fill the part with dummy Controller 0 events (or another dummy Controller number, if 0 is not suitable). Alternatively, you could take an existing part containing auto-pan data and simply convert the Pan data to Volume data using Logical Edit. Remember, however, that the rate of the tremolo effect will invariably be faster than that of an auto-pan. The result is a very convincing and effective tremolo effect (Figure 7).

Some readers will have found the construction of the auto-pan and tremolo presets an inordinate amount of work, but remember, it only has to be done once — once created, presets can be saved to disk as part of a 'Set-Up' or 'Song' file.

CREATING A MIDI GATE EFFECT
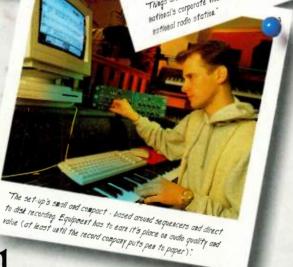
The final tools for our Logical Edit Controller toolbox simulate a key-trigger gate effect. The process involves the manipulation of Volume data, but before we create the necessary presets we must first understand what is meant by a key-trigger gate effect. Most readers will know what a noise gate is; it's an audio device which opens or closes the signal path according to various threshold and rate settings. Among its simplest functions might be to close the signal path at a ▶

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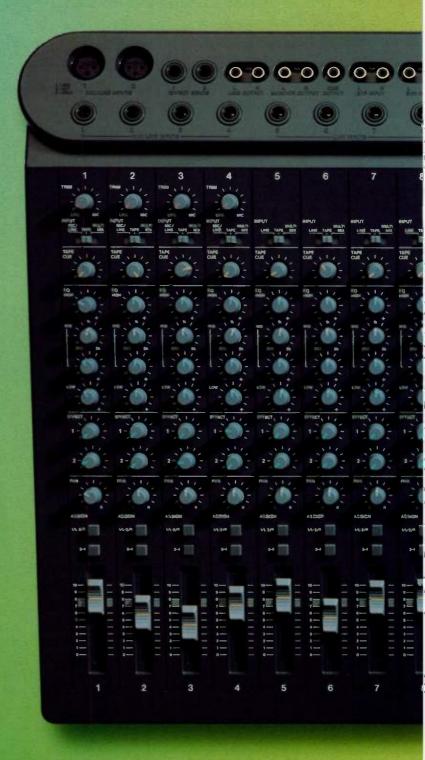
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▶ very low threshold setting in order to block out unwanted background noise (between the sung lines of a vocalist, for example). The signal path from the microphone would only be open when the vocalist is actually singing. Thus the opening and closing of the gate is governed by the characteristics of the signal in relation to the user settings on the unit. However, the gate can also be set to respond to a secondary input source. This is usually known as the key input. In this mode, you could have, for example, a sustained chord sound (main signal) being gated in and out according to the rhythm of a hi-hat (key input signal).

Figure 8.

A simple key-trigger effect can be mimicked using MIDI Volume data. The aim of the exercise is to control the volume level of one track according to the rhythm and intensity of another. The notes and the velocities of the chosen key source track would be translated into Volume data. When a note is present, our MIDI gate would be open, and when there's no note it would be closed. With Logical Edit, it's a fairly straightforward matter to translate note events into Volume Controller Events. The Note values themselves need not be translated. Each note event can be simply 'fixed' as a Controller 7 (Volume) event in the VALUE 1 column of Logical Edit. The Velocities of the notes in the VALUE 2 column need not be a concern since they can be directly translated into the actual volume level for each Controller 7 event. So the opening of the MIDI gate presents no real problem — but the closing of the gate is not so simple. Logical Edit does not give us access to the Note Off element of note events. We cannot, therefore, use the end of a note as the point in time to close the gate, by inserting a zero Volume event. My solution involves the creation of four Logical Edit presets which will become part of our ever-expanding Logical Edit Controller toolbox. I have simply named them, in the order in which they will be used, 'KeyGate 1, 2, 3 and 4'.

For the purposes of this exercise, I will be making

"Knowing Logical Edit can also lead to a more complete understanding of MIDI and Cubase itself."

reference to 'zero Volume' and 'Volume Up' events. Zero Volume refers to MIDI Controller 7 events with their levels set to 0, and Volume Up refers to MIDI Controller 7 events with their levels set to anything between 1 and 127.

'KeyGate 1' involves the insertion of zero Volume events and is created in Logical Edit in expert mode as follows:
• In the FILTER section, set the EVENT TYPE to Equal Note and the LENGTH column to 'Lower than 144'.
• In the PROCESSING section, 'Fix' the EVENT TYPE to Control Change, 'Fix' the VALUE 1 column to 7, 'Fix' the VALUE 2 column to 0 and the POSITION column to 'Plus 40' (Figure 8).
• Set Logical Edit to Insert mode and store as a preset under the appropriate name. This preset will insert zero Volume events at just under 1/32 (40 ticks) of a note after the onset of each note it finds with a length of less than a dotted 1/16 note (144 ticks), within the part. Or, to put it more simply, this preset forces the gate to close a very short time after the onset of each very short note it finds in the part.

The Logical Edit settings for 'KeyGate 2' are similar to 'KeyGate 1', except that the LENGTH column of the FILTER section should be changed to 'Inside 144-240', and the POSITION column of the PROCESSING section should be changed to 'Plus 88'. This preset works in the same way as 'KeyGate 1' but is concerned with notes of slightly longer duration.

'KeyGate 3' is, once again, similar to the first two presets, except that the LENGTH column of the FILTER section should be changed to 'Higher than 239' and the POSITION column of the PROCESSING section should be changed to 'Plus 136'. This preset deals with zero Volume events for all the remaining longer notes within the part.

Some readers will be asking why I bothered to use three presets instead of one. It's true that we could have regulated the length of the gate with one preset, but I have attempted to create something a little more musical which, after exhaustive tests, I have found simulates more closely the actions of a real key-trigger gate effect. In any case, those readers requiring something very simple could use a single preset for the purposes of the zero Volume part of this exercise and, of course, the settings of each preset could be changed for experimental purposes and other effects.

Finally, 'KeyGate 4' is created as follows:
• In the FILTER section, set the EVENT TYPE to Equal Note and ignore all other columns.
• In the PROCESSING section, 'Fix' the EVENT TYPE to Control Change and 'Fix' the VALUE 1 column to 7.
• Set Logical Edit to 'Transform' mode and store ▶

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▶ as a preset under the appropriate name (Figure 9). This preset is the Volume Up part of the procedure. It transforms all notes in the part into Volume Up events. At the same time, the velocities

Figure 9.

• You can now change the track to the desired MIDI channel and the Volume data will be imposed upon any music already on that channel. Alternatively, try playing a sustained chord on the chosen channel while cycling on the part containing the Volume data. Remember that, once you have created your presets, they can also be actioned from the Arrange page. The process is not particularly memory-hungry, so you can even process an entire track. Just remember to copy the part or the track before editing, as all note data will be irretrievably transformed.

The settings of the presets were established after tests with various rhythm patterns and, if you choose your source parts well, you should have no problems. The 'KeyGate' presets may be saved as a Set-Up file and loaded back into *Cubase* when required.

So there you have it: the beginnings of a Logical Edit Controller toolbox. The logically adventurous among you may like to design additional tools for some of the other Controllers in the MIDI specification.

(VALUE 2) of these notes are transformed into the actual volume level for each event. The result is a key-trigger gate effect which is not only sensitive to the length of the notes (thanks to the first three presets) but which is also sensitive to the intensity (velocity) of the playing.

To use the presets simply copy the part, (or mix down the parts), that you wish to use as the source for the key-trigger gate effect. I would suggest either a hi-hat part or a bass drum and snare for starters.

• Select the new part and go into Key Edit.
• Select Volume in the Controller display and use the four Logical Edit presets in their numbered order from the pop-up Logical presets menu found in the main Functions menu.
• The first three presets insert zero Volume events, so there will be no changes particularly visible in the Controller display window, but the moment

CLOSING WORDS

I hope that those readers who've been following this series will find that the Logical Edit page has been considerably demystified. The examples presented here provide a useful companion to the Logical Edit section of the *Cubase* manual. I have attempted to present the details from a practical point of view, and readers who have actually recreated the examples themselves will have benefited most. I do hope that the series has also encouraged a few of you to explore the Logical Edit page further. Logical Edit is best understood in the actual doing rather than in the theory.

Knowing Logical Edit can also lead to a more complete understanding of MIDI and *Cubase* itself. In many of the examples, Logical Edit was used in conjunction with other parts of the program, and in this way I've tried to encourage the *Cubase* user to capture the real power of the program by combining the strengths of two or three Editors at the same time. In addition, if you know Logical Edit, then *Cubase*'s 'Input Transform' function in the Options menu becomes child's play.

And so, finally, amid a flood of Logical tears it's... goodbye! █

Figure 10.

you use 'KeyGate 4' all notes in the part will disappear and be replaced by a corresponding series of Volume events. The example in Figure 10 shows two Key Edit windows, displaying the original part at the top, and the same part, after processing, below it. When you're satisfied with your Logical efforts, 'keep' the results and go back to the Arrange window.

Readers should note that the examples contained in this series apply to the most recent versions of Cubase (V3 and later).

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SUPER LOOPER

STEINBERG RECYCLE SAMPLE MANIPULATION SOFTWARE FOR MAC

PAUL FARRER rotates his baseball cap through 180 degrees, sharpens his digital knife, and gets sample-slicing with Steinberg's ReCycle.

There can't be many sampler owners who haven't used a drum loop of some sort, but until now, only limited options have been available to manipulate the raw building blocks of the loop (or groove) to make it fit into a track. Those lucky enough to have access to programs like *Sound Designer* can edit their loops using conventional sound editing tools, but even *Sound Designer* has no specialised tools specifically for handling drum loops — everything has to be done by hand. Variations in timing have only been possible using either changes in pitch or time-stretching and compression, neither of which are fool-proof. Most of the time, people end up building the track around their loops, rather than making their loops fit the track.
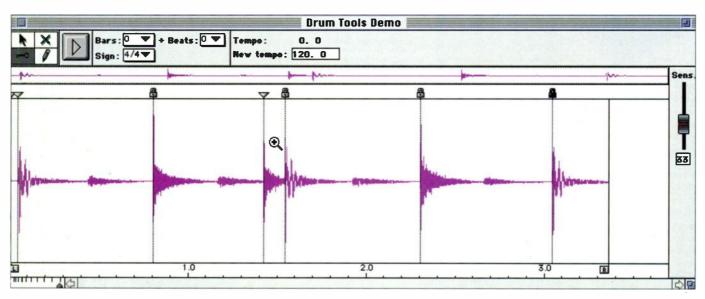
Enter Steinberg's *ReCycle*, a Mac-based software package (a Windows version will be available from April) that Steinberg describe as 'the missing link between your sampler and sequencer'. Essentially, this application allows you to import sampled grooves and drum loops from your sampler via SCSI, view them on-screen as a waveform, and then edit and modify them in a number of different ways. It's important to remember that *ReCycle* can only manipulate mono files, so if you feed it a stereo file, you either have to choose one channel for processing, or ask *ReCycle* to merge the two channels to create a mono file for you. Other than this restriction, the only limit to the number and length of samples that are imported seems to be the amount of available RAM in your Mac. However, Steinberg say that around five minutes of loops should be considered the maximum. In practice, loops are likely to be just a few bars long, so this limit shouldn't prove to be restrictive.

The review version (1.1) supports Akai S3000, *Sound Designer* I and II, AIFF and SampleCell file formats, as well as Opcode's OMS and the Akai S1000/S1100 file format (OMS is needed to support these). To run the programme, you'll need at least a 68020 Mac running system 7 or later (though a faster Mac is to be recommended), and a hard drive. Monitoring is done either through an optional 'Sound Manager 3.0'-compatible audio card at 44.1kHz, or the Mac's built-in speakers, which, although not the pinnacle of hi-fidelity sound reproduction, seem to do the job well enough. Of course, the final sound quality is unaffected by monitoring in this way — the file exported back to the sampler is full resolution.

LOOPING THE LOOP — *RECYCLE* IN USE

The most obvious place to begin is to trim the start and end points of any imported loop so that it loops without timing discontinuities or glitches. The waveform of the imported loop is visible in a screen window, and in the case of most drum parts, the individual beats can be easily identified. The first stage in the process is to identify and separate out the constituent beats of the loop. This is achieved using a sensitivity controller to the right of the screen, which is represented as a fader (0-99), to determine just how many 'slices' the loop should be chopped up into. The fader operates much like the threshold control on an ordinary gate, and because you make all adjustments with the loop running, you can hear exactly what's going on at all times. Obviously, loud bass drums and snares are the first to be recognised, but tweaking the fader to a slightly higher setting reveals most sixteenths, such as hi-hats. The fader can even be set to acknowledge the presence of thirty-second notes (demi-semi quavers).

STEINBERG RECYCLE

▶ All the 'slice points' can be fine-tuned, added to or deleted manually with the help of the familiar 'tool box', but you'll probably find Steinberg's accuracy more than adequate for most conventional loops. You may only need to intervene if the drum sounds aren't easily separated by the threshold control; if the sound is very ambient or very busy, you might miss a beat altogether, or slice one beat into two. A useful facility in such cases is the ability to 'lock' slices; changing the threshold won't affect any locked slices, which means that you can work on the file at several different threshold levels to separate the beats most effectively. Optimising the loop points is done with the help of left and right locators; once you've identified the start and end beats, the threshold system does the rest, and positions the loop markers at exactly the right place relative to those beats. There is a thumb-nail overview that runs along the top of the screen, constantly showing a smaller version of the complete waveform — useful if the main display is zoomed in on a specific part of the loop.

When a loop is sliced into beats, each beat is allocated a different MIDI note; the first note is C1 and the rest ascend in semitone steps, which means a bit of remapping on the user's behalf before the MIDI file is usable, though templates can be created within the sampler itself for remapping. Often, *ReCycle* is used to transmit the edited loop as a single sample, but it may also be used to extract single drum beats from a loop, which can be sent back to the sampler as individual samples. *ReCycle* can also normalise data, which may be useful if the original groove was under-recorded.

ABOARD THE GROOVY TRAIN

The reason for separating your loop into slices becomes apparent when *ReCycle* begins to do what it really excels at, namely altering the tempo, pitch and even groove of your drum loop. Not only is it possible to play the loop at varying tempos without altering the pitch (automatically achieved by stretching the decay of samples in order to fill in the gaps), but it's also quite easy to alter the tunings of constituent parts of the loop or groove without affecting the tempo. If you speed the tempo up too much, the beats start to overlap, which can sound unnatural, but *ReCycle* is far more forgiving than conventional time-stretching systems, and usable results can still be achieved with tempo changes in excess of 50%. Nevertheless, Steinberg are keen to point out that the stretch facilities, although very effective in the context of drum loops, are not true 'time stretch' functions, and point us instead firmly in the direction of their *TimeBandit* software for more conventional time-stretch applications.

Once you've chopped up your sample into individual beats or slices, all sorts of clever tricks are available to you. Panning effects can be created by building two or more versions of the loop, each with different beats muted, then panning these samples to different L/R positions once the edited files are reloaded into the sampler. Re-grooving or changes in time signature are also relatively simple to perform. If, for instance, you know your track is 122 bpm but the loaded drum loop happens to be around the 96 bpm mark, all you have to do is tell *ReCycle* to make the appropriate conversion, and it will calculate not only the new tempo, but also correct any variations in pitch. As an added bonus, *ReCycle* also kindly spits out the grooves and tempos of the loops as a standard MIDI file (with successive beats in ascending note order). This opens up all kinds of creative avenues — you can use the feel of the real drum part to trigger MIDI drum sounds, or you could even mute some of the beats in the 'real' drum file and replace them by triggered MIDI sounds later on. Of course, you have to bear in mind that when a loop has two or more sounds playing on the same beat, these cannot be separated — the slice will simply be a mixed sample of all the sounds happening at the time. I can also see that it could be difficult to slice a file where dry drums were panned hard left and right, because the same slice points need to be applied to both channels, but fortunately most drum loops seem to be less widely spread with most of the stereo being in the ambience.
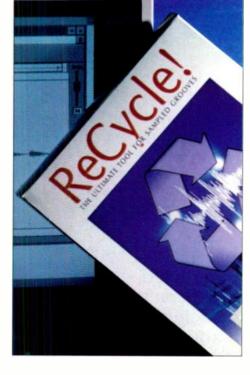
If you want to remove slices from a loop, you just click on the marker above the relevant 'slice area', but the effect of doing this isn't audible until you've either transferred the edited file to a new window (in which case you produce an edited copy of the file) or dumped it back to the sampler. A facility called 'Silence Selected' is used to split a loop into separate beats for external processing.

The ability to change the time signatures of a groove by choosing different start or end points is something that particularly impressed me. It actually encourages you to wander into previously-unknown 5/4 and 7/8 territory, making a potential Dave Brubeck out of absolutely anyone.

THE WISH LIST

A few things did occur to me while I was using *ReCycle* that would be nice to see in future upgrades of the program. As just mentioned, if you want to monitor any changes to your loop that involve muting individual beats or changing the tempo/groove, you first have to either copy the edited loop to another Mac window or export the whole thing back to your sampler. This is necessary because you actually creating a new file, but some kind of quick and cheerful way of previewing the results in the original window would be handy. It would also be nice if future versions would include a neater way of dealing with the MIDI note mapping, instead of the current ascending chromatic scale which the user must then edit, either manually or by means of sampler templates. What I'd really like to see is some facility in

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RECYCLE FOR MAC
£199

PROS
• Unique loop editing facilities.
• User friendly.
• Creates MIDI files from audio drum loops.
• Extensive regrooving and time manipulation tools.

CONS
• Only certain samplers supported, though more are being added all the time.

SUMMARY
A valuable, flexible and fun way to breathe new life into old drum loops! This is a genuinely useful program with no obvious equivalent, and any criticisms are minor compared to the benefits.

the *ReCycle* window where you can identify the different beats (snare, kick, hi-hat and so on) and then have the appropriate MIDI note assigned according to a user-definable map. It would also be neat to be able to load two drum loops at a time and then compile a third loop from selected beats of the originals. You can do this already using MIDI, but the facility to produce a single, composite loop sample would be useful.

Support for a wider range of samplers would also be appreciated — the current list (see the 'V.1.1 Support' box elsewhere in this article) omits the old Akai S900 and S950 which are, after all, very popular mono samplers. Asked to comment, Steinberg said that the way the software for these old samplers works is incompatible with the way things are done now, so it seems that nothing can be done unless Akai update the operating system for these machines! Perhaps existing S900 and S950 owners should petition Akai?

CONCLUSION

ReCycle is presented very much as the perfect partner for any Mac-based *Cubase* system which includes one of the supported samplers, and to help clinch the deal, a demo version of Cubase and a CD single containing a selection of grooves from Polestar Magnetix are included in the package. However, *ReCycle* is by no means limited to *Cubase*

users, as the MIDI data extracted from the drum loops is in the form of a standard MIDI file, which should be readable by any Mac MIDI sequencer.

ReCycle's ability to re-groove loops, and change the tempo without affecting the pitch (and vice versa) must be applauded, and despite being quite a complex program in terms of what it achieves, it's actually very straightforward to use. *ReCycle* must be considered as a serious (verging on the indispensable) tool for anyone involved in 'loop-and-groove-based' modern music production, and it should come as no surprise that many of the drum sample CDs out there were actually produced using this software. If anything, *ReCycle* is a victim of its own success, because now that people are starting to realise how useful it is, they're asking for all kinds of facilities that were never within the remit of the original program. I know, because I'm one of those people! SOS

FURTHER INFORMATION

- £ *Recycle for Mac £199 inc VAT. The projected price for the Windows version is the same, but this has yet to be confirmed.*
- A Harman Audio, Unit 2, Borehamwood Ind Park, Rowley Lane, Borehamwood WD6 5PZ.
- T 0181 207 5050.
- F 0181 207 4572.

Mark Thomas
at CTS Studio.

Mark Thomas finds himself very much in demand writing and recording music for film, television and library albums. Much of the music involves orchestral instruments, and even 70-piece orchestras, but as Mark explained to PAUL WHITE, the bulk of the work can still be carried out in a home studio.

Mark Thomas
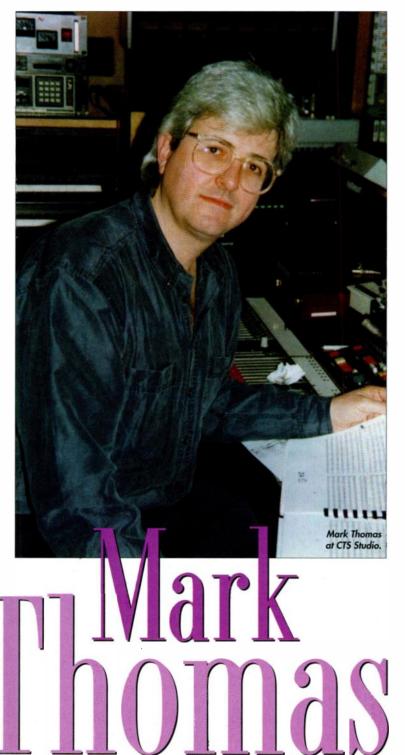
I met up with Mark Thomas at CTS studios in London, where he was recording a string ensemble from the RPO as part of the soundtrack for a series of dramas destined for Sky TV. By the time I arrived, Mark was in the studio conducting the musicians while a CTS tape op and engineer were recording the results direct to Mark's flightcased ADATs. In less than three hours, the session was complete, so in the relative peace of Studio 2's control room, Mark filled me in on his career and working methods.

On leaving Cardiff University, after majoring in music composition, Mark Thomas tucked his music degree under his arm and embarked upon a career as a professional violinist. After he had freelanced

in London for a while, a job came up with the Royal Ballet company for a first violinist, and Mark got the gig. Though the work was enjoyable, the relentless touring aspect of it was pretty tough, and when Mark married (he met his wife on tour) he went back to freelance work and signed up with a diary service — which, he says, is essential if you're to make a success of freelancing. This provided Mark with valuable session experience, working with a number of orchestras, including the Royal Philharmonic Orchestra and London Symphony Orchestra. As Mark puts it, he spent around 10 years of his life working as "a galley slave", but the insight he gained was to stand him in good stead when he finally moved to the other side of the control room window.

I asked Mark why he had returned to musical composition.

"I'd been a latent composer all the time, but boredom was a major factor. Being a professional musician is a fine profession, but I felt it wasn't stretching me enough. Then, right out of the blue, someone asked me if I'd compose some music for a television programme — which is a very unusual thing to happen. The most difficult thing about writing is to get your foot in the door, but although this first commission was only a small job for PBS in America, I was also asked to do some orchestration work for a large orchestra, and the combination of the two things made me realise that composition was what I really wanted to do.

"There's a healthy broadcasting industry in Wales, and when the Welsh companies realised what I'd been doing, more work started to come in. During this period, I'd still been working as a player during the day and then composing at night, but I couldn't continue this indefinitely and I had to make the decision to give up full-time playing. One other deciding factor was library music; some breaks came along in that area and that's where the bug bit hardest."

What kind of library project do you undertake?

"The most recent library project was for Chappell's Recorded Music Library (November

WRH

'94), where I was given a very specific brief by Jez Poole, the head of Chappell's Library. He wanted big, orchestral news and current affairs tracks that would all have several usable versions including 59 seconds, 29 seconds, beds for voice-overs, stings and so on. The object was to produce over 70 minutes of music for a library CD that would contain cuts specifically aimed at users in the media world — TV, films, AV, and so on. I was afforded the luxury of a 70-piece Royal Philharmonic Orchestra and the music was recorded over one week at Battery Studios. We had a great team, with Jez producing, Paul Golding Engineering and James 'Jimbo' Brumby as tape op. This project was the culmination of 10 years' involvement in library music; the library scene was my way in as a composer, and now, some 15 CDs later, I still value its importance. Andrew Connelly, head of recording projects for the RPO, reminded me that there are very few people who get the chance both to write and conduct for the RPO."

So far you've described yourself as a traditional, classical composer, but to date you've worked on classical scores, synth-based pieces and works combining elements of both disciplines. What was your first encounter with technology in your music making?

"I realised I needed the technology when I started working to picture. On the first series I worked on, everything was done to a stopwatch, but I found myself in the situation where I needed to be able to work to picture — and I also needed to be able to demo stuff to picture for the directors. So I got myself a MIDI system. Now I could demo the composition, locked to picture if need be, and then when the material was accepted, I'd either re-record it with real musicians or use a mix of synths and real instruments to produce the finished project.

"I'm at home with a symphony orchestra so I know there's no real point in trying to emulate what they do with samples, when they do it so well. MIDI is a means to an end, because on a film project, when I come to record the music using real musicians, I know that the geography of the music within the film is OK, which allows me to concentrate on fine details.
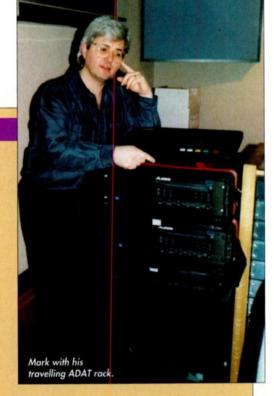
"I started using C-Lab's *Notator* a long time ago when I did a couple of library projects with Pat Seymour, who was the Eurythmics' keyboard player at the time. He was an endorsee of *Notator*, and the score-printing aspect of the program appealed to me straight away. I use it now to produce scores for session players and for directors. I could lock *Notator* up to picture using SMPTE, and since then the system has grown, so that now I have three ADATs and a BRC which can also be locked up."

What are the processes involved in a typical composition — do you start with time-code video?

"If I was taking a film cold, I'd probably work that way, but these days what tends to happen is

that the directors will come to me with a script, and I'll try to realise some musical ideas that are a reaction to that script. Then I'll play my ideas, and if they're somewhere near to what the director wants, at least when I come to write the score to picture I have a starting point.

"On the other hand, this film which we're doing today — *Rachel Hardcastle* — which is the sixth in an S4C series called *A Mind to Kill*, is unusual because the villainess is also a concert pianist, so I had to write music that wasn't only encapsulating the drama of the film, but also featured in a concert at the start of the film. The concert scene was filmed to playback with a MIDI

Mark with his travelling ADAT rack.

guide part plus the real piano. Then the editor decided he wanted to elongate the piece, which was difficult, because the plot goes from a concert situation to a cutaway of a murder, so the music had to work both for the concert and to be in sync with the action elsewhere."

It also seems unusual that here you are in CTS studios, working with live string players and a Neve desk, yet you're recording the parts directly to your own ADATs.

"The object of the exercise is to cut down on the cost of post-production, so while I use a commercial studio for recording ensembles and orchestral parts, all the mixing is done back in my own studio. And in that respect, the ADATs have already paid for themselves. If I were to record a ▶

Mark Thomas

whole film, I'd probably record all the studio parts in a couple of sessions — the rest is done at home.

"In the studio, the players work to a click track that I've already recorded, based on the tempo changes in my original MIDI recording of the part."

HOME BASE

What setup do you have at home in Swansea?

"The studio is based around an Allen and Heath GS3, which I can't fault. There are three ADATs and a BRC, plus, pretty much, a full set of Proteus modules. I find the Proteus modules extremely good for sketching out classical music — it's as if that's what they were made for. But don't get me wrong by thinking that I only do classical-type, serious music, because I also do a lot of other compositional work which combines both samples and rock elements. I'm in the business of providing music for film, television and animation. When you set up to be a commercial company, you have to be able to provide whatever you're asked for.

"I use samplers in many different ways and I have an old Casio FZ1 as well as an Akai S1000. My next film project, for example, is called *The Making of Maps*, and there's a lot of bird and wildlife imagery, so the plan is to create a lot of musical collages using bird-song mixed with orchestral elements, and for that, the sampler is absolutely essential. I also use the sampler in a more mechanical way to enable me to take something and then drop it into the mix at the right place.

"I'll only get into the creative side of sampling if it's really necessary for a project, because sampling can be very time consuming. Most of the time I'm busy working, so I don't really have the time to tinker with these things purely for fun. Having said that, if I had a project that required the use of specialised samples, I'd employ a sampling specialist in the same way as I'd employ a session musician. There's a lot of stigma attached to sampling when it's used to emulate real instruments and I feel there's a strong backlash about sampling at the moment, especially in big orchestral film music producers. One producer I worked with recently said that using a sampled orchestra would be like using a cardboard cutout person to read the news! Fortunately, he was able to provide me with the budget to use the RPO for his film, *Wild Justice*, which is destined to be screened on ITV.

"For effects, I have a couple of Lexicon Alexes, Quadraverbs, and a little Yamaha half-rack thing which I forget the name of now, but which is very good for certain tasks.

"Because everything is to time code, I mix to a Fostex time code DAT machine, though I also tend to mix onto two tracks of ADAT so that I can produce another copy with time code at a later date."

I know that you love working with real musicians, but there must be projects that don't have the budget to do everything the way you'd ideally like to. Do you ever produce synthesized orchestral parts in that case?

"Oh yes, but I always try to blend in some real instruments, and I play quite a lot of instruments myself. Violin is my first instrument, but I also do a bit of percussion. There'll always be some element of performance in what I do — I think that's fundamental to making music. I would hate to think that the entire thing had been generated by a box, but there are no rules in this business, and if the person you're working for likes what you've done, that's what counts.

"When you look at the subtle nuances of musical phrasing in classical music, the detail is so fine that samplers just don't get anywhere near to the real thing, but then for other types of job, an obviously synthesized piece of music might be exactly what's needed."

Do you avoid quantising when you're sequencing parts, so as to keep as much of the performance feel as possible?

"Usually, yes, but then again, some musical styles rely on quantisation, so it's a matter of picking what works. One side of me is the traditional musical purist, but on the other hand, I like the rest of it as well. I enjoy anything from Motzart to Zappa — music is all one thing."

How do you record the violin at home?

"For a classical feel, I'll have the mic about three feet above the instrument, rather like we're doing here today, and I have been known to use a second ambient mic further away. I have several good mics, including one of those Russian jobs which I bought after reading your review; it works very well, though I probably wouldn't use it for violin unless it was for a solo part, because it is quite flattering. If I was recreating a session, I'd probably pick something with a less up-front sound such as an AKG451. I've even recorded the Blackpool tower organ with a pair of 451s and it sounded terrific. On a rock track, I'd close-mic the violin a bit more.

"To recreate an ensemble at home, I'd obviously multitrack the part, but I try not to simply double up the same lines because I feel that you can create a bigger sound by having more parts. If you look at Stravinsky, or any of the other great orchestrators, the division they have in the parts is incredible."

Today you're working with a string ensemble, and the mic setup is a large diaphragm (Neumann) on the cello, with individual overhead mics for the violins and viola, plus a pair of ambient mics either side of your conducting position. Though we're monitoring via a Lexicon 224 reverb, you appear to be recording the tracks dry onto six

tracks of your ADAT.

"Every engineer sets the mics up slightly differently, and today Paul Golding (who also worked with me on the library album) is running the session. The separate close-miked and ambience tracks are mixed at home using the Lexicon Alex units, which I really like the sound of. The big Lexicons sound wonderful, but they're complicated beasts. The Alex is relatively clean and you can dial up the sound straight away. And to be quite honest, with acoustic music, I like to hear what the instruments really sound like rather than colour them too much. Of course, strings need some bloom to them because they're designed to be heard in that kind of environment, but having said that, the music still has to go through the dubbing stage, where more reverb can be added if required. That being the case, it's best to err on the dry side."

POST PRODUCTION

"My post production is also done with the help of an engineer, Steve Howard, who comes to work at my studio, so that I know that when the product leaves me, it's as technically good as it possibly can be. Steve also works at a dubbing facility called Taran in Cardiff, so there's a benefit in that he knows what can

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> *I worked with recently said*
> *that using a sampled*
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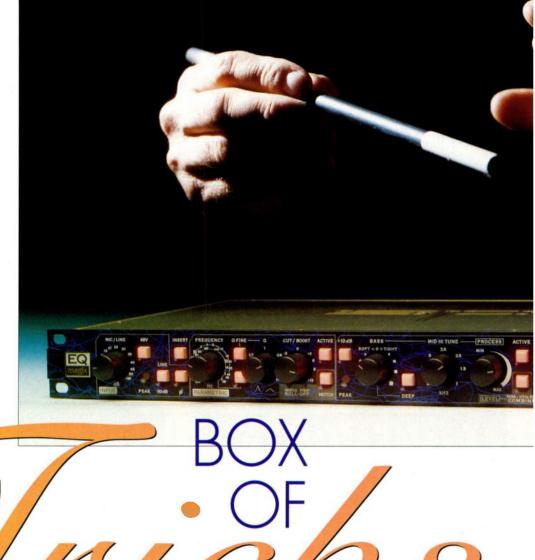
be done to the material afterwards. When you're producing a lot of music to a deadline, you tend to work in a manner that is expedient, so it may be that I'm recording music while Steve is mixing. I've also worked extensively with engineers from the Sounds In Motion and Soundworks dubbing studios."

When you're working on a whole film, do you put down contiguous timecode and then record the cues in place, or do you record each cue separately and then compile them all afterwards?

"These days I do the whole thing in sync, and if two cues overlap, I'll record them on different tracks. In fact, the next stage for me is to go to something like Sound Tools or Pro Tools so that I can handle all the editing myself. At the moment I'm still working with *Notator* on an Atari, and the reason I still have that is that I didn't want to switch platforms mid-project. At some point I'll have to change, but I feel hard disk recording will get cheaper yet, so I'm going to wait a while before deciding which way to go. I know my current system works, and though the newer systems can do some cute things, like having your video running in a box on the computer screen, I understand that the cost of a practical system is still astronomical. And when I do change, I'll have to take some time to learn the new equipment, which is time that I can't spend working. And at the moment, there's no sign of the work slowing down!" **SOS**

SPL have combined their Vitalizer circuitry with a powerful parametric/notch filter and added a low-noise mic preamp to create an extraordinary audio toolbox. PAUL WHITE takes the lid off and looks inside.

BOX OF *Tricks*

SPL EQ MAGIX MIC PREAMP/EQUALISER

SPL's Vitalizer is now well established as the thinking man's mix polisher, but the company also has considerable expertise in parametric EQ design, as confirmed by their excellent, if somewhat idiosyncratic, Optimizer. EQ Magix sees a marriage of those two concepts, packaged alongside a very high quality mic preamp, the aim being to provide a one box solution to mic or line-level tone shaping.
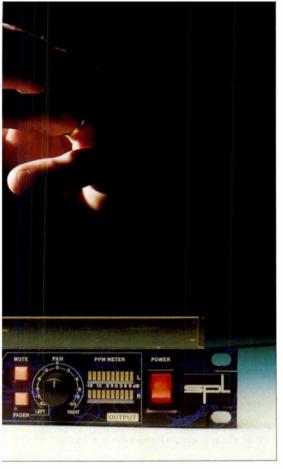
As soon as you see an EQ Magix in the flesh, you know that you've come up against something a little bit different. The marbled front panel features laser-etched graphics, and even the top-cover ventilation holes spell out SPL. So, what exactly is inside the magix box?

OPEN THE BOX

The front end of the system is a high-performance mic amp built around the highly specified SSM 2017 chip, which provides a mic gain range from 7dB to 65dB with a noise floor scarcely above the theoretical minimum. A 30dB pad in place of the more usual

20dB pad gives the front end sufficient range to handle line-level signals, and 48V switchable phantom powering is provided, as well as a phase-invert switch.

A buffered, unbalanced insert point is located between the mic amp and the following stage of parametric equalisation, which means that further processing can be added to the chain if necessary. It also provides a means to 'break out' the mic preamp, allowing the preamp and equaliser sections to be used for separate jobs. The parametric itself has an extraordinarily wide range covering 14kHz to 58kHz, and even that is little more than half of the available bandwidth of the audio path, which extends from 10Hz to 100kHz. While not suggesting that anyone can hear 'out-of-band' frequencies directly, research indicates that what you can't hear at the top end of the spectrum may well affect what you *can* hear lower down, so SPL are obviously keeping their options open. It's certainly true that modern digital noise-shaping systems can pile up the out-of-band noise, so this unit may be one way of dealing with it.

The single-band parametric stage may be configured either as a constant Q cut/boost equaliser or as a dedicated deep notch filter, and the frequency range is switchable so that the same control can

cover either 14Hz to 3kHz or 280Hz to 58kHz. Up to 15dB of cut or boost is available in normal parametric mode, with the Q being variable from 0.6 to 3.6. For finer control, the Q Fine button halves the range of the Q control past the midway position of the control, so that the maximum available Q is 1.9. Below the halfway point, the control functions as before.

Flipping to notch mode retains the frequency setting of the filter but now puts in 50dB of cut. In this mode, the Q control is normally set fully clockwise, leaving the Cut/Boost control to vary the roll-off of the filter from gentle to steep. The filter response may be narrowed further by increasing the Q setting, but this also has the effect of reducing the overall gain of the equaliser. When the parametric section isn't needed, or when setting up, it can be bypassed using the Active button.

VITALIZER

Moving onto the Vitalizer section, this is very similar to the stand-alone Vitalizer, except that it has sprouted a new button called Combine, which I'll come to shortly. Despite the myth and mystery surrounding its operation, the Vitalizer is essentially an equaliser based on interactive filters. At low frequencies, the circuit employs a novel feedback system so that when very low frequencies are boosted, lower mid frequencies are simultaneously attenuated to 'make room' for the increased level of bass without incurring boominess or muddiness. The Bass control has no effect in the centre position and produces different results depending on whether it is moved clockwise or anti-clockwise. Move the Bass control to the left, and the sound takes on a deep, rounded tone, whereas moving it to the right creates a tight, punchy bass sound but with less of an 'in your boots' quality. This effect may be further modified using the Deep button, which widens the range of

the bass filter (while maintaining the same centre frequency) and increases the amplitude by 4dB.

The important mid-range is handled by the Mid-Hi Tune control which may be swept between 1kHz and 20kHz and determines the frequency above which the signal will be enhanced. In practice, settings of between 2.5kHz and 5kHz seem to give the best results, and the effect is to add clarity and definition to mid and high frequency sounds as well as bringing up the level slightly to compensate for any increase in bass energy caused by using the Bass control. In broad terms, using both the Bass and Mid-Hi controls recreates the familiar 'smile' frequency response curve often used to create the impression of increased loudness at low listening levels. The overall amount of Bass plus Mid-Hi enhancement is controlled by the Process knob, and this, in turn, varies in effect depending on the input level to the Vitalizer section.

To take care of input level, a 10dB boost button is available on the input for situations where the signal coming from the Parametric section is too low to create the maximum effect, but a clip LED is also fitted, and if this starts to flash, the 10dB boost must be switched out or the input level to the unit reduced.

The final gloss is put on the sound using the Harmonics control, which works quite independently of the Process control. Rather than adding controlled distortion to the signal, the Harmonics section relies upon further filtering, the input of which is derived from a mix of the unprocessed Vitalizer input and the output from the Mid-Hi tune control (high-pass filter). Even so, the result still seems to be to add 'air' and definition to the sound, though arguably in a smoother way to some of the alternative harmonic enhancement systems.

As mentioned, when the process level control is increased to add more high and low frequency enhancement, the mid-range is simultaneously subjected to attenuation, but if the new Combine button is depressed, the Vitalizer works purely as an additive filter. Again, this section may be switched in or out of circuit with the Active button.

After leaving the Vitalizer section, the signal passes through the output stage, where it encounters another control which, in this case, may be switched to function as a level control or an active Pan Pot by using the Fader button. There's also a Mute button to kill the output, and PPM metering which monitors the two outputs in 3dB steps from -18dB to +9dB. The active pan pot option compensates for the 3dB level loss incurred when passive pan pots are used, but as this is essentially a single-channel or mono processor, I can't honestly see why it was thought necessary to include it.

IN USE

Because the EQ Magix has a mic preamp at the front end, you might be tempted to think of it as a mic amp with EQ, but I think there's a lot more to it than that, and my first real-life test of the unit came at a recording session when the bass player's active bass broke down and he had to use the house bass, which was fitted with pretty old strings. With a DI box to feed the bass through the EQ Magix, I was able to use the parametric to put the 'zing' back into the sound, while using the Soft bass setting on the Vitalizer section to really fill in

SPL EQ MAGIX

▶ the low end. The result was a very acceptable bass sound from a barely acceptable bass! What's more, because there are relatively few controls, it only took a few moments to set up.

Being an enthusiastic Vitalizer user, the capabilities of the Vitalizer section came as no surprise at all to me, but those who haven't heard one before are always pleasantly surprised at the full, open, detailed sound that can be achieved without making the material seem over-processed in any way. Used in conjunction with the single-band parametric section, this offers all kinds of possibilities for creative as well as 'cosmetic' EQ, and having the notch option on the equaliser is very useful when you have to deal with hum problems or similar frequency-specific signal pollution.

The mic amp behaved faultlessly, as did the pan/level output stage, though I must reiterate that I haven't thought of a single use for the panning option yet! However, being able to split the signal path using the insert point is very useful if you want to use the mic amp for one signal and the equalisers for another.

SUMMARY

Every facility provided by EQ Magix works perfectly and delivers the kind of tonal excellence that has come to be associated with SPL designs. As an audio toolbox, EQ Magix has no obvious counterpart, though I'm never entirely sure about single-channel processors, as I need stereo for much of the time. Similarly, EQ Magix doesn't quite provide a one-box solution to vocal recording, because you invariably need to use a compressor while recording. On the other hand, used carefully, the EQ facilities can significantly enliven a lacklustre vocal part.

As an equaliser, the EQ Magix is made extremely powerful by the combination of parametric and Vitalizer, yet is far easier to set up than a conventional multiband EQ, and it's equally suited to use with instruments and sound effects as it is to vocals. Everything about the signal path oozes quality, even the apparently pointless pan pot, and I have to give SPL full marks for original cosmetic design — the front panel looks quite fantastic. In all, I'd give a qualified thumbs-up for this unit, as it does everything it sets out to do very well indeed — and yes, it does sound kind of magic! For stereo processing, however, I'm hanging onto my Vitalizer. **SOS**

NOW IN 3D!

MEDIA VISION PRO 3-D PC SOUND CARD
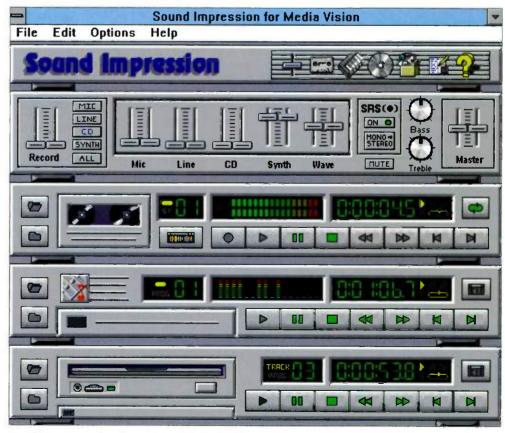
PC sound cards often provide surprisingly sophisticated facilities, only to fall down on the quality of their synth sounds. PANICOS GEORGHIADES takes a look at a new contender that ups the ante with a little help from Korg...

Media Vision have been producing sound cards for over four years, and not so long ago were one of the top-selling sound card manufacturers in the USA. The company's latest offering, the Pro 3-D, attempts to satisfy almost everyone's needs, from games, to business, to music and multimedia, though the single thing that makes the 3-D stand out for musicians is its excellent built-in synthesizer. However, the card also offers digital audio at up to 48KHz, complies with many compatibility standards (including Sound Blaster, Adlib and Microsoft Sound System), has a MIDI interface, a SCSI-2 CD-ROM interface, and a good variety of software for music and business uses.

INS & OUTS

Connections to the Pro 3-D include line and microphone inputs and a headphones/speaker output, all on mini-jacks. Unfortunately, there's no separate line output. There is a games/MIDI D-type connector, but you don't get MIDI adaptor cables for connecting to external equipment. In fact, very few sound cards supply these as standard (the required cables cost about £20). However, unlike other similar products, the Pro 3-D's manual

Sound Impression — the software that controls the Pro 3-D.

does include a diagram showing connection details, so you could wire one yourself if you don't mind making your own cables. Finally, as far as card connections go, there's a SCSI-2 interface boasting a 2.5 MB/sec transfer rate for connecting CD-ROM drives or other SCSI equipment.

SOUNDS

And now to the synthesizer facilities. There are two synthesizers on board: a Yamaha OPL providing FM synthesis (mainly for compatibility with games software); and a wavetable synthesizer (on a daughter board). This is based on a Korg chipset that uses AI synthesis, first introduced on the M1 synthesiser, though AI synthesis has also been used on most Korg synthesizers since the M1, including the T-series, the O1Ws, the I-series and the X-series.
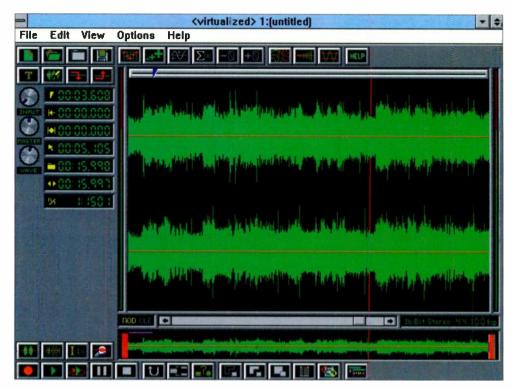
The chip on the Media Vision Pro 3-D is, in fact, very similar in specification to what can be found on the Korg AG101/102 modules for the PC and Mac — which cost around £399. In my view, no other sound card in this price range beats this Korg chip for modern synth sounds and drums. There are 128 GM sounds and four drum kits stored in 4Mb of ROM, and the chip offers 32-note polyphony and 16-part multitimbrality. It also has built-in reverb and chorus effects.

Another impressive feature of this card is its 3D surround-sound facility, called SRS (Sound Retrieval System), which, incidentally, is not limited to the synth section of the card. This works in a similar way to home entertainment equipment, providing a surround-sound effect using only two speakers, and giving the impression that you are 'inside' the sound. Unlike other similar systems, SRS does not use delay, artificial phase correction, harmonics regeneration, echo or reverb, and does not require a restricted centred listening position — you don't have to sit mid-way between the speakers. Furthermore, the speakers do not need to be widely spaced — two feet is what's recommended, so this system is ideal for use with computer speakers.

SOFTWARE

The card is controlled by MidiSoft's *Sound Impression* software — which is also bundled with some other sound cards on the market, including the Roland Rap10. The version bundled here includes the usual accessories: a sound mixer for controlling the various sound sources, and CD audio, MIDI and Digital Audio (WAV file) players, iconically represented as a hi-fi rack system. The digital audio recording and editing facilities provided by *Sound Impression* range from adequate to ingenious. You can mix the various sound sources together and output the combined signal, or record any combination of Aux in, MIDI, and CD-audio into a WAV file. Unfortunately, however, the version of the program bundled here is not the full product, which enables you to edit 16 sessions (files) simultaneously and mix any

Sound Impression's Wave Editor.

two into a stereo track, split a stereo track into two mono tracks, and carry out other similar operations. The bundled version does include a number of digital sound-processing effects, though, including a pseudo de-noise filter you won't find in any other program at this price. More effects for day-to-day use include gain change, which offers a compressor and a normalise feature (a function that increases the volume of the waveform until the highest peak just reaches distortion point); Reverse waveform; Add/Remove portions of silence; Fade In/Out; and chorus, flange and echo effects. There's no reverb, but you won't find this facility on many budget
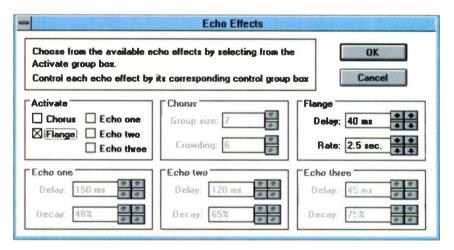
Echo, flange and chorus effects.

computer-based digital audio editors anyway. However, unlike many other similar programs, you can apply certain edit functions to the left and right sound channels separately.

The quality of the digital audio is not the best around, but it is quite acceptable with its 80dB dynamic range, and there are bass and treble controls for filtering out interference noise if you have an electrically noisy PC. ▶

PRO 3-D SOUND CARD

▶ *Sound Impression* registers as an OLE (Object Linking and Embedding) server. OLE is a Windows facility that enables you to embed data from one application into another. In this case you can insert sound, MIDI and CD-audio clips from *Sound Impression* into other programs. Furthermore, you can keep sound mixer settings of the relative volumes of each sound source — useful for live work.

The Midisoft Recording Session sequencer and notation program.

Recording Session's Quantise feature includes a humanise option.

The bundled sequencer/notation program is MidiSoft's *Recording Session*. This has three views (or screens): score; mixer; and MIDI (event) list. Score displays sequences as standard music notation. You can, of course, add/delete notes and carry out other step-time editing functions, and during playback, the relevant notes are highlighted. The MIDI mixer gives you real-time control during playback over volume, panning, chorus and reverb, and has mute, solo and record buttons for each MIDI track. In addition, there's a master volume fader and controls for overall reverb and chorus. Clicking on the instrument label of a particular track brings up an instruments dialogue box, so that you can select which instrument you wish to assign to that track. The default list is in GM/GS format. The MIDI List view is as found on any other sequencer,

and there's also comprehensive on-line help.

The Pro 3-D package includes two more pieces of software: *Monologue* and *Talk-To Plus*. *Monologue* is a text-to-speech synthesis program. It speaks out any section of text that you select with the mouse and copy to the Windows clipboard. Although this is of no direct use for music making, it may have other uses — and you might find it's fun! *Monologue* has a comprehensive dictionary and also includes a user dictionary, so you can teach it to pronounce unusual words, such as your name!

Talk-To Plus (from Dragon Systems), on the other hand, may be more useful, as it enables you to give commands to your Windows software using a supplied clip-on microphone.

It is possible to run most of your sequencer's commands, such as record, play, pause and so on, by voice only. This means you can keep your hands free at all times to play your music keyboard instead. In any case, many Midisoft commands are assigned to computer function keys, which makes use of the program easier.

Talk-To Plus is fun to use and can also be the object of a show-off session with your PC. It comes with preset command vocabularies for Windows Accessories and other mainstream applications. Unfortunately it does not include a vocabulary for Midisoft *Recording Session*, so you have to construct one yourself. As with all other programs of this kind, you also need to train it to recognise your voice, but it can still be used by different users — one at a time, each one having his/her own recognition data files.

CONCLUSION

Though there are many PC sound cards on the market, not many have been designed with the serious musician in mind, and consequently the quality and realism of their sounds can fall short of ideal. Overall, the Pro 3-D sound card offers what most other cards do in this price range in terms of facilities, but what really makes it desirable is its synthesizer capabilities. **SOS**

demo DOCTOR

MESH

Recording Venue: Home.

Recording Equipment: Seck 18:8:2 mixer, Fostex R8 8-track, Sony DTC55ES and Casio DAR100 DAT machines, Shure SM58 mic, Alesis Quadraverb effects, Boss SE50 effects, Yamaha REX50 effects, ART Multiverb LT effects, Boss NS50 noise suppressor and CL50 comp/limiter, Alesis Micro Gate and Limiter, Sony hi-fi amp, Mordaunt Short speakers, Sennheiser headphones.

This is a Bristol-based project, proving that there's a lot of creative music going on in this city at the moment. Unlike many other electronic bands, Mesh actually get out there and gig, with DJs and a light and video show to boot. Although their interest lies in songwriting, the style is groove-based and takes on board the energy of dance/techno. In the recording process, very little is actually recorded onto tape apart from vocals, as with many similar bands.

Kicking off with some interesting panned industrial sounds and looped synth, the sound is at once aggressive and recognisably techno. Clattering low-bandwidth hats, four-on-the-floor kick and busy snare propel the song along at a fast pace, and sampled guitar power chords particularly punctuate on the chorus. The key changes in the verse are impressive, giving a dynamic lift and paying more than lip service to the band's desire to write songs rather than just grooves. Imagine Depeche Mode with a techno backing and you might get the gist of Mesh.

On the second song, the propelling factor is the fat analogue bass synth part, which has been intelligently arranged to incorporate repetitive riffing as well as melody in a dance format. After an aggressive verse the chorus is almost mellow, yet

top tape

strong, with a very catchy hook. I'd have been tempted to put this first on the tape for record companies. This track also has a better mix and a warm commercial sound, without losing its aggressive qualities — the first track's mix was abrasive in the upper-mid region, as a result of over-equalisation.

A panned sixteenth-note sequence with some filter change and modulation leads us into another well-arranged techno-style track. The impressive bass drum sound is on fours and very fat, allowing a thinner bass synth sound for a change. I also liked the distorted guitar samples, with pitch bend for expression, and these were used effectively throughout the track. The icing on the cake is the vocal, slightly distorted for aggression, but still with enough of a hook to make it commercial. ❑

DICTIONARY OF DREAMS

Recording Venue: Home.

Recording Equipment: Fostex R8 8-track, Studiomaster Proline 24:4:8:2 desk, Atari running Mastertracks Pro, JL Cooper PPS100 SMPTE unit, Nomad Readymix, ART Multiverb Alpha effects, Yamaha SPX50D and EMP100 effects, Yamaha DP100, Alesis 3630 compressor, Sennheiser MD421 mic, Denon DRM700 cassette deck, Sony DTC750ES DAT, Tannoy DC2000 speakers, Acoustic Research AR8 speakers.

Dictionary of Dreams' Simon Winterson has called his studio 'The Small Room', and I think a lot of readers can sympathise with the sentiment! It must get pretty cramped in there once the guest musicians arrive for this studio-based project, not to mention writing partner David Taylor. Musically, the duo produce some very interesting music that draws on many sources, from world music through dance to pop and back again.

The opening song, 'Rain', mixes interesting sound textures with effective female vocals, drawing on samples including multitrack vocals and chanting — a North American Indian rain dance, perhaps? This links well to create a feel which is never overstated or crass. Many demos of this nature tend to work in a collage fashion with sounds, but don't actually contain a song — 'Rain' is different.

The duo move to more standard pop territory on the second track, with well-crafted results. The mix of this track is disappointing after the first song: the vocals could do with losing some of the effect, which recesses them, and the volume of the lead guitar is too loud, making the vocals sound weak in comparison. Personally, I would have taken the strings out completely and reversed the solo arrangement so that the piano came before the guitar, rather than after it.

The third song heralds a welcome return to previous form, with some excellent synth textures. I particularly liked the pitch-drop effect with heavy reverb, and the soft, slow attack of the pad synth provided the perfect backdrop for the saxophone break. My only criticism would be of the vocal level, which is too low and has too much reverb. ❑

SABIAN

Sabian has decided to go for a basic production and keep all the arrangements as they are played at a gig, presumably to get a sound as close to the live performance as possible. The resulting funk/dance sound has an energy revolving around the excellent bass playing and groovy drumming. The sound of the Warwick bass, played finger style, is unmistakable and incorporates both clarity and drive without any problematic low bass rumble.

Nevertheless, the temptation to mix it high has proved too much and it's out of balance with the backing. This makes the other instruments sound a little weak in comparison and you also can't hear the bass drum that well. If the kick was louder with some cut (boost at 2-6kHz) and the bass a little lower, the balance would be improved.

I also noticed a hole in the mix because of the narrow bandwidth of the chosen keyboard and guitar sounds. Clean guitar and what sounds like a brass/organ combination are operating in the same frequency range, making it hard to distinguish their parts. Fatter sounding guitar or keyboard with more lower mid would have filled up this space — the mix is crying out for some warmth.

Both lead and backing vocal performances are strong on all the tracks. With the benefit of a bigger production sound, more could obviously be made of the choruses by layering up vocals and harmonies. As it stands, the tape gives a good impression of the quality of musicianship in this band. ❑

GARY TOWNSEND

There are plenty of effects units in Gary's list of equipment, and, thankfully, he seems to know how to use reverb, so I don't have to harp on about its excesses! However, after an impressive start, the temptation to fiddle with the other effects seems to have become too much for him.

Track one has a very tight mix which sounds as if it's been heavily compressed, although Gary doesn't mention this in his useful mix notes, so I can only assume that the sound sources were compressed. The result is good for this sort of rock/pop music, with nothing jumping out to upset what I'd call a radio-friendly mix. Vocals have a slight delay on them and are placed up-front in the mix, and I must comment on the vocal sound, which is simply the best that I've heard from a Tandy PZM. Granted, it has

that slight sibilance characteristic of the PZM, yet it also has a warm, fat lower mid. Whether Gary has equalised it or not I can't say, but I suspect some bass has been added. Improvements to the song would involve some drum re-programming, as the SR16 presets are a little busy in places, plus the addition of backing vocals for the chorus.

Whilst Gary explains that he was experimenting with a live to DAT recording, it's a shame that the vocal sound has been lost for track two. Still, the song is strong enough to warrant re-recording. Next time watch the acoustic guitar sound, which is over-treated by modulation and equalisation. The only sound to come out of this mix with any clarity is the lead guitar.

By the third song, 'My Mouth Your Lips', things are still a little out of hand in the mix department, with a dodgy drum balance and little in the way of bass. I would guess that over-using the SPL Vitalizer has promoted the hi-hats to such a prominent level, and general modulation mayhem puts paid to the rest— which is a shame, because the songs deserve better. ❑

SAM

Sam sent a nine-page booklet, plus handwritten letter with her tape. It's simply not necessary to do this when approaching us — or A&R departments, for that matter; a brief letter will do, and they'll undoubtedly ask for more if required. Anyway, the music speaks for itself and shows Sam pulling in two directions, as sensitive singer/songwriter or dance floor merchant. Arguably you can record music with both elements, but they need a more common production thread than simply the vocal.

The first track has all the hallmarks of the lone artist, backed initially by piano and building to a stronger mix of strings, bass and drums, with some useful brass stabs on the middle eight. Extremely groovy drum programming lifts the song, but there are a few points about the mix that need attention: first, the vocals are too low, and as A&R make a lot of decisions from this I'd suggest a remix. The strings are also quiet when they need to be belting through towards the end as a dynamic lift to the song. Finally, Sam should lose the spoken backing vocal at the end and sing it instead.

The second song moves away from the tortured artist approach and into dance, Madonna style — perhaps the picked guitar and light vocal invite this comparison. Again, it's well programmed, with a strong kick, snare and fat bass synth combination driving it along, but possibly a little dated in production style, though still a contender as a single release.

It's the last track which brings us firmly into the '90s, with a modern, busy beat and minimal instrumentation. However, the melody of the chorus isn't as strong as the previous song, even when the verse is kicking. Another instrument — a sampled guitar power chord or keyboard pad, for example — would fill the hole in the lower-mid frequencies and also lend the chorus more power. ❑   ▶

demo DOCTOR

quickies

▶ It seems that **TONY MAY** has been pretty busy over the past two years, gigging throughout Europe and writing some pretty powerful rock music. All the musicians on the tape play well, and our main man has a strong voice, but a strong hook melody is lacking — particularly on the first track. This is rectified on the second song, which also has a better vocal mix with less reverb, allowing us to hear the vocal quality, which is excellent. Some of the sounds tend to be on the fizzy side, like the distorted guitar on the first song and the piano on the second, which would have been improved with a more natural tone. However, these demos show that Tony's songs are easily good enough to land him a record or publishing deal of some description.

It seems a shame to me that Peter Steer and Steve Devier of **BONBOOSHE** have never quite cracked it with record companies, since they're always producing good quality demos. Perhaps a more aggressive edge to their smooth and well produced synth pop sound wouldn't go amiss. What can I suggest? Some industrial sounds and interesting samples might drag it away from that early '80s sound. All the stab brass, piano, copious reverb on the otherwise excellent vocals, and unadventurous drum machine sounds are conspiring against them.

PAUL BROWN just records music for fun and has no ambitions to make it professionally. Despite this, he still aims to get the best quality he can from his recordings and has had them professionally copied. Listening to the tape, I think that the music has a curiously off-the-wall appeal which is down to the semi-spoken vocal style and clean guitar. For example, the use of heavy reverb on the clean guitar in places, the echoed slide guitar and the ambient placement of sounds in the mix all add to the interest. It was also good to hear some intelligent arranging of sounds for the instrumental break, with flute and percussion changing the mood. Garageband production on the second song makes it sound pretty modern, but the keyboards are a little naff and some real trumpet would have been nice. Criticisms aside, I think Paul has got some good songwriting ideas and, most of all, character. Don't lose it!

THE PRAYER have probably found the new vocalist they were looking for by now! They should have no shortage of takers with a residency at the Cavern in Liverpool. A very lightweight production sound suits the original vocalist, unlike the abundance of echo. The vocals are also mixed too high for the backing itself, which is a little bass light — I can barely hear the bass guitar! Yet the quality and energy of the song shine through and the sound improves for the second track on the tape, 'Family Ties'. A little more bass guitar and less vocal echo is all that's needed to improve this mix.

THE SIGNMAKERS is a strange name for a band, but this is no ordinary project. Croatian Robert Legovich used to read *SOS* when he studied in the UK. Now back home, he's recording music with friends Igor and Kruno in a small town on the Adriatic. The sound is synthesizer-driven pop with electric guitar and female backing vocals thrown in for dynamic good measure. The vocal delivery and lyrics are what I'd call tongue in cheek, and occasionally languorous — it works well against the lightweight sound of the band. Technically the sound is mixed with plenty of drums and voice and really needs the body that a higher instrumental mix would produce. Good fun to listen to. Favourite track: 'Sometimes'.

HOUSE OF CARDS: this demo is an awkward marriage between computer-generated sounds and rock anthem arrangements. Bob Mouat hasn't quite decided what production style to go for. His songs and vocals are really good, but instead of taking the traditional 12-string guitar and drum machine approach, he got districted by some public domain music software. I'd suggest backing down to 12-string and a real percussionist, but now Bob's seen the possibilities of sequencing this isn't going to happen! In answer to your question, Bob, secondhand Ataris and software like *Cubase* or *Notator* are quite reasonably priced now. It's worth bearing in mind that you still need at least a multitimbral keyboard to make the most of them.

Well, it's the first and probably the last track I'll hear which opens with the theme of Coronation Street. Yet I did like the way it moved effortlessly into **SLBC**'s own trumpet theme over their techno/rock backing. Strong vocal delivery from Nile and hard industrial sound programming typify the SLBC sound which also uses the brass textures of Andy 'Assle to give a pseudo-Ska feel. The cassette has been recorded too hot in places, with consequent distortion, though this doesn't seem to harm the overall vibe too much, and the production sound is suitably underground to be credible. Phase modulation effects work well on the vocal, and the heavy reverb treatment on the brass mutates it to a metallic backdrop against the beat.

Another tape which proves that *SOS* reaches the parts, etc... This one's from Canada and features **BRUNO GERVAIS**'s instrumental compositions. Digital sound sources conspire to make the production sound thin and sterile on the first track, but it improves for the second. This track is a bit drum-heavy, though, even though the snare sample is one of the best I've heard in a long while. Consequently the mix suffers until the piano theme picks up, and even the well-chosen ambient sounds can't hide the fact that there is a massive hole in the frequency range at around 250Hz. As a guide for Bruno, the best mix balance is on the third track, where the pad strings, which occupy the above range, complement the upper-mid attack of the piano. Apart from some interesting sounds and themes, Bruno has a well-developed sense of arrangement which never allows the compositions to sink into self indulgence. Keeping to the point certainly gives him the edge over most instrumental demos we receive. ❏

AZIZ

Recording Venue: Music College.
Recording Equipment: Fostex E16 16-track, AHB CMC24 mixer, Tascam 32B 2-track, Yamaha SPX90 effects and compressor/limiter, Roland DEP3 and Alesis Quadraverb effects.

Aziz are a regular gigging band playing mostly original music. Their tape was recorded at the music college where keyboard and sax player Martyn Green works. The material is American-influenced rock/pop, verging towards the classy as well as incorporating the usual power chords and big choruses, which the lads tackle with some skill.

The recording on the first song shows up some mix and production flaws and doesn't really do the band justice. For example, the vocals are outrageously loud and the snare drum so heavily reverbed that it sounds miles away from the band. Hence the drummer appears to be late on every snare beat and the band sounds loose. As for the vocals, Patrick Peters has a fine voice, but it's been over-compressed, resulting in diminished dynamics and lost presence.

Track two improves in the drum department, but the vocals are still too loud, and there's too much reverb on Dave Lodge's clean, Steely Dan-style funk guitar. Less reverb on both guitar and snare would really have tightened up the sound and enhanced the groove. Nevertheless, the song is actually very good, showing a more natural commerciality, where the opening song simply tries too hard to be a hit. Fine brass playing and arrangements punctuate what is the best song and mix on the tape. The lead vocals are just about about right, although the backing vocals are in danger of overpowering the chorus and should be thinned out with some bass cut. Incidentally, I should mention that the backing vocals are very good on all the songs — credit where credit's due! ❏

Professionals are made not born

ALCHEMEA

Ashley Sheinwald, Alchemea student. 2 hours sleep between two recording sessions and digital editing session.
Total duration: 49 hours (not including the two hours sleep).

ALCHEMEA

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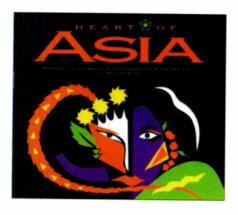
Our regular look at the hottest new sample CDs and CD-ROMs.

HEART OF ASIA
(DOUBLE SAMPLE CD)

One of the two liner notebooks included with this double CD set tells us much about the recording process, and gives a country-by-country account of the instruments and scales used. Most of the collection was recorded at or near Schtung Music studios, Singapore, on a Roland DM80, then edited on S770 and S760 samplers. The track listings include a heading, plus BPMs. Er, that's it — no key, and no indication of mono or stereo. Carrying forward

this minimalist theme, Eric Persing demonstrates the wisdom of not trying to do anything too clever with samples as harmonically and rhythmically diverse as these.

A single authoritative, fine-toned Tibetan horn blast opens the issue, and five Anklung (bamboo rattle) rhythms follow, at around 180 BPM. The aforemetioned Javanese Gamelan Orchestra provide around 25 samples cut from performance. Since these contain percussion and voices as well as Gamelan, don't expect to get any add-ons to an existing composition — instead they could form the basis of an atmospheric backdrop. The recordings have an outdoor feel, and although noise is never a major problem, it is more in evidence than I'd have expected from a digital recorder.

Altogether quieter is the massive Indian Percussion Ensemble section. Each of eight tracks has up to 30 2-bar loops. The quality of musicianship (Tabla, Dhol, etc) is excellent, and tempos strict enough to ensure a wide market. Some looping is in evidence, suggesting that we are hearing samples being played from a host sampler, rather than edited master tapes.

Three useful Kasi finger cymbal patterns give way to the Malaysian Drum Ensemble. These boys keep time about as well as Barings kept fiscal control over their Singapore futures

operation. Recorded in what sounds like a temple, the Malaysian Orchestra fares much better in the instant exotica department. An aural treat.

Four Thai Orchestra bits are not enough to satisfy, and represent the first mono offerings of the day. Then a selection of 40 or so mono Indian Veena (like a Sitar in sound) phrases and slides are presented in sampler-friendly bites, some taken from performance, some recorded as hits, all played in an easy-listening Indian Restuarant style. I'd guess a studio booth was used, as the dry acoustic has a sense of closeness.

The mono 'Wild Tibet loops' are just that — wild, and recorded in the field. My guess is that one of the Horse/Parade phrases has what it takes to become the basis of a classic dance strike. The Chinese Cymbals patterns are a revelation too. Forget Zildjian and Paiste China types — these are the real thing. The larger ones combine the quality of tone of western orchestral cymbals with a startling rhythmic mobility, while finger-style rhythms are elicited from the smaller Chinese cymbals.

Among a fine selection of solo and (mostly) mono/dry instruments, I was particularly keen on the flutes. Several Chinese, Indian, Nepalese and Malaysian types provide around 200 phrases. Surely now we can lay that old Emu Shakuhachi sample ('Sledgehammer'/'Exterminate') to rest? Get in about this lot before Paul Hardcastle does!

Disk 1 ends with 150 guitar, sitar and zither phrases. Disk 2 starts with six big Asian Atmospheres. Multitracked into wide stereo, natural ambience is overlaid with panning cymbals and voices — contrived but nice, and sure to turn up in a Barclaycard commercial in your area soon.

Next up are Tibet Hits. Maybe I was wrong: these are cut from the Wild Tibet Loops of disk 1, and they don't stand up as well as I'd imagined. Solo, dry but (mostly) stereo Gamelan phrases usefully occupy the next six tracks, followed by Gamelan Orchestral hits. And so to

the well-recorded, roomy Malaysian Orchestra, with spacious acoustics and playing. Cool.

Sixty solo/mono specially-recorded Chinese Koto cliches precede 26 stereo Chinese gong and drum hits, 25 Dragon drum phrases, 28 Gendang drum hits and half-a-dozen 'Hairy' drum hits. Fifty-nine Indian Percussion samples and licks marry perfectly with the corresponding patterns section on disk 1, while 'Malaysian Drums' and 'Wayang Kulit' Percussion increase an already abundant library of skin drum hits.

The rest of CD 2 is largely given over to solo voices, recorded close, dry, clean and in mono; 22 tracks with up to 32 samples each cover male and female Indian, Chinese and Thai opera divas, Indonesian and Malaysian males, and a Tibetan girl and man, all singing in the mother tongue. Dialogue includes a 'Chinese Guy' , a Dao Poet, a Malaysian man and woman, and Tibetan Dharma. Subject matter is discussed in the sleeve notes (eg. don't repeat what the Tibetan says in Beijing if you want to stay healthy).

On the way out we come across Chinese violin and FX (50+ licks) and 15 Indian Tampura drones and phrases. By the way, FX are simply playing techniques, like glissando and pizzicato. There is no gratuitous multi-effects unit in evidence *here*, I'm glad to say, leaving plenty of room for you to add effects later.

Conclusion: not a set of vintage cut-outs, but high-quality, specially-performed phrases form the bulk of *Heart of Asia*.The geographical breadth of styles and influences is astonishing, and this two-CD set probably represents the most comprehensively usable, best-recorded collection of World Music samples I've had the pleasure to review so far.

£ **Heart of Asia £79.95 inc VAT and P&P within the UK. Also available on double CD-ROM in Roland format (Akai coming soon) for £299. This includes comprehensive multisamples not available on the CD.**
A **Time & Space, PO Box 306, Berkhamsted, Herts HP4 3EP.**
T **01442 870681.**
F **01442 877266.**
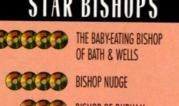
BEST SERVICE XX LARGE
(SAMPLE CD)

I put off reviewing this collection of 1500 'classic' drum loops on a single CD for a cupla months because 1) I was under the impression that it was more or less a re-hash of material from the XL stable, and 2) there has been a large influx of genuinely new product lately.

The format is one or (less frequently) two bars, just about enough space to pause between takes, with samples grouped at 5bpm intervals from 80 thru 130. A tuning chart tells you by how many cents any sample needs to be raised or lowered to hit an exact tempo, within a 10% range. Useful. There is no mono/stereo annotation, though we are told that 80% of the loops are in stereo.

After auditioning *XX Large*, I can now report that it is *not* simply a series of lifts from the XL

library. Though plenty of the loops come from the well-thumbed pool of classic vinyl grooves, sound quality seems to have been enhanced on some. A mixture of live and programmed, vinyl and freshly-sequenced/recorded, dry and effected drum loops are on offer, plus some simple bread and butter percussion patterns.

The XX crew are not averse to repeating a favoured sample several times, though perhaps at different tempos or with the addition of an effect. When an in-house groove is served up, it's usually with more than one variation on the theme. Off-record examples are sometimes overlaid to 'beef up' the rhythm. I'd rather start with the raw, unadorned material meself, and so would you. It's much easier to compose an integrated rhythm track when you use loops for feel, and program accents and kicks over the top. Fortunately there are plenty of unretouched classics to choose from.

And now, a blow-by-blow account of each loop... not! I'd be here all week! Having sat through around 1350 loops I was delighted to find I still had to listen to a Roland CR78 set bringing up the rear. Six tempo groups at 80 thru 125 each contain around 25 samples. But why no single hits?

Conclusion: if you have not yet assembled a healthy collection of classic loops, then 1) Where the hell have you been for the last three years? and 2) Better buy *XX Large* quick. You've got some catching up to do!

£ *XX Large* £59.95 inc VAT and P&P within the UK. Also available on CD-ROM in Akai, Ensoniq and Samplecell formats for £149.
A Time & Space, PO Box 306, Berkhamsted, Herts HP4 3EP.
T 01442 870681.
F 01442 877266.

LOOPISMS VOLUME FOUR
(SAMPLE CD)

One question I'm sure many sample CD producers ask themselves is "How much effect should be added to the original source material?". Too little processing and the samples need a lot of work before they sound usable. Too much and the samples become very specialised, leaving little room for the user to be

creative in a mix situation. D-Zone have gone for the best of both worlds, providing all of their drum loops with stereo effects and then repeating them in mono with no processing at all.

The loops themselves are interesting and very usable examples of a cross-section of styles, the emphasis being on hardcore, dance, funk and rap. Although the CD runs to over 70 minutes, you're not exactly spoilt for choice in terms of the number of loops provided — there are just 24, and each loop track lasts about a minute and a half. The loops themselves are usually only one or two bars long, with occasional four-bar versions, but do we really need one and a half minutes of the same drum loop repeated over and over for each track? When the loops are repeated later in their mono and unprocessed state, the tracks are all about 20 seconds in length, which is quite long enough.

Moving on to the other and, I feel, strongest part of this CD, we come to the vintage analogue synth section. The tracks provide an in-depth study of the Roland TB303, the Juno 106 and the Oberheim Matrix 1000, though with only a single sample per patch. There is a wealth of twangs, basses, pads, wizzes and beeps for each instrument, and very nice they are too. The pads seem to work especially well, and although a little over-used these days, the wide selection of TB303 bass sounds give a real insight into just how versatile this little machine was and still is. All the Matrix, Juno and TB303 samples are recorded in their original mono, unprocessed state, and so are extremely effect and filter friendly when it comes to mixdown. Because the patches are analogue, the fact that they are not multisampled doesn't seem too serious and most are usable over a sensible keyboard range.

There is one more bonus to this CD — all the drum loops are stored as S3000 data, though you'll need at least 10Mb of RAM and version 1.5 or later software to access them.

The overall feel of this CD is very good. The loops (despite being too long) sound fresh and often very original, and the analogue synths are well recorded and provide enough variety. As a modern dance-floor production tool, *Loopism's Volume Four* rates very high indeed. *Paul Farrer*

£ *Loopism's Volume 4* £11 on CD, £7 on vinyl. Prices include P&P within the UK.
A D-Zone, Freepost CN3194, South Croydon, Surrey CR2 0UZ (UK customers only); PO Box 3, South Croydon CR2 0YW (overseas customers).
T 0181 651 3633/01956 233332.
F 0181 651 3633.

WORKSTATION VOLUME ONE
(SAMPLE CD)
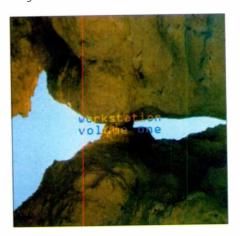
The format of this CD is essentially the same as *Loopism's Volume Four*, including 24 drum loops recorded with processing, lasting one and a half minutes each, then repeated later dry, in mono. This is a format that seems to work for the producers, but as I said before, I can't really see the use in repeating the same one- or two-bar

drum loop for over a minute and a half. Having said that, the policy of 'quality not quantity' does seem to be the order of the day; there may not be too many different loops, but what they lack in number, they make up for in usability and power. There is a very strong rave, rap and ragga flavour to these loops, and despite a few excursions into familiar 'same-old-drum-loop' territory, most are fresh enough and would work well within a track.

Moving on, the rest of the CD is devoted to 'preset bashing' — in this case, the Roland JD800 and the Emu Proteus World. The JD800 samples are recorded in stereo and represent a fair demonstration of what the instrument can do. There's a wealth of clavs, basses, pads, pianos, strings and bells — in fact almost every possible sound that could emanate from the JD800 seems to appear in some way or other on this CD. The drawback is that all the samples are taken from a single middle C (no multisamples) and this, I think, is a mistake; it leaves you with less flexibility for the playable range of each sample, and pianos and guitars are virtually useless if they're not sampled over a series of at least five or six different keygroups.

The same applies to the wide range of Proteus World samples. The strength of the Proteus 3 is its seamless joining of accurately recorded multisamples (woodwind and plucked instruments, for example), but the selection provided here, although representative of the range of the Proteus 3, doesn't give you nearly

as much flexibility as it could. I think it would have been better to reduce the length of the drum loops to make way for at least a few multisampled alternatives of some of the more important pad and string sounds.

Workstation Volume One offers a large selection of well recorded and interesting sounds, mixed with a good collection of drum loops, but as an 'all-in-one' product, as its name might suggest, it still has quite a way to go. *Paul Farrer*

£ *Workstation Volume 1* £11 on CD, £7 on vinyl. Prices include P&P within the UK.
A D-Zone, Freepost CN3194, South Croydon, Surrey CR2 0UZ (UK customers only); PO Box 3, South Croydon CR2 0YW (overseas customers).
T 0181 651 3633/01956 233332.
F 0181 651 3633.

Apple NOTES

MARTIN RUSS brings you the latest Apple news. This month: new software upgrades, and how to surf the net from your mobile phone..

The recent *Sound On Sound*/TSC-sponsored seminar on hard disk recording and MIDI sequencing at Abbey Road Studios was a great success — over 300 people attended. Representatives from Apple, Emagic, Steinberg and Digidesign gave presentations, and there were also sneak previews of the new Windows programs from Opcode: *OMS*, *Vision 2.1*, and *Galaxy*, as well as *Studio Vision 3.0*, and *MAX 3.0*.

Version 3.0 of *Studio Vision Pro* sports several new features: most notably free conversion between audio and MIDI, so you can take a digital audio track and convert it into MIDI data (complete with MIDI pitch bend and modulation information) and then transform it back to audio again after editing. DSP plug-ins have also been added, as well as Digidesign DAE/TDM support, and Pro Tools III compatibility.

MAX 3.0 exploits the new timing facilities to the full: timelines and synchronisation can be controlled by *MAX* patches. Double-clickable 'stand-alone' applications can be made by 'bundling' a patch and other files into special run-time players — with no licence fees or additional charges. Expect one or two useful MIDI gadgets from myself, for example!

A PowerPC native version of *Overture*, the notation package, should run at much faster speeds. PowerPC native code is also promised for the latest acquisition by Opcode: *DigiTrax* from Alaska Software, founded by the Apple engineers who developed the core of the Apple Real-Time Architecture (ARTA) signal processing engine. *DigiTrax 1.2* is a multitrack digital audio recording and editing package based around a 'tape-like' user interface, and features QuickTime interworking, and SMPTE and MIDI synching.

ON THE NET

The Internet is always changing. Apple have recently updated the graphics on their World Wide Web page. The new opening page looks much more hi-tech, and a simple mouse click takes you to other pages.

The special edition of Scientific

Apple's new opening page on the World Wide Web.

American shown here is sponsored by Apple Computer, and has some glimpses of how future computers may look and work.

The 'smiling man' new logo for the Mac Operating System may also become very familiar when the new update to System 7.5 becomes available. Rumour has it that the traditional Mac startup screen will be replaced by the new logo. Update 1.0 will contain lots of minor bug fixes and newly updated versions of the component pieces of software.

Overall, Apple's home page is well worth a visit: http://www.apple.com.

AWARDS

Just about the last place that you expect to find praise for a Macintosh is a PC magazine. But that's exactly what has happened with the 1994 Technical Innovation Awards from PC Magazine. The Best Desktop System award went to the PowerMac 8100/80, whilst the Editorial Fellows Award, which is reserved for the 'year's most significant development' went to OpenDoc. OpenDoc is an object-based approach to document handling — you work with a document rather than an application, much as you might currently with a piece of paper. ▶

HOW IT WORKS: THE MOUSE

Although you may use one every day, the inner workings of the humble computer mouse aren't immediately obvious: so, how do they do that?

The button on a mouse is simple: it's just a switch. Most mice use tiny switches about 7 mm square, which provide the tactile feedback using a collapsible plastic dome. The button you see is nothing more than a cover for a rod which presses the switch when you click the mouse button.

Turning mouse movements into directional indications is easier than it might appear. Inside the average ordinary mouse is a ball, which rolls around on the mouse mat as the mouse moves — there's some Teflon pads on the mouse to make it slide around more easily [unless yours have fallen off — Ed]. As it rolls, the ball pushes against two rollers, on each of which there is a disk with slots in it. On either side of the disk is an LED and a photo-sensor, and as the disks rotate, they allow pulses of light through from the LED to the photo-sensor. These pulses are converted into electrical signals, which are buffered by a small integrated circuit and then passed along the mouse's tail (the cable) to the Mac. Clicks from the switch are debounced so that only clean 'button press' events are presented to the Mac's operating system. The direction pulses are converted into screen positions by counting pulses and working out where the mouse has moved to.

So, now you should know why your mouse doesn't work when it's upside-down (the ball doesn't touch the rollers), or why dust stops them working properly (it clogs up the slots in the disks), and why cats don't eat them (cats don't eat plastic). Of course, some types of mice are really clever — they use optical sensors instead of all that ball, rollers and disk stuff — and they *will* work upside-down!

Apple NOTES

OpenDoc will be a part of future operating systems, and is already supported by Apple, IBM, Novell and WordPerfect. It should be available for Mac OS, Windows, OS/2/Warp, AIX, Unix running on Intel, PowerPC and other platforms.

NEW OLD FIELD

As mentioned in the Mike Oldfield interview in February's *SOS*, the new CD from the tubular bell-ringer, *Songs of Distant Earth*, is inspired by the SF novel of the same name by Arthur C Clarke (one of my favourites, if a bit of a tear-jerker at the end). As you might expect, given this scientific connection, the CD makes use of the latest technology: one of the tracks uses QuickTime 2.0 to provide a seven-minute track that displays images inspired by the book. Despite his name, Mike Oldfield is obviously breaking into new fields!

FRIENDLY NATIVES
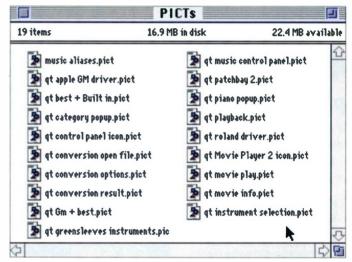
If there's one question which crops up every time I speak to Mac users these days, it's PowerPC native code. Is such and such a piece of music software native yet? When will it be? Does it work with the modem port? Should I buy a PowerMac? Trying to get answers from manufacturers isn't easy, with rather too many 'very soon' and 'next quarter' responses.

With this in mind, future Apple Notes columns will include any news about genuine 'available now' sightings of native music software. No vapourware, no 'unstable' applications and definitely no promises. And *you* can help — I can't possibly test everything myself! Let me know if you spot anything worthy of inclusion — I will need three confirmed reports before it gets a mention, and you might get a mention too!

TIP OF THE MONTH: USING SKINNYSHORT

Eagle-eyed readers may have spotted that my screen dumps don't look the same as the displays on their Macs. This is because I useful when you're dealing with large numbers of files in the Finder.

The font is called SkinnyShort and is available in most collections of PD and Freeware fonts. There is also a slightly larger variation called Skinny, and italic versions of both which make Aliases just about readable. Both SkinnyShort and Skinny are screen bitmap fonts, based on nine-point Geneva. According to the creator, James Bucanek of Midnight Software Development, an even more crushed font might be forthcoming!

With SkinnyShort, lots of files can be squashed into a tiny window: here are all the graphics files for last month's QuickTime 2.0 special, using SkinnyShort.

have substituted the system font in my Mac for one which is specially optimised to be as small as possible whilst still being (just) readable. This allows you to fit more onto your screen, and is Once Skinny is installed in your System Folder, you just ask your Mac to start using it as the font for all your displays. This is done from your 'Views' Control Panel. **SOS**

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atari notes

With Atari no longer manufacturing computers, the mantle for further development has been picked up by C-Lab. Enter the Falcon Mk II...

The release of the Atari Falcon in early 1993 dispelled one myth for all time: you don't need tens of thousands of pounds worth of kit to get into hard disk recording at a reasonable level. It may have looked like an ST that had been immersed in a mud bath for six months, but the inclusion of a digital signal processor, and in particular one of the Motorola variety, gave the machine a 'feel good factor' of nine and a half. And to think that the addition of the DSP was a last-minute decision on Atari's part — as late as February 1992, apparently.

The song remains the same...

However, the launch of the Falcon, or rather lack of it, was a warning sign. No real advertising power was ever put behind the machine — the solitary advert (that nobody could understand) was funded by various third-party companies. Perhaps Atari already knew that its future lay in the Jaguar games console and, as history will show, this belief was well founded.

Unfortunately, that left MIDI enthusiasts with a rather imperfect product. It was immediately obvious that a number of hardware modifications were essential for the Falcon to function properly in the serious digital audio domain. In the light of these alterations (plus a now-stable version of TOS), we finally seem to have a viable platform. And then Atari pull out of the computer market...

GERMAN GEMS

The history of Atari is littered with innovative products requiring third-party support to sell them. After all, hardware doesn't sell itself: it needs ground-breaking software. On the hard disk recording side, both Steinberg's *Cubase Audio* and Emagic's *Notator Logic Audio* have shown that the Falcon can deliver up to 16 tracks of audio, seamlessly integrated with a vast number of MIDI tracks. On the editing side, a standard cut 'n' paste approach makes the software as easy to use as its MIDI-only counterpart.

Given the nationality of Steinberg and Emagic, it should come as no surprise to learn that a German company has acquired a licence from Atari to continue developing the Falcon. This licence imposes certain restrictions on the release of a budget machine whilst Atari still has stocks of the current computer. Nevertheless, it's a step in the right direction.

The C-Lab Falcon Mk II looks exactly the same as Atari's machine, aside from the customised C-Lab logo. Indeed, the specification is no different, with the same processor and DSP, an identical restricted video capability and no change to the casing and keyboard.

Fortunately, C-Lab have spent time on the innards, making sure that all necessary circuitry changes, such as the removal of the bass boost, have been carried out before a machine arrives at the retailer.

C-Lab's Falcon is intended to be a music workstation, which has led to one important internal change: the addition of a SCSI card for an internal 2.5-inch SCSI hard disk. Additionally, the audio board has undergone a radical facelift, with proper line-level inputs, isolation from interference prior to digitising the signal, and a dynamic anti-aliasing filter on the output to deliver a higher sampling rate than Atari's original. In fact, C-Lab apparently used the original board's manufacturer.

The Falcon Mk II is sold complete with the full memory complement of 14.2Mb plus a 514Mb internal SCSI hard disk and the relevant ICD software pre-installed.

BACK TO THE FUTURE

In a recent interview with Ofir Gal, Technical Editor of *Atari World* magazine, Burkhard Bergerhoff of C-Lab commented, "C-Lab will now work together with Steinberg

... but the logo has certainly changed.

to ensure reliable operation of *Cubase Audio*. We are also looking at the possibility of making the Falcon more ST-compatible, so that devices like the Midex will work with it. We will do everything we can to make the Falcon into the ultimate music workstation".

This is a very important move. While it's impossible to gauge the level of animosity between C-Lab and Emagic, it's probably fair to say that some residual rivalry remains. Software writers were once working pretty much in the dark with the original Falcon, but now it's being produced specifically for music applications, a better working relationship can be developed between software writers and the hardware manufacturer.

Steinberg intially had to work very hard at developing *Cubase Audio* for the Falcon, often having to operate in the dark where hardware problems were

ABOUT THE AUTHOR

Vic Lennard has been an Atari enthusiast since 1987. He is currently Editor of both *Atari World* and *Mac Action* magazines, runs *Club Cubase UK* along with Ofir Gal, and is also author of *MIDI Survival Guide*, available from the SOS Bookshop, and co-author of *The Music Technology Reference Book*.

concerned. The situation with the Midex MIDI port expander/ SMPTE generator irks many users — while it can function on the Falcon after a circuitry modification, it cannot work with *Cubase Audio*, due to the critical processor timing required. A satisfactory resolution will almost certainly result in increased Midex sales and may decrease the number on the second-hand market!

UK SUPPORT

It should come as little surprise to find that Paul Wiffen, journalist, Falcon owner and salesman *extraordinaire*, is involved. He's been instrumental in the setting up of Digital Awareness, a division of Digital Village. In conversation with Ofir, Paul explained, "I was offered the UK distribution because the idea for the C-Lab Falcon came about through discussions between Burkhard Bergerhoff of C-Lab and myself. His original plan was to create a PC-based music and digital audio workstation, but he became disillusioned with the idea because musicians don't really want to worry about AUTOEXEC.BAT files and MIDI drivers. The Falcon had the obvious advantage of being music-ready, with MIDI ports and built-in 16-bit audio. When I demonstrated just how powerful the Falcon was when running *Cubase Audio*, he called it 'The best-kept secret in the music industry'!"

"To retain 100% backwards compatibility, we are shipping TOS 4.04 on all machines because it works fine with musical applications. The C-Lab licence allows any modifications to both hardware and software, and one of the things we are looking at first is how TOS can be improved. We're also looking at adding a second DSP and a separate video card."

Paul has spent several months investigating non-musical products such as *Papyrus* and *Apex Media*. In

> *"C-Lab's Falcon is intended to be a music workstation, which has led to one important internal change: the addition of a SCSI card for an internal 2.5-inch SCSI hard disk."*

a discussion at the London Atari Show last December, Paul made it clear that C-Lab would look to support non-music Falcon users as well. Let's hope that this leads to the development and manufacture of a Falcon technology-based machine for the mass market. **SOS**

FURTHER INFORMATION

A Digital Awareness, Eurotec House, 31-35 High Road, Chadwell Heath, Essex, RM6 6QW.
T 0181 598 8081.
F 0181 598 8984.

N PC NOTES

BRIAN HEYWOOD brings you the latest PC News, and looks back on three years of PC Notes...

his issue of *Sound On Sound* marks the third anniversary of the PC Notes column. Looking back, I can see certain similarities between the situation that existed three years ago and that of today. Then, as now, we were waiting for a new version of Windows which would revolutionise the way we used the PC.

As well as converting between formats, ReSample allows you to graphically edit samples, and has specialised tools for setting up loop points.

The main thrust of Windows95 is to be the integration of the operating environment (Windows) with the operating system (DOS), thereby removing the current duplication of functions, and generally improving the reliability of Windows. How deep the integration goes is uncertain at present, as Windows95 is required to be capable of running all current DOS applications.

Another prerequisite is that the new operating system should be able to run on a PC fitted with 4Mb of RAM. From what I've heard, this goal has not only been hit, but you actually get *improved* performance over the same system running Windows 3.1 or 3.11. Of course, nobody can be really sure just yet...

WINDOWS95 AND MIDI

Of course, three years ago, Windows was an unknown quantity in terms of its suitability as a music platform. Today, Windows has the biggest user base in terms of music software, due to a combination of the built-in software support in Windows and the widespread availability (and low cost) of PC hardware. At present, the only real competition to the Windows platform is the Apple Macintosh and PowerMac, especially if Insignia can get their *SoftWindows* product to fulfil its potential.

Despite the fact that Microsoft perceive the music world as a niche market, there are some improvements in the way that Windows95 handles MIDI and sound. The performance of existing music applications will improve as new software versions start to use the more advanced features provided by the 32-bit core of Windows95. Have no doubt that you'll hear more on these subjects in future columns; stay tuned.

RESAMPLE

A new version of the *ReSample* digital audio conversion utility (formerly called *WaveTo*) will be available by the time you read this. *ReSample* is one of the few audio applications that ties together the multimedia audio and pro music/MIDI worlds. Using *ReSample*, PC soundcard users can access the large amount of high-quality sample sounds that have been created for use by instruments such as the Akai S1000. As well as being able to convert between sample formats, *ReSample* can talk directly to samplers using the MIDI Sample Dump Standard (SDS). The software is especially useful if you have one of the growing number of MPC sound cards that store their sample data in RAM, like the Gravis UltraSound and the Creative Labs AWE32 cards. *ReSample* should allow developers with samplers to perform the sound design on their PC, and then download the edited sample, either via MIDI or using *ReSample*'s ability to write Akai-format disks. Features such as automatic loop finding, crossfade loop generation and the ability to crossfade different samples, coupled with the large display area available on the PC screen, should speed up sample editing considerably. One neat feature is the 'loop finder general' function, which will scan a sample and give you a list of possibilities for matching loop start and end points, graded by how close the sections of the waveform match. Through the use of the Universal Sample File Reader, *ReSample* can interpret audio files produced by practically any method (other than proprietary and unrecognised companding techniques), including Amiga MOD files (11 different types), and Unix AU format (of interest to Cybersurfers). *ReSample* costs £99, includes a CD of sampled sounds, and is available from Et Cetera Distribution (01706 228039).

BOOK CORNER

I was sent two useful books by PC Publishing recently. The third edition of the *Practical MIDI Handbook* by R A Penfold is a completely revised version of this popular book. It explains the basics of MIDI technology and, although the book was originally aimed at introducing the concepts to musicians, it should be invaluable to any computer user trying to get to grips with the technology. The book covers such topics as General MIDI, MIDI sound modules, and the relationship between computers and MIDI, plus a useful glossary of terms. It's well worth looking at if you are just starting to explore the world of MIDI music.

For the more advanced computer musician, *Sequencer Secrets* by Ian Waugh features over 150 practical tips for getting the best out of your computer-based sequencer software, gathered together over Ian's years writing for various music technology magazines. Although the book is fairly slim at 100 pages, it's packed with helpful hints and practical projects. Both books are available direct from PC Publishing via a credit card hot-line on 01732 770893 (or fax 770268). *The Practical MIDI Handbook* costs £8.95, and *Sequencing Secrets* is a mere £6.95 (plus £1.50 p&p per order).

HARD DISK NEWS

Digidesign have just announced a PCI-based version of their Audiomedia II sound card and *Session* software for Windows. The soundcard features high quality A/D and D/A converters, separate effects sends and returns and digital I/O switchable between S/PDIF and AES/EBU standards. When used in conjunction with the Audiomedia card, *Session* will let you use your PC as a two In, four Out hard disk recording system, with parametric EQ, on-screen mixing, digital bouncing and user-definable crossfades. Note that you will probably need a Pentium-based PC to get the best out of this system, which should be available in the UK sometime in July. The UK price hasn't been announced yet, but the international retail price has been set at US$1,489. However, prices will vary from country to country — to find out more, contact Digidesign, on 0181 875 9977.

Those hyperactive chaps at Soundscape Digital Technology have announced that they will be doing a roadshow around the UK to show off their SSHDR1 hard disk recorder for the PC. No doubt they will be demonstrating the latest version of their non-linear editing software (v.1.17), which includes such goodies as editing without stopping playback, looping in play, a waveform display buffer, an Edit Decision List (EDL) and auto-conforming and track scrubbing using an external MIDI control surface (like a JL Cooper CS10). Further down the line, Soundscape are planning to add real-time reverb and lots more. For further details, contact Nick Owen at Soundscape on 01222 450120.

TAPELESS AUDIO DIRECTORY

Since hard disk recording is still a hot topic, another new publication that may be of interest to the PC-based musician is the latest version of the *Tapeless Audio Directory* from the Sypha audio consultancy. Now in its fourth edition, the directory covers over 200 professional digital audio workstations, ranging from high-quality PC soundcard-based systems to high-end dedicated multitrack systems. Each entry of the directory gives the salient features of each system, as well as details of costs and suppliers where available. In addition to covering current systems, the directory also previews systems that are about to be launched, and describes those on which development has been halted. The book costs £15 in the UK, plus a postage and handling charge. To find out how to get a copy, call Sypha on 0181 761 1042 (or fax 0181 244 8758).

CAKEWALK EXPRESS

Getting back to MIDI applications on the PC, Twelve Tone Systems have just released yet another variant of their popular *Cakewalk* music sequencer for Windows. Designed to appeal to someone just starting to explore the world of computer-based music, *Cakewalk Express* can be used with any Windows-compatible soundcard or MIDI interface. One innovation is the ability to 'play in' a performance using the PC's keyboard, thus doing away with the need for an external MIDI instrument. Called the 'Virtual Piano', this is actually a separate application that communicates with *Cakewalk Express* (or any Windows sequencer for that matter) using a pseudo-device driver. In use, the 'Virtual Piano' assigns notes to the bottom two rows of keys on the PC's QWERTY keyboard, allowing the user to play along with a *Cakewalk* sequence, or even record a new track 'in sync' with playback. This feature could be highly useful if you use a notebook PC and want to do some sequencing on the move. Admittedly, the QWERTY keyboard is pretty basic in both performance and range, but it does act as a way of quickly entering notes without having to use the mouse to insert each note individually.

Like other *Cakewalk* programs, *Express* can play back digital audio files and control MCI devices, for instance firing off digital video files (AVIs) under the control of the
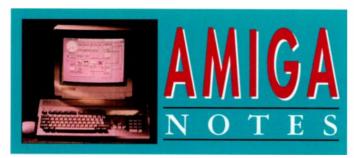
sequencer. Other features include a multitrack staff (music notation) view, piano roll editor, a faders page and a track/measure view. The package comes complete with a SoundBlaster-type adapter cable which incorporates MIDI interface circuitry, and connects to the games port on most SoundBlaster-compatible soundcards (or the Gravis UltraSound) to give a single MIDI In and Out. The cable has two-metre flying leads fitted with MIDI plugs and so provides a neat way of attaching an external keyboard and/or sound module to your PC. *Cakewalk Express* is available from Et Cetera (01706 228039) and costs around £80. **SOS**

The Internet Underground Music Archive can give musicians or bands access to a wider audience.

CYBERSPACE CORNER

One of the biggest problems for aspiring musicians today is how to get their music to a wider audience, and one novel way to achieve this is provided by the Internet Underground Music Archive (IUMA). Started in 1993 as the extracurricular project of two American college students, IUMA has grown to be a forum for unsigned artists, as well as independent and mainstream record labels such as Warner Brothers. IUMA has also linked up with Tower Records in the US to make the Tower inventory obtainable by Cybersurfers (well, those with credit cards, anyway) and IUMA demos available to customers in Tower Records retail outlets. IUMA insist that they are "leading the drive toward artist-compensated, high-fidelity, on-line music distribution", but at the moment, they are more of an alternative publicity and distribution network.

To tap into the infobahn, you need to send recorded material, biographies and pictures to IUMA at PO Box 59, London N22 4NS (phone 0181 888 8949, fax 0181 889 6166, or email: info@southern.com). The service costs £75 per year to the contributors, and nothing at all to any Cybersurfers who care to browse the material. Due to copyright laws, songs must be original, and each artist or band is legally required to sign a licence allowing IUMA to electronically distribute their music.

AMIGA NOTES

There have been plenty of goings-on in the Amiga world during the last four weeks. PAUL OVERAA spills the beans...

One of the many pieces of news this month is that Dr T's *M* package has finally appeared on the Amiga. Many Amiga users are probably not aware of this program, and so a few words of explanation are due. *M* is primarily a composition aid, and whilst it can be used to create fully-fledged arrangements, it is not an auto-arranger program in the same vein as say Blue Ribbon Soundworks

with your melodies and chord ideas. *M*, however, is able to perform far more complex changes (both user-directed and algorithmic), effectively creating *new* riffs and food for thought as it does so. Furthermore, *M* has been designed so that most of the changes are made graphically, making it easy to experiment with new ideas once a user is familiar with the program. You don't even need a MIDI synth in order to be able to use *M* on the Amiga — sequences can be created with the pattern editor, and used with *M*'s IFF internal sound options.

Basically, you record sequences (notes and/or chords) and, under your guidance, *M* is able to transform them. Tempo, key, velocity, duration, and note accents can all be changed, and melody lines can be scrambled or reversed in ways which you determine.

To record your basic sequences,

with all such composition aids, the changes may not always be to your liking!

To be honest, when you hear the initial results, *M* may sound like little more than a sophisticated arpeggiator, but a bit of experimentation soon shows it to be much more than this. You really do have to spend time getting to know this program in order to appreciate its true potential. As always, the Dr T documentation is excellent, and includes a tutorial to help set newcomers on the right track.

So — should you buy it? Personally, I'm very attracted to this program, but I know plenty of people that take exactly the opposite viewpoint. On other platforms, this program has proved to be one that you either love or hate, and I suspect that it will have the same sort of 'polarised acceptance' amongst Amiga users. To my mind, the package, though new to the Amiga, is still a little long in the tooth in terms of underlying ideas.

Having said that, it's nice to see that Dr T's are not forgetting the Amiga, and for that reason, I hope the program does well! *M* costs £79.95, and is available from Millenium Music, who can be contacted on 0115 924 1924.

The main display page of Dr T's M on the Amiga.

SuperJAM. In fact Dr T's *M* shouldn't be compared to *SuperJAM* at all, because it is fundamentally different in operation. *SuperJAM* achieves its magic to a large extent by modifying pre-stored riffs and merging them

four 'players' are available, which you can regard as individual sequencer tracks. You might, for example, start by playing a chord line for player 1, then add a melody for player 2, a bass line for player 3, and so on. *M* then quantises both the notes and durations of whatever you've played.

Having heard the results, you might try scrambling the melody or the bass line, or ask *M* to add cyclic or even totally random variations to the theme. You can vary the degree to which *M* does this, so you can get results as near to, or as far away from, your original riff as you choose. There are a whole range of editing functions to choose from, so it is not just the obvious characteristics of a sequence that can be altered. For example, the 'note density' function makes choices about which notes should sound, and this can dramatically alter the feel of the material originally recorded. As you continue working, you will find that *M*, though guided by your choice of settings, will add its own ideas to your original efforts. Naturally, as

IN YOUR OWN TIME, LADS...

Evidence has surfaced within the last few days that things are at last starting to move with regard to the sale of Commodore. Various messages that have appeared on the Internet have given rise to a whole new set of rumours concerning the proposed MBO (Management Buy-Out) bid. It appears that one of the bidders, the German PC clone manufacturer and distributor Escom, has been able to purchase certain German trademarks (notably the Commodore logo), and have agreed with the Bahamian liquidators to sell these trademarks to any successful bidder when Commodore is sold.

One suggestion was that Escom wanted the logo for their Commodore PC machines, but it now seems likely that much more is at stake, and that Escom and the UK Commodore management team may be the two contenders battling it out for ownership of *all* the Amiga-related copyrights and hardware. In other words, the sale of Commodore has reached the final 'auction' stage, where bids currently on the table can be

AMIGA NEWS IN BRIEF

• GOING NUTS OVER SQUIRREL
HiSoft have just released a fully-working SCSI2 interface on a slot-in PCMCIA card called the Squirrel. The connector allows up to six external SCSI devices to be chained together, so you can now add CD-ROM drives, hard drives, and tape streamers to an A1200 with no interfacing problems. The Squirrel will also allow A600 users (at last) to add CD-ROM or hard drives to their machines. The price of the interface and the associated software is £69.99. For further details, contact HiSoft on 01525 718181.

• PHOTOGENICS UPGRADE
Almathera have released an upgrade to their 24-bit image manipulation package *Photogenics*. The upgrade (to version 1.1a) adds any-angle rotation, new blur types, median and defocus

filters, and enhanced line art, along with a variety of other new effects. Registered users wishing to upgrade should send a disk and stamped addressed disk mailer, quoting their registration number, to: Almathera, Boundary Business Court, 92-94 Church Road Mitcham CR4 3TD. (Tel: 0181 687 0040).

• AI ON THE AMIGA
An Amiga version of Prolog, the logic-based programming language used for Artificial Intelligence research, is about to be released by Grange Technology. GT-Prolog features an easy-to-use front end called Probench, and the compiler itself is based on the now de facto standard 'Edinburgh Prolog' syntax. The price will be £89.95. More details are available from Grange Technology on 01235 851818.

formally challenged in the courts by any interested parties. This process, which is done primarily to ensure that the creditors get the best deal they can, is essentially the last stage in what has been an extremely complicated exercise by the liquidators.

Bids of around six million dollars have now been unofficially mentioned (far lower than the figures previously circulating), but the important thing is that buyers will be effectively forced to publicly announce their interest in the auctioning process. Hopefully, the net result should be that negotiations start to move very quickly towards completion.
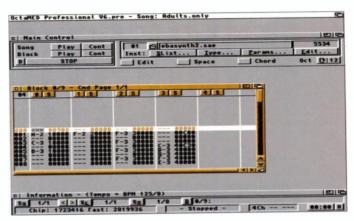
OCTAMED PRO v.6

This new version of *OctaMED Pro*, probably the last before the *OctaMED Pro Sound Studio* appears later this year, is scheduled for release in late April, so it should be just about available by the time you read this. I've already seen and used some of the beta-test versions and there are quite a few extra facilities. To my mind, however, one of the biggest attractions will be the further-improved user interface. All the functions now use the modern 'gadtools-oriented' windows with 3D-look gadgets, which are now the order of the day for all serious Amiga software. The various editors (synthetic sound editor, sample editor and so on), along with a number of the main functions, now open in separately rearrangeable and re-sizable windows, so users can tailor their *OctaMED* screen displays to suit their individual ways of working.

On-line help, using the Workbench 3 Amiga guide facilities, is standard in *OctaMED 6*, and for the benefit of Release 2 users, the Amiga guide library will be included on the release disk. It's worth pointing out that although *OctaMED* itself now requires Workbench 2.04 or greater to run, the player program *OctaMEDPlayer* still only requires Kickstart/ Workbench 1.2. This means that Amiga users with older machines will still be able to play song modules created with the newer versions of the package.

In the UK, *OctaMED Pro v.6* will cost £34.99 (including postage and a 'Get You Started' manual). Registered *OctaMED v.5* users pay £25, and should return their original version 5 disks when ordering. There are various other price arrangements available for MUG (MED Users Group) members, European sales and so on — details are available from RBF Software, 169 Dale Valley Road, HollyBrook, Southampton SO16 6QX (vox/fax: 01703 785680).

By the way, the development of *OctaMED Pro Sound Studio* is coming along nicely. Features I've had definite news about include full separate screen stave editing, enhanced sound support, full load and save MIDI file support, and more compatibility with popular sampling hardware (Aura, Toccata and so on)... **SOS**

A lot of work has gone into the new OctaMED Pro display.

A QUESTION OF TRUST

Part 1: Can you trust your equipment? What will you do if it lets you down? DAVID MELLOR offers advice.

The human race simply would not function without trust. Generally speaking, we trust our friends, we trust people we meet for the first time, we trust that people we pass on the street bear us no ill will. Occasionally our natural trusting instinct is misplaced, but it is only the very rare occasion when our trust is let down in any significant way.

We also trust 'things'. When we switch on our television, we trust that it will display adequate sound and pictures — and we expect it to do that faultlessly for a period of several years. Once in a while, however, your best friend won't turn up on time for an agreed meeting, and once in a while you'll find the need to call up the TV repair company. But this is expected, it does no harm and we continue to trust.

Now let's consider sound equipment and the music industry, two topics that are of great importance to every reader of this magazine. Can you trust the people you have to do business with to make progress in your musical career? Can you trust that when you are working with an important artist in your studio, the equipment will function as well as he or she expects?

I'm going to select a number of situations that I and people I know have encountered — situations which all musicians or sound engineers might encounter — and assess how much faith is being placed in people and

things. And, more importantly, examine what you can do to protect yourself if the same thing happens to you. This month let's look at the technical aspect, for things are always far less complicated than people!

GOOD GEAR, BAD GEAR

These days, it's a rare musical instrument or piece of sound equipment that is actually badly designed or badly made. I encounter a fair amount of equipment in the course of my reviews for *Sound On Sound*, and in eight years I have never come across any product that wasn't worth owning. Some pieces of equipment are better value for money than others, but the competition between manufacturers is so intense that they *have to* produce reliable equipment that delivers the goods. Anything less and they would soon go out of business. There are still times when problems occur, however, and it's unwise to assume that they will not. Here is a selection of potential pitfalls...

Will the equipment work straight out of the box?

Almost always it will. Manufacturers have stringent quality control procedures to ensure that faulty equipment is well and truly nipped even before the budding stage. This doesn't mean, however, that you should expect to have a piece of equipment delivered today and be using it on a paying job tomorrow. This is tempting fate just a little too far. There are three ways in which things can go wrong:

• The first is obviously that the equipment actually is faulty, or that there is just enough wrong with it to make you want to return it. In the latter case, if you use it despite the faults and mar its pristine condition, you risk the supplier refusing to replace it and offering to repair it instead. This could mean a lengthy wait.

• The second possibility is that the equipment doesn't work in quite the way you expect it to or doesn't interface with your equipment properly. This would apply particularly with computer software, since the technology is far from mature and clashes between particular models of computer and particular software packages are not uncommon. Also, the software you buy may clash with software you already have installed. You'll almost certainly find a solution, but will it be sooner or later?

• The third possibility is when the equipment or software works properly, it is compatible with everything else, but you've simply underestimated the degree of difficulty involved in learning how to use it! I've certainly done this before and I'm sure I'll do it again, but that's a risk we techno junkies take!

Will every feature of a new piece of equipment work?

In the old days when sound and musical equipment was made out of wood, metal, nuts and bolts, you would expect so. It's a rare guitar that doesn't come with all six strings working! But nowadays most equipment is software-driven; even equipment that comes in a box with no computer involved often has a microprocessor inside which runs on software in ROM. You may not be aware, but even in 1995, five years from the turn of the millennium, it is still not possible to *prove* that any piece of software will work totally correctly, apart from very simple software that can hardly do anything. Software manufacturers have to test their software to see if it works correctly, and even the most rigorous testing is a long way off being totally foolproof. It is common for software, particularly in its early versions, only to work properly in its more basic functions; once you start stretching it, you may find that great holes appear in the fabric.

One partial solution to this potential problem is never to be the first to buy a new piece of software, or a new major upgrade. Wait a couple of months and early snags (or 'bugs') will probably have been ironed out in response to reports from early users. Of course, if you do hang back then the early birds who gambled and bought first may be catching all the fat juicy worms! This is something you'll have to weigh up; technological advantage against potential problems.

If the equipment works, will it work in every situation?

There is a distinct possibility that you may buy equipment which works properly and does everything the manufacturer claims it can do, but there may be the occasional situation

where performance is lacking, or it may not do everything you want it to. Let me give you a few examples...

• If you buy an unbalanced microphone, which means that it doesn't have a transformer (or equivalent electronics just before the output), it will be prone to picking up electrical interference. In your studio it will probably work fine, but if you take it elsewhere, on a location recording or PA job, then you might find a horrible buzz coming through the speakers or headphones. Fully professional equipment is always balanced, which is a method of electrically cancelling out any interference that gets into the cables. The trouble is that balanced operation pushes up the cost, and in lower price equipment you may find compromises. Even if the mic and line inputs on a mixing console are balanced, then the auxiliary sends and returns may not be, and the insert points on a less expensive console certainly won't be. Take this type of equipment anywhere near a lighting rig and you're in for trouble! Lighting dimmers work by biting large chunks out of the mains waveform, leaving very sharp edges behind which radiate a considerable quantity of radio waves. These will penetrate the screens of the cables, causing a nasty buzz that is very difficult to eliminate or ignore. Better quality lighting dimmers may be OK, but the quality of the dimmers isn't usually within your control.

Another problem I had recently was with a mixing console that works very well in my studio and on location. I took it over to France and it worked just as well there, even on the lower voltage mains. But when I repeated the experience in a different location, I found myself in an outbuilding where the mains arrived via a very long, probably very thin, cable and was even lower than it should have been. The mixer's power supply couldn't cope and it created a low level but clearly audible hum. Fortunately for me, this was a very 'pure' 50Hz hum and easy to filter out later.

If you always work in a fixed location, you have it easy. But if you're constantly on the move, problems will crop up on a regular basis. I have found that 90% or more sound engineering problems are caused by connectors and cables, and usually they are very straightforward to sort out and actually not too difficult to prevent. If it's not a cable that's at fault, then the cause of the problem is usually mechanical rather than electrical. The solution to these problems is to use good quality connectors. Decent XLRs are not hard to find, but decent jacks and phonos are a bit more difficult to source, since there are so many dodgy ones

about. My advice is to get hold of a catalogue from a professional supplier, such as Studiospares [Tel: 0171 482 1692] or Canford Audio [Tel: 0191 417 0057], and go for quality rather than price. You should be able to solder properly too, or find someone who can, since poor soldering

is also a prime cause of faulty cables.

Once you have sorted out these problems, you should rack-mount as much of your equipment as possible and secure loose, dangling cables before they cause problems. One further piece of advice on this point is to kit yourself out with flightcases. You may get by without them for the occasional job outside your studio, but properly padded cases will prolong the life of your equipment and reduce the possibility of damage.

Will different pieces of equipment always work well together?

The question isn't so much whether they will work, but who do you blame if they don't? This is a particularly tricky point with computers, because the computer and software usually come from different manufacturers, and you may be using yet another piece of hardware, such as a sound card or interface. If these items don't all work properly together you may phone round the various manufacturers and find that they all blame the other company's product!

The only real answer to this, apart from only buying equipment that you have actually seen working in its intended application, is to substitute other equipment in order to pin down the problem area.

I can offer you a real-life example which concerned my computer system. I had a problem with the printer failing halfway through a document. But was the problem in the computer, the software, the printer, or the third-party memory board I had installed in the printer? Substituting a different computer, different software and removing the memory board didn't solve the problem, so it had to lie with the printer.

Another problem was that I was encountering glitches when making digital transfers between the sound card in my computer and my DAT machine. The glitches only occurred at the 44.1kHz sampling rate, so

I was pretty sure it was either the computer or the DAT at fault. I replaced the DAT with my portable machine, which worked fine, so I determined it must the first DAT. But before I sent it away for a potentially expensive repair, by chance I spoke to someone who had been having glitches because of the wiring used for their digital transfers. I took a chance and replaced the high quality audio cable I had been using for the digital signal with £20 worth of high quality digital cable. Problem solved — but I never did find out why it only occurred at 44.1kHz.

DATA SAFETY

Will your data be there for you when you need it?

Major question, this! Some wise folk say that data doesn't exist unless it exists in two places. The easiest way to lose data is to accidentally overwrite a file with another file of the same name. I don't know of any data recovery programs that will help if you do this,

> "I have found that 90% or more sound engineering problems are caused by connectors and cables, and usually they are very straightforward to sort out..."

although retrieving deleted files is quite possible with the right software [*Norton Utilities* for PC or Mac can be recommended — Ed.].

The other means of losing data is due to some kind of problem with the storage medium. If you have an important recording stored on magnetic tape, analogue or digital, then you must accept the fact that tape will deteriorate over the course of time. I was sifting through my archive of old recordings recently and I was horrified to find that some of the tapes were suffering from 'sticky tape syndrome' — a fairly well known ▶

A QUESTION OF TRUST

► phenomenon that strikes tapes made in the late '70s and early '80s. The solution to this was to copy about 30 seconds of tape, clean the heads, copy 30 seconds more, and so on. Then I painstakingly spliced all the segments together in a digital editor.

Deterioration of tape is now something that concerns me, both for my music masters and my home camcorder videos. Probably the answer is to make two copies on different brands of tape, store them in a cool, dry environment and hope for the best. I have heard of more sophisticated storage techniques, but personally I'll remain sceptical until they have been proven to stand the test of time. Aside from tape deterioration, there's also the possibility that the tape might be damaged, perhaps by fire, or lost. The solution here is to keep the archive copies at different locations, so if you lose one you haven't lost your only copy.

Digital data is in some ways more robust than analogue data. Digital sound quality itself doesn't decrease over time, but you would expect errors and glitches to increase. The tape or disk medium may gradually deteriorate, but it has to get to a certain

> *"Some wise folk say that data doesn't exist unless it exists in two places."*

point before there is any significant difference to the data retrieved. It would be wise, therefore, to copy digital material every few years before the originals have deteriorated significantly. Don't forget that despite what we have often been told, a digital copy is not always identical to the original, because of the possibility of errors in the data stream, so hang onto the originals as well.

One particular source of annoyance to me has been the data card of my keyboard. One of the advantages of modern keyboards is that, in theory, you don't need to carry the keyboard around with you everywhere you go, just the card containing your stored programs. Putting this theory to the test when I went on tour abroad a couple of years ago (I've learned my lesson on subsequent tours!), I arranged to hire a keyboard identical to mine and I simply slipped the data card into my travel bag. Prior to the sound check of the first gig I plugged the card in, switched on the synth and as I naively expected, everything worked fine. I'm always a little suspicious of leaving valuable items lying around unattended, so after the sound check I put the card back in my pocket. Later, when we walked out on stage in front of an expectant audience of 300, I casually plugged in the card, switched on the keyboard and... nothing! No sounds. A real nightmare scenario. I ended up having to play the concert using only the standard keyboard sounds and do without all the special programming for each song. I later discovered the cause of the problem — apparently, any pressure on the card can momentarily break contact with the internal battery. In my book this renders such a card useless, because you cannot rely on it. I now carry my sounds on floppy disk (I also record all the parameters in spoken word form on a cassette tape!) and load them into the keyboard straight away.

PERSEVERE

Despite these potential difficulties with equipment, it's all worthwhile in the end, so I hope I haven't put you off. Next month I'll cover some of the difficulties you may encounter with people in the music and sound business, either because they let you down without realising it, or because they really intend to rip you off. Until then, watch out!   SOS

Let's face it: a lot of guitarists don't swear by MIDI, they swear at it. CRAIG ANDERTON provides a crash-course in MIDI for guitarists.

MIDI FOR GUITARISTS

A Crash Course in MIDI Effects Control

For the convenience of MIDIphobes, here are the Top 10 reasons not to learn about MIDI:

- **10.** You think MIDI applies only to guitar synthesizers, which you don't like and can't afford anyway.
- **9.** JS Bach did just fine without MIDI.
- **8.** The learning process reminds you of going to school, homework, and gym teachers.
- **7.** You enjoy getting confused about which footswitch buttons to hit and which pedals to move when you're playing on stage.
- **6.** Just because you paid hundreds of pounds for some cool multi-effects doesn't mean you need to actually use the features you paid for.
- **5.** Your dog ate this issue of *Sound on Sound*.
- **4.** You like using the same boring guitar sound all the time because it's part of your style.
- **3.** You're afraid that if you learn about MIDI, you'll have to wear a pocket protector.
- **2.** Jimi Hendrix did just fine without MIDI.

And the number 1 reason not to learn about MIDI:

- **1.** Because no one has made it clear to you how useful some aspects of MIDI can be, and how much it can improve your sound.

We can't do much about reasons 2-10, but if reason 1 is the problem, keep reading while I get you up to speed on all the MIDI you need to know — which isn't really that much — to achieve total control over your signal processors.

MIDI BASICS

A MIDI system requires something that sends MIDI messages (such as "make the guitar louder," "select this effect," "add more echo," etc.) and something that receives these messages and acts on them, like a signal processor or MIDI-controlled amp.

MIDI stands for Musical Instrument Digital Interface, but don't let that throw you. Just think of MIDI as a catch-all name for the process of sending control messages from one device (like a footswitch) to another device (like a signal processor) over a MIDI cable.

There are lots of different MIDI messages, most of which relate to keyboards, sequencers, drum machines, and all kinds of stuff which we will totally ignore in this article. If you're controlling signal processors, 99% of the time you only need to know about two kinds of MIDI messages: program change and continuous controller messages.

Some people think MIDI involves bits and bytes and techno talk like that. Big mistake. You don't have to know about micro-processors to program a microwave oven, nor do you have to know about superheterodyne circuitry to listen to the radio — and you don't need to know bits and bytes to use MIDI. These days, MIDI equipment has reached a degree of sophistication that, paradoxically, makes it easier to use than ever.

DARWIN'S THEORY OF FOOTSWITCH EVOLUTION

Take a trip with me down memory lane to the mid-'70s, when disco ruled and guitar effects were starting to progress beyond funny little boxes that ate batteries and burped noise. Guitarists discovered early on that the most useful control on any signal processor was the in/out footswitch, because it allowed you to bring the effect in as needed (distortion is nice, but not all the time). As more boxes were introduced — compressors, phase shifters, echo units, wah-wahs, etc — musicians started connecting all these boxes together with patch cords. And that's where the trouble began: if you wanted to bring in multiple effects at the same time, you had to hit a bunch of footswitches at once; fancy tap dancing became the order of the day.

Manufacturers responded with a variety of methods to make life easier on stage (as well as separate us from our disposable income). One of these involved building several signal processors into one box, along with their footswitches. Another, more advanced idea was to build all the signal processor electronics into a box, and run a cable to a remote footswitch assembly with multiple footswitches (Figure 1).

Figure 1.

Further along the evolutionary path, sometimes these footswitch assemblies would include a master bypass button that would let you set up a combination of effects, then bring the lot in and out by pressing a single button.

The problem was that these footswitches often controlled actual audio lines, which meant that the cable going from the signal processors to the footswitch assembly carried your delicate little guitar signal, making it susceptible to picking up hum and other interference. Some got around this by building electronic switching into the main effects box and just sending control signals to these electronic switches. But that solution was far from ideal, because each manufacturer had a different idea of how to implement the footswitch control circuitry. Therefore, a Brand A footswitch could only work with Brand A effects, and a Brand Z footswitch could only work with Brand Z effects. If you wanted to trade up to a newer effects box, you almost invariably had to junk the footswitch.

PROGRAM CHANGES TO THE RESCUE
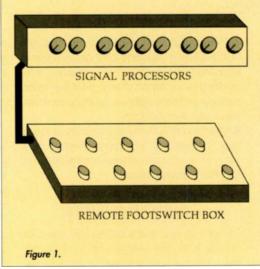
Then came the introduction of cheap computing power. Signal processors could use this power to manage your effects in a much more intelligent way, and MIDI was the ticket.

Rackmount multi-effects devices started to appear — you could dial up the sounds you wanted, using particular combinations of effects and control settings, and save all these settings as a 'snapshot', called a program. Suppose program 1 was the 'Distortion of Doom' sound, and program 2 the 'Pretentious Rock Ballad' sound. No longer did you have to twist dials and push multiple footswitches to go from one sound to the other — select program 1 or 2, and the sound would be called up exactly as you had programmed it.

A parallel phenomenon was occurring with synthesizers. You used to have to tweak numerous dials and switches to change sounds on a synthesizer, but manufacturers started to include 'snapshot' capabilities on these too. You could simply punch a button, call up a new program, and have an entirely different sound at your fingertips.

When the MIDI spec was drawn up, provisions were made for 128 MIDI program change messages. This is why a lot of synths and signal processors offer 128 programs (a new MIDI bank select message that addresses banks of 128 ▶
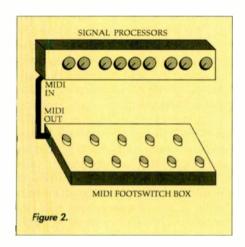
MIDI EFFECTS CONTROL

programs is now in place, but since so little equipment responds to bank select messages, we can pass on this for now).

MIDI PROGRAM CHANGE FOOTSWITCHES

Now let's consider a modern MIDI-based footswitch setup (Figure 2).

Figure 2.

The signal processor has a MIDI In jack that receives MIDI messages; the footswitch unit has a MIDI Out jack that transmits MIDI messages. Pressing an individual footswitch transmits a MIDI program change, and the signal processor calls up the program associated with this program change number. If pressing the footswitch sends out program change 43, the signal processor immediately selects program 43. It's simple, and what's more, it's standardised — you can use a Brand A footswitch with a Brand Z signal processor because all manufacturers have agreed to use the same message format. When any footswitch sends out program change 43, it will look the same as far as any signal processor (receiver) is concerned.

However, there are many ways to implement how buttons send out program changes. The least practical (and certainly most stupid) way would be to have 128 buttons, each of which sends out a single program change command. One possible option would be to have eight footswitches, and up/down footswitches that select any of 16 banks. Bank 1 could have the eight footswitches send out program changes 1-8, Bank 2 program changes 9-16, Bank 3 program changes 17-24, and so on.

An even more versatile approach is to let you program each bank's switch to send out whatever program change you want. For example, suppose you use signal processor presets 12, 15, 37, 24, and 6 in a tune. You could program one footswitch bank so that footswitch 1 sends out program change 12,

footswitch 2 sends out program change 15, footswitch 3 sends out program change 37, and so on. You can then hit each footswitch in a nice, logical order rather than jumping between banks and hitting different footswitches.

MIDI PROGRAM CHANGE MAPPING

MIDI allows for a great deal of versatility, which means there are often several ways to accomplish the same basic result. This can be confusing at first, but it ultimately allows for considerable power.

One alternative way to set up a correspondence between footswitch messages and signal processor programs is called mapping, which involves setting up a program change table for a signal processor that specifies which program will be called up in response to a particular program change number. For example, you might program a table where program change message 1 calls up signal processor program 16, program change message 2 calls up signal processor program 51, program change message 3 calls up signal processor program 47, and so on. Figure 3 shows an example of a program change table.

MIDI's versatility with respect to footswitches may be a little overwhelming at first. Just remember that:

1. The footswitch sends out standardised program change commands over its MIDI Out jack.

PROGRAM CHANGE TABLE

Footswitch sends:	calls up program number:
1	12
2	9
3	20
4	46
5	74
6	82
etc.	

Figure 3.

2. The signal processor receives these messages at the MIDI In jack and changes programs according to the program change message, or as modified by a program change table that maps particular program change numbers to particular signal processor programs.

3. It's vital to read the footswitch manual to see how footswitches are programmed to send out specific program change commands with specific footswitch presses.

CONTINUOUS CONTROLLER VALUES

Sometimes you don't necessarily want to change from one program to another, but instead vary a parameter within an individual

program (delay feedback, filter frequency, distortion drive, and so on). A wah-wah pedal is a good example of changing a particular parameter (filter frequency) in real time.

One way to change parameters in real time is to grab a knob and move it, but you'll probably want both hands free to play your guitar. You could put that knob in a pedal and work the pedal, but what if you want to vary another knob? Or what if the effects unit doesn't have knobs, but does all its programming via little pushbuttons?

The concept of continuous controllers came about because synthesizers have pedals, knobs, levers, and other physical 'controllers' that alter some aspect of a synth's sound. Guitarists can similarly use controllers (typically footpedals) to alter aspects of a signal processor's sound.

As with program changes, you need something that transmits continuous controller messages and something that receives these messages. On the transmitting end, the continuous controller message quantises the controller into 128 discrete values (0-127). Suppose you have a footpedal that generates continuous controller messages. With the pedal rocked all the way back, it might generate a value of 0. As you push down on the pedal, the values increase until at its mid-point, the pedal puts out a value of 64. Press the pedal down all the way, and it generates a value of 127.

As the receiving end, the parameter being controlled changes in response to the pedal position. If you're controlling delay feedback and it receives a value of 0, feedback is at minimum. When it receives a value of 64, the feedback might be halfway up, and upon receiving a value of 127, the feedback might be up all the way. I say "might be" because some processors let you scale and/or invert the values. With scaling, you can attenuate the values to a certain extent — for example, have maximum pedal position set the delay feedback to halfway up instead of all the way, thus allowing for more precise control (and making it impossible to get maximum feedback). With inversion, the 'sense' of the pedal is reversed: full down might turn off delay feedback, in which case pulling back on the pedal would increase delay feedback.

CONTINUOUS CONTROLLER NUMBERS

MIDI allows for 128 (there's that number again!) continuous controller messages, each of which can produce a value from 0 to 127. So, if your signal processor has 128 different parameters, each can be assigned a unique number — say, 1 for delay feedback, 2 for distortion drive, 3 for compression level, 4 for EQ frequency, and so on. In this example, if the pedal (or other controller) is set to continuous controller 3, it will

vary the compression level. If the pedal is set to continuous controller 4, it will vary the EQ frequency. For synthesizers, some controller numbers have been standardised (for example, controller 7 usually varies the master volume). When it comes to signal processors, though, there is very little standardisation. Some units have fixed assignments; with others, you have to decide which controller numbers you want to assign to which parameters.

There are two main ways in which signal processors assign controller numbers to parameters. In the 'per-program' method, you can assign one or more parameters in a particular program to continuous controller numbers of your choice. This is useful if you have a footpedal that generates a specific continuous controller number — say, controller 1 — that is hard to change. Suppose you want to control compressor level in program 1, echo time in program 2, and filter frequency in program 3. Assign the desired parameter in each program to controller 1, and when you call up the program, the footpedal will control the assigned parameter (compressor level in program 1, echo time in program 2, etc).

The second method uses 'global' controller assignments. In this approach, each parameter

has a continuous controller assignment which is either fixed or which you assign. For example, if delay time is assigned to controller 24, every patch that uses delay will have its delay time altered via controller 24 messages. Thus you'll need to change the pedal's continous controller number to control different parameters in different patches.

With either method, you can often assign several parameters to the same controller number. A single pedal motion could increase the distortion level, increase the delay time, and boost the bass at the same time.

To recap, the most important points are:
1. With per-program MIDI implementations, assign the parameter to be controlled to a specific continuous controller number. With global MIDI implementations, find out which controller number controls a particular parameter (read the manual for this info, and whether or not you can assign the controller number).
2. Set the device that generates the controller messages (typically a MIDI footpedal) to the appropriate controller number.
3. Move the pedal and control the parameter.

DETAILS, DETAILS

One additional point is that MIDI allows for 16 channels over which data can be sent and/or

received. Therefore, the devices transmitting program change and continuous controller messages (pedals, footswitches, and so on) will send this data over a particular channel, so the signal processor must be set to *receive* data on this channel. Generally, when you turn on a MIDI signal processor it will receive on channel 1 or be set to a special MIDI mode, called Omni mode, which means that it will accept data coming in over any channel. Just make sure both devices are set to the same channel, or the signal processor is set to Omni, and all will be well. Multi-channel applications are a lot more complicated (and rare) so we won't concern ourselves with these for now.

There are some other fine points that need to be addressed, such as the fact that some parameters (delay time, for example) don't respond all that well to continuous controller changes because they 'glitch' and produce rude noises as you sweep through a particular range. But this is a crash course, not an exhaustive study. Do some experimenting and keep reading; eventually, all will be revealed.

Most importantly, though, have fun with this stuff and use it! Once you get past the theory and become familiar with the practice of MIDI control, it becomes second nature and loses both its difficulty and mystery. **SOS**

THE NOISE OF ART

Noise and how to avoid it

PAUL WHITE explains exactly what noise is and offers hints on keeping it to a minimum in your recordings.

One of the major problems in recording is keeping electrical noise to a minimum. Most people are aware of electrical noise as unwanted hiss, but what is it, what causes it and how can it be kept to an absolute minimum?

A QUICK SCIENCE LESSON

In electrical terms, noise is simply a randomly fluctuating voltage, producing harmonics that cover the whole audio spectrum instead of one specific tone; you can think of noise as all possible frequencies being played at the same time. Noise is generated by the random motion of electrons within electrical components, and is statistical in nature. If you take noise and feed it into a loudspeaker system without filtering it

in any way, the result is known as White Noise, and if you were to analyse the energy content of this noise, you'd find an equal amount of energy in every 1Hz of bandwidth across the spectrum. Because the human hearing system is logarithmic (we judge pitch increase by octaves, not by equal increments of frequency), and because each successive octave spans twice as many Hertz as the previous one, the energy content of white noise will rise by 3dB with every octave. This is the main reason why we tend to perceive white noise as mainly high-frequency hiss, though the frequency response of the human hearing system also has some bearing on this.

There is another kind of noise used in audio testing, which is produced by filtering white noise via a 3dB per octave roll-off filter. This counteracts the ear's logarithmic response, resulting in noise which has equal energy per *octave* rather than equal energy per Hz. This so-called Pink noise is useful in various areas of electrical testing, including PA speaker calibration and equalisation.

Sadly, there is no way to eliminate electrical noise entirely, because the mechanism that produces it is bound up with the same laws of physics that hold the universe together.

However, noise *can* be kept to a bare minimum by careful circuit design, and just as importantly, by proper use of equipment.
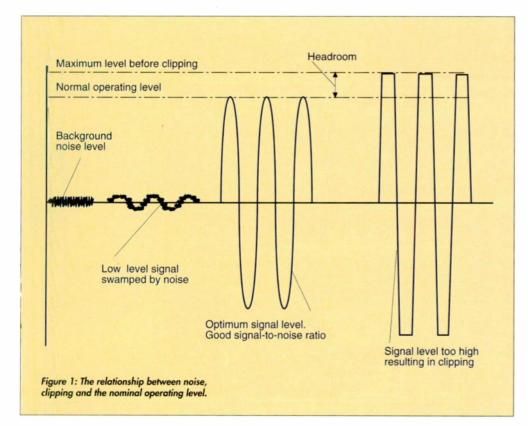
GAIN STRUCTURE

In a typical analogue audio circuit, the level of background noise is largely independent of the level of the wanted signal being processed, so it stands to reason that the larger you can make the wanted signal, the better the ratio between the signal and the noise will be. Not surprisingly, this figure is known as the signal-to-noise ratio. Armed with this information, you might assume that keeping the noise low in comparison to the signal is just a matter of making the signal level really huge. Surely, that way, the noise would be swamped into insignificance? To an extent, this is true, but there's a limit to how big the signal can be made before the capacity of the circuitry is exceeded and the signal runs into clipping distortion. A nice analogy is to visualise the signal trying to pass through a doorway with a deep pile carpet at the bottom, the carpet representing the noise floor. If the signal is too small, it will be partially obscured by the noise (sorry — carpet!), but if it is higher than the top of the doorframe, it won't be able to get through unless you chop the top off. From this, you can see that the signal-to-noise ratio will be different depending on how big the signal is, so when you see a written spec, you'll notice that the signal-to-noise figure is related to a specific signal level.
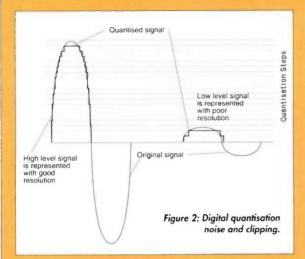
The best signal-to-noise ratio prevails when the signal level is as high as it possibly can be without clipping, but this is not a realistic operating situation, because it leaves no safety margin for signal peaks. In practice, a nominal operating level is chosen which may be 25dB or so lower than the clipping level, in which case we have 25dB of safety margin, or 'headroom' as it is officially called. Figure 1 shows the relationship between noise, clipping and the nominal operating level.

From the above, it should now be apparent that every time a signal is fed from one piece of equipment into another, whether a mixer, effects unit or tape recorder, the input gain must be set so as to bring the signal up to its optimum working level. Fortunately, most studio devices have some form of input metering, which makes this relatively easy. Failure to set even one input

Figure 1: The relationship between noise, clipping and the nominal operating level.

Labels in figure: Maximum level before clipping · Normal operating level · Headroom · Background noise level · Low level signal swamped by noise · Optimum signal level. Good signal-to-noise ratio · Signal level too high resulting in clipping

TAPE AND DIGITAL NOISE

Tape machines suffer from both electrical noise and tape noise, but both should be treated in the same way. Tape behaves very much like an electrical circuit; if you don't use a high enough signal level, the signal won't hide the residual tape noise, and if you use too high a level, the tape will saturate, causing distortion. Tape noise is a statistical effect related to the individual tiny particles which make up the tape's surface. The more

Figure 2: Digital quantisation noise and clipping.

particles that pass over the tape heads each second, the higher the resolution of the 'sound picture' being recorded, and the lower the level of noise. In practical terms, this means that machines that run at high tape speeds, with wide tape tracks, produce less noisy recordings than low-speed, narrow-format machines.

Digital circuitry also suffers from noise problems, though the noise generating mechanism is a little different from that of analogue circuitry. In a digital system, the signal is represented by a string of numbers, and a useful analogy is to imagine the signal as being built up out of little Lego bricks. A six foot high sine wave made up from little half-inch bricks might look reasonably smooth and accurate, but a low level signal of only a couple of inches in height would look like pretty crude approximation, because the available brick size is almost as large as the signal being built. Technically, this difference between the input signal and its digital representation is a form of distortion (known as quantisation distortion), but for reasons too mathematical to go into, it happens to sound like noise. The rules, therefore, are the same as for analogue; too little signal and you get noise, too large a signal and you run out of bricks and end up with a flat-topped or clipped signal. Figure 2 should make this clear.

gain control correctly may lead either to excessive noise (if the gain is too low) or unpleasant distortion (if the gain is too high). The ritual of optimising input gain controls is known as setting the gain structure, and it doesn't matter whether you're working with a Portastudio or a top commercial studio system, if you don't pay attention to gain structure, your recordings won't do justice to the equipment you're using.

In a typical home recording session, the first step is to set up the mixer input gain trim to optimise the mic or line input level, and most mixers enable this level to be metered via the PFL (Pre Fade Listen) system. The mixer output must then be adjusted so that the right level is going onto tape. Any effects units plugged into the mixer should be optimised independently.

From the facts I've mentioned here, it should be evident that keeping recorded noise low depends both on the quality of the equipment being used and on how well it is set up. It is also important to ensure that no unnecessary noise is present in the original signal; for example, if you're recording an acoustic instrument in the studio, try to ensure that the mics aren't also picking up noise from traffic, your hard disks, cooling fan, air conditioning, and so on. Even if you only allow a little noise onto each tape track, the cumulative effect of 16 or 24 channels of noise can be significant. **SOS**

DRM700 tape deck, £145; Denon TMA560 amp, 100 wpc, £155; three AKG pop shields with goosenecks, £15 each. ☎ Paul 01302 538304.

AKAI MG14D 12-track recorder, fully serviced with new transport, £1100 ono. ☎ Adam 0113 239 0812.

AKAI DR4D V3, plus SMPTE and MIDI card, £1100 ono. ☎ Sean 0171 255 1602.

ALESIS 1622 mixer, excellent condition, manual and boxed, £400. Trevor White ☎ 0171 494 1331, 6.30am-8.30am, 8-10.30pm.

ALESIS 3630 compressor, £165; Behringer Dualfex, £99; AKG C1000S mic, £149. Wanted BBE 462 Sonic Maximizer and TL Audio or Drawmer valve compressor. ☎ Paul 01302 538304.

ALESIS ADAT, 7 months old, only 12 hours recording use, professionally flightcased, including 8 blank tapes, £1800. ☎ David Hayes 0114 231 0041.

ALESIS ADAT 8-track, £1900; Soundcraft Spirit Auto 16:8, £2800; Neumann U87 AI mic, £1750; Alesis Monitor 1, £250; JL Cooper Data Sync, brand new, £360. ☎ 0171 263 0116.

ALESIS MIDIVERB £120, D4, boxed, £230; Yamaha D1500 delay, £120; Atari 1040 STE + Monitor + Pro 24, £180; Shure SM57 beyer M88NC AKG C410 D330BT Calrec Condensers, £50 each. ☎ Steve 0161 737 5923.

ALLEN & HEATH SYSTEM 8 mixer, 24 inputs, 24 outputs, 8 group outputs, parametric EQ, 3 aux sends, stereo returns, great sounding mixer for 8, 16 or 24-track studio, £850. Consider P/X outboard effects. ☎ Ricky 01482 448767.

ART FXR effects unit, £100; Roland TR626 drum machine, £75; AKG C1000S mic, with stand, unused hence, £175. Wanted Roland TR909. ☎ Paul 01703 738876.

ART MULTIVERB ALPHA, £200. ☎ Robin 01703 330442, days.

AUDIO DESIGN recording vocal stresser F769X-R, £899. ☎ 01989 768 463.

AXXEMAN GUITAR pre-amp and effects, £120; Bassman Bass Pre-amp and effects, £120; Boss Stereo Chorus Pedal, £30; Boss Noise Gate Pedal, £20; offers taken. ☎ 01708 444792.

BBC LS3/5A MONITORS, made by Spendor Broadcast, bi-wirable, £275 ono. ☎ John 0603 787216.

BOSS SE70 multi-effects processor, 4 months warranty remaining, perfect condition, £399. ☎ Keith 0113 278 4049 or 0113 243 1391.

DBX 263 de-esser, 3 months old, very little use and still under guarantee, rack kit and all original packaging, £100 ono; Yamaha SPX900 multi effects, vgc includes manual etc, £395. ☎ 0161 203 5712.

DENON DTR2000 DAT, cost £899, sell for £599; Denon TMA 560 amp, 100W, £199; Denon DRM700 tape deck, £179; Denon black alloy mount for 4 pieces of equipment, £60. All for £1500. AKG C1000S mic, £149. ☎ Paul 01302 538304.

DESCTECH 1602 16:2 mixer, mic and line inputs, 3-band EQ, 2 auxes, excellent condition, manual, £300; Korg DW6000 synth, £150. ☎ Darren 01375 677332.

DIGIDESIGN SOUND TOOLS II hard disk recording software and hardware for Nubus Macintosh, Sound Designer 2.7, £2000. ☎ Mark 01575 540376.

DRAWMER DL221 compressor, £250, two Boss RCL10 compressors, £125; Aphex Type C, £125; Ramsa near field monitors, £110; 3 Patchbays, £100. ☎ 01708 444792.

DRAWMER DS201 gate, two, £200 each; Digitech GSP21 guitar effects and footswitch, £250; JBL 4503 large studio monitors with stands, £250; Fostex 8:2 line mixer, £40; Crown BC300 amp, £300; 12U flightcase rack with fans, £60; Roland RE201 Space Echo, £140. ☎ Neil 01273 494502.

EMT 245 digital Reverb, £650 ono; Calrec Virtage comp/lims, great for vocals, £150 each. ☎ 01585 200424.

EVENTIDE PHASER, the original and the best, rare classic, £250. ☎ 01482 448767.

FOSTEX 4-TRACK, 25 hours use, £250; Alesis 1622 mixer, 4 sends, 2 EQ, £300; Quadraverb 4, £200. ☎ Jason 01903 700714 or 522364.

FOSTEX MULTITRACKER, £400. ☎ Roger 01179 445663.

FOSTEX 4050 autolocate/sync with manual, £200. ☎ 0113 275 0196 after 6pm.

FOSTEX A8, Fostex 8:4 mixer, £600; Spirit Folio S' 18:2 rackmount, never used, still boxed, £390; Roland U220, £300; six U220 cards, £35 each; ART Multiverb LT, £95; JL Cooper PPS100 SMPTE sync, £95; DX7S, ROM cartridge, £250. David Ashcroft ☎ 01727 855775.

FOSTEX B16, Soundcraft series 800 18:8:2, 24 mixdown, modular fully professional desk, 140 hole patchbay, loom, stagebox, Zimmer frame. £2900, may split, home use only. ☎ Andy 0171 793 8881.

FOSTEX E2 centre time code professional quarter-inch mastering machine, immaculate condition with trolley, £475. ☎ 01222 711462.

FOSTEX E16 multitrack, very good condition, £1875. ☎ Steve 01227 471504.

FOSTEX E16 multitrack and 4050 SMPTE autolocator, immaculate, very little use, £2100 ono. ☎ Alex 01379 668845.

FOSTEX E16 multitrack recorder, excellent cond'tion, £2000 ono. ☎ Lee 0171 267 1928.

FOSTEX G16 16-track recorder, £2100; Emax hard disk keyboard sampler, £550; Alesis Quadraverb GT guitar effects, £285. ☎ Steve 01737 813208.

FOSTEX M80 £695 ono; Seck 18:8:2, £750 ono; XR300 MIDI SMPTE controller, £145 ono; RDS

1900 Delay, £110 ono; Slapback Scintillator, £95 ono, mics, leads. ☎ 0121 445 3572.

FOSTEX M80 8-track with remote and 10 Ampex tapes, in excellent condition, £595. ☎ Graham 01604 843304.

FOSTEX MIXTAB and DCM100 digital mixer package, as new, boxed, hardly used, £595. ☎ Dan 01788 510307.

FOSTEX R8 professional tape recorder, as new, including loom and extension cable, £750; Studiomaster Pro Line 16:8:16, as new, cost £900, will sell for £800. Both for £1350. ☎ Patrick 01473 214615.

FOSTEX R8 £850, 2 owners, little use, heads as new, guaranteed, will swap for Ensoniq DP/4 + £100. ☎ Scot 01788 2 833581.

FOSTEX R8 and 8:12 8-track setup, hardly used, includes looms, reels, and demagnitiser, £1800 ono. ☎ David 01604 740888.

FOSTEX R8 manual, excellent condition, £800; Fostex 812 mixer, manual and wiring, excellent condition; Fostex MTC1 sync, manual, £100. ☎ Steve 01706 44628.

FOSTEX R8, metal spools, remote cable, looms, light home use, £1000 ono; Midex+, 2 in 4 out MIDI expander, SMPTE read/write, key expander, £300 ono; Sony TCDD3, case, PSV, Battery, £375 ono. ☎ 055 935 441.

FOSTEX R8 recorder with loom, boxed and manual, £750. ☎ 0181 675 7635.

FOSTEX R8 with MTC1 sync, looms, tapes, Soundcraft mixing desk, 16:8:16 with stand, £1600 ono. ☎ Stephanie 0181 743 6600.

FOSTEX R8 including MTC1 and all leads, less than 20 hours home studio use, boxed, as new, £995. ☎ 01902 842256.

FOSTEX X26 4-track portastudio, immaculate condition, with leads, £150 ono. ☎ Tony 01222 540121.

FOSTEX X26 4-track machine, as new, boxed, £150; Yamaha RX12D drum machine, as new, boxed, £65. ☎ 01234 340514 (Bedford).

GELF VINTAGE desks 26 input, 8 Buss, previously owned by Status Quo plus all modules from 32 input, 12 buss Pink Floyd Quad desk, offers or trade. ☎ 010 35321 778168.

KAWAI MX16 mixer, 16 channels, noise reduction, only £225. ☎ 01474 567946 (Gravesend).

KORG DRV2000 digital effects, £220; Yamaha SPX90 digital effects, £220; Alesis midiverb, £120; Alesis Midifex, £120; Alesis XT-C reverb, £120; JHS digital delay, £50 offers taken. ☎ 01708 444792.

LEXICON PCM70 £1200; Roland 48-input line mixer, £700; Drawmer LX20 compressor, £225; Drawmer DS201 noise gate, £200, Quadraverb, £225; Viscount multi-echo effects, £150. ☎ Mark 0171 221 7118.

LINEAR PHASE 8812 monitors, 240W, 3 way, great for loud monitoring, excellent bass detail, cost over £1000, genuine reason for sale hence £450 (3 months old). ☎ 01223 467237.

MACKIE CR1604 mixing desk, £600. ☎ Robin 01703 330442, days.

MACKIE CR1604 mixer, £650; Spirit Folio 12:2, £300 ono. Both mint, as new, boxed with manuals, home use only. ☎ Andy 01484 647131.

MACKIE 1604, two units, as new with Mixer Mixer and remote fader, £1350 may split, PCM70, latest software, £1250. ☎ 01453 731933.

MIC LEADS, all good quality cable, Neutrik connectors, 50p per metre, various lengths; Tandy PZM mikes, fitted with XLR (two), £10 each. ☎ Gareth 0117 923 1246 days.

NEUMANN U87AI good condition, new capsule, £1095 ono. ☎ 01604 588618.

OTARI BX2 quarter-inch stereo mastering machine, Soundcraft serviced, £300. ☎ Pete 0181 367 1720.

OTARI MX5050 pro half-inch 8-track, brilliant machine, £895 ono; Studiomaster Mixdown 32:8:16:2, good condition, new PSU, £995 ono. ☎ Rob 0181 986 0740.

OTARI 5050 quarter-inch stereo mastering machine, £350. ☎ Pete 0181 367 1720.

RAM MEGA 18:8:16:2 mixer, six auxiliaries, low and high pass sweep filters on the EQ per channel, all manuals, stand, 16U rack and swivel speaker stands, £900. ☎ Alan 0151 339 1167.

REVOX A77 quarter-inch tape recorder, good condition, classic analogue mastering machine from '70s, £250. ☎ Andy 01227 452 770.

ROLAND 501 CHORUS/ECHO, absolutely as new, the best example possible, stored under the bed from purchase, £350. ☎ Ricky 01482 448767.

ROLAND SN550 digital noise eliminator and hum canceller, £700 ono. ☎ Chris 0181 748 2767.

ROLAND SRV330 3D reverb, £370; Behringer Composer compressor, £220; Ultrafex II, £170; DOD 1900 delay, £60; Peavey 308 reference monitors, £170; Peavey PMA70+ amp, £100; Boss SE70 multi-effects, £300; Emu Proteus 2, £280, Emu Proformance+ piano module, £240. ☎ Alan 0151 339 1167.

SECK 18:8:2 MKII mixing desk, excellent condition, £670 ono; ART Multiverb LT processor, £110 ono; Chroma Polaris synth, 132 programmable memories, on board sequencer, superb condition, £495. ☎ 0117 9671067.

SONY DTC690 DAT, 50 hours home use, as new, boxed, £450 including postage. ☎ 0115 941 1185.

SONY TC766 15ips 2-track recorder, excellent mastering machine, but currently needs a little attention, hence, £50. ☎ 01932 231617 (Walton on Thames).

SOUNDCRAFT SPIRIT 16-channel mixing desk,

---

only 6 months old with two wiring looms, immaculate condition, £1600 ono. ☎ Tom 0171 603 9616.

SOUNDCRAFT SPIRIT LIVE 16:3, £795, Fostex M80 plus four reels of unused Ampex tape, £750. Both as new, very light home use only, boxes and manuals, both £1500. ☎ John 01268 726953, after 6pm.

SOUNDCRAFT SPIRIT STUDIO 16:8:2, 4-band EQ, 32 inputs on mix, boxed, £1300. ☎ 01483 503411.

FOSTEX E16, £1800. ☎ 01753 643886.

SOUNDCRAFT SPIRIT STUDIO 16:8:26 mixer, £1200 ono. ☎ 01332 762479 after 6pm.

SOUNDCRAFT SPIRIT AUTO 16:8, £2500, Neumann U87 A1, £1600; JL Cooper Data Sync, £300; Philip Rees MIDI merge, £50, brand new, never used, with guarantee. ☎ 0171 263 0116.

STUDIOMASTER IMP1 rackmount 16 channel MIDI muting unit, as new, boxed, £150. ☎ Andy 01223 323521 (Cambridge).

STUDIOMASTER MIXDOWN 16:8:16 £650; Fostex M80, £450; Alesis D4 drum module, £200; Fostex patchbay, £300; Yamaha SY77, £750. More available. ☎ B Grant 01923 679773.

STUDIOMASTER MIXDOWN 16:8:16, £650; Fostex Model 80, £450; Yamaha TG500, £400; Alesis D4 drums, £200; Alesis Quadraverb, £250; Alesis 3630, £200; Fostex patchbay, £30; Yamaha SY77, £750; Atari 1040 plus monitor, Unitor, Xport and Notator, £450, 250 assorted hi tech magazines, £100; Behringer F Type exciter, £150, Boss panning delay and parametric EQ, £120; Thatched Cottage patchbay, £20, box of leads, £60. ☎ 01923 679773.

STUDIOMASTER MIXDOWN GOLD 16:8:16 in excellent condition, £1200 ono. ☎ 0181 983 4483.

STUDIOMASTER PRO LINE 16:8:16, £900, Fostex R8 with extension, tapes, £900; TEAC 3440, Dolby and parametric, £450; Fostex 8:4:8 350 mixer, £300; Alesis Midiverb 1, £100. Bob ☎ 01684 576423.

STUDIOMASTER SERIES V 16:8:2 with Tascam 38, complete looms and bays, vgc. £1990; Akai EX90 digital reverbs, X3, £130; MXR graphic 2x15 band, £220; Roland SDE2000, £165. ☎ Keith 01273 441818 (Brighton).

STUDIOMASTER SESSIONMIX GOLD 16:2, in full road case with manual, excellent condition, £500. ☎ 0191 295 1604 after 6pm (Newcastle).

TANNOY DC100 dual concentric monitor speakers, excellent sound, absolutely immaculate, make me an offer. Keith ☎ 01444 831504.

TASCAM MM1 20-channel mixer, 4 sends, 4 stereo returns, MIDI muting, boxed, excellent condition, £350 ono. Jeff ☎ 01482 346166.

TASCAM MM1 20:2 mixer with MIDI mutes, vgc, £365; Alesis 16:2 mixer, £345. ☎ 01903 755840.

TASCAM M216 mixer, 16:8:4:2, great for 8-track recording or live work, £600. ☎ 01702 616961 (phone or fax).

TASCAM M216 mixer, 16:8:2, great for 8-track recording, £575, Clarity 16-bit sampler for the Amiga, £80; Roland CM64, £260. ☎ or fax 01702 616961.

TASCAM MSR16 half-inch 16-track, dbx, as new, manuals, £2400 ono. ☎ 01633 400853 (Newport).

TASCAM MSR24, Dolby S, remote and looms, £4100 ono; AHB Sabre 28:24:2, £4000 ono; Tannoy System 10 £625 ono. Kevin ☎ 0121 384 8590.

TASCAM MSR24 one-inch recorder, as new, complete with looms and manuals, £3250. ☎ 0171 226 9014.

TASCAM MSR24 24-track recorder, £2900 ono. ☎ 0121 605 6082.

TASCAM MTS1000 Midizer, F/1000 cabling for Tascam to U-Matic, Sony V05630 U-matic, low hours, loads of U-matic tapes, two Symetrix 511A, Drawmer LX20, Sony Betamax, Bush Betamax, require belts, loads of Betamax tapes, all in excellent condition. ☎ Ken 01451 870800.

TASCAM PORTA 2 4-track/6-channel Portastudio, vgc, £225 ono; Yamaha R100 effects processor, £60 ono or both for £260. ☎ Steve 0171 594 7523.

TASCAM PORTA 05 4-track, £235; Maine 70W combo amp, £195; Atari 520ST, 1Meg, monitor, Pro24 sequencer, £195. Swap my Roland D10 for your D110. Tel Clive ☎ 01243 572633.

TASCAM PORTA 07 excellent condition, as new, £260. ☎ Jack 01299 400058.

TASCAM TSR8 half-inch 8-track reel to reel recorder, has been in its box since new, immac, £1450. ☎ 0181 778 5850.

TASCAM 22-4 reel to reel, boxed, manual, absolutely mint, £350; Roland TR606 + carry case, £70; Carlsbro Stingray super 120w Combo with reverb tremolo + distortion, £150. ☎ 0904 794021 (York) 9-5pm.

TASCAM 244 cassette multitrack, with parametric EQ, includes flightcase, £300. ☎ 01474 567946 (Gravesend).

TASCAM 32 professional stereo mastering tape machine, recent service and engineer's report, £375 ono. ☎ 0131 447 5279.

TASCAM 38 with dbx, £650; Studiomaster 24:8:2, excellent condition, £1100; Yamaha 16:2, £500; DX5 classic synth, £700 ono; Datadisk, £150. ☎ 01232 448684 or 01232 472252.

TASCAM 38 half-inch 8-track recorder, home use only, excellent condition, hardly used, £695. ☎ 0117 968 8187 (Bristol).

TASCAM 38, well looked after with tapes and leads, £650 ono. ☎ 0161 439 01963.

TASCAM 38 including rack, £750; Seck 18:8:2 mixer, £730; Seck 24:2 mixer, £730; Roland M160 rack mixer, £450; Symetrix 511A noise

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reduction unit, £250 offers taken. ☎ 01708 444792.

TASCAM 424 Portastudio, 4-track, with built in 8-channel mixer, hardly used, excellent condition, boxed, £325, Kawai PHM sound module, 4-part multitimbral, 200 sounds, drums, £90; Aiwa XDS260 DAT remote control, excellent condition, little use, boxed, £300. Possible P/X for PA gear, ie mics, stands, speakers, power amps, etc. Nick ☎ 01273 208099.

TASCAM 488 8-track 12-channel portastudio, boxed and in excellent condition, £750. ☎ Matthew 01752 404515.

TASCAM 488 8-track portastudio (only 15 songs old), £625, Akai XE8 drum expander/sample player, £125, Marshall 9000 series pre-amp, £75. ☎ 01202 813803.

TASCAM 644 4-track MIDI studio, mint, home use only, with manual, £580. ☎ Dave 0131 443 1360 (Edinburgh).

TASCAM 688 8-track MIDIstudio, very good condition, £1300 ono. ☎ Kevin 0181 293 1241.

TASCAM 688 8-track MIDIstudio, 10 channel, 20 input, eight group mixer, £1500. ☎ 0181 653 1715.

TEAC A3440 4-track and RX9 dbx, £500; Ferrograph Series 7 2-track, Project, offers. Colin ☎ 01767 627341.

XR1 XR300 SMPTE Synchroniser, £110; Bel BA80 Flanger/Delay, £100; Vestax MR44 4-track cassette recorder, £200; Alesis HR16 drum machine, £90. ☎ Phil 01424 713140 (Hastings).

YAMAHA AM602 mixer, 6 fader channels, stereo in and out, two aux sends with stereo returns, EQ and trim, perfect submixer, very quiet, boxed, manual, mint, £130. ☎ Tom 01633 880946.

YAMAHA DMP7 digital mixer, excellent condition with manuals, £850; Energy Technology VKP1 2-channel valve preamp, £300 ono. ☎ Giles 01242 575607.

YAMAHA FX500 multi-FX (MIDI), £125; Zoom 9001 Multi-FX, £115; Alesis Microverb, £80; TEAC/Tascam 32-2B stereo tape deck, £250; Korg FC6 MIDI program changer, £40. ☎ 01933 678608 (Northants).

SAMPLERS

AKAI 501 sampler, boxed with manual, very good condition, 32-second sampling time, £600 ono. ☎ Michael 0121 772 7517.

AKAI S01 16-bit sampler, £550; Yamaha TG33, 32-note poly, 16-part sound module, £250; Fostex X26 6-input cassette multitrack, £200. All immaculate, boxed with manuals, serious offers considered. ☎ Ham 01973 148588.

AKAI S01, boxed, manual, good condition, £500 ono. ☎ 0181 845 4111.

AKAI S01 sampler, boxed in good condition, around £450. ☎ Alistair 0114 282 6558 (Sheffield).

AKAI S01 fully expanded, pro ex editing software for ST1040, as new, £525. ☎ Paul 01352 756303.

AKAI S900 sampler, 12 bit, 8 separate outputs, full editing, filter, LFO, control. Holds 32 samples, variable sampling bandwidth, excellent condition, doddle to use, bargain, £450. ☎ 0181 769 9077 eves.

AKAI S900 sampler, 12-bit, holds 32 samples, full editing, filter, LFO control, 8 outs, excellent condition, easy to use, £450. ☎ 0181 769 9077 eves.

AKAI S950 fully expanded, with IB104 digital input/hard disk interface, home use only, boxed with manuals, £850. ☎ Dave 01375 641721.

AKAI S950 sampler, expanded memory, time stretch, immaculate, boxed, £850. ☎ Lee 01904 638790.

AKAI S950 upgraded to 1.5mb, £800; PG1000 for D50, £150; Both boxed with manuals and in mint. ☎ Chris 01785 819929 after 5pm.

AKAI S950 excellent condition, home use only, £700 ono. ☎ 01255 244273 daytime, 01255 880953 eves.

AKAI S950, fully expanded, 2.25Mb, large library available, immaculate, home use only, £800. Kev ☎ 01282 839895.

AKAI 5950, fully expanded, immaculate condition, £900, Crumar Trilogy, £200, Korg Poly 800, £140, ARP Quartet, £125. Sati ☎ 01902 714453.

AKAI S950, choice of two, 1.5Mb, £750, 2.25Mb, £800. Both as new. Andy ☎ 01482 448674 (Hull).

AKAI S1000, brand new, immaculate, 8Mb, digital in/out, SCSI card fitted, hardly used, reluctant sale, due to Pro Tools purchase, 11 individual outs, will sell to a good home for £1650. ☎ Chris 0121 441 2737.

AKAI S1000 sampler + S1000 PB with 8MB + SCS1 interface, CD ROM drive + 3 CD Roms and 4 sample CDs, all boxed, and in excellent condition, all for £2200. ☎ 0114 265 7049.

AKAI S1000 2Mb boards, £75; Akai ME35T MIDI drum trigger, £175. ☎ 0161 203 5712.

AKAI S2800, boxed with manuals, V1.2 OS + custom internal 80Mb hard drive and SCSI port for CD-ROM etc, 50 HD disks packed with samples, £2300 or best offer. ☎ Boris 01273 601524.

AKAI S3000 with 12Mb memory and SCSI, hardly used, boxed, £2500. ☎ 0181 983 4483.

AKAI S3000 £1795, Alesis ADAT, £1895, both boxed, as new; Roland MKS70 + 3 cartridges, mint, £495. Wanted Yamaha SPX990 and Lexicon PCM70. ☎ 01977 557560 or 01374 936769.

AKAI S3200, 32Mb, latest model, boxed,

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completely unused. ☎ 0171 289 6356.

AKAI X7000 sampler, Roland TB303, TR606, Boss Hand Clap, Boss percussion synth, disks, power supplies, leads, manuals, excellent condition, £630, no split, no offers. ☎ Peter 01242 429686 after 5.30 (Hastings).

CASIO FZ1 keyboard & library, £465; Akai S900 & large library (sampling needs attention, hence low price) £300. ☎ 01222 711462.

CASIO FZ1 with original box and 20 disks, £550. ☎ Steve 0181 543 2398 (SW London) or mobile ☎ 01956 834 678.

CASIO FZ1 sampler, excellent condition, boxed with manual, comes with 60-disk library, mostly Casio disks, great editing facilities, great sounding, £540. ☎ 0202 741653 or 765841 (Bournemouth).

CASIO FZ1 sampler, perfect condition, £590 ono. John ☎ 0161 792 8863 (Salford).

CASIO FZ10M very good condition, 100+ sound disks, three manuals. ☎ John 0115 941 1185 (Notts).

CASIO FZ10M, 2Meg, special drive, immaculate, still boxed, thousands of samples, professional sampler and graphic editing, £700. Buyer collects. Tel ☎ 01705 791701 after 6.30pm.

CHEETAH SX16 16-bit stereo sampler, manual and factory disk, £300 ono. Roland MKS100 sampler, manual and disks, £300 ono. Clive ☎ 01892 662588.

EMU EMAX II keyboard, home use only, excellent condition, all leads and manuals, large library of sounds including vintage synths, TR808, etc, £950. ☎ 01633 485927 (S Wales).

EMU EMAX HDSE keyboard, excellent condition, includes manuals + large disk library, £650; Alesis Midifex, boxed, as new, £70. ☎ 01274 620004 (W Yorks).

EMU EMAX £600; Ensoniq Mirage, £420; Ensoniq Mirage rackmount sampler, £400 offers taken. ☎ 01708 444792.

EMU EMAX SE sampler with flightcase and 100 disks, £600. ☎ Adrian 01472 816026.

EMU EMAX II Turbo sample keyboard 8Mb with internal 40Mb hard drive, external Syqest drive with 3 cartridges, flight cased, mint, £2000 ono or swaps. ☎ 0181 395 2865.

EMU EMULATOR III 8Mb, 16 separate outs, £2250; Sony optical, 650Mb removable cart storage system, plus carts, £1000; Emu Ultra Proteus, as new, £1200. ☎ Mark 0171 221 7118.

ENSONIQ ASR10 stereo sampling keyboard, expanded to 8Mb, home use only, boxed, with instructions and large sound library, £1700, PC MIDI interface MQX16M, £60. ☎ 01785 664914.

ENSONIQ ASR10 sampling keyboard, 2Mb expandible to 16Mb, 31-note polyphonic, 16-track sequencer, 24-bit DSP, flightcase, £1400. ☎ Martin 01522 545427.

ENSONIQ EPS keyboard/sampler/sequencer, large disk library, carrying case, stand etc, excellent for songwriting, immaculate, £500. ☎ 01925 234325.

ENSONIQ EPS16+ rack sampler, with SCSI, 100s of sounds and manual, perfect condition, £900. ☎ 01803 864934.

ENSONIQ EPS16+ rack sampler, 2Mb, SCSI, 52Mb hard drive, huge library, bargain £899, Roland U220, 4 cards, editors etc, £329; Novation Basstation, £320. ☎ Graham 01522 531800.

ENSONIQ EPS 16+ Turbo, 24-bit stereo effects, 16-track sequencer, loads of disks, £950; Akai S1000 10Mb stereo sampler, SCSI board, loads of sounds, £1800. ☎ 01209 831461.

ENSONIQ EPS16R sampler, 16-track sequencer, 24-bit effects, large library, virtually unused, £899 ono. ☎ Gareth 01309 831461.

ENSONIQ MIRAGE MKII sampling keyboard with library, vgc, £250 ono. ☎ Stephen 01603 504461.

ROLAND S50 sampler, 28 seconds, excellent MIDI facilities, four assignable outs, offers. ☎ Andy 01842 812033.

ROLAND DJ70 sampler, £700. ☎ 0161 998 5970.

ROLAND S220 sampler in very good condition, boxed with manuals, disks, etc, £300 ono. Home use only. Nick ☎ 01509 217275.

ROLAND S330 with mouse, green monitor and manuals, studio use only, large library, excellent condition, £500; Akai X7000, manuals, sample library, very good condition, £300 ono. ☎ 01732 367752.

ROLAND S330 sampler module with Director 'S' sequencing software, monitor + mouse, vgc, £450 or £400 without monitor + mouse. Selling due to upgrade. ☎ Mark 01744 810091 anytime.

ROLAND S750 sampler, CD-ROM, plus DX9 keyboard, all for £1500 Roland S750, 48kHz, 8 outputs, SCSI, CRT output, RGB output, bargain, or will swap. ☎ 0171 249 4655, eves.

ROLAND S760 sampler, 2Mb, £1150 ono. ☎ 0171 328 5760.

ROLAND S760 18Mb, boxed, manuals, perfect condition, CD-ROM, £1450, Lexicon LXP5 FX unit, boxed, as new, £300. ☎ Paul 01227 361089 (Kent) office hours.

DRUM MACHINES

ALESIS SR16, boxed, as new, £160. ☎ 0559 35441.

BOSS DR5 rhythm machine, boxed with manuals, £290 ono; Microdeal stereo replay sampler for Atari, £40; Concerto sequencing software, £25 ono; Sequencer One + software, £25 ono. ☎ Phil 01273 608385 (Brighton) after 7 pm.

BOSS DR550 Mk 2, drum machine, mint, boxed, manuals, under guarantee, 16 bit samples, great

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sounds, incl. TR808 and TR909 kits, etc, will post, £135 ono ☎ Dave 0191 372 2621
KAT DRUMKAT version 3.0, top of range, 4 MIDI Outs, 9 trigger inputs, fully programmable, immaculate, £550. Mark ☎ 0181 287 5209
OBERHEIM DMX MIDI with manual and 8 extra cards, £450 ☎ 0181 995 8773
ROLAND R5, 6 outputs, velocity sensitive pads, loads of sounds, £160 ono VGC, boxed with manual, Martin ☎ 01223 562150 eves, or ☎ 0123 845588 days
ROLAND R8 drum machine, 2 cards, excellent condition, £300 ☎ Sean 0115 952 0140
ROLAND R8 £320, Sequential Circuits Drumtraks, £120, Simmons SDE Latin drum expander, £150, Simmons MTX9 Drum Expander, £150. Offers taken ☎ 01708 444792
ROLAND R8 ROM cards for sale, Ethnic, Jazz, Contemporary, £25 each inc p+p, SCI Drumtraks drum machine, boxed, manual, £120 ☎ Richard 01305 762554 (Dorset)
ROLAND TR606 Drumatix drum machine, manual, £100 ☎ 01392 51552
ROLAND TR606 analogue drum machine, smaller brother of classic TR808/909 and twin brother to the legendary TB303 Bassline, £110 Kevin ☎ 01353 663613, after 5pm
ROLAND TR707 £120, Roland CR8000, £175, Both excellent condition with boxes and manuals ☎ 01305 743367
ROLAND TR707 DR55, RX17, Soundmaster Stix ST305, SR88, Nomad P2M MIDI trig ☎ 01670 523363
YAMAHA DD12 drum machine, MIDI, with sticks and mains adaptor, Boxed, with manual, good condition, £70. Steve ☎ 01274 392723
YAMAHA RX5, as new, boxed, including 4 sound cartridges (Jazz, effect, heavy metal, orchestral sold separately, £20 each or altogether £330, Roland A880 MIDI patchbay, immaculate, £150 ☎ 0181 997 1867
YAMAHA RX11, £150, Yamaha TX7, £200, Carlsbro Cobra 90, £170, Midiverb, £70 01344 24940
YAMAHA RY30 quick sale, £220 ono ☎ Michael 0121 772 7517 after 7pm
YAMAHA RY30 drum machine with hip hop and dance sound cards, £250. ☎ Gavin 01256 701470

COMPUTERS/SOFTWARE

APPLE CLASSIC 8/80, boxed, as new, £600, Cubase Score, with dongle, £20, Altech interface included with package ☎ 0116 270 7072
APPLE MAC SE MIDI interface, EZ Vision sequencer, £395 ono ☎ Paul 01483 295744, 505314 eves
APPLE MAC IICI 8/40, £350 ono, immaculate, Mac 170Mb hard disk, £110 ono ☎ Carl 0171 737 6861
APPLE MAC IIX 8/40, 20-inch Taxan b/w monitor, loads of Nubus slots, ideal for Audiomedia, £600, 20-inch Taxan monitor for Mac II series, £250, Amiga 500 with 20Mb hard drive plus CTV, £300, Accessit compressor (2), gate (2), plus psu, £150, Guitar Rack Box plus psu, £80 ☎ Rob 01684 576423
ATARI FALCON 4Mb, 64Mb internal hard drive, 540Mb external drive, latest version of Cubase Audio plus mono monitor, £1200 ono ☎ Dave 0191 262 1866
ATARI FALCON 4Mb RAM, 200Mb internal drive, latest mod, £650, external 270Mb hard drive with SCSI2 cable, £270, VGA hi res monitor, with Falcon adaptor ☎ Ian 01702 616961
ATARI MEGA STE SM146 monitor, £300, C-Lab Unitor 2 SMPTE/EBU sync/MIDI expander, C-Lab Notator V3.1, with dongle and manual, £200 ☎ Steve 01706 44628
ATARI MEGA 1 and high res monitor, £250, Steinberg Pro 24, £50, offers taken ☎ 01708 444792
ATARI MEGA 2 complete with monitor, mouse, cubase with manuals, all immaculate, £350 ono, Cheetah Six-16 sampler, 16 bit stereo, £250 no offers ☎ Stephen 0121 776 5708
ATARI MEGA 4 60Mb hard disk, Atari SM144 hi-res monitor, Pro 24 sequencer plus other applications, ideal as MIDI sequencing package, £500 ono ☎ Jamie 01273 673013
ATARI MEGA 4 £350, Hitachi 17-inch monitor for Cubase, see all 64 tracks together, £490 ☎ Dave 01869 810956
ATARI ST mouse, etc, all boxed & as new, hardly used, £49 ono, £1000 + of original software inc music sequencing package, etc, Must sell may split, no reasonable offers refused ☎ 01526 834598 9am-9pm
ATARI ST computer, DSDD, high resolution monitor, mouse, sequencing software, wp, all leads, cables and connections, boxed as new, quick sale, £250. Wanted TR909, TB303, M1 ☎ 01252 370550
ATARI 520 STE with 4Mb RAM, monitor and speed mouse, just £275 ☎ 01474 567946 (Gravesend)
ATARI 520STE home computer, excellent condition with joystick, mouse, games, plus Master Tracks Junior music sequencer, £110 ono Tony 01222 540121
ATARI 520STE, 2Mb RAM, 100Mb hard disk, £250, multisync adapter, £20, X-Or, £70, M1 sample and program percussion cards, £40 Apple MIDI interface, £40, Martin 01453 833245
ATARI 1040 with 4Mb upgrade, 2.1 TOS operating system, SM124 monitor, Cubase Notator, Notator Logic, LOG3, Unitor 2 SMPTE

sync, £650 ono for all, Stephanie 0181 743 6600
ATARI 1040 STE with hi-res monitor, excellent condition, £200, Andrew 01874 625451
ATARI STE computer, 2 Meg, SM124 monitor, printer, second disk drive, loads of disks, games, graphics and music software, £290 ono, Martin 01223 562150 eves, 845588 days
ATARI STE mono monitor, Hybrid Arts sequencer software, ideal first sequencer, £150 01525 382966
ATARI 1040 STE 4Mb, mono monitor, hard disk, second drive over £2000 software, Cubase, Printer, no split, bargain, £650 ☎ 01553 760362 (Norfolk)
ATARI 1040STE, hi-res monitor, mouse, leads etc, £300 ☎ 01628 473076
ATARI STFM 1Mb, £150, 30Mb hard disk, £100, SM125 hi-res monitor, £80, extra disk drive, £50, £350 for the lot ☎ Tom 01483 825167
ATARI 1040 STFM, 4Meg RAM, 40Meg hard drive, Cubase 3.0, Replay 16, £400 Ivan 01689 870197 (Orpington)
ATARI 1040 STFM SM124 Hi res monitor, Cubase, £220, Unitor II, £150, CLab Creator, £95 ☎ 01585 200424
ATARI STE 1Mb stacks of software, any offers? ☎ James 01384 833426
ATARI ST 1Mb, two available with monitor, £260, one without monitor, £200, Roland D10 good condition, £300 ☎ Luke 01382 543347
ATARI 144 hi res monitor, perfect condition, £90 ☎ Ian 01702 616861
CAKEWALK PROFESSIONAL for Windows, V3, new and unopened, £150 ☎ James 0117 955 8953
CAKEWALK PROFESSIONAL for Windows, V3, £180, SAW, £350, Roland W30, 200 disks, £900 ☎ Dave 01634 837676 office hours
CAKEWALK PRO 3.0 £150 ono, Band-in-a-Box, 5.25-inch, £20, Powertracks Pro, £20, Wave Lite, £20, Cakewalk Home Studio, £60, Wanted newest Cubase for Windows ☎ Martin 01507 610035
CLARITY 16 BIT Sampler for Amiga computers boxed as new, £70 ono, Roland CM64 sound module, £250 ☎ Ian 01702 616961 (Southend)
DAC RACKMOUNT CD-ROM drive, works with Emax 2, Akai, Roland, Emu, Samplers, £270, Quantum 105Mb SCSI hard disk, internal, £220 ☎ Paul 01227 361089 work (Kent)
DIGIDESIGN SESSION 8 system for Mac for sale as new, £1800, Plus One gig, £500, Software, £250, SMPTE Slave Drive, £500, Opcode Studio 4, £600 ☎ 0171 221 7118
DR T'S X/OR universal editor/librarian for PC/Windows, boxed with manual, Veri 1B, £150 ☎ 0181 995 8773
EMAGIC NOTATOR LOGIC software, latest version, still boxed, must be sold, cash offers ☎ Gus 0171 261 6447 (work)
FALCON WITH CUBASE SCORE Styletrax, File Selector, £325, Notator Logic/SL Version 1.7 and Log 3, £160 ono, Both boxed, smart sync unit, £70 ☎ John 01522 543243, PM
FREE MIDI interface when you buy my Mac LCII, immaculate, loads of software, Beyond, etc, £450, or swap decent DAT machine ☎ Andy 01453 834575
HOLLIS RESEARCH Trackman sequencer for Atari ST, £70, Casio CSM10P piano module, £50 ono ☎ James 0181 947 1114
MUSIC QUEST MQX32 PC MIDI interface, 2 ins, 2 outs, SMPTE, chase lock, 4 months old, with disk, manual, cables, £150 ☎ 0171 433 1041
MUSIC QUEST MQX32M MIDI card, two ins, two outs, reads/writes SMPTE, £170 ☎ 0181 949 7245 after 5.30pm
OPCODE STUDIOVISION A/V Mac hard disk and sequence recording package, C/W Galaxy modules and latest updates from Opcode, £275 ☎ John 01539 727295
PC 486 computer, SVGA monitor, with software and MPU401 MIDI ports, £700 ono, Alesis Midiverb 3, £165, Kawai K4R, £315, Yamaha TX16W 4.9Mb sampler, £725, Fostex R8, £825 ☎ Andy 01608 810095

SEQUENCERS

AKAI ASQ10 sequencer, latest software just fitted, including hard case, studio use only, £475 Andy 01222 689331
ALESIS DATA DISK, hardly used, £125 ☎ 0181 983 4483
ALESIS MMT8 sequencer, £110 ono, good condition with box and instructions ☎ Jonathan 01223 314881 after 6pm
ALESIS MMT8 sequencer with box and manual, works but needs attention, £40 ono ☎ Martin 01865 863718
ALESIS MMT8 8-track sequencer, vgc, boxed with manual, £140 ono ☎ Scott 01585 498600
ANATEK SEQUENCER and RAM card, unused and Yamaha DD12 MIDI drumpads, sound and PSU, for 8/12 channel mixer, and cards for JD800/E8, Swap for something interesting ☎ Chris 01235 534152 eves (Oxon)
CASIO SZ1 digital MIDI multitrack sequencer, real or step input, supports international song, many features, with manual, £90 ☎ 01382 51552
OBERHEIM DSX sequencer, will drive your OB1x/CB8 and 8 analogue monosynths with complete sequence control, includes manual, 37 pin connection lead, flightcase, £150 ☎ 01274 620004 (W Yorks)
ROLAND MC50 MKII boxed with manuals, as new, hardly used, £500 ☎ Chris 01706 226303
ROLAND MC202, good condition, with manual, £225 ono ☎ Richard 01374 494315

ROLAND TB303 BASSLINE much sought-after acid sequencer, in perfect condition with power supply, owners manual and service notes, offers or swap for Wavestation SR in similar condition ☎ Paul 01535 645233
ROLAND TB303 excellent condition, £400, no offers, Yamaha G10 and 10C MIDI guitar, excellent condition, £500 ☎ Mark 0171 226 8836
YAMAHA QR10 auto accompaniment player with power supply and manual, excellent condition, £210 ☎ Graham 0115 938 2979 (Nottingham)
YAMAHA QX1 sequencer, aluminium flight cased mint, £250, Korg SQD8 seq, £120 ono ☎ 01670 523363

MISCELLANEOUS

ANATEK 16TK sequencer, tiny but powerful, £40 ono, Roland M64C RAM (TR909/MKS70 etc), £40, M software (Mac) unregistered, £35, Wanted Eventide Omnipressor/Phaser etc ☎ 0181 692 8124
ART SGE multi-effects processor, up to nine effects at once, MIDI control cost £500, accept £260, Tatung hi-res monochrome monitor, 14-inch brand new in box, £100 ☎ 01858 575 353
CARLSBRO 1200W amp, boxed, unused, plus leads, £550, 6U open rack case, all metal ventilated, £35, RAM 10.4.2 cased, one fault, £270 ono, Keyboard stand, £20 (Quik-lok) ☎ 01553 764842 (Norfolk)
CARLSBRO SHERWOOD COBRA 90 acoustic guitar amp, reverb, parametric, 15-inch speaker, good condition, £325 ono, Part ex Korg 05W or X5DR ☎ Vince 01900 61380
CARLSBRO K115 keyboard amp, £250 ☎ Gavin 01256 701470
CUSTOM BUILT wooden console, to house old Studiomaster desk, reel-to-reel machine, 8 19-inch rack units and patch bays, £400 ☎ 01633 480853 (Newport)
CUSTOM SOUND COLT 100W guitar amp, 2x10 inch speakers, 2 channel plus reverb, £160, Small, loud and sounds great. ☎ Martin 01223 562150 eves, 01223 845588 days (H Martin)
DIGITECH IPS33B £390, Alesis 3630, £180, AKG C1000S, hardly used, £160, Akai ME76 MIDI Patchbay, £110, JD Explorer with trem and case, £350 ☎ Steve 01902 654152
ELECTROVOICE S1803 full range speakers, 18+10+Horn, very large, immense sound, ungigged, immaculate, £1400 ono ☎ James 0181 570 8851
ELKA PROFESSIONAL DMP18 dynamic MIDI bass pedal board, immaculate condition, £400 ono ☎ Mark 01253 691089
EM1 1-INCH tape, used but guaranteed uncut, no markers, £20 Contact: G. Michaelson, 169 Cavendish Ave, West Ealing, London, W13 0JZ
FREE! HIP HOP newsletter, send a Self Addressed stamped envelope to HHQ 2440 Seamist Drive Room 11 Sacramento, CA 95833
FYLDE OBERON hand-built English guitar, ebony, rosewood, spruce, active p/u, hard case, bone saddle, strap, full sweet tone, loud, excellent condition, £575, half price! ☎ John 0181 524 1855
HH VALVE SOUND bass amp, £70 ☎ Colin 01767 627341
HOHNER OAB100 keyboard 'Mega' cube amp, make sure your keys are heard, powerful sound, just £275 ☎ 01474 567946 (Gravesend)
HONDO SEMI ACOUSTIC blonde, £150, Sakura Strat, £100. ☎ Martin 0585 299203 (Mobile)
INFECTIOUS BROTHER ARTS is a small organisation dealing in new musicians, Send SAE for full details of tapes/services, C/O 486A Brighton Road, South Croydon, CR2 6AP
JACKSON RANDY RHODES pro, black, through neck, active mid boost, mother of pearl inlays, with custom flightcase, quick sale, £1200 ono ☎ Russell 01252 703945
KAWAI PHM sound module, as new, £150, Casio CSM1 sound module, as new, £130, Realistic stereo mixer, 4 inputs, £110, all home use only ☎ Scott 01745 886594
KORG M1/M3R organ sounds PCM cards, £20, Wanted U220 PCM cards ☎ Jon 01522 750846
LARGE MIXER STAND, black steel, would hold 24-track desk, £90, four JBL G125 12-inch guitar speakers, £100 each, Marshall 50W split channel valve head, £250, WEM 30W bass combo, all valve, great for recording, £100 ☎ Neal 01273 494502
MARSHALL 150W keyboard combo, four channels, effects loops, EQ, £300 ono ☎ Jeff 0115 933 5656 eves
MEINL CONGAS, hardly ever used, stands, absolutely immaculate condition, cost £350, sell for £250 ono ☎ Brinley 01732 367752
MOOG SYN AMP amplifier, 400W, parametric and graphic EQ, reverb, offers please ☎ 01794 514890
19-INCH RACK cabinet, 36U, with locking removable front and rear doors, suit studio, £90 ☎ Chris 0117 977 5747
PAISTE PERCUSSION SET rack, cymbals, gongs, chimes, etc, Beautiful sounds, visually stunning, £850 ono, Roland R8, 4 ROM, plus 1 RAM card, boxed, immaculate, £425 ono, Simmons Portakit, 12 pad drum machine/keyboard trigger, MIDI delay effects, built in sequencer, superb, £475 ono, Part ex/swap for SY99 plus Korg SR or JD800 plus Korg A/D, or offers ☎ 01539 723631
PA SYSTEM Martin FR3 rig, 1200W bottom, 200W mid, 50W horns, per side, £1950, Crown Macrotech MA2400 1600W power amp, £950, Rane RA23 crossover, £400, 24-channel

multicore and stage box, £170 ☎ Phil 01476 75547
PEAVEY 1.2K PA System, ClustersMbasubs, CS800 multi-fx xover + leads, £1350, Soundtech H15X cabs and 600w amp, boxed, £600, Yamaha YS200 synth, £190, any reasonable offers considered ☎ David 01733 233228 eves
PEAVEY PMA200 100wpc PA amp, £260 ono, Zoom 2020 guitar FX, £180 ono, Peavey Backstage plus, £80 ono ☎ 055 935 441
QUICKLOK TWO TIER double brace keyboard stand, rock steady at £35 ☎ 01474 567946 (Gravesend)
SHURE SM96 condenser mic, £170, Yamaha TX81Z, £160, MQX32M PC MIDI interface, 2 ports, SMPTE in/out, £160, Sequencer Plus Gold sequencer, £50 ☎ George 01222 549350
16MB SIMM, 72-pin, £299, 12Mb of 2Mb SIMMs, £180, Korg Poly 800, £150 ono ☎ Paul 01733 892261
SOS AUG 88 to Sept 93 (three missing) good condition, buyer collects, £45 ☎ 01424 882743
SPEAKER EMULATOR, Marshall SE100, the best emulator on the market, as new condition, £199 ono ☎ Rob 01664 480374 (Leics)
SQUIER STRAT with Roland GM70 guitar to MIDI converter, £400 offers taken ☎ 01708 444792
STUDIOMASTER 1200B amp, £600, Soundtec PL1000 amp, £600, pair JBL Control 12 speakers, £900, pair JBL bass bins, £600, Peavey 130 Solo Series guitar amp, £350, two Yamaha Club series wedges, £300 per pair, two eight foot light stands, XRP MIDI controller, eight Tomcats and two pin, strobe and mirror ball, £850 ono ☎ 0181 983 4483
SWR GOLIATH JNR MK2 bass guitar speaker cab, as new, 2x10 + bullet, £375 ono ☎ Neville 0113 260 0267 day or 253 0350 eves (Leeds)

PERSONNEL

BACKING SINGERS required for new dance band in Leeds area. Must be from Leeds and have good experience and knowledge of backing vocals. Possible record deal in near future ☎ Craig Hartley Leeds 555530
CHRISTAN KEYBOARD PLAYER programmer seeks to meet person with similar talents, with aim to make Christian dance music in Manchester/Lancs area ☎ Lev 0161 792 6824
COLLABORATOR needed for electronic experiments, acid, tribal trance, dub reggae, ambience, modular systems, Detroit techno bleeps, thumps and sweeps, rhythm programs, lets tweek! ☎ Tony 01246 455207
A VOCALIST/LYRICIST required to collaborate with Birmingham based, songwriting team, varied soul/dance, music ready, just need a voice ☎ Patrick 0121 441 5275
DR BASE + D5 records, a house and trance label, Requires dance floor explosive tracks, If you think yours fit the bill and want them out send demo to, DR Base + D5 Records, 42B Petersfield Rd, London W3 8NY ☎ 0181 992 6368
EXPERIENCED ENGINEER programmer wanted for North London, 24-track studio, extensive knowledge of Notator and S1000 essential. Fax details/CV 0171 722 9151
FEMALE BACKING SINGER wanted for pop/dance Midlands band, Enthusiasm essential ☎ Paul 01203 372319
HOMEGROWN RECORDS require good quality house music for possible future release, Send demos on DAT, tape or DCC to Homegrown Records, PO Box 22, Leeds LS5 3AF
PROGRAMMER/MUSICIAN collaborator needed by theatrical male jazz singer, into house, ambient jazz, Madonna, Sade, Grace Jones and New York, Sampler knowledge important, I'm serious and creative ☎ Nick Griffiths 0181 960 2218
REMIXER AVAILABLE, most styles covered ☎ 01275 817122
SINGER WANTED for hard-working musically strong rock band in Reading area, Influences, Rush, Yes, Dream Theatre ☎ Martin 01252 515861 or Richard 01628 784584
SINGERS WANTED for professional dance/pop projects produced by well-known Cappella producer, Strong chance to sign with established international label ☎ Max 0171 587 3546
TOP VIOLINIST/GUITARIST offers services in exchange for studio time ☎ Gerry 0956 458410 (Mobile)
TRAINEE SOUND engineer seeks home tuition and equipment advice in Sevenoaks area, from experienced sound engineer ☎ Ryan 01732 822392

WANTED

AKAI S1000 can pay £1300, S1000PB, £700, vintage Keys, £400, JD800, £700, Juno 106, £300, SH101, £125, TB303, £250, TR909, £400 ☎ 01973 123965
AKAI S1100 SMb board, IB104 digital in/out, 44Mb Syquest carts, Sample CDs & CD-ROMs, Cubase V3.1 & Dongle, Ampex 456 half-inch tape (unused), Acoustic tiles, cash waiting ☎ Andy 0113 243 0177 (Leeds)
ALESIS 1622 mixer, in good condition, Fair price paid ☎ Steve 01273 709029
APHEX C2, Behringer Ultrafex 2 or SPL Stereo Vitalizer exciter wanted, Also Sony 701 processor wanted ☎ Rikki 01482 448767
BOOKS ON FM particularly FM theory and applications or anything for SY77/TG77 ☎ Jase 01482 648846
BOSE 802 PA cabinet lids or whole cabinets with

speakers not working ☎ Paul 01603 487580
CHEETAH MD16RP drum machine, will pay £100 plus postage if in good nick with manual ☎ Robin 01305 783258 after 6pm
COMPRESSOR WANTED, 2 or 4 channel, eg Drawmer DL441 or Behringer Composer, etc, Must have in/out metering, also auto attack/release control ☎ Dave 01382 459779 (Dundee)
DIGIDESIGN PRO TOOLS II 8-channel system with Sound Accelerator card and Sound Designer II, cash waiting ☎ 0181 883 4329
DRAWMER COMPRESSOR wanted, Must be in very good condition, with manual ☎ 0171 720 3702
DX7 CARTRIDGES any of the following, C-Lab 4 RAM 1 and 2, Shinko Part 1 and 2, Skyslip Part 1-5, Yamaha ROMs 101, 102, 103 and 106, Sound Source SK ROM 1285 No 1 and 2 ☎ Duncan 0121 444 2681
DYNACORD DLS223 or 222 Leslie speaker simulator, also Fender Mustang bass guitar ☎ 01442 234747
INFO PLEASE on how to create a guitar slide of 1 or 2 octaves using keyboard with Atari running Cubase, All suggestions welcome ☎ Chris 01639 633715
KORG WAVESTATION EX preferably mint, ungigged, with manuals, Oberheim Matrix 1000, Roland MKS30, Boss SE70, Studiomaster Sessionmix 16 2 (Pre-gold), faulty desks considered ☎ 0161 861 7261 (Manchester)
KORG WAVESTATION SR mint with manual, £500, Yamaha QX3, mint with manual, £200, Cash waiting ☎ Mark 0151 608 1763 after 6pm
KORG X3 will pay £500, for sale Roland Dep5 effects processor, £150 ☎ Paul 01229 466238 (Cumbria)
MEGAFILE hard drive for Atari, external drive (double density) ☎ Chris 01639 633715
MIDIVERB II/III or Quadraverb, D4 drums wanted ☎ 01223 234850
OBERHEIM STRUMMER wanted ☎ Mike 01642 581397
OBERHEIM SYSTEMIZER wanted, Cash waiting ☎ Malcolm 01455 613834
OSCAR WITH MIDI TR909, both max price, £480 + shipping costs, Also interested in WASP & EMS synth/vocoder, Only good condition ☎ Hendrix 01045 40526589 (Denmark)
QUALITY VOCAL MICS wanted, eg, SM58, MD257, Beyer, AKG, etc ☎ Dave 01382 459779 (Dundee)
REPLAY 16 for Atari ST wanted urgently, Cash waiting ☎ Mark or Brinley 01732 367752
ROLAND DIMENSION D required in good condition, £200 offered, ART Multiverb Alpha, any version, £150 offered ☎ Eddie 0171 263 3919
ROLAND JD800 sound cards - 02 drums, and 06 piano ☎ 01585 331386
ROLAND JUNO 60 in vgc, cash waiting ☎ Nigel 01892 832178 (Kent) all day Monday only
ROLAND TR909 and TR808, cash waiting, can travel ☎ Gavin 0181 552 5124 days, 01708 453886 eves
ROLAND PG300 programmer, EPROM for SIEL MK80 synthesizer, Roland US-2 link box, Roland GK2 MIDI pick-up, Moog source, selling Yamaha CS01, £100 or swap for analogue synthesizer ☎ 01202 734739
ROLAND TB303 BASSLINE required, willing to pay up to £350, depending upon condition ☎ Rich 0117 949 2999
ROLAND TR909 wanted £500 cash waiting, Roland JD800, £700 waiting, must be good working order ☎ 01344 891110 (Berks)
16- OR 24-TRACK recorder wanted, eg G16/G16S, G24/G24S, MSR16S, MSR24S ☎ 01223 234850 (Cambridge)
SOUNDCRAFT SPIRIT Folio 12.2 rackmount mixer wanted ☎ Alistair ☎ 0114 282 6558 (Sheffield)
SOUND TOOLS DAT I/O, already have analog, Casio DA7 in good shape ☎ Keith 0191 273 5326
SWAP MY VESTA DEX810 rack exciter for something else, absolutely anything considered ☎ Carl 01203 394737 (Midlands)
TEAC A3340 or A3440 in good condition, must have matching hub hubs, the original ones, Will pay cash for a reasonable offer, can collect within reason ☎ 01908 610362
TRACE ELLIOT TARP1 acoustic preamp wanted ☎ Sean 01822 852274
UNITOR II wanted, other SMPTE synchronisers considered ☎ 01223 234850 (Cambridge)
WANTED: MOOG SOURCE monosynth, must be in fully working condition, For Sale large metal flight case, £55, 3-tier keyboard stand, worth £100, sell for £60 ☎ Richard 01254 230745
WANTED: OLD STYLE Roland 24-pin GR leads, reasonable price paid, no silly offers ☎ Martin 0585 299203 (Mobile)
WANTED: ROLAND Juno 106, Roland TB303, Roland MC202, and Roland SH101, must be in good condition and reasonably priced ☎ 0181 665 1840 eves
YAMAHA RM50 wanted, Cash waiting, 01592 882696

A DROP IN THE OCEAN by The Craft Brothers. Debut CD album containing 12 original songs. Diverse styles, rock pop, new age. £12 (inc p&p within UK), £13 (inc overseas postage). Cheques/info: *Kevan R Craft, 12 Mount Road, Halton, Runcorn, Cheshire WA7 2BH.*

BASELINES OF OPTICAL INFEROMETERS by Esoterik. Journey into psychic aerobics. 9 tracks of ambient meditation, 60 mins on dolby CrO2. Radio 1 and Kiss airplay, NME techno charts. £4 to: *D Jones, Leucarum House, Four Roads, Kidwelly, Dyfed SA17 4SF.*

CLARITY by The Fire Thieves. The third LP from TFT contains 12 songs, 60 minutes of music and an indication of the quality available when recording from home. Songs in the Gabriel, REM, Dolby vein.

CD £10 (inc p&p). Also available, 'Skelmersdale', a compilation of the first two Fire Thieves albums on cassette for £5. Cheques to: *Stephen Bennett, 55 Gipsy Lane, Norwich NR5 8AX.*

WALK AWAY by Kyle 'Taff' Harris. Ballads, blues, and songs in the romantic vein. 55 mins long, 12 tracks, £4 (inc p&p). Cheques to: *Kyle Harris, 19 Earlswood, Skelmersdale, Lancashire WN8 6AT.*

RUBYCON LUNA by CX2000. '80s free jazz meets '90s ab mix (ambient to you, mate!). 2 tracks, CrO2 tape. Only £4.99 (inc p&p). Cheques payable to: *Martin Howard Naylor, 34 Bassingham Road, Wembley, Middx.*

THE WALLED GARDEN OF TRUTH by Secret Archives Of The Vatican. Music for the enhancement of visions: electronic medieval eastern strange world music. Colour cover, 13 tracks, C60 cassette. Cheques £5 to: *Vince Millett, 3 Royal Circus, West Norwood, London SE27 0LT.*

MUGWUMP by Mugwump. Ambient synths, samples, and heavy guitar mishmash. 42 mins, 6 tracks on CrO2 tape. All original, and quite strange. £3.50 (inc p&p) Cheques/POs to: *DW Griffiths, 18 Church Road, Henton Norris, Stockport SK4 1LJ.*

DISC 1.0 by Disc Psycho. Spatial techno/funk/rock made in space for aliens, now available on Earth. Free skins. 33 mins, 7 tunes, CrO2 tape, £3 from: *Huw Bowen, 106a Warwick St, Leamington Spa, CV32 4QP.*

WOLFGANG AMADEUS MOZART RIP by Club X. Mozart with kicking beats, sputnik squeaks and lotsa pizazz! 12.5 mins, 4-track CD or 12-inch white label. £2.25 (inc p&p), payable to: *S Metcalf, 37 Westminster Road, Wellingborough, Northants, NN8 5YS.*

AN ESCAPE FROM THE RELENTLESS TRIVIA OF EXISTENCE by The Details. 14 tracks, 56 minutes, CrO2 tape. Jazz ballads to heavy metal guitar solos. Something for all the family. £5.99 (inc p&p) from: *D. Somerville, 12 Aspen Court, Emley, Huddersfield, HD8 9RW.*

EP by Squish. Debut innovative electronic dance ambient techno trance. 4 tracks for £2 on cassette, or £4.50 for 10 tracks on CrO2 cassette. Free to record companies. Specify Dolby B/C. Original, exciting, all styles of dance, suit everyone's taste. Limited stocks, Cheques or POs to: *DTA Cleare, 34 Millwrights, Tiptree, Essex CO5 0LQ.* Artistes also wanted to start record label.

Now you can listen to selected entries to the Tape Exchange before you consider purchasing them, with the aid of our new phone line service. It's quick and easy to use — just follow these instructions:

- Decide which tape you'd like to hear play through, and note which number (from 1-10) has been allocated to it.
- Dial the SOS Tape Exchange phone line number: **0891 424025.**
- You'll be asked to press the button marked with a star on your telephone. This will tell the phone line whether you have a touch-tone telephone or not.
- If you have a touch-tone phone, you will be able to select the tape you wish to hear simply by pressing the number on your telephone which is allocated to that tape on the Tape Exchange page. You may interrupt the tape at any stage by pressing any other key on your phone; you will then be returned to the main menu to make another selection if you so wish.
- If you do not have a touch-tone phone, you will hear the ten entries listed in sequence. Remain absolutely silent until the one you wish to hear is mentioned, then simply say "Yes". The track will then play through, after which you will be returned to the main menu to make a further selection if you wish.

Although all entries to the Tape Exchange must now be made on the new redesigned entry form, entries can still appear in the magazine without appearing on the phone lines — there's a box to tick on the form if that's what you'd prefer.

Calls are charged at 39p per minute cheap rate, 49p per minute standard rate. Livewire Communications Ltd CB2 5LR.

PHONE NOW: 0891 424025

1 BUD by N-Tropic. 56 mins of deep space organic techno/trance. 7 tracks, CrO2 cassette, professionally duplicated in real time from DAT master. Dreamy atmospheres and crystaline melodies ride high over blasting analogue grooves to create uplifting intelligent dance music. £5.50 (inc p&p) from: *Steve Clarke, 15 Newcombe St, Heavitree, Exeter, EX1 2TG.*
• The Orbital influences shine through clearly on this trancy tape. Nevertheless, this is a well-produced and melodic collection of dance music. Check out 'Blue Ball' now! •

2 NEPTUNE by Emerald Transmission. Soft, melodic female vocals over electronic synth lines with ambient/industrial samples and processed guitars. Contains vintage analogue equipment. 40 mins, 9-track CD. £8 (inc p&p) to: *Derek Gee, PO Box 40014, Berkeley, CA 94704-4014.*
□ An interesting mix of early '80s style synth pop and heavily processed guitar, overlaid with strange loops and samples. The thin, wispy female vocals are occasionally irritating, but on the whole, this is worth a listen, especially 'Into The Future'. •

3 VENEZUALA by Kevin McCarthy. 40 mins, 10 tracks, on CrO2 cassette. Superb synthesizer music, especially strong on melody, with excellent sounds and rhythms. Professionally recorded and duplicated. Cheques £4 (inc p&p) to: *Kevin McCarthy, 10 Littleworth Road, Downley, Bucks HP13 5LR.*
• Lush, evocative incidental music designed to accompany a slide show about Venezuala. The featured track is 'Savannah'. •

4 EVERYTHING ALL AT ONCE by the Lovecars and Sugarush. Compilation album of strange pop from Red Weather Records. Extensive radio play and cult following. 45 mins, Fe cassette, 10 tracks, £6.50 (inc p&p) to: *Irfan Shah c/o Red Weather, PO Box 14, Earl Shilton, Leicestershire LE9 7ZT.*
• Al Sargent's Peter Gabriel-esque voice graces some neatly-crafted pop songs by The Lovecars. The production's OK, but the tape reproduction isn't so hot — a real shame, as the material is really strong, with good arrangements. •

5 ANDY'S THEME by Andy McLean. Sax/soul jazz street grooves. 10-tracks, CD album. Influences Kenny G, George Howard, Najee. "Excellent, absolutely gorgeous" — PCRL. £10 cheque to: *Frank O'Donnell, 6 Cottesmore House, Browns Green, Handsworth Wood, Birmingham B20 1DW.*

6 THE STUFF by Mrs Cakehead. Reggae/dub and ragga/dub. Lancashire-style toasting! Recorded on an 8-track using MIDI. CrO2 tape, DAT copy, 25 mins. £2 (inc p&p) to *T Winstanley, 8 Cowfoot Lane, Bacup, Lancs OL13 8ED.*
• Extremely silly. Ragga toasting and crazed electro delivered by a man with an outrageous Lancashire accent. It's a good laugh though, and it's actually extremely accomplished in terms of getting the right feel and production. •

7 MAGIC MALVERN by Paul White and Mike Simmons (The Lentils Of Delirium). Guitar and synth instrumentals (thrash metal-influenced new age). 58 mins, 12 tracks CrO2 cassette, professionally duplicated with printed sleeve. All proceeds in benefit of local community care (via Malvern Arts Workshop). £5.75 (inc p&p). Cheques to: *Jan McGuffie, Malvern Arts Workshop, Worcester Road, Malvern, Worcs WR14 1NY.* Production details included.

8 BREED by Corporation. A blend of ambient techno rhythms and Kraftwerk-style electronics, with sci-fi samples. 62 minutes playing time, 11 tracks, £12. Cheques and credit cards to: *Midas, 3-4 Strand Arcade, Derby DE1 1BQ.*
• Excellent production and superb programming go hand in hand on this well-packaged instrumental CD. I notice Ian Boddy has a hand in the production. •

9 VICTIMISED by Small Bo. A distinctive blend of Jazz, Reggae, Rock, Funk, and Afro-Cuban, from Pandemonium Records. 3 tracks, 20 mins. £3.99 (inc p&p) payable to: *Jamie McCombe, 29 Farm Avenue, London NW2 2BJ.*
• Trumpets, South-African style guitar, tumbling drums, fluid bass, and smooth vocals combine on a well-produced 3-track CD single. The opening song ('Ordinary Madness') gels really well, and is tremendously catchy. •

10 ANTENNA 3 AND 4 compilation tapes now available. Each compilation features a variety of techno/trance/ambient tracks by several different artists. C60 CrO2 cassettes, price £3 each (inc p&p). Payable to: *Antenna, PO Box 22, Cleckheaton, West Yorks, England, BD19 5YZ.*
• Another couple of interesting compilations, featuring dance music ranging from breakneck acid to funky techno and dubby ambient. The track on the Phone Line is 'Loop Net' by OS — just one of the many artists featured. •

OUT OF TIME by David Allan. 10 Original synth/sampler arrangements of striking quality. Plunge into this meticulously crafted vortex of sound and hear the promised land. Professionally packaged. CrO2 tape, 46 mins, £4 to: *David Allan, PO Box 1385, Glasgow, G32 6HT.*
• Catchy, melodic, filmic instrumentals, strongly reminiscent of 'Blade Runner'- period Vangelis. The arrangements are excellent, and the tape is well-presented, with a full-colour cover. David has asked for this tape to be re-run in Tape Exchange following the excellent response he received as a result of having his tape on the *SOS* Phone Line from September to November last year.•

CONCERT ONE and Concert Two by Andrew Blyth. Classical orchestral works realised on computer, from Australia. Six and eight movements, 46 mins and 48 mins respectively. Professionally duplicated cassettes, £5 (inc p&p) each. Cheques to: *Andrew Blyth, New Classic Recordings, PO Box 278, Mont Albert, Victoria, 3127 Australia.*

ENDLESS LONGING by Elegant Simplicity. New album of Electronic prog-rock and MIDI-guitar-based instrumentals, 45 mins, Fe tape, colour cover, digitally mastered. Other albums available. £2 to: *Steven McCabe, 27 John's Avenue, Lofthouse, Wakefield WF3 3LX.*

EUROTIC EP by Martin Burrows. Four totally unique and diverse tracks of dance music. One of the many projects spearheaded by Martin Burrows, vocals by Kathy. 20 mins, CrO2 tape, just £2. Cheques to: *Martin Burrows, 12 Fernworthy Close, Torquay TQ2 7JQ.*

THE DREAM by White. New age synth music, 60 mins, 8 tracks, great tunes, £4.49. Cheques to: *DJ White, 53 Listowel Road, King's Heath, Birmingham B14 6HH.*

NEW FRONTIERS by Martyn Green. Jazz funk, relaxing instrumentals, sequenced on Korg O1W/FD. 40 mins, direct-to-DAT-mastered on quality cassette. £3.95 (inc p&p) to: *Martyn Green, 7 Tinkersfield Leigh, Lancashire WN7 5LB.*

THE RUNAWAY TRAIN And Other Children's Favourites, by Phil Rhoden. Children's tales from the darkside. If you liked the Residents circa Goosebump, try this. Six tracks, 56 mins, CrO2 tape. £2.50 (inc p&p) from: *Phil Rhoden, 132 Amblecote Road, Brierley Hill, Dudley, West Midlands DY5 2YE.*

YESTERDAY'S GONE by Citizen X. Three tracks of ambient pop. 'Tuning In', 'Love and Religion', and 'Yesterday's Gone'. £1 (inc p&p) from: *29 Victoria Road, Workington CA14 2QT.*

HARDER AND FASTER and Zero-G EP by Ground Level Zero. 5-track techno tape and 4-track pop vinyl respectively. Cheques to: *N Parker, 7 Railway Terrace, Redcar, Cleveland TS10 3UD.*

DUCK by LRI. Depeche Mode meet Cure meet Sisters Of Mercy. Guitars, synths and vocals, on 40-minute CrO2 cassette. Cheques for £4 (inc p&p) to: *RP Hanson, 28 Albany Road, Chatham, Kent, ME4 5DL.*

BLUES FOR KIRSTY by LAF. The pop song returns. 11 tracks in different styles. Rediscover an art-form believed extinct. 50 mins on CrO2 tape. £3.50 to: *Phil Matthews, 8 Stanstead Road, Micheldever, Derby DE3 5PP.*

SIGNATURES by Sphere. Progressive rock meets jazz/funk. Experimental, atmospheric, weird time signatures. 4 tracks, 31 mins, CrO2 tape, £3.50 payable to Steve Anderson. Write to: *Neil Durant, 155 Park Road, Teddington, Middlesex TW11 0BP.*

SAUCY by Various. CD Compilation of 16 artists. 20 saucy tracks in various styles from pop to indie to grunge to metal to blues to goth etc etc. 78 mins. £5 (inc p&p) Cheques/POs to: *Purge Records, 38 Chancery Lane, Nuneaton CV10 0PD.*

BRECKLANDS DAWN CHORUS produced by Andrew Flintham. Ambient wildlife recording. Beautifully relaxing, as featured on Radio 1's Mark Radcliffe show. CD £10.95, cassette £6.95. The most stunning wildlife recording you will ever hear. 70 mins. Cheques to: *Richard Atkins, 23 Tudor Avenue, Roydon, Diss, Norfolk IP22 3SQ.*

SWINGIN TIME by John Wayne Army. Lounge lizard hillbilly and garage trash. 4 tracks, 12 mins only, CrO2 tape, £2 from: *Calavera Records, PO Box 664, London E3 4QR.*

PAST AND PRESENT by Isa Darby. Ambient music, jazz and Gaelic melodies. Digital recording on CD, for £11. £3 from each sale donated to local school. Send cheques and orders to: *Isa Darby, PO Box 3, Waterlooville, Hants PO8 9YA.*

PROJECT ONE by Warwick Mason. 5 tracks of melodic rock guitar. Hooky and innovative melodies with tracks repeated minus lead guitar on B-side. CrO2 tape. Send £3 to: *Oasis Technology, Tudor Cottage, Eastern Green Road, Coventry CV5 7LH.*

HOBBITS AND SPACESHIPS by Bjørn A Lynne. CD of dynamic electronic space-rock and progressive new age music. £15 (inc p&p throughout Europe), payable by IMO or Eurocheque.

Catalogue of older material also available. Cheques payable to/further info from: *Bjørn A Lynne, Schleppegrells gate 0556 Oslo, Norway.*

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by Godric Wilkie

The latest offering from the people who brought you 'Music In Sequence'.If the terminology of musical technology and recording leaves you gasping, then this is the book for you! With clear explanations of 1500 terms and concepts, amidst illustrative graphics, the whole work is extensively cross-referenced, and will soon be worth its weight in gold.

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KEYFAX 4

by Julian Colbeck

The new Keyfax book (1993) is the most comprehensive guide to professional keyboards yet compiled, Keyfax 4 spotlights synthesizers and expander, and MIDI keyboard controllers. From classic analogue machines right up to the latest synth/sampler hybrids. Reviews include technical tour on a practical, need-to-know basis. Everything you need to decide which instrument is best for you.

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Edited by Jeff Forlenza and Terri Stone

Covers all aspects of film and TV sound, dialogue, music, effects recording, and editing and assembling the result into a final soundtrack. Technical and creative aspects are all covered, and a comprehensive glossary is provided. A good proportion of the book is also taken up with a selection of case studies (including Malcolm X, The Abyss, Northern Exposure and Twin Peaks) that provide hands-on information.

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CABARET VOLTAIRE – THE ART OF THE SIXTH SENSE

by Mick Fish & D Hallbery.

This revised second edition offers a comprehensive overview of the career (to 1989) of one of the UK's most influential and pioneering electro-music outfits. It features a wealth of first-hand material, and is almost one long interview with Richard H Kirk and Stephen Mallinder. A great disc/videography is also featured. 224 pages, 50+ photos.

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TAPE DELAY

by Charles Neal.

A look at the experimental, electronic, industrial underground, as of 1987, featuring interviews with: Marc Almond, Dave Ball, Cabaret Voltaire, Nick Cave, Chris & Cosey, Coil, Einstürzende Neubaten, The Fall, Diamanda Galas, Genesis P Orridge, Michale Gira, The Hafler Trio, Matt Johnson, Laibach, Lydia Lunch, New Order, Psychic TV, Boyd Rice, Henry Rollins, Clint Ruin, Silverstar Amoeba, Sonic Youth, Stevo, Mark Stewart, Swans, Test Dept, David Tibet and Touch. If anything makes the 'underground' accessible, it's this book. As NME said, "A virtual Who's Who of people who've done the most in the past decade to drag music out of commercial confinement." 256 pages, 60+ photos.

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CLASSICS IN SEQUENCE

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TECH TERMS - A Practical Dictionary for Audio and Music Production

by George Petersen and Steve Oppenheimer

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THE COMPOSER'S GUIDE TO MUSIC PUBLISHING (2ND EDITION)

written & compiled by Annie Gunning

This book has been produced by the Association of Professional Composers and examines the business of musical copyright and music publishing from the composer's point of view. It aims to educate composers of all kinds of music in the operation of the music publishing business to help them obtain, negotiate and benefit from publishing agreements and avoid expensive mistakes. Apart from publishing, the book also covers copyright legislation. performing and mechanical rights, the royalty administration societies, music in film, broadcasting, theatre and ballet and commissioning agreements. There is also advice for composers setting up their own publishing companies. An exhaustive and useful book.

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A useful little booklet produced by the Association of Professional Composers that aims to to give readers an insight into the different fields of music in which the APC is involved. Its 36 pages manage to convey a great deal of useful information regarding the preparation of music and, most importantly. getting paid for it.

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POP WENT THE PIRATES

by Keith Skues

Published to coincide with the 30th anniversary of Radio Caroline, this book is as comprehensive a history of pirate radio in the UK as you could want. Much of the book was actually written in the 60s, when the author was himself a Caroline DJ himself, and has only recently been completed The history of pirate radio is covered from the 30s up to the 90s, and potted biographies are given of DJs concerned with off-shore radio. The book runs to a whopping 568 pages and includes 230 black and white photos.

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by Pascal Bussy.

Everything you'd ever want to know about Kraftwerk has been squeezed from the guys themselves and various other sources by M. Bussy. Laid out chronologically, the book features a discography and a comprehensive list of sources of quotes used. Especially worthwhile are exclusive (if guarded) interviews with Ralf Hütter and Florian Schneider. 200 pages, 8 pages of photos.

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By Andrew Evans

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MUSIC IN SEQUENCE

by William Lloyd & Paul Terry

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By Mark Vail

This profusely-illustrated, 300 page book covers synth history, interviews with designers and overviews of important instruments. Mark Vail's book could be the most entertaining and useful synth book yet – check out the definitive history of the Minimoog, complete with pre-production designers' sketches. While not strictly a buyers' guide, there is a comprehensive section on sourcing, valuing, upgrading and servicing classic instruments.

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By Dieter Petereit & Herb Quick

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by David Mellor

This well written, user-friendly book is designed to offer accessible and helpful tips on how to get the most out of the equipment in your studio.
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Recording *continued*

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SECOND EDITION

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by Peter Forrest

The author has aimed to make his book a complete rundown of all the major analogue synths and keyboards ever made, and on the evidence of this first volume, he seems to have succeeded. The book is useful and detailed, and shows evidence of the massive amount of research and effort put in by Peter. He gives pocket company histories and detailed data on the instruments produced - but note that a few entries for a few particularly obscure instruments and companies are limited due to lack of data. The book also provides a comprehensive overview of the qualities of various instruments; charts and tables assess second hand values and maintenance levels necessary to keep a given instrument playable as well as such intangibles as sound quality, collectability and user interface. The A-Z of Analogue Part One, which is limited to 8000 copies worldwide, also features 96 colour picture of classic instruments.

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MIDI

MIDI SYSTEMS AND CONTROL

By Francis Rumsey.

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by RA Penfold

Want a MIDI THRU box, patchbay or switcher? Well they're all here. And you don't need a degree in electronics either. All the projects are explained in detail, with full instructions on assembly. So if your into MIDI and you want to expand your system without taking out a second mortgage, fear not. Here's the book to help you build up your MIDI system without laying out thousands on hardware.

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by RA Penfold

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THE MIDI COMPANION

By Jeffrey Rona

A breezy run through MIDI that would suit the absolute beginner, this book is well-illustrated, clearly expressed and explains the technical bits in as close to non-technical language as the subject matter allows.

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Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

MIDI FOR THE PROFESSIONAL

by Paul D Lehrman and Tim Tully

Co-written by SOS contributor Paul D Lehrman, this substantial, exhaustive work covers pretty well any aspect of MIDI that you could think of. As an overview of what MIDI is and does in 1994, this 239 page book couldn't be better.

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MIDI PROJECTS

by R A Penfold

A comprehensive collection of simple MIDI projects, including CV and gate converters and a MIDI Thru box. A lot of the book is taken up with interface various obsolete computers to MIDI (Spectrum, CPC464, Commodore 64, BBC B, ZX81 and so on), but the general information is basically sound. Could prove a boon to musicians who are *really* broke!

CODE B278 £2.95
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MIDI SURVIVAL GUIDE

by Vic Lennard

Whether you're a beginner or a seasoned pro, the 'MIDI Survival Guide' shows you the way. No maths, no MIDI theory - just practical advice on starting up, setting up and ending up with a working MIDI system. Contains over 40 cabling diagrams, and how to: connect synths, sound modules, sequencers, drum machines and multitracks; how to budget and buy secondhand; using switch, thru and merger boxes; transfer songs between different sequencers, get the best out of general MIDI, and understand MIDI implementation charts.

CODE B196 £6.95
Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

MIDI: A COMPREHENSIVE INTRODUCTION

by Joseph Rothstein, Product Review Editor, Computer Music Journal
Series Editor: John Strawn

MIDI – Musical Instrument Digital Interface - is the data communications system which enables music equipment, computers and software from many different manufacturers to exchange information. Since its introduction in 1983 the impact of MIDI on the design and operation of synthesizers has been dramatic, yet to date, information about it has been scattered, but this book fills that gap, providing a practical guide for readers seeking a thorough discussion of the basic principles of MIDI.

Computer Music and Digital Audio Series
238 Pages, numerous figures 1992
0-19-816293-6 Hardback.

CODE B215 £25.00
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PRACTICAL MIDI HANDBOOK (3rd Edition)

by R A Penfold

This book is completely updated, and features a section on General MIDI. It provides a "straightforward, non-mathematical introduction to MIDI", and features a full glossary of MIDI terms.

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DRUM PROGRAMMING - A Complete Guide to Program and Think Like a Drummer

By Ray F Badness

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By Rene-Pierre Bardet

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by R A Penfold
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ELECTRONIC MUSIC LEARNING PROJECTS
by R Bebbington
A collection of musical electronics projects to give musicians experience of electronics construction and electronics buffs some experience of music. The projects, which all include strip board layouts, are suitable for construction in schools and use no more power than a 9V battery.

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HIGH POWER AUDIO AMPLIFIER CONSTRUCTION
By R A Penfold
Much useful background to amplifier design, speaker matching and more is included in the first couple of chapters, while the last section contains a selection of high power amp circuits plus suitable PSU circuits. Copper track patterns are also provided to allow you to make your own PCBs. While the circuits aren't too difficult as such, those with limited constructional experience should note that due to the high supply currents and voltages involved, even minor mistakes could be extremely dangerous.

CODE B282　　**£3.95**
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By R A Penfold
A collection of relatively simple circuits that even the near beginner should be able to construct. The book is divided into four sections: Guitar Effects Units, General Effects Units, Sound Generator Projects and Accessories. Specific projects include fuzz box, phaser, envelope shaper, white noise generator, metronome, automatic fader and many more.

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by R A Penfold
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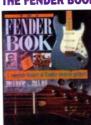
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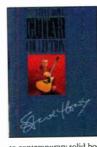
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By Dieter Petereit
Deals with various bass techniques in depth. Contains musical pieces in tab and notes in the style of blues, reggae, rock, soul and funk. Includes flexi record of all the exercises, played by Dieter Petereit.

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Computers & Music

MULTIMEDIA ON THE PC
By Ian R Sinclair
If you want to know what multimedia is and what it can offer you, then this is the book for you. Much of the information is general enough for everybody, but as the title suggests, the book is aimed at PC users. The book explains the installation and use of a CD ROM drive and a sound card and covers all key concepts behind multimedia. As an added incentive, if you buy this book, you can send away for a free copy of *Picturebook*, a multimedia authoring package.

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Postage: UK £1.95, Europe £4.95, R.O.W. £7.50

SEQUENCER SECRETS
Ian Waugh
Ian's book aims to "go beyond the manual" in telling you how to get the best from your sequencer. The book features 29 hands-on projects and is suitable for use with all software sequencers. The book hopes to help you optimise your MIDI system and use your sequencer to create all sorts of useful effects. A troubleshooting section helps you track down stuck notes, double notes and so on.

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By R A Penfold
Although an ageing machine, the Atari ST has had such popularity that it will probably be quite some time before it disappears for good – a situation helped by the inclusion of a built-in MIDI port. This book includes a general introduction to MIDI, a handful of MIDI add-on circuits (Thru box, MIDI switcher and so on), plus a collection of programs, in Fast BASIC, that allows you to use the ST's internal sound generator and create little MIDI applications.

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Series Editor: John Strawn
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by Richard Dobson, Flute teacher, Bath College of Education; freelance flute-maker and player
'the dictionary has a great deal of useful information. It is clear and easy to read.'
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The rapid pace of technological development in electronic music has led to a plethora of instruments and systems, yet these, and the technology behind them, are often only imperfectly understood. There has been an increasing need for a reference book which surveys the whole field objectively and with insight.
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Computer Music and Digital Audio Series
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0-19-311344-9 Hardback.
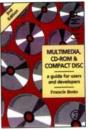
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Music Business

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by Dan Kimpel
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SONGWRITER'S WORKSHOP
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From recording to broadcast, fixed installations to touring, this 400 page reference covers live sound setups, equipment, techniques and jargon.
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LIVE SOUND MIXING
by Duncan R Fry
This is a hands on, friendly introduction to all aspects of mixing live. It hails from Australia, and is an SOS Bookshop exclusive. The author is an experienced live sound engineer and has packed his book with loads of information, diagrams and hints to take you from basic principles through to trouble shooting when things go wrong.
CODE B256   **£19.95**
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CONCERT SOUND - Tours, Techniques & Technology
Edited by David Trubitt
All aspects of concert sound are discussed: mic techniques, safety, acoustics, monitor mixing and more. The book also features a series of profiles of real artists laying live, cross-referenced with the techniques discussed. Genesis, U2, Van Halen, Suzanne Vega and Lou Reed are some of the artists featured, and a number of festivals are also discussed.
CODE B236   **£20.95**
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THE FOCAL GUIDE TO SAFETY IN LIVE PERFORMANCE
Edited by George Thompson
This book provides an authoritative look at safety matters for workers in the live entertainment industry. It is edited by the Standards Officer of PLASA (Professional Lighting and Sound Association), and provides good solid information in an easily digestible, well-illustrated form. Topics covered include audience and crowd control, fire safety precautions and engineering, electrical safety, laser safety, sound levels and noise control and much more.
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PUBLIC ADDRESS LOUDSPEAKER SYSTEMS
by V Capel
All aspects of PA speaker systems are covered in this book, including low-impedence matching, 100V systems, transmission lines and how to install inductive hearing aid loops. At the heart of the book is the Line-Source Ceiling Array, a system that is claimed to improve clarity, even coverage and reduce feedback. Full step-by-step construction and installation details are given.
CODE B283   **£3.95**
Postage: UK £1.50, Europe £5.50, R.O.W. £8.50

Yamaha Books

SOS Bookshelf has obtained exclusive but limited stocks of a variety of Yamaha-based 'how-to' books - at a very special price to SOS readers. The books come from Alexander Publishing in the USA, and each guide offers tons of useful, easily-accessible information provided by experienced users. The list is as follows:

THE BROADWAY QY10
by Peter L Alexander with Bobby Maestas
Charts and musical examples for re-creating Broadway songs with your QY10 using only the internal patterns. Includes useful set-up information. 77 pages.
CODE B263   **£3.95**
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TG33 QUICK OPERATIONS GUIDE
by Bobby Maestas
Instant access to Yamaha's neat little Vector Synthesis sound module. Loads of examples, well illustrated. 115 pages.
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YAMAHA SY77 CHEATER'S GUIDE & COOKBOOK
by Peter L Alexander, researched by James Mierkey
This weighty book offers an accessible and straightforward way into the SY77; sequencing is covered ind depth followed by SY77-specific arranging tips and techniques - how to get the most out the SY77's sounds and polyphony. 354 pages.
CODE B266   **£28.95**
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THE SONGWRITER'S YAMAHA RY30
by Dan Walker with Gregg Perry
A two-part work, the first part covering all operational aspects of the RY30 drum machine and the second uses the audio tape and musical examples to show what the RY30 is capable of, using the preset patterns to create a variety of classic tracks. 229 pages, two cassettes.
CODE B267   **£19.95**
Postage: UK £2.50, Europe £5.95, R.O.W. £9.95

YAMAHA SY55 OPERATIONS & SEQUENCING GUIDE
by Bobby Maestas
A good helpful look at this arguably overlooked instrument; technicalities are explained in context of music throughout. 153 pages.
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SOUND CHECK CD
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Sound Check CD contains 92 tracks of test signals and reference recordings made at Abbey Road that can be used to set up monitors, check room performance, faulty equipment etc, and overall recording quality. No studio should be without one! 20+ close-miked instruments/vocals/music extracts. SMPTE/EBU timecode tracks (25, 30, drop-frame). Pink noise test tones. Third octave tones. Sweep tones. Sine + Square wave tones.
CODE CD029   **£19.50**
Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

SOS Videos

THE EMAGIC LOGIC TUTORIAL VIDEO

VOLUME 1

SOS can now bring you the long-awaited Emagic Logic training video. The tape is actually produced by Emagic themselves, and once again sees Tim Walter (as featured on the excellent Notator video manual) in the tutor's chair. There are plans for a series of videos which become ever more detailed and informative, but for now Volume 1 takes you through the first steps of getting the software up and running, and covers virtually all the controls you'll need. And yes, this video is valid for all version of Logic, whether being run on an ST, Mac or PC. Presentation is rather intriguing, with a mobile camera that helps to hold the interest more than the average training video and some interesting graphics that aid comprehension and help to quickly find specific tutorials and bits inside tutorials. Here's a quick rundown of the contents of this straightforward and clear video:

- Tutorial 1: The Arrange window and basic sequencing
- Tutorial 2: Playback parameters and the Toolbox
- Tutorial 3: Controlling MIDI data flow
- Tutorial 4: Manipulating sequence data
- Tutorial 5: Moving around in Logic
- Tutorial 6: Windows and key commands
- Tutorial 7: More sequencing
- Tutorial 8: Score
- Tutorial 9: Looking at the Event List
- Tutorial 10: Editing the Event List
- Tutorial 11: Getting environmentally friendly (using the Environment)
- Tutorial 12: The best of the rest (HyperEdit, Matrix Editor, Cycle Mode and more).

ORDER CODE V023   **£29.99**
Total running time 70 minutes   *Format: VHS (PAL)*
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

YAMAHA PSR6000 ELECTRONIC KEYBOARD VIDEO MANUAL

Yamaha's PSR6000 is a home keyboard with a difference, and offers many professional features plus excellent sound quality. Tim Walter starts at the beginning and makes the instrument look easy and fun. His enthusiasm is catching, and, yes, the PSR6000 is a very capable instrument. The tape runs to 75 minutes, which makes for excellent value.

ORDER CODE V029   **£19.99**
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

THE ART OF SEQUENCING

Presented by composer Don Muro, this American tape divided into six lessons that explain and demonstrate how to create a multitimbral sequence, how to correct wrong notes, how to correct rhythmic errors, how to correct dynamics, how to change synth programs and how to change tempos. One nice point is that the tape is not dedicated to any one sequencing package - the information is valid no matter which sequencer you use.

ORDER CODE V030   **£30.95**
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ANALOGUE HEAVEN

Remember our feature on the opening day of the Museum of Synthesizer Technology which we ran back in October 1994? Wish you'd actually been able to attend? Well, now you can have the next best thing: the museum has released a fascinating 50 minute promo video that features footage shot on the day as well as a lightning tour of the facility. The program is hosted by none other than SOS contributor Julian Colbeck; other SOS contributors making an appearance, discussing favourite instruments, include Paul Wiffen and Nick Magnus - and we think we spotted the back of Martin Russ's head as well. The tape opens with Bob Moog making the inaugural speech and officially opening the museum, followed by a nostalgic run through one of his old modular systems. At a mere £15.95 (plus postage), Analogue Heaven makes diverting viewing for anyone interested in vintage synths, represents good value, and offers the perfect companion to the Museum's guide book, also available from SOS Bookshop.

ORDER CODE V026   **£15.95**
Running time: 50 minutes Format: VHS (PAL)
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

KORG AX30G TONEWORKS VIDEO MANUAL

The Toneworks series of guitar processors from Korg gets a real work out on this 55 minute tape. Korg's guitar demonstrator Steve Fairclough whizzes through the G1, G2, G3 and the flagship AX30G and provides clear explanations of how each units works. And to put the units into context, there's lots of footage of Steve showing off the sonic capabilities of each processor (not to mention his prowess as a guitarist).

ORDER CODE V028   **£19.99**
Postage: UK £1.75, Europe £4.95, R.O.W.£6.95

ROLAND GR-1 GUITAR SYNTH VIDEO MANUALS

These two video manuals have been produced to help the user get the most out of Roland's sophisticated GR-1 guitar synth, the first covering all the basics from mounting the pickup and getting tuned up to selecting sounds and using the onboard sequencer. The whole approach is down to earth with no frills, each step patiently explained and demonstrated by Roland's guitar synth specialist, Jay Stapley. Jay also presents the Advanced tape which takes the mystery out of sound editing, custom tuning, advanced sequencer applications, external sequencer hookups, using other MIDI sound modules, indeed virtually everything the GR-1 is capable of doing. These videos may not be as gripping as Terminator II, but if you own a GR-1 or are thinking of buying one, you'll be doing yourself a big favour by getting both these tapes these right away. Nice one Jay.

ORDER CODE V014   **£29.99**
FOR BOTH VIDEOS
Total Running time: 4 hours. *Format: VHS (PAL).*
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

KORG X3 VIDEO TRAINING MANUAL

The latest in Labyrinth's series of exceedingly useful video manuals features Korg UK product specialist Phil Macdonald running through Korg's X3 workstation synth. The X3 features 61-note keyboard, 32-note polyphony, a Standard MIDI File compatible sequencer, disk drive, General MIDI compatibility and more. This video offers an easy way in to a powerful instrument. It starts from absolute basics, including audio connections and volume levels, and the clear and helpful script covers all basic facilities of the X3. The video features a sophisticated use of picture in picture, with the X3's display cut into the main image to show you clearly what Phil is actually doing, and main points are reinforced with on screen text and graphics. The main section headings of the X3 Video Training Manual are:
• X3 Audio Connections • Getting Around the X3 • Factory Disk • Disk Drive Modes • Selecting Sounds • Global Modes • Sequencer Mode • Quick Sound Editing • Playing MIDI Files on the X3 • Using the X3 with an external sequencer
Note that these are loose headings, with each section also containing information on connected subjects in varying amounts of detail. A lot of ground is covered, and we can recommend this video to any X3 owner. The video costs a reasonable £19.95 plus postage, and is available from Sound On Sound Mail Order.

ORDER CODE V018   **£19.99**
Running time: 55 minutes Format: VHS (PAL)
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

KORG X5 SYNTH VIDEO MANUAL

Korg's new X5 synthesizer, reviewed in SOS' January 1995 issue, now has its own video manual. This 55 minute tape is presented by Tim Walter in an entertaining and lighthearted manner, and explains all basic aspects of Korg's highly affordable instrument in very clear terms. If you're in any way daunted by your new purchase, or want to get a feel for the instrument before laying out your cash, this is the video for you.

ORDER CODE V027   **£19.99**
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

EMAGIC NOTATOR VIDEO TRAINING MANUAL

This video manual is detailed and helpful, and is presented in a most friendly and approachable manner by session musician Tim Walter, whose tone throughout the video encourages and inspires confidence. If you are new to Notator and are still in awe of its power, this is the video to bring you down to earth. An introduction and 28 tutorials take the user from the absolute basics - including plugging in the dongle - to working with Unitor and SMPTE, and synchronising to video. As well as actual recording of MIDI data and sequencing, comprehensive coverage is given to using the score layout and printing facilities that are so much a part of Notator. The instruction offered by this video is as comprehensive as you can get without inviting Tim to your studio!
Topics covered include: sequencing page, score editing, lyrics and text, graphic arranger mode, hyper edit, the printer page, using the part box.

ORDER CODE V012   **£19.99**
Running time: 2 hours 20 minutes *Format: VHS(PAL)*
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

HOW TO GET THE MOST OUT OF HOME RECORDING

Julian Colbeck, probably the UK's leading keyboard expert and author, has written and presented this highly informative set of videos which no home recordist should be without. Have you got your set yet?!

SORRY, THIS SET OF VIDEOS ARE NOT AVAILABLE TO OVERSEAS READERS.

HOME RECORDING LEVEL ONE

This well presented video explains how to set up and operate a simple cassette-based multitrack home studio. It clarifies all the basic terminology - inputs, basses, auxiliaries, EQ etc - and demonstrates the recording of a song from beginning to end, covering how to record guitars, keyboards, vocals and drum machines; which microphones to choose; how to patch in effects units and use them well; what makes a good arrangement; what makes a good mix; plus what to master on to and why.
Full of professional tips and clear examples, this superb video offers the musician with no recording experience a fast route to successful operation of a simple home studio.

ORDER CODE V005   **£24.95**
Running time: 1 hour 10 minutes
Format: VHS(PAL) HiFi Stereo
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

HOME RECORDING LEVEL TWO

This is, in our opinion, the best ever guide to the equipment and skills needed to produce high quality results from a home studio. Full of clear examples and graphic information, the video majors on effects and how to use them well. It also covers the do's and don'ts of track bouncing; microphones and mic techniques for different applications; getting the most out of multi effects units; plus an analysis of guitar effects with top session guitarist Milton MacDonald and an enlightening interview with ace producer Alan Parsons. Writer/ presenter Julian Colbeck packs the programme with professional tips, allowing musicians of all kinds to get the most out of their home studio.

ORDER CODE V006   **£24.95**
Running time: 1 hour 45 minutes
Format: VHS(PAL) HiFi Stereo
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

HOME RECORDING LEVEL THREE

This video is packed with information and professional tips on advanced MIDI applications in the home studio, including interfacing with sequencers, which sync code is best for which application and why. Hit producer Martyn Phillips (Erasure, London Beat) discusses modern recording techniques, and top programmer Paul Wiffen examines the opportunities and benefits offered by hard disk recording. It offers practical advice on sampling - how to save time and tracks; plus professional tips on advanced arranging and mixing techniques, including spectrum mixing.

ORDER CODE V007   **£24.95**
Running time: 1 hour 30 minutes
Format: VHS(PAL) HiFi Stereo
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PRODUCTION lines

THE RAPINO BROTHERS

By Sue Sillitoe

I n this business, it's not the producer that counts — it's the artist. Artists are the ones that pay the bills so if they come to us with a track they are unhappy with and ask us to fix it, we go along with that. There will always be a job for people who have a different point of view because it's refreshing for a record company to see what someone else can do with the same song. When we remix a song we make it sound completely different, because all we keep is the vocals.

Those are the rules of a Capitalist society and unfortunately not all of us are Che Guevara.

As remixers, we feel we put a great deal of craft into what we do. We are creatively enhancing the product, not destroying it, and we must be doing something right because we're incredibly busy. Certainly, we have never had any complaints from other producers whose work we have remixed. Perhaps they do complain and maybe we do have a few enemies that we don't know about. But if that's the case, we don't really care because if a song we have remixed ends up being a huge chart hit, they will still get paid.

In our opinion remixing has a lot to do with the times. We are at an historic moment — at the end of a century you usually get big political events, but creatively

type of music that can't be remixed. With pop music nothing is sacrosanct. Remixing is assumed to be just for the dance market, but that isn't always the case — even indie rock tracks can be re-mixed. You can turn them into a ballad, for example. It's just a question of altering the arrangement. We certainly don't feel we are being ghetto-ised into the club scene because a lot of the mixes we have done have been big pop hits. Our job is to take a track and make it more commercial. That is what we are paid for.

We should all remember in the end that the audience is king. The audience decides what is good because they are the ones that have to part with their money to buy it. Most of the time we don't know what is going to be a hit. We know what sounds good to us and we often get the feeling that a track we have worked on has something special, but we can never be 100% sure that the buying public are going to agree.

We have had projects where we think we can't work with a track. In those situations it's a matter of taste. If we don't like a track we don't do it, but that doesn't mean it won't appeal to someone else's ears. As producers, the main problem we face is when a record company asks us what constitutes a hit. We have no idea, because we are not salesmen. We know how to make a record and how to apply our taste to that music, but ultimately we are not the ones who have to go into a shop and try and sell it.

What we try to do is combine our ideas and come up with something different. We have very different musical backgrounds that include classical training (Marco) and the tackiest type of pop (Charlie) and we meet somewhere in the middle. You could say that we are the living proof of an interesting remix. To all those who complain about having their work remixed, we say — at least you still get your 3% and your producer credit.

Some record producers may object to having their work remixed, yet according to producers Charlie Mallozzi and Marco Sabiu — better known as The Rapino Brothers — remixing is an acceptable alternative way of viewing a track. Here they explain why there will always be room for the remixer...

Ultimately, remixing is as old as the record industry. The first time Stravinsky walked into a studio he found a guy in the control room who was introduced as "the producer who was going to fix it." If the industry can do that to Stravinsky, who the hell are any of us to complain?

These days, music is just another product, and therefore we all have to accept and expect modifications to our own original ideas. Socially speaking, this is justified because record companies are the ones who pay the bills, so they have the right to do whatever they want with their product.

you don't get much that's new. The last decade of any century is always about recycling old ideas and clearing the decks for the next 100 years. That's what we feel we are doing. The industry reached a creative peak at the end of the 1970s when Punk came along. During the 1980s there was very little music that was new or exciting and that is pretty much where we are still at. The tide is turning because there are a few good bands coming through now, but for the most part there is still very little that isn't just a re-hash of something else.

As remixers, we don't feel there is any

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The Truth About Synths (Part 682)

Having been Editor of hi-tech and recording magazines since the days when MIDI meant a knee-length skirt, and being an electronics engineer by training, I've always been intrigued by electronic instruments, especially synthesizers. Ever since first hearing one of Robert Moog's creations on an ELP album I was a synth fan, even though my main instrument is still the electric guitar. However, like the Bishop of Durham, I have to confess a recent wavering of my faith — I've come to the conclusion that synthesizers are mainly myth, or at best an analogy for something quite different.

Back in the '60s, the synthesizer was defined as an electronic musical instrument capable of recreating the sound of any existing musical instrument, as well as any imaginable abstract sound. From what we now know about the first analogue instruments, this was far from the case. While they did produce a huge range of exciting sounds, they were pretty poor at imitating 'real' instruments, and their abstract capabilities, while rather more impressive, were pretty limited too. It's odd that although theory proves you can get an infinite variety of sounds from an analogue synth, there's still an infinite number of sounds that you can't get! Perhaps it's all due to infinity having too many noughts for the average calculator to handle?

Years later, similar claims were made about FM digital keyboards. However, although these did give us a brand new and 'equally' infinite range of tones and textures, they could still only imitate certain types of acoustic instrument, and their abstract capabilities also worked better for some types of sounds than for others. Of course, it was around this time that designers gave up trying to design true synthesizers and turned to sampling as a

base for their new instruments. However, for some reason that I haven't yet totally fathomed, they continued to call these sample-based instruments synths — which is rather like pasting a lot of bits of photographs together and then claiming you've done a painting. What's more, because sample-based instruments are limited by the finite number of samples you put into them, they still can't generate every sound imaginable — though there are nevertheless those who would have us believe they can produce 'an infinite range of sounds limited only by your imagination'!

Things have continued in this vein for the past few years, with the inevitable drops in price and increase in features, but now we're confronted by another method of sound creation — physical modelling. Is this the answer to our quest for true synthesis, or are we destined to head down yet another side passage of musical history?

My own view is that physical modelling is vitally important, but maybe not for the reasons you might first imagine. If you've seen a physical modelling instrument played, you'll know how important real-time control is; just like an acoustic instrument, a physically-modelled sound responds to the nuances of your playing style, and it's that control that breathes life into what might otherwise be quite a dull sound. Ironically, many of the instruments we already own sound far better wh played using MIDI controllers for real-time parameter control, but apart from pitch bend a vibrato, many of us simply play the patches they come out of the box. However, after se how dynamic a physical modelling instrur sounds when 'played' using controllers, possible that more people will start to e with real-time control using their own Perhaps we should forget the drea infinitely versatile synth, and accep and modules for what they are — instruments in their own right wi strengths and weaknesses. May accept the synth is dead; long l musical instrument.